MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY

Proposed Inscription to the UNESCO World Heritage List

VOLUME 1 EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

STATE PARTY

Republic of the Philippines

STATE, PROVINCE OR REGION

Philippines, Mindanao Island, Province of Davao Oriental, Municipalities of San Isidro and Governor Generoso and the City of Mati

NAME OF PROPERTY

Mt. Hamiguitan Range Wildlife Sanctuary

GEOGRAPHICAL COORDINATES TO THE NEAREST SECOND

N 06°43′1.81″ Longitude E 126°10′24.35″ Latitude

TEXTUAL DESCRIPTION OF THE BOUNDARIES OF THE NOMINATED PROPERTY

The Republic of the Philippines is located just above the equator in the Southeast Asian Region. It is bound on the northwest by the West Philippine Sea (formerly referred to as South China Sea), on the northeast by the Pacific Ocean and on the south by the Sulu-Sulawesi Seas. The nominated property, Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS), is located in the southernmost part of the Philippines in the Mindanao Island, north of Indonesia and west of the Marianas Islands in the South Pacific. MHRWS is in the Province of Davao Oriental in Mindanao Island and is bordered on the south by Davao Gulf in the Sulawesi Sea and on the east by the Pacific Ocean. MHRWS is a proclaimed protected area by virtue of Philippine Republic Act 9303. Its boundaries traverse over the municipalities of San Isidro and Governor Generoso and the City of Mati, all within the Province of Davao Oriental.

MHRWS forms a greater part of a north-south trending mountainous upland and is bordered on the north and northwest by the Municipality of San Isidro, on the south and southwest by the Municipality of Governor Generoso and on the east by the City of Mati in the province of Davao Oriental, island of Mindanao. It belongs to the Philippine Biogeographic Zone 14 (also known as the Central Mindanao Zone), an area noted for its high endemicity. The area of the nominated property is 6,348.99 hectares with a buffer zone of 783.77 hectares duly delineated and demarcated. Its elevation ranges from 170 - 1,637 meters above sea level (masl) with rough to very rough terrain and slopes of up to more than 100 percent.

The sanctuary is subdivided into two (2) management zones, the Strict Protection Zone (SPZ) and the Multiple Use Zone (MUZ). The SPZ pertains to the management zone of sanctuary consisting of natural areas with high biodiversity value. This area is closed to all human activities except for scientific studies, low impact ecotourism activities and ceremonial or religious use by a few indigenous cultural communities as may be approved by the PAMB. It includes habitats of threatened species, degraded areas that have been designated for restoration and subsequent protection, and those that are in various stages of regeneration. The MUZ, on the other hand, allows for settlements, traditional and/or sustainable land-use including agriculture, agro-forestry, and other income generating or livelihood activities that are consistent with the MHRWS Management Plan. It also includes areas with high recreational tourism, educational or environmental awareness values.

MAP OF THE NOMINATED PROPERTY SHOWING THE BOUNDARIES AND BUFFER ZONE

The map showing the boundary and buffer zone is shown in Figure 1, while the base map and the management zone map are shown in Figures 2 and 3, respectively.

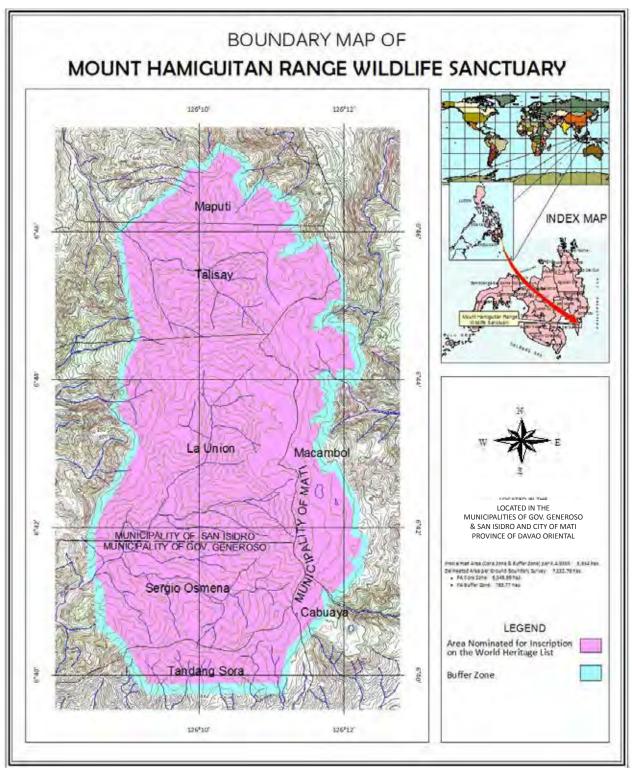


Figure 1. Boundary map of MHRWS showing the nominated property and the buffer zone.

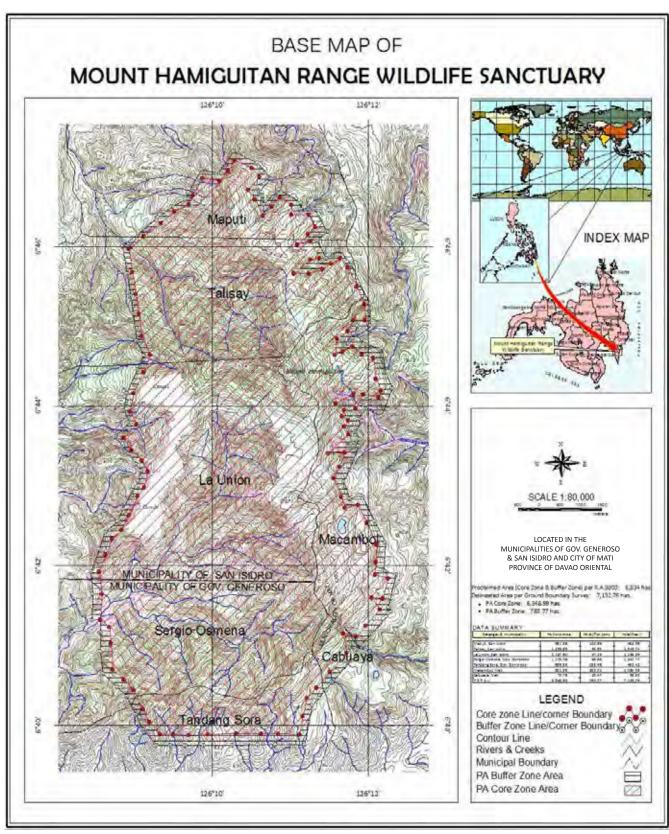


Figure 2. Base map showing the cartographic information of MHRWS.

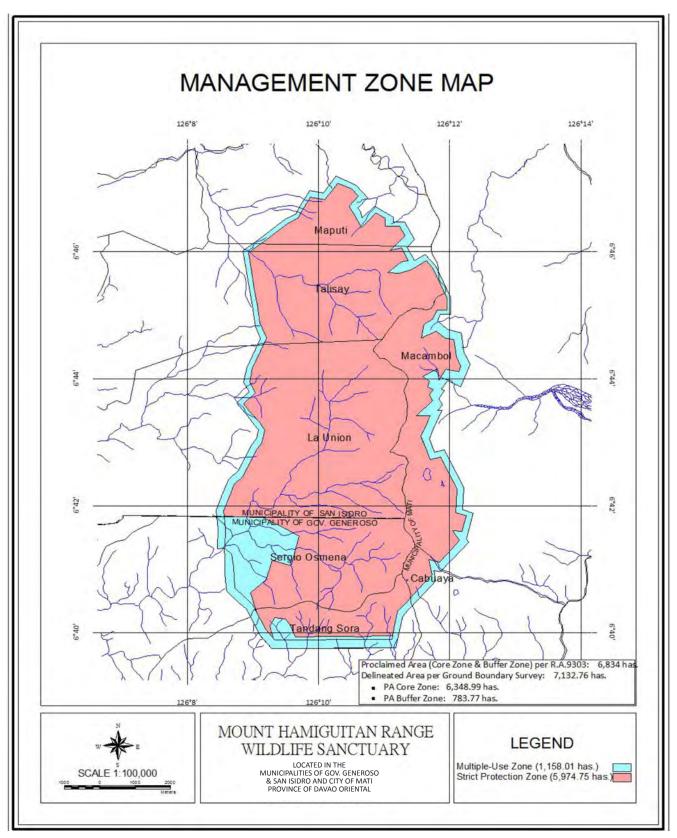


Figure 3. Management Zone map showing the Multiple Use and Strict Protection Zones of MHRWS.

JUSTIFICATION

STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The MHRWS is of outstanding universal value as a center for endemism and a sanctuary for rare, threatened and endangered species of global significance for the Southeast Asian region. MHWRS is an exemplary example of biodiversity that is resilient and adaptive even in the face of adverse environmental conditions. The lessons that could be learned from the unique biodiversity, its interrelationships and its coping mechanisms could likely provide insight into appropriate climate change adaptive measures for current and future reference. Thus its preservation and protection ought to be of global concern.

Criterion (x): MHRWS represents a complete set of relatively intact mountain ecosystems in this significant biogeographic region of the Philippines. It harbors a diversity of plant and animal species which include species that exist only in the Philippines, Mindanao only in Island and only in the nominated property. It shelters rare, critically endangered and economically important plant and animal species that are of significant value to science and expanse natural



conservation. The large Plate 1. Part of natural tropical bonsai forest. (Photo by EDC)

tropical bonsai forest (plate 1) that crowns its crest embodies nature's fight for survival and illustrates man's critical role in its fragile success.

The property has an elevation range of 75 to 1,637 masl which is segmented into five ecosystem or habitat types. At the lowermost portion of the property is the agro-ecosystem at elevation range of 75-420 masl, consisting mostly of agro-forest plantations with some remnants of dipterocarp forests. Some 246 plant species are found in this ecosystem, 44 of which are endemic. Butterflies (22 spp.) abound in this ecosystem despite the rarity of other fauna. Noteworthy is the presence of the globally threatened dipterocarp trees *Shorea guiso* and *S. polysperma*. Just above it at an elevation range of 420-920 masl, the dipterocarp forest ecosystem is characterized by the presence of big trees with 418 plant species and 146 animal species. *Lithocarpus llanosii* and *Shorea astylosa* dominate this ecosystem with heights of up to 30 meters. All the animal groups found in MHRWS are well represented in this ecosystem, including the invertebrate butterflies.

The third ecosystem type at an elevation range of 920-1160 masl is the montane forest which is typified by numerous species of mosses, lichens and epiphytes. It has 462 plant species where Agathis philippinensis (Plate 2) dominates at heights of up to 25 meters. There are also 105 animal species found in this habitat that represent all the animal groups known to inhabit MHRWS.

The typical mossy forest ecosystem at an elevation range of 1,160-1,350 masl is characterized by the very thick mosses covering roots and tree trunks. Despite having similar plant species composition, trees in this ecosystem grow much shorter than those in the montane forest. With 246 plant species documented in the area. Gordonia subclavata reign at heights of up to 15 meters. Among the MHRWS fauna, only 12 species of the butterflies are recorded within this ecosystem.

At the topmost section of the MHRWS (1160-1600 masl), the 1,234 hectare mossy-pygmy forest ecosystem adds a unique and interesting Plate 2. Agathis philippinensis. facet to the property. A total of 338 plant species are recorded in this ecosystem that features



stunted trees with twisted trunks and branches. Tree species Agathis philippinensis, Lithocarpus llanosii, Falcatifolium sp., Leptospermum favescens and Calophyllum blancoi, growing to heights of up to 30 meters in the lower elevations, only average 1.4 meters in height and 8 cm in diameter in this habitat. This ecosystem shelters 49 animal species including some endangered, endemic and rare fauna such as the Lipinia vulcanicum (Girard's Tree Skink), Calamaria virgulata (Southern Worm Snake), Sus philippensis (Philippine Warty Pig), and Philautus acutirostris (Pointed-Snouted Tree Frog). It is in this habitat where the site endemic butterfly Delias magsadana and the new rat species, Batomys Hamiguitan, survive.

There are a total 957 plant species of the property which include 723 angiosperms, 27 conifers, 164 ferns and allies, 17 mosses, 13 liverworts, 13 lichens, and an undetermined number of fungi species. Fauna species total is 423, including 15 non-flying mammals, 11 flying mammals, 108 birds, 33 reptiles, 18 frogs, 142 butterflies, 31 dragonflies and damselflies, 46 spiders, four earthworms, and 15 nematodes. Overall, this property provides critical habitats to a total of 1,380 species wherein 341 species are endemic, a significant value considering the relatively small size of the property. Thus the fragility of the nominated property is such that the loss of even a hectare of habitat can spell the difference between the survival and immediate extinction of its unique species.

Until the late 1980s, portions of this property, particularly the dipterocarp and the montane forests, were subjected to selective logging operations. The mossy and the mossy-pygmy forest were spared from these operations because the trees were too small to elicit commercial interest. In the early 1990s when the existence of the beautiful and natural tropical bonsai forests caught the attention of the local political leaders, the local government units (LGUs) surrounding MHRWS initiated protection measures, persistently requesting the national government to declare it as a protected area. In 2004, through Republic Act 9303, the national government declared this property as a protected area under the category of wildlife sanctuary. Since then, logging activities have ceased inside the property and most of the logged over sections of the sanctuary have reverted back into closed canopy forests.

After its declaration as a protected area and in accordance with the provision of RA 9303, the MHRWS Protected Area Management Board (PAMB), the policy-making body of the protected area, was organized wherein representatives from the different LGUs, the academe, Non-Government Organizations, Government Organizations, Peoples Organizations and Indigenous People were enlisted as members with the DENR as chair. Along with the PAMB, the Protected Area Superintendent Office (PASO) was also created to execute its policies and directives. The PASO is in charge of the implementation of plans, programs and policies crafted and approved by the PAMB and DENR for the proper management, administration and protection of the protected area. Within the PASO are the forest protection officers who conduct regular monitoring and protection activities of the property. As an adjunct, the LGUs of the Municipalities of San Isidro and Governor Generoso and the City of Mati deployed their respective Bantay Gubat (Community Forest Rangers) to reinforce the protection of MHRWS. Hence, with this set up, MHRWS is well secured from any unwelcome intrusions and unwarranted activities.

CRITERIA UNDER WHICH INSCRIPTION IS PROPOSED

Criterion (x): contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

MHRWS contains features which are important and unique to both science and conservation. Past geological processes that took place in this region transformed the local geography into a semi-isolation that is the Pujada Peninsula, the cradle of the Hamiguitan Mountain Range. As an adaptation to this semi-isolation, some flora and fauna have evolved into new species unique to the property. Based on initial studies, these unique species include three pitcher plants (*Nepenthes peltata, N. micramphora* and *N. hamiguitanensis*) and five animals (Batomys hamiguitan, *Delias magsadana, Arhopala eridanus davalma, Taraka hamada dustinkeani,* and *Paraparu cebuensis hamiguitanensis sspn.*). Scientists believe that there is a very strong likelihood that the nominated property contains more site endemic species that are, as yet, undiscovered. Plate 3 below presents some site endemic species of MHRWS.







Plate 3. Some site endemic species, Batomys hamiguitan (left), Delias magsadana (center) and N. micramphora (right).

MHRWS likewise houses a considerable number of the flora and fauna which are found only in Mindanao Island while the majority of plant and animal species are found only in the Philippines. Some of these species are also globally threatened including the iconic Philippine Eagle Pithecophaga jefferyi (Plate 4).

With the rich biodiversity and geologic features that make up the property, MHRWS also functions as carbon sink for the area while providing adequate fresh water within and well outside of its boundaries. It is home to highly rare and globally threatened species, some of which are yet unknown to science. The lessons that could be learned from the interplay of this unique biodiversity, especially its coping mechanisms, could have implications on climate change adaptive measures for current and future reference. Thus, in view of all these, the significance of MHRWS to conservation Plate 4. The iconic Philippine Eagle Pithecophaga jefferyi. and its need to be protected is truly universal and can never be emphasized enough.



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Excerpts from "Agila (Haring Ibon)" a song by Joey Ayala

Nais kong lumipad tulad ng agila at lumutang-lutang sa hangin magkaroon ng pugad sa puso ng kagubatan ngunit ito ay panaginip lamang

How I wish to fly like the eagle, and glide in the air

Have a nest in the midst of the forest This is but a dream, that may never come true.

Pagkat ang kagubatan ay unti-unting nawawala
Mga puno nito'y nangingibang bayan
At pag walang puno wala na ring mapupugaran
Kapag ang agila'y walang pugad
Wala na siyang dahilan lumipad
Since the forest is slowly disappearing,
its trees are vanishing
Without the trees there is no place to build a nest
An eagle without a nest
has no reason to fly

O haring ibon – hari kong tunay
Nais kong tumulong
Nang kaharian mo'y muling mabuhay.
O haring ibon – my true king
I wish I can help
Restore your kingdom to life.

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY

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VOLUME 2 NOMINATION DOSSIER

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LIST OF ACRONYMS

ACB ASEAN Centre for Biodiversity

ASEAN Association of Southeast Asian Nations

BMS Biodiversity Monitoring System

BRMFI Bukidnon Resources Management Foundation, Inc.

CBFM Community-Based Forest Management

CBFMA Community-Based Forest Management Agreement
CENRO Community Environment and Natural Resources Office

CEPF Critical Ecosystem Management Fund

CI Conservation International

CITES Convention on International Trade in Endangered Species of Flora and Fauna

CMU Central Mindanao University

CR Critically Endangered

CSC Certificate of Stewardship Contract

DENR Department of Environment and Natural Resources

DPYF Dong Phayayenkhao Yai Forest

ECC Environmental Compliance Certificate
ECP Environmental Consciousness Program
EMB Environmental Management Bureau

EMCBAAP Eastern Mindanao Corridor Biodiversity Assessment and Archiving Project

EN Endangered

ERDB Ecosystems Research and Development Bureau

FGD Focus Group Discussion

GMPS General Management Planning Strategy

GOP Government of the Philippines

IBA Important Bird Area

IEC Information Education Communication

IP Indigenous People

IUCN International Union for the Conservation of Nature and Natural Resources

KBA Key Biodiversity Area
KNP Keoladeo National Park
LGU Local Government Unit

LTER Long-Term Ecological Research

MASL Meters above sea level

MEA Management Effectiveness Assessment
METT Management Effectiveness Tracking Tool

MHMSC Mt. Hamiguitan Multi-Stakeholders Council MHRWS Mt. Hamiguitan Range Wildlife Sanctuary

MKNP Mt. Kitanglad Natural Park

MUZ Multiple Use Zone

NIPAS National Integrated Protected Areas System

NT Near Threatened

OGA Other Government Agencies

PA Protected Area

PAMB Protected Area Management Board
PASA Protected Area Suitability Assessment
PASO Protected Area Superintendent's Office

PASu Protected Area Superintendent
PAWB Protected Areas and Wildlife Bureau
PEFI Philippine Eagle Foundation, Inc.

PENRO Provincial Environment and Natural Resources Office

PO People's Organization

RA Republic Act

RMNP Rwenzori Mountains National Park SGPS Sechuan Giant Panda Sanctuary

SPZ Strict Protection Zone

SRPAO Survey and Registration of Protected Area Occupants

TI Tenurial Instrument

UNACOM UNESCO National Commission of the Philippines

UNESCO United Nations Educational, Scientific and Cultural Organization

VU Vulnerable

WCPA World Commission on Protected Areas

1. Identification of the Property

1.a Country

Republic of the Philippines

1.b State, Province or Region

The Republic of the Philippines is located just above the equator in the Southeast Asian Region. It is bound on the northwest by the West Philippine Sea (formerly referred to as South China Sea), on the northeast by the Pacific Ocean and on the south by the Sulu-Sulawesi Seas. The nominated property, Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS), is located in the southernmost part of the Philippines in the Mindanao Island, north of Indonesia and west of the Marianas Islands in the South Pacific. MHRWS is in the Province of Davao Oriental in Mindanao Island and is bordered on the south by Davao Gulf in the Sulawesi Sea and on the east by the Pacific Ocean (Figure 1.1).

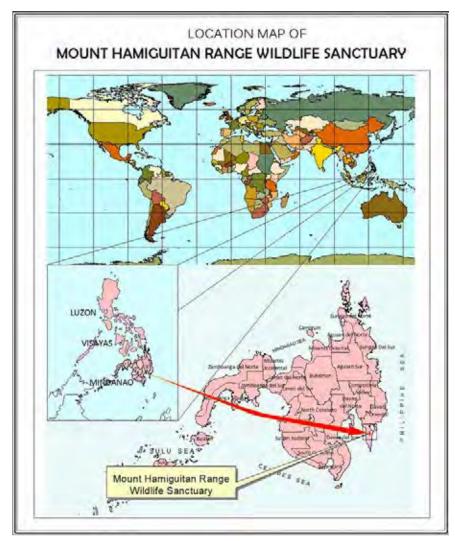


Figure 1.1. Location Map of MHRWS.

The Mt. Hamiguitan Range, of which the property is a part, forms a north-south trending mountainous upland in the southeastern part of the Eastern Mindanao Biodiversity Corridor, a priority site for conservation as designated by Conservation International in view of its high level of biodiversity and accompanying threats. The nominated property occupies the northern part of this range and straddles two municipalities and one city, namely, the Municipalities of San Isidro and Governor Generoso and City of Mati in the Province of Davao Oriental, Philippines at altitudes ranging from 170 to 1,637 meters above sea level.

1.c Name of Property

Mt. Hamiguitan Range Wildlife Sanctuary

1.d Geographic Coordinates to the Nearest Second

Name of the Site	Province	Coordinates	Area of Nominated Property	Buffer Zone	Map No.
Mt. Hamiguitan Range Wildlife Sanctuary	Davao Oriental	Longitude: N 06°43'1.81" Latitude: E 126°10'24.35"	6,348.99 has.	783.77 has.	Figure 1.3

1.e Maps and Plans, showing the boundaries of the nominated properties

1.f Area of Nominated Property and established buffer zone (ha.)

Cognizant of the profound impact of human activities on the natural environment and to ensure the conservation of rich and unique biological diversity in the Mt. Hamiguitan Range, the Philippine Government enacted into law Republic Act 9303 dated 30 July 2004 declaring the Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) as a protected area (Appendix 1). As such, it automatically became a component of the Philippines' National Integrated Protected Areas System (NIPAS) pursuant to R.A. 7586 of 1992 (Appendix 2). The MHRWS has a ground delineated area of 7,132.76 hectares, designating a total area of 6,348.99 hectare as core zone (nominated property) and 783.77 hectares as buffer zone. Boundary Map and Base Map of the property are shown in Figures 1.2 and 1.3, respectively.

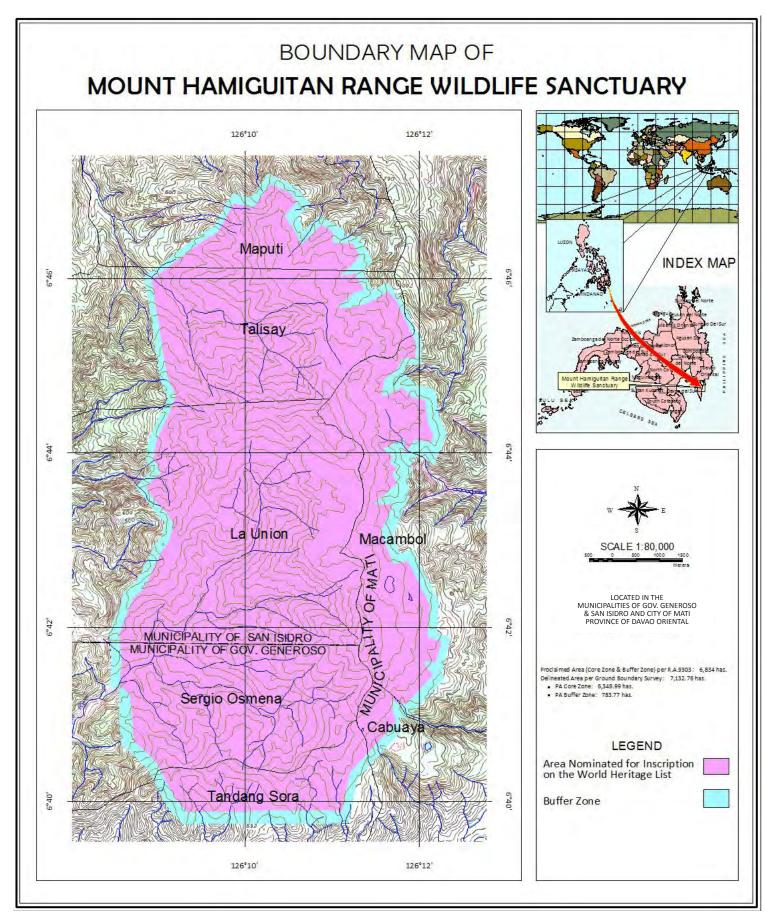


Figure 1.2 Boundary Map of MHRWS. See "Annex A" for large size map in 1:30,000 scale.

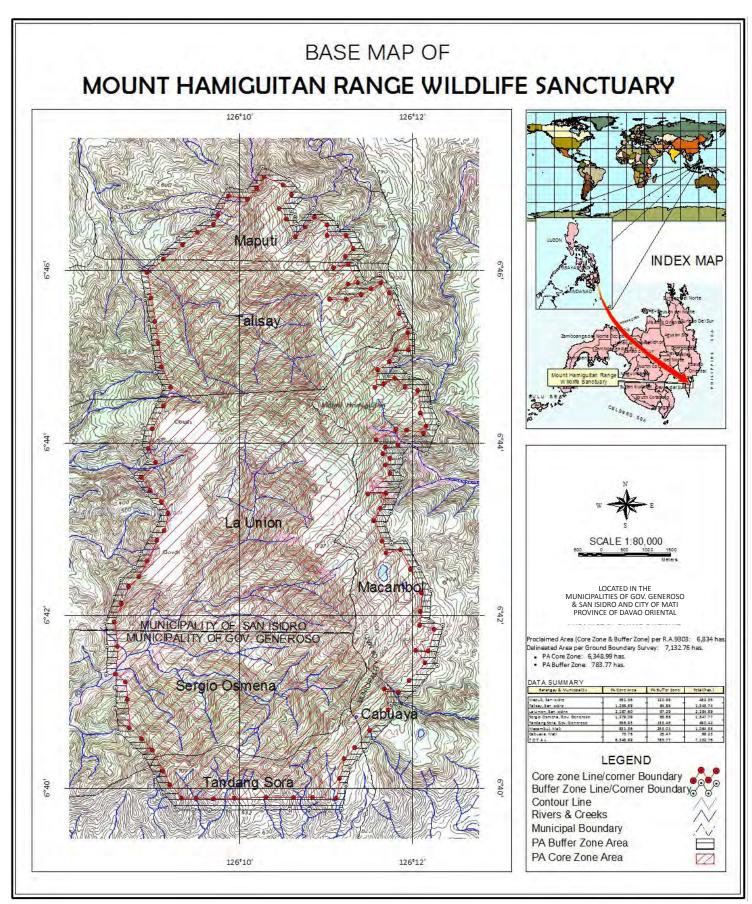


Figure 1.3 Base Map of MHRWS. See "Annex B" for large size map in 1:30,000 scale.

The area occupied by the nominated property (core zone) and the buffer zone of the MHRWS is presented in Table 1.1.

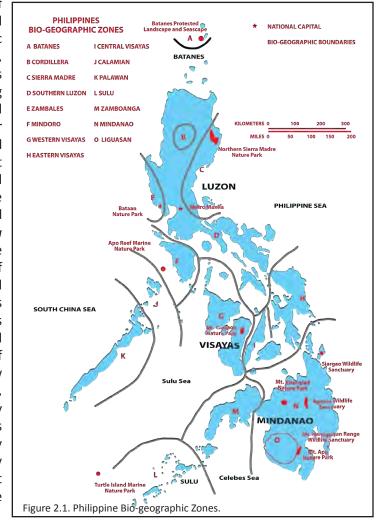
Table 1.1. Size and distribution of the component protected area in Mount Hamiguitan Range Wildlife Sanctuary (Sources: Republic Act 9303; PASO File Records).

Area of Nominated Property (has.)	Buffer Zone (ha.)	Total (has.)
6,348.99	783.77	7,132.76

2. Description of the Property

The Mt. Hamiguitan Range Wildlife Sanctuary is a protected area as declared by the Philippine Government in view of its highly unique and important biological and physical attributes (see Appendix 1, copy of Republic Act 9303 declaring Mt. Hamiguitan Range and its vicinities as a protected area). Considered as a sanctuary for endemism of outstanding universal value, the undulating landscape of nominated property belongs to the Philippine Bio-geographic Zone 14 (Central Mindanao) (Figure 2.1), which is considered to have the highest land-based biological diversity in terms of flora and fauna per unit area. It is the only protected forest noted for having

the largest and most unique area of 'pygmy' forest with century-old trees thriving in a highly basic ultramafic soil (Amoroso et al., 2007). MHRWS is found to possess intriguingly outstanding combination of terrestrial and aquatic habitats which harbor a variety of globally threatened species of plants and animals that include the critically endangered Philippine endemics Philippine eagle Pithecophaga jefferyi and the Philippine Cockatoo Cacatua haematuropygia as well as the equally threatened species of Shorea dipterocarps and orchid Paphiopedilum adductum. variety of habitats likewise yields globally unique species of flora and fauna as evidenced by presence of eight site-endemic species. In view of this rich and unique biodiversity, MHRWS has been identified by Conservation International one of the highest biodiversity 'hotspots' in Philippines, a country considered as the second hottest of the biodiversity hotspots in the world.



2.a Description of the property 2.a.1 Physical Environment Geology

The Mt. Hamiguitan Range is part of the Pujada Peninsula, deduced as a product of magmatic and tectonic actions generated by the subduction of the Philippine Sea Plate. The tectonic collision caused the oceanic crust to rise up, creating the mountain range. The melting of the subducted slabs as it sank into the subduction zone generated the Cretaceous volcanic rocks of the Pujada Peninsula. volcanic rocks include sub-aerial and subaquaeous dense schist, basalt lava and gabbro with minor intercalated pyroclastic and clastic rocks. The rocks associated with the oceanic crust are a mixture of sedimentary and ultramafic rocks. Ultramafic or serpentine rocks contain metallic elements such as nickel, magnesium and iron that render the soil unfavorable for normal vegetation growth (San Isidro LGU, 2003). MHRWS soil has been found to contain very rich deposits of nickel, iron and cobalt. At 500 meters above sea level (masl), the soil is found to contain high level laterite which carries more iron, nickel and cobalt and possess less silica and alumina compared to the low level laterites (Delmiguez Sr., 1993). In spite of this



Plate 2.1. Plants growing on top of thin layer of ultramafic soil and layer of rocks. (Photo by Amoroso)

unfavorable soil conditions, high diversity and endemism of species characterize the nominated property as evidenced by the presence of globally threatened, endemic and site endemic species seen even in the most adverse soil conditions. Plate 2.1 shows plants growing on top of thin layer of ultramafic soil and layer of rocks.

Climate

The climate of Mt. Hamiguitan is generally wet and falls under Type IV of the Coronas Climate Classification in the Philippines. This climate type is characterized by an even rainfall distribution throughout the year and an absence of a lengthy dry season. The average temperature is 27.75°C. The lowest temperature is recorded in January at 22.4°C while the highest temperature is recorded in April and May at 33°C. Rainfall records from 1996 to 2001 indicate that the month of January has a maximum rainfall output equivalent to 151 mm. Annual average rainfall is 126.6 mm with a monthly average of 105.5 mm.

The relative humidity in the area is fairly constant with an annual average of 98 percent, a minimum average of 78 percent for the months of March and April and a maximum value of 82 percent for the months of July and December.

Hydrology

Watersheds of important rivers and creeks are found in MHRWS. These watersheds are Bitaugan, Mabua, Dumagooc/Timbo, Tibanban and Mati Cluster (Salingkomot and Jerico). Dumagooc/Timbo Watershed has the largest area (2,942.34 ha.) while Tibanban is the smallest (490.42 ha.) of the watersheds in the MHRWS. Bitaugan, Mabua, Dumagooc/Timbo and Tibanban Rivers drain into the Davao Gulf and the Jerico River into Pujada Bay while Salingkomot River empties into the Pacific Ocean. Three of these rivers namely, Dumagooc, Tibanban and Bitaugan are the major sources of irrigation water for the lowlands of Governor Generoso and San Isidro (Figure 2.2). There are also minor creeks observed within MHRWS although these are intermittent and dries up during the summer. Of all the major rivers, Dumagooc River has the biggest discharge which is estimated at 30 cubic meters per second. Because there are no soil and forest disturbance inside the nominated property, all the river discharges are crystal clear as they exit MHRWS.

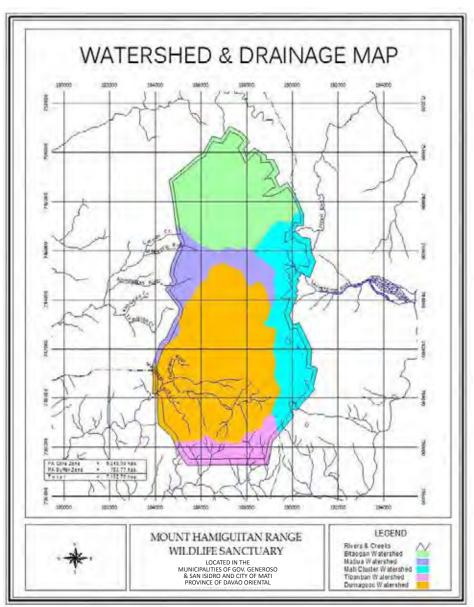


Figure 2.2. Watershed and drainage map of MHRWS.

Waterfalls are also found inside the MHRWS. The Twin Falls (Plate 2.2) is situated at the fringe of the mossy-pygmy forest while the Danlogan Falls is found at the foot of the dipterocarp forest. The Dumagooc falls (also known as Pandugaan falls) is famous to locals of Governor Generoso and is located about 500 meters below the Twin falls. These majestic falls are a favorite to many local and foreign tourists and mountaineering enthusiasts. Smaller falls are likewise present such as the Licub and Puting Bato falls (Plate 2.3), among others. Lastly, the nominated area also exhibits a lone lake called Tinagong Dagat literally translated as "Hidden Sea". It holds water during the rainy season but disappears during the dry season hence its name.





Plate 2.2. The Twin Falls.

Plate 2.3. One of the smaller waterfalls in MHRWS.

2.a.2 Biological Features Habitat

The 6,348.99-hectare surface area of the nominated property is characterized by five vegetation types namely: (1) agro-ecosystem (75-420 masl), (2) dipterocarp forest (420-920 masl), (3) montane forest (920-1160 masl), (4) typical mossy forest (1160-1350 masl) and (5) mossy-pygmy forest (1160-1200 masl) (Amoroso, et al., 2007) (Figure 2.3). Each of these forest types harbors endemic, threatened, rare and economically important species of flora and fauna, including the critically endangered Philippine Eagle *Pithecophaga jefferyi* which was recently discovered to be nesting and breeding in the Mt. Hamiguitan Range (Philippine Eagle Foundation; DENR, 2005).

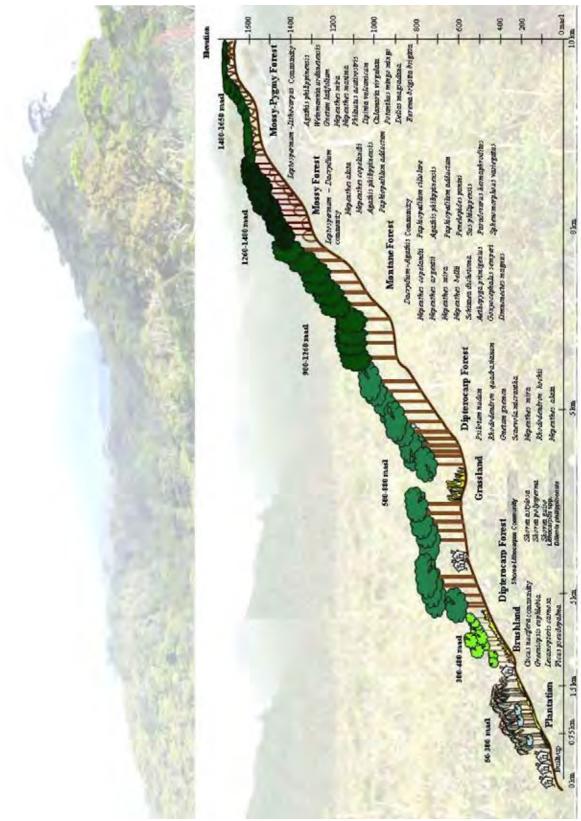


Figure 2.3. Transect Diagram of the vegetation types of MHRWS.

Agro-Ecosystem (lowland) formation

The agro-ecosystem sporadically found at the periphery of the nominated property and in some portions of the buffer zone at the lower altitudes is dominated by coconut and banana plantations (Plate 2.4). Remnants of the dipterocarp forest can be observed in the area indicative of its logging history prior to becoming an agro-ecosystem in the 1980's. Highly significant is the presence of the critically endangered hardwood *Shorea polysperma* and *S. quiso* (Amoroso et al., 2007).

Dipterocarp Forest

The dipterocarp forest found at altitudes ranging from 420-920 masl is dominated by *Shorea spp., Medinilla spp.* and vines (*Smilax spp.*) (Plate 2.5). *Lithocarpus llanosii, Zanthoxylum diabolicum* and the critically endangered *Shorea astylosa* are the most important tree species present in the area. With an average height of trees at 13.60 m, this vegetation time exhibits the tallest aggregates of trees in the five vegetation types. One of the tallest trees that can be found is *Elaeocarpus sp.* locally known as "Tipudlos" measuring 30.92 m. Remnants of logging activities in the 1980s were also seen in areas surveyed (Amoroso et al., 2007).

Montane Forest

In the montane forests of the nominated property (Plate 2.6), the average height of trees is 12 m but this gradually decreases as elevation rises. Significant endemic plant species found in this vegetation type include the vulnerable *Agathis philippinensis and Cinnamomum mercadoi* as well as the globally endangered orchid *Paphiopedilum ciliolare*. This type of forest is usually dominated by the *Falcatifolium gruezoi, Shorea polysperma, Agathis philippinensis* communities in the MHRWS (Amoroso et al., 2007).



Plate 2.4. The agro-ecosystem dominated by coconut trees. (Photo by Amoroso)



Plate 2.5. The dipterocarp forest dominated by Shorea species and other dipterocarp trees. (Photo by Amoroso)



Plate 2.6. The montane forest dominated by *Agathis philippinensis*. (Photo by Amoroso)

Typical Mossy Forest

In this type of vegetation, there are fewer trees due to high precipitation and strong wind and mosses cover most of the tree trunks and roots (Amoroso et al., 2007) (Plate 2.7). Species of Cedar Dacrydium elatum and Bitanghol *Calophyllum blancoi* are dominant. Trees growing in this vegetation type have an average diameter-at-breast-height (DBH) of 24.21 cm which is the widest among the forest types.

Mossy-Pygmy Forest

The mossy-pygmy forest (Plate 2.8) occupies approximately 1,234.56 hectares of the sanctuary. Trees have an average height of only 1.4m with a diameter of 8 cm. The two dominant species seen in this vegetation type are the tea tree Leptospermum favescens and Wendlandia nervosa. Other species include the evergreen Tristaniopsis micrantha, the large conifer Dacrydium elatum, Bitanghol Calophyllum blancoi, the flowering tree Symplocos polyandra, and the resin-producing Almaciga Agathis philippinensis which has the highest average height of only 2.4 m (Amoroso et al., 2007). Madulid (PASO File Records) reported that this type of vegetation is associated with ultramafic species, such as Calophyllum sp.. The stunted growth of trees (Plate 2.9) could be attributed to a high concentration of cobalt, iron, nickel and magnesium in soil. Because of the unfavorable soil conditions, the local flora mutated as part of the adaptive process, giving way to the thriving pygmy forest (Smith, 2005; Day, 2005). It is also in this type of habitat that the rarest of the site endemic butterflies Delias magsadana are found (PASO File Records).

Inventory of plant species in each vegetation type revealed that the montane forest has the highest species richness among plants with 462 species, followed by the dipterocarp forest



Plate 2.7. The mossy forest dominated *C. blancoi* and *D. elatum.* (Photo by Amoroso)



Plate 2.8. The mossy-pygmy forest of MHRWS. (Photo by Amoroso)



Plate 2.9. Typical natural bonsai tree inside the mossy-pygmy forest. (Photo by PEFI)

with 338 species. Typical mossy and agro-ecosystem formations have the lowest species richness value at 246 each. The highest diversity index of trees (1.7) could be observed in the montane forest while a diversity index of 1.273 was observed in the typical mossy forest. The mossy-pygmy forest has the highest diversity index (1.498) for shrubs, herbs and vines (Amoroso et al., 2007).

Fresh water habitat

As previously mentioned in the hydrology section, the nominated property exhibits several major rivers and its tributaries. Waterfalls and creeks dot the mountain range and help to feed the various terrestrial habitats and its faunal occupants. In addition, a lake named Tinagong Dagat is found inside the MHRWS (Plate 2.10). It has an area of 4.11 hectares and is located at the eastern (Mati) portion. It is situated at an elevation of 1,160 masl. This lake holds water during the rainy season but dries up during the dry months. Anecdotal reports state that, before 2000, this lake used to be a habitat of fresh water shrimps.



Plate 2.10. Tinagong Dagat.

2.a.3 Flora

MHRWS houses a total of 957 species of flora belonging to 427 genera and 166 families, 723 of which are angiosperms, 27 gymnosperms, 151 ferns, 13 fern allies, 17 mosses, 13 liverworts, and 13 lichens. Findings indicate that endemism of trees per vegetation type increases with the elevation (Amoroso et al., 2007). Dipterocarp species that are critically endangered, endemic and rare can be found in the Hamiguitan Range, such as the five globally threatened species of Shorea (Table 2.1).

Table 2.1. Endemic and globally threatened species of Shorea.

Species	Ecological Status	Conservation Status
Shorea astylosa	Endemic	Critically Endangered
Shorea polysperma	Endemic	Critically Endangered
Shorea contorta	Endemic	Vulnerable
Shorea guiso	Endemic	Vulnerable
Shorea negrosensis	Endemic	Vulnerable

Other globally threatened species of flora such as *Paphiopedilum ciliolare*, *Diospyros philippinensis*, *Dendrobium sanderae* var. surigaense, and *Mangifera altissima* are likewise located in MHRWS. Thus the nominated property is very rich in both highly endemic and globally threatened species (Plate 2.11). Results of various studies (Amoroso, Aspiras, & Polizon, 2007; Amoroso et al., 2007; Mohagan & Treadaway, 2010) pointed out that site-specific policies are necessary for the protection and conservation of these species and their habitats to avert degradation and species extinction. A study on *Nepenthes* (Gronemeyer, Wistuba, Heinrich, McPherson, Mey, & Amoroso, 2010)



Plate 2.11. (A–L) Some endemic, threatened and rare plants of Hamiguitan Range. (A) Paphiopedilum ciliolare, (B) Ceratostylis retisquama, (C) Dendrobium uniflorum, (D) Bulbophyllum cumingii, (E) Hoya incrassata, (F) Hoya meliflua, (G) Hoya mindorensis, (H) Calamus merrillii, (I) Nepenthes alata, (J) Nepenthes copelandii, (K) Nepenthes micramphora, (L) Nepenthes peltata. (photo by Amoroso et al.)

disclosed that the property harbors eight *Nepenthes* species that accounts for 58% of all Nepenthes species in the Philippines. Three of these have been identified as endemic solely to Mt. Hamiguitan. These are the *Nepenthes peltata, N. micramphora and N. hamiguitanensis*. The *N. peltata* (Plate 2.12) is presently known only from the upper slopes of MHRWS which occur from approximately 865 masl to the summit of the mountain (McPherson, 2009). The *N. peltata* was also formally described by Shigeo Kurata (2008) with the herbarium specimen Koshikawa 44 as the designated holotype deposited at the herbarium of the Botany Department of Kyoto University in Kyoto, Japan.

The *N. micramphora* (Plate 2.13) is one of the recently discovered endemic species of Mt. Hamiguitan and is known to thrive only on the upper slopes of MHRWS from approximately 1,100 masl to the summit of the mountain, which stands at about 1,635 masl. It grows terrestrially amidst spare, open canopied, mossy, upper montane trees, amongst degraded or recovering secondary vegetation, on exposed cliffsides and landslide areas, and on stunted scrub on ridge tops (McPherson, 2009). Appendices 3 and 4 show the full description of *N. peltata and N. micramphora*, respectively.

The most recent discovery of a new *Nepenthes* species endemic to Mt. Hamiguitan is the *N. hamiguitanensis* (Plate 2.14), named after Mt. Hamiguitan, its only known natural habitat in the world. This species grows at elevations of 1200–1600 masl on the upper slopes of Mt. Hamiguitan. It has recently been fully described as a new species (Gronemeyer, Wistuba, Heinrich, McPherson, Mey, & Amoroso, 2010).







Plate 2.12. Nepenthes micramphora

Plate 2.13. N. peltata

Plate 2.14. N. hamiguitanensis

The presence of globally threatened and rare species, such as the critically endangered *Shorea astylosa, S. polysperma and Paphiopedilum adductum* to name a few, as well as the discovery of site-endemic pitcher plants *Nepenthes peltata, N. micramphora and N. hamiguitanensis* prove that the nominated property is one of outstanding universal value. As such, it is imperative that the protection and conservation of the property be of global concern.

Table 2.2 below lists the endangered, endemic and rare species of flora and their habitat that must be given high priority for protection and conservation (Amoroso et al., 2007).

	SPECIES	FAMILY	CONSERVATION	VEGETATION	ALTITUDE	LOCATION
			STATUS	TYPES	(m asl)	
	Nepenthes	Nepenthaceae	Critically	M, Mo, M-P	1180	San Isidro
	copelandii		endangered,			
			endemic and rare			
	Paphiopedilum	Orchidaceae	Critically	M, M-P	1146	San Isidro
	adductum		endangered and			
			endemic			
3.	Platycerium	Polypodiaceae	Critically	D, M	160 - 480	Mati
	coronarium		endangered and			
			endemic			
ŀ.	Rhododendron	Ericaceae	Critically	D, M	540 - 980	San Isidro
	kochii		endangered and			
			endemic			
5.	Shorea astylosa	Dipterocarpaceae	Critically	A, D, M	120 –	San Isidro, Mat
			endangered and		1060	Gov. Generoso
			endemic			
5.	Shorea	Dipterocarpaceae	Critically	D	320 – 620	San Isidro, Mat
	polysperma		endangered and			Gov. Generoso
			endemic			
7.	Alocasia	Araceae	Endangered and	D	685	San Isidro
	zebrina		endemic			
3.	Diospyros	Ebenaceae	Endangered and	A, D	240 – 820	San Isidro
	philippinensis		endemic		1120	6 111
).	Hoya	Asclepiadaceae	Endangered and	М	1120	San Isidro
	bulusanensis /		endemic			
ın	panchoi Medinilla	Melastomataceae	Endangered and	D, M	420 – 980	San Isidro, Mat
LU.	magnifica	iviciasionialaceae	endemic	D, IVI	420 – 380	Sair Islaid, Ivial
1	Nepenthes	Nepenthaceae	Endangered,	M, M-P	980 -	San Isidro
ш.	micramphora	Neperimaceae	endemic and rare	141, 141 1	1,560	3411 13141 0
L2.	Paphiopedilum	Orchidaceae	Endangered and	M, Mo, M-P	905, 965,	San Isidro
	ciliolare	0.0	endemic	,,	1220	5 a5.a5
3.	Agalmyla	Gesneriaceae	Vulnerable and	A, D	380 – 860	San Isidro, Mat
	persimilis		endemic	. , –		
L4.	Aeschynanthus	Gesneriaceae	Vulnerable and	A, D	380 – 740	San Isidro
	miniaceous		endemic			
15.	Cinnamomum	Lauraceae	Vulnerable and	M, Mo	920 - 1100	San Isidro
	mercadoi		endemic			
16.	Dendrobium	Orhidaceae	Vulnerable and	M, Mo, M-P	920 –	San Isidro
	sanderae var.		endemic		1200	
	surigaense					
17.	Shorea	Dipterocarpaceae	Vulnerable and	A, D	360 – 740	San Isidro, Mat
	contorta		endemic			
18.	Shorea guiso	Dipterocarpaceae	Vulnerable and	A, D, M	240 - 820	San Isidro, Mat
			endemic			
19.	Shorea	Dipterocarpaceae	Vulnerable and	A, D		San Isidro, Mat
	negrosensis		endemic			
20.	Agathis	Araucariaceae	Vulnerable and	D, M, Mo, M-	905-1235	San Isidro, Gov
	philippinensis		endemic	Р		Generoso, Mat

Table 2.2. Cont. List of endangered, endemic and rare species of flora in MHRWS that must be given high priority for protection and conservation (Amoroso, et al., 2007)

21 Manaifora	Anacardiaceae	Vulnerable	A D	120 – 540	San Isidro, Mati
21. Mangifera altissima	Allacalulaceae	vumerable	A, D	120 – 540	San Isidro, iviati
22. Myristica philippinensis	Myristicaceae	Other threatened and endemic	A, M	320 - 640	San Isidro, Mati
23. Calamus merrilii	Arecaceae	Rare and endemic	D, M, Mo	140 – 1350	San Isidro, Mati
24. Calamus ornatus var. philippinensis	Arecaceae	Rare and endemic	D, M, Mo, M- P	170 – 1200	San Isidro, Mati, Gov. Generoso
25. Nepenthes alata	Nepenthaceae	Rare and endemic	A, D, M, M-P	360 - 1200	San Isidro, Mati, Gov. Generoso
26. Nepenthes argentii	Nepenthaceae	Rare and endemic	M, M-P	920 – 1145	San Isidro
27. Nepenthes peltata	Nepenthaceae	Rare and endemic	D, M, M-P	870-1200	San Isidro, Mati, Gov. Generoso
28. Buchanania nitida	Anacardiaceae	Endemic	A, D, M, Mo, M-P	140 – 1200	San Isidro, Mati, Gov. Generoso
29. Dillenia philippinensis	Dilleniaceae	Endemic	A, M	120, 1150 -1200	San Isidro, Mati, Gov. Generoso
30. Medinilla cumingii	Melastomataceae	Endemic	D	540 – 820	San Isidro
31. Medinilla malindangensis	Melatomataceae	Endemic	D	380	Mati
32. Gnetum latifolium	Gnetaceae	Rare	M, M-P	920 – 1145	San Isidro, Mati
33. Nepenthes maxima	Nepenthaceae	Rare	M, Mo, M-P	1165	San Isidro
34. Psilotum nudum	Psilotaceae	Rare	D, M, Mo, M- P	905-1200	San Isidro
35. Psilotum complanatum	Psilotaceae	Rare	M, M-P	840	San Isidro
36. Schizaea inopinata	Schizaeaceae	Rare	D, M	280	Gov. Generoso
37. Schizaea malaccana	Schizaeaceae	Rare	D	1095	San Isidro
Legend:					
A – Agro-ecosystem Mo- Mossy forest		erocarp forest Mossy-Pygmy forest		M – Montane	e forest
11.0 1110334 101030	1411	The state of the s			

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY

2.a.4 Fauna

MHRWS is home to highly diverse and endemic species of fauna. Various studies revealed 423 faunal species present in this sanctuary, 15 of which are non-volant mammals, 11 volant mammals, 108 avi-fauna, 33 reptiles, 18 amphibians, 142 butterflies, 31 odonata, 46 spiders, 4 earthworms and 15 nematodes. Of these, 124 are Philippine endemic, 39 Mindanao endemic and five site endemic (Philippine Eagle Foundation; DENR, 2005; Amoroso et al., 2007; Balete, Heaney, Rickart, Quidlat, & Ibanez, 2008; Mohagan & Treadaway, 2010; Villanueva & Mohagan, 2010; PASO File Records). Assessment revealed 72 threatened faunal species, two of which are critically endangered, namely, the Philippine Eagle Pithecophaga jefferyi (Plate 2.15) and Philippine Cockatoo Cacatua haematuropygia (Plate 2.16), six endangered, two threatened, 19 vulnerable, 113 rare, and five new species.





Pithecophaga jefferyi. (photo by PEFI)

Plate 2.15. The critically endangered Philippine Eagle Plate 2.16. The critically endangered Philippine Cockatoo Cacatua heamatopygia. (photo by PEFI)

A study on butterflies (Mohagan & Treadaway, 2010) concluded that MHRWS is a sanctuary to diverse and endemic butterfly species having 142 species in all, three of which are new species and from which 44 endemics were identified: 2 eastern Mindanao endemic, 16 Mindanao endemic, 22 Philippine endemic and four species found only in the nominated property. These site endemics are Arhopala eridanus davalma, Taraka hamada dustinkeani, Paraparu cebuensis hamiquitanensis sspn., and the highly rare *Delias magsadana* (Plate 2.17). Research findings on odonata revealed that 31 species are present in the sanctuary, 29 of which are endemic while two could possibly be new species (Villanueva & Mohagan, 2010; PASO File Records). The presence and persistence of these fragile but ecologically useful arthropods denote a highly rich biological environment (Mohagan & Treadaway, 2010).



Plate 2.17. Site endemic Delias Magsadana. (photo by Mohagan)

Based on the World Conservation Union (IUCN) Red List, researchers have identified at least 26 threatened vertebrate species in Mt. Hamiguitan (Table 2.3).

Table 2.3. List of threatened vertebrates with known occurrences in Mt. Hamiguitan and their threat level categories by IUCN (World Conservation Union, 2008)

Species	Common Name	Distribution	Threat Status
AMPHIBIANS			
Ansonia muelleri	Mindanao Lesser Fanged Frog	Endemic	VU
Megophrys stejnegeri	Mindanao Horned Frog	Endemic	VU
Philautus acutirostris	Point Snouted Bush Frog	Endemic	VU
Philautus poecilus	Mottled Tree Frog	Endemic	VU
Platymantis guentheri	Guenther's Forest Frog	Endemic	VU
Platymantis rabori	Rabor's Forest Frog	Endemic	VU
BIRDS			
Aceros leucocephalus	Writhed Hornbill	Endemic	NT
Actenoides hombroni	Blue-capped Kingfisher	Endemic	VU
Alcedo argentata	Silvery Kingfisher	Endemic	VU
Anas luzonica	Philippine Duck	Endemic	VU
Bubo philippensis	Philippine Eagle Owl	Endemic	VÜ
Cacatua haematuropygia	Philippine Cockatoo	Endemic	CR
Ceyx melanurus	Philippine Dwarf Kingfisher	Endemic	VU
Ficedula basilanica	Little Slaty Flycatcher	Endemic	VU
Gallicolumba criniger	Mindanao Bleeding-heart	Endemic	VU
Gorsachius goisagi	Japanese Night-heron	Migrant	EN
Mimizuku gurneyi	Giant Scops Owl	Endemic	VU
Pithecophaga jefferyi	Philippine Eagle	Endemic	CR
Pitta steerii	Azure-breasted Pitta	Endemic	VU
Spizaetus philippensis	Philippine Hawk-eagle	Endemic	VU
Todiramphus winchelli	Rufous-lored Kingfisher	Endemic	VU
MAMMALS			
Crocidura beatus	Common Mindanao Shrew	Endemic	VU
Cynocephalus volans	Flying Lemur	Endemic	VU
Haplonycteris fischeri	Philippine Pygmy Fruit Bat	Endemic	VU
Podogymnura truei	Mindanao Gymnure	Endemic	EN
Sus philippensis	Philippine Warty Pig	Endemic	VU

Two of these species are critically endangered (CR) – the Philippine Eagle Pithecophaga jefferyi and Philippine Cockatoo Cacatua haematuropygia, two endangered (EN), 21 vulnerable (VU) and one species is near-threatened (NT). One new species, the Hamiguitan hairy-tailed rat Batomys hamiquitan (Plate 2.18) was likewise noted to be site endemic. The Hamiguitan hairy-tailed rat is a yellow-brown rodent with a long furry tail. Weighing about 175 grams (6.2 ounces), it lives 950 meters (3,117 feet) above sea level in the mossy-pygmy forests. It was discovered in a joint US-Filipino expedition in 2006 that involved experts from the Chicago-based Field Museum of Natural History (Philippine Eagle Foundation; DENR, 2005; Balete, Heaney, Rickart, Quidlat, & Ibanez, 2008).

The amphibian population in the nominated property is likewise noteworthy. Twelve out of the 16 species found in the MHRWS are endemic, exhibiting a high level of amphibian endemicity at 75% while six of the species are also globally vulnerable. These include the Mindanao horned frog *Megophrys stejnegeri*, Mueller's Toad *Ansonia muelleri*, and Pointed-Snouted Tree



Plate 2.18. Site endemic Hamiguitan hairy-tailed rat *Batomys hamiguitan*.

Frog *Philautus acutirostris*. One species, the Philippine Woodland Frog *Limnonectes magnus*, is globally classified as near threatened while the rest are endemic (Philippine Eagle Foundation; DENR, 2005). The presence of these amphibian populations in the nominated property signifies a very stable aquatic environment.

Table 2.4 lists the globally significant and site endemic species of fauna found in the nominated property. Lawrence Heaney, curator of mammals at the Chicago museum, said: "The unusual geological history of Eastern Mindanao leads us to predict that additional species currently unknown to anyone except local residents are likely to live there".

Table 2.4. List of globally signicant and site endemic species of fauna in MHRWS.

Species	Distribution	Status
Pithecophaga jefferyi	Endemic	Critically Endangered
Cacatua haematuropygia	Endemic	Critically Endangered
Batomys hamiguitan	Site Endemic	New species record
Delias magsadana	Site Endemic	Very rare
Arhopala eridanus davalma	Site Endemic	New species record
Taraka hamada dustinkeani	Site Endemic	New species record
Paraparu cebuensis hamiguitanensis sspn.	Site Endemic	New species record
Megophrys stejnegeri	Endemic	Vulnerable
Ansonia muelleri	Endemic	Vulnerable
Philautus acutirostris	Endemic	Vulnerable
Limnonectes magnus	Endemic	Vulnerable

2.b History and Development2.b.1 History of the Region

About 300 years ago, Davao Oriental was part of the Caraga Province - forming part of the Encomienda de Bislig with the Encomienda de Seargao, Butuan and Tandag. The Province became historically important in 1846, when distinguished Attorney-at-Law, Don Jose Uyanguren upon the order of Gov. Gen. Narciso Claveria, organized settlements with considerable inhabitants south of Encomienda de Bislig. Today, these are the Municipalities of Baganga, Gov. Generoso and Mati.

The settlement continued to grow. Don Jose was able to crush Datu Bago, a Muslim chieftain who ruled Samal Island in 1849. Gov. Claveria decreed the partition of Caraga Province in two: the northern portion was named Surigao Province with Surigao town as the capital and the southern Part as Nueva Vergara with Caraga town as its capital.

In 1898, Davao became a district of the Moro Province created as part of Mindanao by the Americans. In 1916, Jones Law converted the Moro Province into Department of Mindanao and Sulu.

On 1 July 1967, under Republic Act 4867, Davao was divided into three provinces. Davao Oriental was created as a separate and independent province along with Davao del Sur and Davao del Norte. Through Republic Act 4744, San Isidro which was part of the municipality of Governor Generoso separated and became an independent municipality on 18 June 1966. San Isidro has political jurisdiction on more than half of the nominated property with the Municipality of Governor Generoso and Mati City covering the rest.

The municipality of San Isidro at present, is composed of 16 barangays (a barangay is the smallest political unit of a province), which population is composed mostly of immigrants from the Visayas Region (56%) and the indigenous people, the Mandaya and other Lumads (11%) who settled at the foot of the mountain range.

2.b.2 History of Preservation/Protection

Mt. Hamiguitan is the headwater of major river systems, one of which is Dumagooc River which is the principal source of water for the lowlands, especially the municipality of Governor Generoso. Municipal Resolution No. 121-5-93 requesting for the establishment of the Dumagooc Watershed Reservation was submitted to former President Fidel V. Ramos through the Sangguniang Bayan (Municipal Council) of Governor Generoso to ensure continuous supply of water for the people. Following the objectives of the National Integrated Protected Areas System (NIPAS) set into law in 1992 under R.A. 7586, House Bill No. 3872 declaring Mt. Hamiguitan as an agri-ecotourism destination in Davao Oriental was proposed but it failed to be enacted into law. Instead, in 2001, Representative J. Mayo Z. Almario submitted to Congress House Bill No. 2777, declaring Mt. Hamiguitan as Protected Area under the category of Wildlife Sanctuary (San Isidro LGU 2003). On 30 July 2004, by virtue of Republic Act No. 9303, Mt. Hamiguitan Range Wildlife Sanctuary was formally declared a protected area with an area size of 6,834 hectares, consisting of 5,993.00 hectares core area and a buffer zone of 841.00 hectares.

In pursuance of Section 6A(a) of RA 9303, a boundary delineation and demarcation survey of the declared protected area was conducted and completed in 2007. Based on the survey result, the delineated protected area was expanded to 7,132.75 hectares wherein 6,348.99 hectares was declared as core zone and 783.77 hectares as buffer zone. The established buffer zone covers

the periphery of the sanctuary and is included in the management plan of MHRWS to protect the same from activities that will directly or indirectly harm it. The Philippine Department of Environment and Natural Resources (DENR) exercises its authority over protected areas as well as buffer zones as provided for in the NIPAS Act.

Although there are direct and indirect threats from illegal logging, excessive harvesting of forest products, slash-and-burn farming (kaingin), conversion of the land to agricultural production and mineral explorations in areas adjacent to the nominated property, protected area management efforts including sustainable development and rehabilitation activities are being undertaken within and in areas immediately surrounding the nominated property. As mandated by the NIPAS Act of 1992, the MHRWS is under the control of the Protected Area and Wildlife Bureau (PAWB) of the DENR and the Protected Area Management Board (PAMB). The PAMB is the highest policy- and decision-making body of any protected area in the country. In MHRWS, its PAMB holds regular and special meetings to decide on matters relating to planning and protection of the nominated property and to address various issues and concerns related to it.

As required under RA 9303, the Protected Area Superintendent Office (PASO) was established to carry out the day-to-day operations of the protected area covering regular and special activities in relation to the management, protection and administration of MHRWS. The PASU heads the PASO, acts as the chief operations officer of the protected area and is accountable to the PAMB Chairman and the DENR thru the PENR Officer concerned. The PASu is provided technical and support staff from DENR.

In support to the DENR management, the LGUs have designated eight forest guards or "Bantay Gubat" from the three municipalities within the protected area. Through Focus Group Discussions (FGDs) organized by the Central Mindanao University, the University of the Philippines-Mindanao and the Davao Oriental State College of Science and Technology, members of the "Bantay Gubat" were capacitated in inventory techniques, floral and faunal identification as well as classification and preservation of specimens for analysis.

Indigenous communities present in the area have also helped extensively in the management of the property through the application of their existing traditional beliefs and practices (Amoroso, Aspiras, & Polizon, 2007). They value this site as their home. They are knowledgeable of the endemic species found in the area and have nurtured these species, as their ancestors did in the past. Surrounding the nominated property as they do, these indigenous communities provide another layer of protection to the MHRWS, deterring the entry of unscrupulous people with illegal intentions and acting as diligent watch for the PAMB and the PASO.

Various conservation initiatives from the academe, scientists, environmental advocates and NGOs were also undertaken to strengthen the protection and management of the sanctuary and policy formulation of PAMB. Technical assistance in the form of research projects and studies, particularly on biodiversity assessment and conservation of endangered, endemic and economically important flora and fauna of was conducted in the past, providing the PAMB with appropriate information that could be transformed to practical policies. One of the initiatives was the training of stakeholders of the Mt. Hamiguitan Range Wildlife Sanctuary on biodiversity monitoring and evaluation (BIOME) given by the Central Mindanao University (CMU), Bukidnon Resources Management Foundation, Inc. (BRMFI), the Philippine Eagle Foundation (PEF) and the DENR PAW-Region 11, through the support of the Critical Ecosystem Partnership Fund (CEPF) (Amoroso, et al., 2007). Another

noteworthy project developed was the Eastern Mindanao Corridor Biodiversity Assessment and Archiving Project (EMCBAAP) in 2005 by the Philippine Eagle Foundation designed to assess and archive these threatened biodiversity resources and capacity building of stakeholders.

The ongoing or most recent completed research studies in MHRWS include the following:

- Partnerships for Enhancing Expertise in Taxonomy of Insects (with a concentration on Auchenorrhyncha): Assessing Philippine Biodiversity including their Relationships to Each Other and to Other Regions by Dr. Alma B. Mohagan, Central Mindanao University, Philippiness in collaboration with Dr. Chris Simon, University of Connecticut, CT, Dr. Chris Dietrich, Natural History Survey, IL and Dr. Jason Cryan, New York State Museum, NY. The study (currently ongoing) covers a group insects known as Auchenorrhyncha which includes a great number of described species of Fulgoroidea and Cicadelloidea (plant hoppers, frog hoppers, leaf hoppers), of Cicadoidea (cicadas), of Membracoidea (tree hoppers), and of Cercopoidea (spittlebugs).
- Resource Valuation of Hamiguitan Mountain Range conducted in 2008 and 2009 by the University of Southern Mindanao in collaboration with Mindanao State University-Iligan Institute of Technology, Southern Christian College, Cebu Biodiversity Conservation Foundation and the National Museum. The study was subdivided into three parts: mapping, biodiversity survey and valuation. Partial data were provided to the PAMB last September 2010.
- Biosystematics of the Genus Amomum Roxb. (Family Zingiberaceae) in the Philippines by Florfe M. Acma, 2008-2009. The full report is scheduled to be presented to the PAMB.
- Diversity and status of Butterflies across vegetation types of Mt. Hamiguitan, Davao Oriental, Philippines (Mohagan & Treadaway, 2010) Central Mindanao University, Musuan, Bukidnon
- Diversity and status of odonata across vegetation types in Mt. Hamiguitan Range Wildlife Sanctuary, Davao Oriental (Villanueva & Mohagan, 2010), Central Mindanao University, Musuan, Bukidnon

3. Justification for Inscription

3.a Criteria under which inscription is proposed

Criterion (x): contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

The nominated property is home to 957 species of flora that include 171 endemics, of which 3 are site endemic (McPherson, 2009), i.e., they are found nowhere else in the world but MHRWS. It likewise provides shelter to 423 species of fauna with 124 endemics and 5 site endemics (Philippine Eagle Foundation; DENR, 2005; Balete, Heaney, Rickart, Quidlat, & Ibanez, 2008; Mohagan & Treadaway, 2010; Villanueva & Mohagan, 2010). The species list of MHRWS includes globally significant species such as the critically endangered dipterocarp species of genus *Shorea* and the rare orchid *Paphiopedilum adductum* along with fauna of equally universal importance such as the Philippine eagle *Pithecophaga jefferyi* and the Philippine Cockatoo *Cacatua haematuropygia*. The list also features an array of endemic species, including site endemic species such as the *Nepenthes hamiguitanensis* and the Hamiguitan hairy-tailed rat *Batomys hamiguitanensis*. Other potentially unique examples of biodiversity in the MHRWS still await taxonomic confirmation by experts. In addition to this, its extensive and varied forest types significantly contribute to carbon sequestration while providing a reliable fresh water source, among other ecologically important services (Philippine Eagle Foundation; DENR, 2005).

Past geologic processes that took place in the region transformed the local geography into a semi-isolation that is the Pujada Peninsula, the cradle of the Hamiguitan Mountain Range. As a result of this semi-isolation and its varied habitat types growing in dissimilar soil and climate conditions, its biodiversity has shown a significantly high level of endemicity that has led scientists to believe that there may be more globally unique species waiting to be discovered in the area. Thus MHWRS is an exemplary example of biodiversity that is resilient and adaptive even in the face of adverse environmental conditions. The lessons that could be learned from the unique biodiversity, its interrelationships and its coping mechanisms could likely provide insight into appropriate climate change adaptive measures for current and future reference. Thus its preservation and protection ought to be of global concern.

3.b Statement of Outstanding Universal Value

MHRWS, located at the southeastern corridor of Mindanao Island, Philippines, is a unique showcase of terrestrial and aquatic habitats and their faunal denizens evolving in different altitudes and drastically dissimilar soil and climate conditions. It represents a veritable treasure trove of biodiversity, providing a surface area of 7,132.76 hectares of sanctuary to a host of globally threatened and endemic flora and fauna, eight of which know no other home in the world but Mt. Hamiguitan. Its high level of endemicity concentrated in a small undulating landscape is cause for global concern in view of its fragility. MHRWS teaches a universal lesson on nature's resilience, its ability to adapt to changing environmental settings and its limitations given man's impositions.

Criterion (x): MHRWS represents a complete set of intact mountain ecosystems in a significant biogeographic region of the Philippines. Its diversity of plants and animals include globally threatened species as well as species that exist only in the Philippines, only in Mindanao and only in the nominated property. The natural tropical bonsai forest that crowns the MHRWS epitomizes nature's bid to survive even in adverse conditions and chronicles man's critical role in its fragile success. With its high number of unique, endemic and globally threatened species of flora and fauna evolving in this small pocket of land,

MHRWS exhibits segmentation of terrestrial habitats according to elevation. At the lowermost portion of the property, the agro-ecosystem (75-420 masl) with its agro-forest plantations and remnants of dipterocarp forests house some 246 plant species, 44 of which are endemic including the globally threatened dipterocarps of the genus Shorea. Butterflies (22 species) still abound in this ecosystem despite the rarity of other fauna. Above the agro-ecosystem, the dipterocarp forest ecosystem (420-920 masl), characterized by the presence of big trees, is home to 418 plant and 146 animal species which include the globally threatened Mindanao bleeding heart and Philippine warty pig. Further up between 920-1,160 masl, the montane forest ecosystem exhibits numerous species of mosses, lichens and epiphytes. It displays 462 plant species with the Agathis philippinensis (VU) dominating the area in heights of up to 25 meters. This ecosystem type houses 105 animal species representing all the animal groups found in MHRWS as well as the new rat species Hamiguitan hairy-tailed rat Batomys hamiguitan. The fourth ecosystem type is the typical mossy forest ecosystem found at elevation ranges of 1160-1350 masl and is characterized by the thick mosses covering roots and tree trunks. It contains 246 plant species where Gordonia subclavata dominate at heights of up to 15 meters and where animal species that include the globally threatened the Philippine pygmy fruit bat Haplonycteris fischeri and the Pointed-snouted tree frog *Philautus acutirostris* reside.

At the topmost (1160-1200 masl) is the mossy-pygmy forest ecosystem that adds a unique layer to the property. A total of 338 plant species are found spread over 1,234 hectares of natural tropical bonsai forest that include the globally threatened species *Paphiopedilum adductum* (CR), *P. ciliolare* (EN) and stunted growths of *Agathis philippinensis* (VU). It also provides sanctuary to 49 animal species including Philippine Warty Pig *Sus philippensis* (VU) and the Pointed-Snouted Tree Frog *Philautus acutirostris* (VU). This pygmy forest is also the only known habitat in the world of the pitcher plant *Nepenthes hamiquitanensis* and the equally rare butterfly *Delias magsadana*.

The interesting combination of terrestrial and aquatic ecosystems in the nominated property MHRWS is home to a total of 1,380 species with 341 endemics that include the critically endangered Philippine Eagle and the Philippine Cockatoo as well as the *Shorea polysperma*, *S. astylosa* and the orchid *Paphiopedilum adductum*, to name a few. It manifests a high level of endemicity that is well exemplified by its amphibian (75%) and reptilian (84%) populations (Philippine Eagle Foundation; DENR, 2005) and is at par with, if not higher than, other globally significant habitats in the world.

Despite the presence of threats in and around the property such as illegal collection of wildlife and mining, it is still generally intact and of adequate size to provide for the conservation of its biodiversity and other natural resources. The present land or vegetative cover of the sanctuary indicates that the property is in its pristine condition with 73% of its surface area covered by closed canopy forest, 18% by open canopy forest and only 8.7% as brush land. The terrestrial and aquatic habitats are well preserved and globally threatened and endemic species such as the critically endangered Philippine Eagle, the Philippine Cockatoo and the fragile orchid *Paphiopedilum adductum* still thrive within the MHRWS. Populations of site-endemic butterflies such as the *Arhopala eridanus davalma*, *Taraka hamadadustinkeani* and *Delias magsadana* thrive along with the globally threatened Philippine Woodland Frog *Limnonectes magnus*, Mueller's Toad *Ansonia muelleri*, and Pointed-Snouted Tree Frog *Philautus acutirostri*, sensitive bioindicators that point to the healthy state of the forest and aquatic habitats of the nominated property. Waters exiting the MHRWS are crystal clear, further attesting to the pristine condition of its core zone.

There are several layers of protective measures in place from the national to the local levels. Legislations and policies such as the NIPAS Act and RA 9303 have been promulgated to ensure the property's protection and management. Apart from delineating the boundaries of the property, these laws make sure that no physical interventions, such as logging, mining exploration or surveying for energy resources are allowed inside the property. Enforcement is shared by both the national and local government agencies in partnership with other stakeholders. As a result, recent monitoring activities have shown that the globally threatened and endemic species of flora and fauna, especially the site endemic species, continue to thrive within the nominated property.

The preservation of MHRWS is further strengthened by the local and indigenous communities living in its periphery. Their lifestyles and spiritual beliefs are based on a healthy respect for the environment and its biodiversity and have, over time, subtly molded their way of life to ensure the sustainable use of their resources. At the same time, the harsh conditions of the mountain range serve as a deterrent for other human settlements that do not conform to a similarly symbiotic lifestyle. Thus the core zone is free of human habitation.

The MHRWS Management Plan is currently being implemented by the Mt. Hamiguitan PAMB and the PASO. The plan, formulated in 2010 in consultation with the various stakeholders of the nominated property, provides for key programs of conservation: information dissemination, conservation research and monitoring, conservation management and enforcement, and sustainable development. Its review in a few years' time will ensure that conservation efforts for the nominated property will continue to be appropriate and effective over the years to come.

3.c Comparative Analysis (including state of conservation of similar properties)

The Mt. Hamiguitan Range Wildlife Sanctuary, a property of outstanding universal value, is of paramount conservation concern. The nominated property is a unique site for ecological specialization and conservation studies because of its rich biodiversity that features a high endemicity index even in the face of harsh environmental conditions.

Mt. Hamiguitan Range Wildlife Sanctuary is being compared with the following similar properties:

- 1. Sichuan Giant Panda Sanctuaries (SGPS) Wolong, Mt. Siguniang and Jiajin Mountains. This property is home to more than 30% of the world's pandas which are classified as highly endangered and covers 924,500 ha with seven nature reserves and nine scenic parks in the Qionglai and Jiajin Mountains. The sanctuaries constitute the largest remaining contiguous habitat of the giant panda, a relict from the paleotropic forests of the Tertiary Era. It is also the species' most important site for captive breeding (Advisory Body Evaluation). The following points of comparison are noted between this World Heritage Site and the MHRWS:
- The two sites exhibit a similarity in topography, characterized by variations in elevation with the SGPS having a wider range of altitude, more heavily ridged terrain dissected by deep valleys and gorges featuring perennial rivers emanating from glaciated snow peaks. On the other hand, MHRWS is tropical in nature and its terrain is more undulating than jagged. The rivers of MHRWS originate from watersheds covering the property. Because of the similarity in the topography, both sites exhibit a diversity of habitat types within its boundaries with the MHWRS, again, being more tropical in its type of vegetation while that of the SGPS is more of the temperate variety. In further contrast to the SGPS, the surface area of the MHWRS is infinitely smaller and possesses fewer varieties of habitat types.

The geologic characteristic of the SGPS is predominantly Triassic siltstone, limestone, slate, and Permocarboniferous rock. In comparison, MHRWS soil is characterized by high levels of iron, nickel and cobalt with silica and alumina being present to a lesser extent, giving the terrain a harsher and more toxic environment for plants and animals. Although there is limited paleontologic data on the MHRWS as is available on the SGPS, the presence of a large spread of pygmy forest on the crest of the property that is home to some of the site-endemic species suggest at a plethora of information on the evolutionary path these plants and animals took to survive their naturally toxic environment.

- b. Both sites are home to globally threatened, rare and endemic species of plants and animals. Although the SGPS contains a much higher number of species, it is spread throughout an infinitely larger area. Thus MHRWS exhibits significantly higher floral and faunal species densities per hectare. In addition, MHRWS showcases site endemic species of flora and fauna. With these two considerations and the glaring difference in the size of the properties in mind, it may be concluded that MHRWS faces a higher degree of challenge in conserving its biodiversity since a loss of even one hectare of habitat can result in bigger losses to its ecological integrity than it would to that of SGPS.
- c. Both sites are managed by their respective state parties and conduct conservation activities as identified in their Management Plans. MHRWS management, however, is much younger, having only been declared a protected area in 2004. Both nevertheless favor research and ecotourism activities over any other within its protected areas. Similar to SGPS, MHRWS has one human settlement within the periphery of its property. This settlement, however, is limited to the multiple-use zone and its residents assist the management in monitoring the area against illegal activities.
- 2. **Keoladeo National Park (KNP)** The site is situated in Eastern Rajasthan, 2 km southeast of Bharatpur and 50 km west of Agra. The area consists of a fat patchwork of marshes in the Gangetic plain, artificially created in the 1850s and maintained ever since by a system of canals, sluices and dykes. This former duck-hunting reserve of the Maharajas is one of the major wintering areas for large numbers of aquatic birds from Afghanistan, Turkmenistan, China and Siberia. Some 364 species of birds, including the rare Siberian crane, have been recorded in the park (Advisory Body Evaluation). The following discussion studies its similarities and differences with MHRWS:
 - a. MHRWS differs wholly in topography, situated as it is on a mountain range. Thus habitat types are likewise different from that of KNP in that it is more varied and spanning a comparatively larger area. In addition, the two sites differ in its origins as the MHRWS evolved naturally without human intervention. The MHRWS also has a natural supply of fresh water and does, in fact, support the additional demand for water outside of the property. The similarity of the two sites lies in their relatively small surface area and in the fact that both are surrounded by human settlements in its periphery which has implications on its management needs.
 - b. The composition and nature of the biodiversity in the two sites are also significantly different from each other. While that of the KNP is mostly migratory in nature and aquatic in classification, the biodiversity of the MHRWS is primarily terrestrial and has a highly limited habitat range with some species further limited to specific habitat types within the nominated property. The KNP exhibits a higher faunal density given its smaller size. However, given the migratory nature of most of these animals, the demand on its habitat may not be as great or as constant throughout the year as is experienced in MHRWS.

- c. KNP has a long history of protection, having been created more than a century ago. Given its man-made origins and its small area, the delineation of its boundaries is not as complex or involved a process as in MHRWS. In contrast, the evolution of the management of MHRWS involved several stakeholders with different motivations coming together because of one commonality which is the nominated property. Furthermore, although both sites are surrounded by human settlements, KNP's management concerns appear to mainly focus on the biological and ecological issues since their anthropogenic threats have apparently been controlled. In the case of MHRWS, anthropogenic threats make up the majority of current and potential threats to its biodiversity.
- 3. **Dong Phayayen-Khao Yai Forest Complex (DPKY-FC)** This property spans 230 km between Ta Phraya National Park on the Cambodian border in the east and Khao Yai National Park in the west. The site is home to more than 800 species of fauna including 112 mammal species (among them two species of gibbon), 392 birds and 200 reptile and amphibian species (Advisory Body Evaluation).
 - a. Of the three World Heritage Sites compared to the MHRWS, the DPKY-FC closely approximates it in elevation range, its undulating terrain and its varying vegetation types. The MHRWS, similar to DPKY-FC, also features river systems that supply neighboring settlements of its fresh water. Although a very large difference in size can be observed, both sites feature globally threatened and endemic species. Both belong to their respective biogeographic unit based on the Conservation International's biogeographic hotspot identification process. MHRWS has likewise been identified as a Key Biodiversity Area (KBA) by CI and as an Important Bird Area (IBA) by Birdlife International in view of the significant bird population in its boundaries.

Apart from the large difference in surface area, the two sites also differ in their soil composition. Despite having apparently similar geologic processes giving rise to their respective mountain ranges, Permo-Triassic igneous volcanic rocks, Jurassic calcareous, micaceous siltstones and sandstones, and limestone karsts characterize the DPKY-FC. In contrast, MHRWS resulted in an ultramafic soil rich in nickel and cobalt that created a more toxic and therefore challenging environment for its plants and animals to survive in.

- b. The total number of flora and fauna species found in DPKY-FC is vastly greater than MHRWS partly as a result in the big difference in surface area covered by the two sites. Both sites contain globally threatened and endemic species nonetheless with MHRWS showcasing site endemics as well. Furthermore, MHRWS notably exhibits a higher species density, again, due to its smaller area. Thus it faces a bigger challenge in conserving its biodiversity by comparison.
- 4. **Rwenzori Mountains National Park (RMNP)** The Rwenzori Mountains National Park (RMNP) in Uganda comprises of glacier and snow-capped mountains just kilometers above the equator and is the third highest mountain in Africa at 5,109 m. RMNP covers an area of 99,600 ha of which 70% lies at over 2,500 m in height. The Rwenzori Mountains are the highest and most permanent sources of the River Nile and comprises an important water catchment. Its fast flowing rivers, magnificent waterfalls and stratified vegetation make the property exceptionally scenic and beautiful. The mountains are well-known for their unique alpine flora which includes many species endemic to the Albertine Rift in the higher altitude zones including giant heathers, groundsels and lobelias. The Park also supplies local communities with various wild resources and is an important cultural heritage (Advisory Body Evaluation).

- a. Except for a large difference in property size and elevation, the habitats of RMNP and MHRWS both exhibit stratified vegetation and fresh water systems that represent a vital water catchment for their respective localities. Both properties report a high degree of endemicity of flora and fauna although species composition greatly varies between sites. Interestingly, where RMNP is characterized by giant flora (hence its name "Africa's botanical big game"), MHRWS is known for its pygmy forest which constitutes about one fifth of the property. The two sites differ in soil composition likely giving rise to this difference. Both sites have been designated as IBAs although their avian species, again, varies but this nevertheless adds to the conservation significance of both properties.
- b. Although both properties are mountainous in character, their biodiversity vastly differs primarily because of their geographical location. Both sites represent microcosms of their respective regional biodiversity and thus are highly significant in their respective totality. Considering this and the great difference in the sizes of the properties, the demands of managing an area as large as RMNP may be much greater but it is undeniable that a loss of even a hectare of MHRWS will cause a bigger blow to biodiversity conservation in general.
- 5. **Mt. Kitanglad Natural Park (MKNP)** This protected area in the Philippines is just north of the nominated property and is also found in Mindanao Island. The site houses 1,257 species of flora and fauna spread over 47,270 hectares rising up to about 2,900 masl. It is the headwater source of several major river systems that drain northern and central Mindanao and is being nominated as an ASEAN heritage site by the state party (DENR).
 - a. Given their close proximity, the Mt. Kitanglad Natural Park (MKNP) and the MHRWS share some species including the critically endangered Philippine eagle. Both sites exhibiting high endemicity although MHRWS represents a much higher density of both flora and fauna in view of the property size difference. MKNP reaches higher altitudes than MHRWS and also displays a pygmy forest near its crest but the trees in the MKNP bonsai forest are still much bigger, standing at 10-12 m. This may be partly due to the degree of infertility of the soil of the respective sites.
 - b. The biggest difference in the two sites is in the level of development within their boundaries. While MKNP slopes contain several infrastructures such as communication towers and settlements, MHRWS forest habitats are relatively pristine with only 474 hectares in the lower slopes allotted for human settlements. Due to this development in the area, studies in MKNP have shown signs of decline and possible local extirpation of some species of fauna (DENR). Thus, despite the huge difference in size, MHRWS exhibits a higher level of biodiversity making it more critically significant to conservation.

Table 3.1 below illustrates the features of the nominated property in comparison to similar natural properties.

	MHRWS	SGPS	KNP	DPKY-FC	RMNP	MKNP
Criterion	×	×	K	×	vii, x	
Location	Philippines	China	India		Uganda	Philippines
Area (in ha)	5,348.99	924,500	2,873	615,500	99,600	47,270
Habitat Type/	Agro-ecosystem	Paleo-tropic	Tropical dry	Evergreen	Broken	Lowland
Vegetation	Dipterocarp	forest	deciduous forest	forest	montane forest	evergreen
Zones	forest	Subtropical	with dry	Mixed	Bamboo forest	forest
	Montane forest	Mountain	grassland	dipterocarp/	Tree heath	Lower montane
	Massy forest	Evergreen	0			forest
	Mossy-Pygmy	Deciduous		a contracting	14. marie	Upper montane
	forest	Broadleaved		10000		
	Turus.	Inrest			The second second second	Grasslands.
		Warm temperate			and the second second	Freshwater
		Coniferous		4.4.4.4.4.4.4.4.4	Industrial Edite	wetlands
		Cool temperate		Promin		64 -041 -041 -041
		to subalpine				Coves
		Subalpine				
		The state of the s				
		Scrub and				
	and the second s	meadow alpine	W. V. Warner	79.74	the Control of the Co	244
Floral diversity	957 total	5,000-6,000	No indicative		79 tree species	844 total
	723 angiosperms	species total	data on floral	total		185 trees
	27 gymnosperms		species			345 ferns
	151 ferns					12 fern allies
	13 fern allies					121 shrubs &
	17 mosses					herbs
	13 liverworts					71 lichens
	13 lichens			cal dry Evergreen Broken Lowlar evergreen forest hand dipterocarp/ deciduous forest forest forest forest Undergrowth Upper with small trees forest scrub, grassland and secondary growth with small trees forest moorland zone grassland and secondary growth wetlan Caves dicative 52,500 species total 185 trees 12 feer 121 ship herbs 71 lich 110 br 0.004 0.008 0.018 16 species (0.64% of 2,500) otal 800 species manals 112 mammals 217 species 63 man spirids 392 birds of birds 168 birds 15 butterflies 60 species of invertebrates th species 17 0.0013 0.003 0.0087 In species of birds are Albertine rift endemic calcareous and micaceous sistion Jurassic calcareous and micaceous sistion sail stores and sandstores small areas of underly underly underly small areas of underly	110 bryophytes	
Floral species	0.15	0.005		0.004	8000.0	0.018
per hectare	A MA	WA		447.000		
Floral	163 species (17%	50 genera (20%				
endemism	of 957)	of total flora)	ARM L V. I	ACCOUNT OF THE PARTY OF THE PAR		44.00.00.00
Faunal	423 total	542 vertebrae	407 total			
diversity	26 mammals	102 mammals	6 mammals			63 mammals
	108 avifauna	365 birds	364 birds	And American	a comment	168 birds
	33 reptiles	32 reptiles	1 reptile			25 reptiles
	18 amphiblans	22 amphibians		amphibians	A STATE OF THE STA	26 amphibians
	142 butterflies	731 butterflies			15 butterflies	131 sp & ssp
	46 spiders	1,700 insects				butterflies
	31 odonata				invertebrates	
	4 earthworms					
	15 nematodes					
Parinal analysis	DOSSE	A MADE	36 fish species	0.0013	0.000	0.0007
Faunal species per hectare	0.0665	0.0006	0.1417	0.0015	0.003	0.0007
Faunal	171 species (40%				19 species of	
endemism	of 423)				birds are	
		141	4	-	Albertine rift	
					endemic	
Cali	Compaties	Dradominosti	Deadonicasti	Onemo	December	Dilaman
Soil	Serpentine, ultramafic soil	Predominantly				
composition	40.00.00.00.00.00.00.00.00.00.00.00.00.0	Triassic siltstone,	alluvial with		The state of the s	Quaternary
	containing high	limestone and	some clay			plateau basalt
	concentrations of	slate	deposition	7 10 10 10 10 10 10 10 10 10 10 10 10 10	tertility	and pyroclastic
	nickel, iron and	Permo-				deposits with
	cobalt	carboniferous				forphyritic
		rock		siltstones and		andesites;
				sandstones		chiefly
				Small areas of		underlain by
						intercalated
						agglomeratic
						breccine,
						pyroclastics
						and flowband
						and nowband andesitic
						quintaitic.
						composition

3.d Integrity of the nominated property

MHRWS contains the typical mountain ecosystems of the biogeographic region it belongs to which include the agro-ecosystem, the dipterocarp, the montane, the mossy, and mossy-pygmy forests. These ecosystems harbor an assemblage of endemic, rare and economically important flora and fauna. Of foremost significance is the rediscovery of a nesting Philippine eagle (CR) in its vicinity when it was previously believed to have been locally extirpated. The geomorphology, variations in topography and typical tropical climate of the nominated property have contributed to the development and maintenance of species biodiversity and high endemism in both plants and animals.

The natural tropical bonsai forest or the mossy-pygmy forest which is located at the topmost portion provides an added interesting layer to the property with its century-old fruit-bearing trees standing at less than two meters in height. With a total surface area of 1,234 hectares, it has attracted the interests of national and international scientists because of the presence of globally threatened species such as *Paphiopedilum adductum (CR)*, *P. ciliolare (EN)*, the Philippine Warty Pig *Sus philippensis* (VU), and the Pointed-Snouted Tree Frog *Philautus acutirostris* (VU). Most especially, researchers the world over have their eyes on the new species of pitcher plant *Nepenthes hamiguitanensis* and the equally rare butterfly *Delias magsadana* that can only be found in this habitat.

Overall research findings (Amoroso et al., 2007) indicate that the property is of adequate size to sustain the existing species in the MHRWS. Globally threatened and endemic species along with other more fragile bioindicators such as the butterflies (Mohagan & Treadaway, 2010), odonata (Villanueva & Mohagan, 2010) and the amphibians (Philippine Eagle Foundation; DENR, 2005; PASO File Records) continue to thrive, attesting to the healthy condition of its terrestrial and aquatic habitats. Fresh water emanating from MHRWS remains crystal clear as it leaves the property (PASO File Records), further evidence of the undisturbed condition of the core zone where the major rivers and its tributaries originate.

Agro-forestry plantations – where the presence of human activities is relatively intense – intersperse with remnants of the natural forests within the buffer zone. These agro-forestry plantations are covered by legal instruments such as Community-Based Forestry Management Agreements (CBFMA) and Certificate of Stewardship Contracts (CSC) issued by the DENR prior to the enactment of RA 9303 in 2004. Further up into the dipterocarp and montane areas previously subjected to selective logging until the 1980s, some small patches of open canopies show recovery as the natural regeneration process remain unhampered. Likewise, wild faunal populations appear to be recovering due to the strict prohibition on hunting inside the property. The mossy and the mossy-pygmy/bonsai forests remain untouched by logging operations since the trees in the area are never big enough to be of commercial interest. Neither are there roads in the vicinity precisely because of the absence of logging activities in this portion of the property in the past. Only narrow foot trails can be observed across these portions which have recently become overgrown with mosses and grasses (Ponce, 2011) since MHRWS was closed to visitors for almost a year pending the formulation of the ecotourism business plan.

Other factors contributed to the preservation of the outstanding biological features of MHRWS as well. Except for areas covered by CBFMAs and CSCs, no land conversion for agricultural purposes occurred within the MHRWS even prior to the enactment of RA 9303 in 2004. This is due to the common knowledge that most agricultural plants, particularly short-term crops, do not thrive in ultramafic soil. In addition, the lack of roads and related infrastructures within the property add to the impracticality of the notion. Furthermore, having learned of the existence of the wondrous natural bonsai forest in the early 1990s, the heads of the LGUs with territorial jurisdiction over the property decided to initiate protection and preservation measures, even going as far as rejecting a major proposal for mining in the Municipality of San Isidro.

The enactment of RA 9303 in 2004 added another layer to the local conservation efforts, involving the national government through the DENR. Having been bestowed with the specific mandate to lead in the management and protection of MHRWS, the DENR has organized the MHRWS Protected Area Management Board (PAMB), the policy-making body for MHRWS. The membership of the PAMB includes the local heads of the involved LGUs, the academe, NGOs, POs and IP representatives with the DENR Regional Executive Director as Chairperson. The DENR also established the MHRWS Protected Area Superintendent Office (PASO) which is tasked to implement plans, programs and policies approved by the PAMB. A multi-stakeholder approach to the management of MHRWS is currently in place wherein collaborative and complementary rendering of time, personnel and other resources is the norm. Under this partnership, the following arrangements have been made:

- 1. The MHRWS PAMB, as a collegial body, decides and approves policies, programs, plans and major actions directly affecting the property.
- 2. The stakeholders contribute resources for the management and protection of MHRWS.
- 3. In conducting protection and monitoring activities, the Forest Protection Unit of the PASO takes the lead role while the Bantay Gubat (Community Forest Rangers) Teams of the LGUs provide reinforcements within their respective jurisdictions.
- 4. With prior approval from the PAMB, interested academic institutions will conduct research activities in MHRWS. These institutions are also responsible for securing the funds for such activities.

Recent monitoring activities conducted by the PASO showed that resource extraction activities remain confined to their designated areas outside MHRWS with no indication of progressing into the property (PASO File Records). Furthermore, another monitoring team reported that the designated trail has shown signs of recovery, i.e., moss covering the trail, thicker forest growth, attributing such developments to the closure of the property pending the formulation of the Ecotourism Business Plan. This prompted the team to recommend to the PAMB a regular close season, among others, for tourism activities in the MHRWS (Ponce, 2011).

4. State of conservation and factors affecting the property4.a Present State of Conservation

The protection and management of the MHRWS is currently overseen by the Mt. Hamiguitan PAMB according to the approved MHRWS Management Plan of 2011. The PASO implements the activities set down in the plan as well as the policies and directives issued by the PAMB. Together with the "Bantay Gubat" personnel from the three municipalities with territorial jurisdiction over the nominated property, the PASO conducts regular monitoring and patrol activities all over the core and buffer zones. It is noteworthy that the LGU of San Isidro which has territorial jurisdiction over more than half of the nominated property has shown strong support over the years for the protection of MHRWS. This support combined with the vigilance of the local communities surrounding the MHRWS has helped the PASO in effective monitoring and enforcement which, in a span of two years, has already resulted in one arrest and criminal case filed in court as well as two successful rescue responses involving one Philippine tarsier (NT) and one Philippine brown deer (VU) (PASO File Records).

It is likewise significant to note that the Provincial Government of Davao Oriental as well as the Municipal Governments of San Isidro, General Generoso and Mati have aligned their tourism and development plans to the Management Plan of MHRWS. This move will ensure that the protection of the nominated property will be given adequate importance and consideration and that development in the next few years will not hamper nor detract from the conservation of the biodiversity of MHRWS.

To date, the core zone of the nominated property remains well preserved and intact as evidenced by the results of studies conducted recently (Mohagan & Treadaway, 2010; Villanueva & Mohagan, 2010; Ponce, 2011). The present vegetative cover (Figure 4.1) of MHRWS is composed of 4,668.94 hectares closed canopy forest which includes the 1,234 pygmy forest, 1,139.67 hectares open canopy forest and 540.39 hectares brushland (Table 4.1). The closed canopy forest represents the habitats of 1,379 known plant and animal species, of which 246 are endemic, 45 threatened, 59 rare and 204 of economic importance. Hence, except for 474 hectares, the core zone is classified as Strict Protection Zone (SPZ) wherein human activity is limited to scientific studies while visitor entries are under the strict guidance of the PA rangers. The open canopy forest as well as the brushland will be subject to future rehabilitation to ensure the stability of the habitat of the MHRWS fauna.

Threats to MHRWS such as bio-prospecting, illegal collection of non-timber forest products and unauthorized entry of visitors to the pygmy forest continue to exist. These illegal activities have been considered in the recent formulation of the Management Plan wherein mitigating measures have been likewise identified and are now being implemented by the PASO and its partners. The PASO and its partner stakeholders also conduct the Biodiversity Monitoring System (BMS) every quarter of the year. Data gathered from these activities are presented to the PAMB for translation to policy developments and/or actions.

As an additional layer of threat, mining operations continue just outside of the nominated area buffer zone which will also have some negative implications on MHRWS however indirectly. The MHRWS PAMB is studying possible measures to mitigate this. Thus far, one of the possible options they have considered is the promotion of ecotourism activities in the area to compete with the mining lure for a stable source of income. The LGUs are likewise encouraging ecotourism developments to this end.

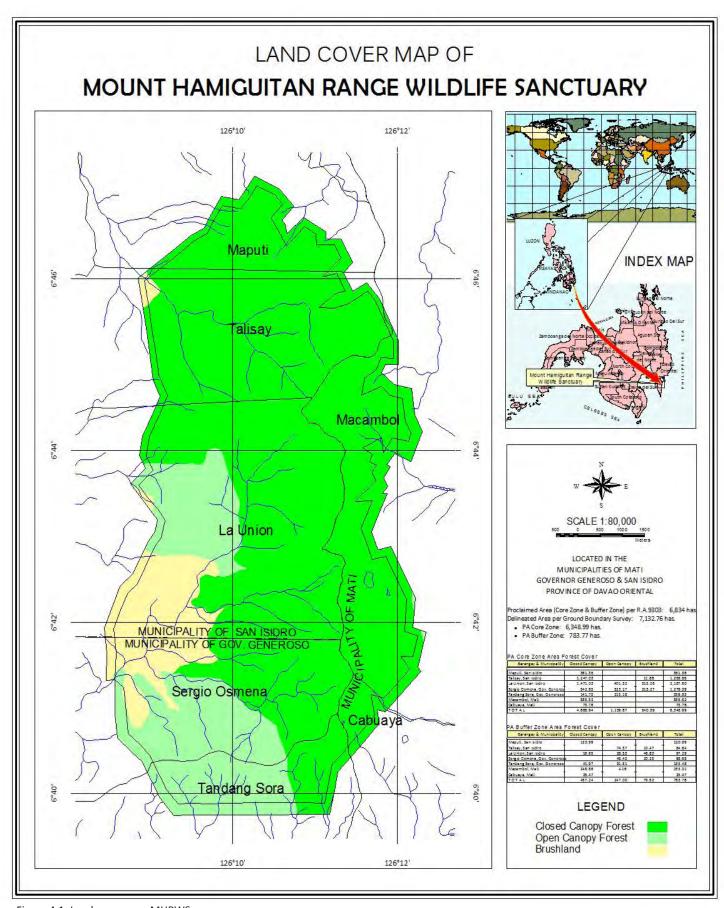


Figure 4.1. Land cover map MHRWS

Table 4.1. Vegetative cover of MHRWS core zone.

Name of Donor	Ve	Tabel		
Name of Barangay	Closed Canopy	Open Canopy	Brushland	Total
Maputi	361.36			361.36
Talisay	1,247.03		11.86	1,258.89
La Union	1,471.03	401.32	315.26	2,187.60
Sergio Osmena	542.65	523.17	213.27	1,279.09
Tandang Sora	141.75	215.18		356.94
Macambul	831.36			831.36
Cabuaya	73.76			73.76
TOTAL	4,668.94	1,139.67	540.39	6,348.99

The nominated property is currently closed to all activities except those related to monitoring and enforcement activities. The monitoring team which recently finished its activities is set to present their results and recommendations to the PAMB regarding the carrying capacity and possible tourism regulations (Ponce, 2011) that need to be in place prior to re-opening of the property to tourism activities.

4.b Factors affecting the Property(i) Developmental Pressures

Mining

Prior to the promulgation of RA, a portion of MHRWS and most of its surrounding area was already under several mining claims. The Working Group of Mining in the Philippines visited the area in 2008 and observed the negative effects of past and existing mining activities. The members also took note of the lack of social acceptance of the mining activities with the indigenous communities affected by it. The Group thus recommended the cessation of all mining activities in the area and, instead, promoted ecotourism activities as an alternative in view of the rich biodiversity, scenic views and communities who showed strong concern for their environment (Goodland & Wicks, 2008). In the same year, the mining claimant conceded the area in favor of MHRWS at the delineation of the protected area boundaries. Unfortunately, mining claims persist outside of the buffer zone that can potentially impact the nominated property. In particular, some of the fauna species, particularly the Philippine eagle, whose habitats extend into the mining areas will be greatly affected. Another negative impact would be the possible illegal cutting of trees in connection to the mining operations if area monitoring is insufficient. These negative impacts can nevertheless be mitigated through judicious monitoring and patrolling of the property and strict enforcement of the laws. Furthermore, the Philippine government's requirement of an Environmental Impact Assessment (EIA) prior to such activities and the LGU thrust to promote ecotourism will help to deter further mining activities in the area.

Industrial Forest Management Agreement (IFMA)

An existing IFMA is located just outside of the property whose operations may have serious negative impacts on the stability on the buffer zone and, ultimately, on the core zone. Prior to being declared a protected area, this IFMA covered a substantial part of the lower slopes of the property on the eastern side. Similar to the case of the mining claimant, the IFMA holder conceded the overlap in favor of MHRWS after RA 9303 was enacted. However, their operations continue outside of the property which, similar to the mining operations, may have direct and indirect negative impacts on the stability of the buffer zone.

Pollution

Currently, there is a minor pollution problem in the property involving small-time offenders such as illegal gatherers and poachers who sometimes leave behind trash and other non-biodegradable materials in their rush to avoid detection and apprehension. It is also expected that the volume of solid, biological and even chemical waste may increase in the future with the promotion of tourism in the area. This potential problem is already being addressed by the PAMB and the heads of the LGUs with the preparation of the ecotourism business plan which, among others, will attempt to find measures to mitigate such problems, if not totally avoid it. As an initial step towards it, the PAMB has tasked the monitoring team to assess the carrying capacity of the property as well as delineate the trails that would be used by tourists in the future (Ponce, 2011) to identify the potential areas for concern.

(ii) Environmental Pressures

The MHRWS currently does not suffer from environmental pressures such as those associated with climate change. Its current problems predominantly center on anthropogenic pressures. However, it is possible that, should climate change impacts increase in severity, e.g., longer periods of droughts, drastic increase in amount of precipitation, storms of higher frequency and intensity, it is likely to affect the pygmy forest first, resulting in soil erosion and washing out of the stunted trees in the areas nearest the water sources. Given the relatively small surface area of the property, this can have severe effects on the biodiversity of MHRWS. In the worst case scenario, this could lead to the loss of a significant amount of habitat and possibly even of its site endemic species.

Furthermore, with the introduction of ecotours in the property, the demand for fresh water in the area is likely to increase depending on the volume of tourists that will be attracted by the property. This early on and as previously mentioned, the PAMB has closed the MHRWS to the public pending the formulation of an ecotourism business plan and has tasked the monitoring team to conduct a study on the carrying capacity of the property. It is hoped that, with proper planning, these potential problems may be circumvented.

(iii) Natural disasters and risk preparedness (earthquakes, floods, fires)

MHRWS sits atop the Hamiguitan Mountain Range and surrounded by forests with only foot trails to access it. This situation renders MHRWS quite vulnerable in the event of a forest fire. Currently, natural factors are protecting the property from such a disaster, i.e., relatively adequate and frequent precipitation in the mountain range, high levels of moisture in the forested areas especially the mossy forests. In addition, each of the LGU has their own disaster response team in place although they are trained to conduct rescue of humans and not of wildlife. There are plans, nevertheless, to incorporate disaster response measures in the ecotourism business plan. The probability of forest fires can be expected to rise with the influx of tourists into the property but it does not necessarily have to be so. This is why the ecotourism business plan is crucial to the management of the property. The plan should have a section solely devoted to natural disasters and risks management.

Flooding of the aquatic habitats is also a possibility in the event that climate change impacts will intensify. However, the probability of this occurring in the near future is low because of the generally pristine condition of the MHRWS and its vegetation. The risks and damages to biodiversity and human lives as a result of flooding is nonetheless of concern to the management. Thus this will also be tackled in the Plan.

Lastly, although fault lines traverse the province of Davao Oriental, the Mt. Hamiguitan Range has been spared of it. Furthermore, there have been few records of earthquakes in the province in the past and these were of low frequency.

(iv) Visitor/tourism pressures

After the accidental discovery of the pygmy forest by a group of documenters in 1993, the interest of mountaineers and nature enthusiasts on the property have gone up resulting in an increase in visitation. In 2009, it was estimated that around 2,500 visitors went up to the pygmy forest. Due to the absence of a management plan, visitor management was handled by the respective municipal governments utilizing their own set of accredited porters who also serve as tour guides. With this set up, visitor monitoring was very lax and variable. However, since those who visited MHRWS, particularly the pygmy forest, were mostly nature lovers and environmentalists, they were conscientious enough not to impact the environment unduly, e.g., the visitors took home their garbage, sticking to the designated trail/path.

In view of this potential problem, the MHRWS Management Plan provided for an ecotourism business plan specific for the property. In conformance to this provision, the PAMB of MHRWS issued Resolution 2010-02 (Appendix 7) indefinitely closing MHRWS to visitors, except for research purposes, until such time as a responsive visitor management program is in place. Corollary to this, MHRWS PAMB also issued Resolution 2010-03 (Appendix 8) adopting the 7-point agenda as major requirements for the reopening of MHRWS to visitors. This 7-point agenda includes:

- 1. Clean up drive by the respective LGUs;
- 2. Carrying capacity assessment;
- 3. Trail assessment, development and/or rehabilitation;
- 4. Development of camp sites, basic facilities, amenities and recreation areas;
- 5. Identification and development of alternative tourist destination within MHRWS or adjacent areas;
- 6. Capability building; and
- 7. LGU mountaineering and trekking ordinance with detailed guidelines. Having these in place, it is expected that a more efficient and effective visitor management program will minimize the expected negative tourism impacts in MHRWS.

(v) Number of inhabitants within the property and the buffer zone

Estimated population located within: Area of nominated property: less than 100

Buffer zone: less than 100 Total: less than 200 Month/Year: June 2011

5. Protection and Management

5.a Ownership

The parcel of land under MHRWS is classified as timberland under Land Classification Map Nos. 2660 and 2687. As such, it belongs to the state and is non-alienable. The DENR is the government agency assigned as its administrator.

The DENR, being the administrator, can issue tenure agreements with individuals, cooperatives or corporations in the form of lease agreement, joint venture, production-sharing agreement or

stewardship contract over public forestlands. As early as the 1970s, there were already some tenurial instruments (TIs) issued by the DENR over the MHRWS area prior to the promulgation of RA 9303 in 2004. These TIs include CSCs, CBFMAs and IFMAs. All these TIs have a 25-year effectivity period and may be renewed for another 25 years.

The CSCs were issued starting in the late 1970s to Filipinos residing at or near their areas applied for to help the government in the protection of specific forest lots and to develop them in accordance to the appropriate land use such as agro-forestry or reforestation. The CBFMAs were issued starting in the early 1990s up to the early 2000s to Peoples Organizations (POs) engaged in reforestation projects. The majority of area covered by these CBFMAs falls outside of the MHRWS. Portions of the CBFMA area that fall inside the protected area has been specifically set aside as protection forest in the CBFM land use plan of the POs or tenure holders to be consistent with the provisions of NIPAS law. With the concerted information campaign conducted by the DENR, PAMB, PASO, LGUs, and NGOs, these CBFM POs are now aware of the importance of maintaining the integrity of MHRWS. In effect, these POs are the local partners of the DENR in implementing vegetative cover restoration. They also serve as an added layer of defense in the protection of MHRWS. The fact that the property includes the headwater of river systems that supplies water to the communities adds impetus the local and indigenous cultural communities' support for the protection of the proclaimed sanctuary.

The IFMA, as mentioned in Secton 4.b(i), was issued to Asia Pulp and Paper Integrated Mills, Inc. prior to the declaration of the property as a protected area. However, their claimed area overlapping with the nominated area was ceded back to DENR upon the enactment of RA 9303.

5.b Protective designation

The RA 7586 which was promulgated in 1992 established the "National Integrated Protected Area System" or NIPAS of the Philippines. This Act was in conformity to the State's policy which states that

"Cognizant of the profound impact of man's activities on all components of the natural environment particularly the effect of increasing population, resource exploitation and industrial advancement and recognizing the critical importance of protecting and maintaining the natural biological and physical diversities of the environment notably in areas with biologically unique features to sustain human life and development as well as plant and animal life, it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national parks as provided for in the Constitution."

Under this law, there are seven categories of protected areas as follows:

- a) Strict nature reserve;
- b) Natural park;
- c) Natural monument;
- d) Wildlife sanctuary;
- e) Protected landscape and seascapes;
- f) Resource reserve;
- g) Natural biotic areas; and
- h) Other categories established by law, conventions or international agreements to which the Philippine Government is a signatory.

The RA 9147 (Appendix 9), also known as the "Wildlife Resources Conservation and Protection Act," stipulates the policy of the state to conserve its wildlife resources and their habitats or sustainability with the objectives of:

- a) Conserving and protecting wildlife species and their habitats to promote ecological balance and enhance biological diversity;
- b) Regulating the collection and trade of wildlife;
- c) Pursuing, with due regard to the national interest, the Philippine commitment to international convention, protection of wildlife and their habitats; and
- d) Initiating or supporting scientific studies on the conservation of biological diversity.

This Act also provides safeguards and measures against any abuse or detrimental acts to the wildlife resources of the Philippines.

Pursuant to the NIPAS Law, MHRWS was declared as a wildlife sanctuary under Republic Act No. 9303 which took effect July 30, 2004 "Declaring Mt. Hamiguitan Range and its Vicinities as Protected Area under the Category of Wildlife Sanctuary and its Peripheral Areas as Buffer Zone." Aside from the institutional mechanisms which are prescribed in this Act (discussed in Section 5.c below), RA 9303 also specifies for (a) ancestral rights, (b) proper settlement of tenured migrants, (c) Integrated Protected Area Fund, (d) the prohibited acts, and (e) the prosecution of violators with the corresponding fines and penalties for violators.

5.c Means of implementing protective measures

Section 6 of RA 9303 stipulates that MHRWS is under the administrative jurisdiction of the DENR through the PAMB with the following institutional arrangements quoted from RA 9303:

(A) The Department of Environment and Natural Resources (DENR). The Secretary of the DENR shall have supervision over the management of Mt. Hamiguitan Range Wildlife Sanctuary, hereinafter referred to as the Protected Area (PA), and is empowered to perform any and all of the following acts:

- 1. Cause the boundary demarcation of the PA;
- 2. Conduct of studies on various characteristics, features and conditions of the PA;
- 3. Adopt and enforce land-use schemes and zoning plan in adjoining area that may threaten the ecological balance in the PA;
- 4. Certify that the PA Management Plan conforms to all national rules and regulations on protected area management, and to communicate objections, if any, to the PAMB within sixty (60) days upon receipt thereof, otherwise the PA Management Plan is considered approved;
- 5. Coordinate with other government agencies, academic institutions, etc., for collaborative programs, projects and activities affecting the PA;
- 6. Submit to the Office of the President and to Congress the annual report of the PA; and
- 7. Formulate the implementing rules and regulations necessary to carry out the provisions of this Act.

(B) The Protected Area Management Board (PAMB). The Protected Area Management Board shall serve as the highest policy-making body of the Mt. Hamiguitan Range Wildlife Sanctuary. It shall be composed of the following: the Regional Executive Director (RED) of DENR Region XI who shall act as PAMB Chairman; the Provincial Governor of Davao Oriental or his authorized representative; the Provincial Planning and Development Officer or his authorized representative; the municipality/city mayors of Mati, San Isidro and Governor Generoso or their respective authorized representatives; all barangay captains within Mt. Hamiguitan Range Wildlife Sanctuary; three (3) representatives from people's organizations and non-government organizations from

the municipalities of Mati, San Isidro and Governor Generoso; representatives from other departments or national government agencies operating within the protected area which can potentially contribute to protected area management; and other stakeholders who can potentially contribute to the protection, preservation and conservation of the Mt. Hamiguitan Range Wildlife Sanctuary.

Specifically, the PAMB shall exercise the following powers and functions:

- 1. Review, approve and adopt a management plan for the PA;
- 2. Review the deputation of individuals/groups to augment the PA's protection personnel and thereafter indorse the list to the regional executive director for approval;
- 3. Fix and impose administrative fees for the use of the PA and fines for violations of prohibited acts in the PA;
- 4. Approve contracts and agreements consistent with the purpose of this Act except international contracts and agreements;
- 5. Accept donations and grants in the form of contributions and endowments;
- 6. Review and approve a work and financial plan for the PA;
- 7. Coordinate with other government agencies, academic institutions, etc., involved in the management, development and conservation of the PA;
- 8. Submit an annual report to the DENR Secretary;
- 9. Delegate authority to the PAMB Executive Committee;
- 10. Prepare or cause the inventory of protected flora and fauna;
- 11. Permit, control or regulate the following within the PA:
 - (a) Infrastructures;
 - (b) Public Utilities;
 - (c) Occupancy of appropriate management zones;
 - (d) Dumping of waste;
 - (e) Use of motorized equipment;
 - (f) Business enterprise;
 - (g) Other use of the PA such as mountain climbing, research or study; and
 - (h) Recreational activities.
- 12. Promulgate rules and policies for the conduct of its business; and
- 13. Initiate and file suits against entities whose existence and/or operations have detrimental effects on the PA.
- (C) The DENR Regional Executive Director (RED) for Region XI:
 - 1. As chairman of the PAMB, sign/approve contracts and agreements consistent with this Act except international contracts and agreements; and
 - 2. Approve the deputation of field officers.
- (D) The Protected Area Superintendent's Office (PASO). There is hereby created a Protected Area Superintendent's Office which shall be supported by a sufficient number of personnel who shall perform day-to-day management, protection and administration of the PA. The head of the office shall be the chief operations officer of the Mt. Hamiguitan Range Wildlife Sanctuary and shall be accountable to the RED of the DENR-Region XI and the PAMB.

Section 11 of RA 9303 also stipulates that the LGUs within MHRWS shall be bound to follow the management plan and adopt it once approved. The LGUs shall not pass ordinances to amend the management plan nor shall the management plan be overturned by an ordinance. It further stipulates that any development or project proposals of the LGU within the MHRWS shall, prior to its implementation, be reviewed, evaluated and approved by the PAMB.

5.d Existing plans related to municipality and region in which proposed property is located

- 1. The provincial government of Davao Oriental has included the Mt. Hamiguitan as one of its ecotourism destination site.
- 2. On the conceptualization and planning stage for the establishment of the Davao Oriental Museum which shall be located just 10 kilometers north of MHRWS A section of this museum will feature Mt. Hamiguitan.

5.e Property management plan or other management system

between MHRWS and the mining claim.

In accordance to Section 5 of RA 9303 and the General Management Planning Strategy as prescribed by RA 7586 or the NIPAS Law, a management plan was prepared and approved by the MHRWS PAMB last December 2009. A copy of this plan is attached as Dossier Volume 3. The drafting of this plan was made possible after the following were accomplished:

Ground delineation and demarcation of the core and buffer zones of MHRWS.
 Following the technical descriptions of the boundaries of MHRWS as provided under RA 9303, the boundaries were delineated and demarcated on the ground. The boundaries of both the core and buffer zones were delineated and demarcated. The field surveys were witnessed by representatives of the mining claimant and the results were acknowledged by these representatives. This arrangement settled the issue on the supposed overlap

A concrete monument inscribe with the corresponding corner number was installed at every boundary corner of MHRWS. All these monuments serve as the permanent markers of the PA.

2. Protected area profiling and inventory studies of the flora and fauna composition of MHRWS.

After completing the boundary surveys, the profiling of MHRWS conducted which involved the documentation of the bio-geophysical, climatological and socio-political attributes of MHRWS.

3. Situational Analysis

Having completed the MHRWS profile, a comprehensive picture of property was then realized. At this stage, the PAMB and the stakeholders had a clearer appreciation of the outstanding universal values of MHRWS. It was also at this point that the integrity of MHRWS particularly its large area of natural tropical bonsai forest was confirmed to be of pristine condition.

4. Management zoning

Pursuant to the provision of the NIPAS Act, management zoning was conducted over the entire MHRWS area, including the buffer zone. Portions of MHRWS which were at their pristine or near-pristine conditions especially the habitats of species with high conservation values were classified as Strict Protection Zone (SPZ) wherein all activities which could create environmental disturbance were prohibited. The Buffer Zone and those portions of the MHRWS core zone with low integrity particularly those areas with frequent human activities were classified as Multiple-Use Zone (MUZ) where these human activities are allowed but within limits provided that their environmental impacts were of tolerable levels.

After acquiring sufficient data as basis for analyzing the current situation, the management plan of MHRWS was crafted. Based on the current situation and the primary objective for its creation, the MHRWS Management Plan aimed to preserve its integrity with the following key management issues and goals:

- a. Preservation and protection of the natural bonsai forests, the unique flora and fauna, the endangered and rare species, and the different ecosystems inside MHRWS including additional research to determine additional features.
- b. Strengthen management capabilities and capacities of MHRWS management specifically the PAMB and PASO.
- c. Determine appropriate ecotourism activities with the corresponding carrying capacities to avoid damage of the different features of MHRWS.
- d. Determine appropriate and sufficient livelihood activities of communities surrounding MHRWS to divert their attention from exploiting the resources inside and make them partners in protecting it.

Figure 5.1 shows the management structure and the interrelationship among the agencies which are concerned in the management of MHRWS. The DENR (through the PAWB), being the National Government agency which is mandated for the management of all the protected areas in the Philippines, has the overall jurisdiction of the MHRWS. It is represented locally by the Regional Executive Director (RED) of DENR-XI. The Regional Technical Director for Protected Areas, Wildlife and Coastal Zone Management Services assists the RED on PAMB concerns while the PENRO of Davao Oriental assists the RED in the supervision of the PASO.

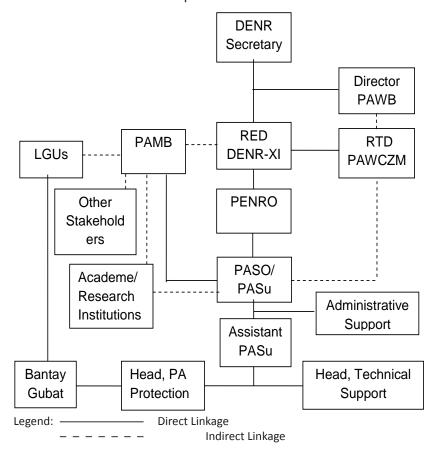


Figure 5.1. Management Structure of MHRWS and the interrelationship among the agencies.

5.f Sources and levels of finance (2011-2020)

The current funding for the MHRWS operation comes from combined sources. At present, the main fund source is from the national government with contributions from the Provincial Government of Davao Oriental and the three municipalities of MHRWS. The amounts of funds provided are as follows:

National Government:	PHP 5,000,000.00
Provincial Government of Davao Oriental	5,000,000.00
Office of the Representative Davao Oriental 2nd Congressional District	10,000,000.00
Kalumunan Development Center	2,000,000.00
Municipality of San Isidro	1,000,000.00
City of Mati	500,000.00
Municipality of Governor Generoso	500,000.00
Total	PHP 24,000,000.00

Based on the key management issues, goals and objectives, the corresponding activities and the corresponding budget are enumerated in Table 5.1 below (MHRWS 10 year work plan).

This budget is not enough considering that there are a number of studies and activities that must be conducted to fully understand the different features and characteristics of MHRWS as well as the necessary management interventions to improve some degraded ecosystems inside MHRWS.

Other activities which are not included in this plan may be carried out provided the fund source is secured through the integrated protected area fund (IPAF), an integrated protected area fund that has been set up by the NIPAS Act. Section 16 of the NIPAS Act states: "To augment further its fund, the IPAS may solicit and receive donations, endowments, and grants in the form of contributions, and such endowments shall be exempted from income or gif taxes and all other taxes, charges or fees imposed by the Government or any political subdivision or instrumentality thereof". All incomes generated from the operation of the System or management of wild flora and fauna shall accrue to the Fund and may be utilized directly by the DENR for the above purpose.

Table 5.1. MHRWS 10 year work and financial plan.

Activity			Yea	r of		lem	enta	tior	1		Budget
	1	2	3	4	5	6	7	8	9	10	
A. Preservation and protection of the											
ecosystems											
Monitoring & protection activities											3,000,000.00
2. Biological & ecosystems researches											3,000,000.00
Rehabilitation of degraded ecosystems											5,000,000.00
 Conduct Information, Communication and Education (ICE) campaign 											1,200,000.00
B. PAMB and PASO strengthening &											
regular activities											
 Conduct refresher seminar to PAMB members on the authorities, duties and responsibilities of PAMB members based on RAs 9303 and 7586 and cross visits. 	_	_									100,000.00
Paralegal seminars for PASu staff and Bantay Gubat members on their police powers (RA 7586)	_	_									100,000.00
Deputize Bantay Gubat Members as Environment & Natural Resources Officers (DENRO)	_	-									600,000.00
4. PAMB meetings											3,500,000.00
C. MHRWS Ecotourism											
Conduct ecotourism business planning.	_										200,000.00
D. Community Development Activities											
Conduct community tenure assessment	_	_									200,000.00
Implement community alternative livelihood activities/IGPs.											3,000,000.00
E. Infrastructure Development											
1. Trail development	_										200,000.00
2. Look-out towers (3) construction	_	_									900,000.00
Foot bridge construction (at bonsai forest)			-								3,000,000.00

These incomes shall be derived from:

- a. Taxes from the enterprises permitted by the PAMB
- b. Proceeds from lease of multiple-use areas;
- c. Contributions from industries and facilities directly benefiting from the protected area; and
- d. Such other fees and incomes derived from the operation of the protected area.

Disbursements from the Fund shall be made solely for the protection, maintenance, administration, and management of the System, and duly approved projects endorsed by the PAMBs, in the amounts authorized by the DENR".

5.g Sources of expertise and training in conservation and management techniques

Universities in Mindanao

Aside from the capabilities of the DENR Regional office, expertise is available in some universities in Mindanao. The comprehensive biodiversity survey conducted in Hamiguitan was carried out by researchers from the Central Mindanao University, University of the Philippines-Mindanao, University of Southern Mindanao, and Davao Oriental State College of Science and Technology. MHRWS now has local researchers who can accurately identify the flora and fauna of Mt. Hamiguitan and who are competent in the use of the Global Positioning System.

Non-Government Organizations (NGOs)

Expertise on biodiversity conservation is also available from NGOs who have collaborated with MHRWS management. Among these are the Philippine Eagle Foundation (PEF) and Conservation International (CI). International scientists from Germany and Japan have already conducted studies at MHRWS. International scientists are allowed to conduct researches and studies inside the MHRWS provided the corresponding permit is secured from the DENR and PAMB prior to the activity.

Other sources of expertise

Experts from the UP Visayas and UP Diliman shall also be tapped in a wide range of potential research studies in the property. Interventions or technical assistance from relevant international organizations and the World Heritage Advisory bodies shall also be sought to ensure effective and responsive conservation and management of the MHRWS.

5.h Visitor facilities and statistics

As mentioned in Section 4.b(iv), the annual volume of visitors to the pygmy forest gradually increased since its accidental discovery in 1993. In 2009, an estimated 2,500 visitors went up to the pygmy forest. Due to the absence of a management plan, visitor management was handled separately by the LGUs independently of each other. Thus visitor data is incomplete.

In terms of visitor lodging facilities, there is one site-based lodging house called the Long House located at Sitio Tumalite in Barangay La Union which is near the boundary of MHRWS. It can accommodate up to ten persons. In terms of other tourism activities and destinations, the municipalities of Governor Generoso and San Isidro and the City of Mati offer several options including beaches, diving and surfing sites, waterfalls, coves, inland bodies of water, caves etc. The hotel accommodations in these three places total approximately 300 rooms.

5.i Policies and programs related to the presentation and promotion of the property

The Municipal government of San Isidro has conducted an IEC program to educate local stakeholders on the importance of protecting the endemic and threatened plant and animal species found in the protected area. The IEC materials (Appendix 4) contained information on scientific names, local name and conservation status of the various species of flora and fauna of MHRWS. The IEC is aimed at promoting awareness on the conservation and protection of these important species.

The IEC materials were disseminated to the communities and distributed to the local researchers to be used in identifying and monitoring the species. Likewise, the research outputs were disseminated to the public during regional and international scientific meetings and symposia such as University and Regional Research and Development Symposia, Flora Malesiana Symposium in Leiden, The Netherlands and to the scientific committee of the Mt. Hamiguitan Wildlife Sanctuary of DENR Region XI, Davao City. Presentation of the initial results was also conducted for the local researchers and head of the village in Macambol, Mati City in the province of Davao Oriental. The research outputs were also presented to the Mayors, Municipal Planning and Tourism Officers, barangay captains, members of the Protected Area Management Board and the Bantay Gubat of MHRWS in the three municipalities.

The PAMB thru the PASO also conducts IEC on a regular basis, along with linkages with the stakeholders and concerned agencies/parties, including research individuals or institutions, to strengthen the awareness and support for the conservation and protection of the property. As a result, MHRWS has been highlighted in various local and international conferences, fora and symposia, including the International LTER symposia (October 2006 and November 2010) and the 4th Symposium on Asian Pteridology and Garden Show, Central Mindanao University, Musuan, Bukidnon, Philippines (November 2007).

5.j Staffing levels (professional, technical, maintenance)

The PAMB for Mt. Hamiguitan Range Wildlife Sanctuary consists of the following members:

- 1. Regional Executive Director of DENR Region XI as Chair of the Board
- 2. Governor and Provincial Planning Officer of Davao Oriental
- 3. Mayors of the Municipalities of San Isidro and Governor Generoso and Mati City
- 4. Barangay Captains of village centers in the protected area
- 5. Representatives from the academe, NGOs and POs
- 6. Tribal chieftains of Indigenous Peoples

The Protected Area Superintendent's Office (PASO) has the following composition:

- 1. Technical/Administrative Services
 - Protected Area Superintendent
 - Asst. Protected Area Manager
 - Head PA Protection Officer
 - PA Administrative Aide/Driver
- 2. Support Staff (concurrent staff from CENROs concerned)
 - Patrol Sector 1 (San Isidro, Davao Oriental)
 - o Protection and Warden Officers (#3)
 - Patrol Sector 2 (Gov. Generoso, Davao Oriental)
 o Protection and Warden Officers (#2)
 - Patrol Sector 3 (Mat, Davao Oriental)
 - o Protection and Warden Officers (#2)

6. Monitoring

6.a Key indicators for measuring state of conservation

Table 6.1. below presents the monitoring indicators for measuring state of conservation of the nominated property.

Indicator	Periodicity	Location of Records
 Monitoring and protection of stocks/populations of threatened and rare species. 	Annual	MHRWS PASO, DENR, and research partners, collaborators
a. Agro-ecosystem		
- Flora	7	
Shorea astylosa		
Diospyros philippinensis		
b. Dipterocarp forest		
b.1 Flora		
Platycerium coronarium		
Rhododendron kochii		
Shorea astylosa		
Shorea polysperma		
b.2 Fauna		
Acerodon jubatus		
Phapitreron cinereiceps		
Tarsius syrichta		
Pinelopides panini		
c. Montane forest	-	
c.1 Flora		
Nepenthes copelandii		
Paphiopedilum adductum		
Platycerium coronarium		
Rhododendron kochii		
Shorea astylosa		
Shorea polysperma		
c.2 Fauna		
Pinelopides panini		
Tarsius syrichta		
d. Mossy forest		
- Flora		
Paphiopedilum ciliolare		
Dendrobium sanderae var. surigaense		
e. Pygmy forest		
e.1 Flora		
Nepenthes peltata		
Nepenthes micramphora		
Nepenthes hamiguitanensis		
Nepenthes copelandii		
Paphiopedilum adductum		

Table 6.1.	Cont.	Monitoring	indicators	for	measuring	state	of	conservation	of	the	nominat	ed
property.												

property.	1	
e.2 Fauna	1	
Batomys hamiguitan		
Delias magsadana		
Coladenia ochracea		
Colandenia semperi		
Arisbe euphratoides		
Calamaria virgulata		
Lipinia vulcanium		
Megophrys stejgeneri		
2. Protected area occupants or tenured migrants	Quarterly	PASO
confined to their respective permitted areas and		
activities.		
a. Household number		
b. Occupied area		
 Presence/absence of not permitted activity(ies) 		
Controlling the entry of visitors into MHRWS.	Monthly	PASO
Regulating the extraction of flora, fauna and/or	Monthly	PASO
other resources from the MHRWS.		
5. Mitigating the unsustainable land use practices	Monthly	PASO
adjacent the MHRWS.		
6. Effective management and administation of the	Every 3 Years	PASO, DENR
protected area.		
i. Mitigating the unsustainable land use practices adjacent the MHRWS. ii. Effective management and administation of the		

6.a.1 Monitoring and protection of stocks/populations of threatened and rare species

There are quite a number of threatened and rare plant and animal species inhabiting the different ecosystems of MHRWS. To facilitate monitoring of the stock, inventories (or individual counts) shall be limited to critically endangered, endangered and rare species. The presence of vulnerable and

near threatened species shall be recorded but these species shall not be subjected to individual counts. These stock inventories will be conducted annually.

The current MHRWS Management realigned its activities to the requirements of the UNESCO-WHC for the potential inscription of the property to the World Heritage List. Included in this adjustment is the inclusion of these individual counts of the threatened and rare species which are yet to be conducted. Prior to the nomination, in lieu of the individual counts, the MHRWS Management has relied on stringent protection measures to ensure the continued existence of these species. These protection measures included foot patrol, detection and surveillance work inside and around the MHRWS and monitoring of activities surrounding the property which serves to deter any illegal activity inside the PA.

The property has also been closed to visitors since April 2010 pending the formulation of the ecotourism management plan. Recent monitoring activities showed that this PAMB order had been carried out effectively and with good results (Plate 6.1).



Plate 6.1. Trail inside MHRWS is almost extinguished as a result of the absence of visitors for more than one year.

6.a.2 Protected area occupants or tenured migrants confined to their respective permitted areas and activities

There are existing Protected Area occupants or tenured migrants because these were awarded their tenurial instruments (TIs) or permits prior to the declaration of this property as a protected area. Clarified under these TIs and permits are the specific boundaries and the allowable activities within their allotted area. Monitoring activities are conducted quarterly to ensure that these occupants follow the terms and conditions of within the property.

Recent monitoring activities have shown that these forest occupants have abided by the terms and conditions of their respective TIs. Findings showed that the protected area occupants (39 households with 184 members) limited themselves to the agreed upon area of about 186 hectares for their farmlots and houselots combined (Table 6.2) (PASO File Records). The rest of the protected area and its buffer zone are uninhabited by humans.

Table 6.2. Survey and Registration of Protected Area Occupants as of June, 2011.

SUMMARY OF SURVEY AND REGISTRATION OF PROTECTED AREA OCCUPANTS INSIDE MHRWS Located at Purok 8, Barangay Sergio Osmeña, Gov. Generoso, Davao Oriental As of June, 2011

NO. OF HOUSEHOLD MEMBERS		OF HOUSEHOLD DATE OF					*AREA		AGRO-FORESTRY PRACTICE						
		TYPE	%	OCCUPANCY	FARM	RM HOUSELOT	TOTAL	AGRICULTU	FORES	TRY	LIVESTOCK				
MALE	FEMALE	TOTAL	TRIBE		(YEAR)	LOT(Ha.)	(sq. meter)	(Ha.)	TYPE OF CROPS	*AREA	SPECIES	QNTY.	KIND	QNTY.	
109	75	184	Mandaya	46	1952-2011	185.5	5,700	186.7	coconut, coffee,	77.5	Gemelina	3 ha.	chicken	110	
(59%)	(41%)	(covering 39	Surigaonon	4	200000000000000000000000000000000000000	22.00			corn, vegetables,	1.000	Falcata	2.5 ha.	horse	4	
		households)	Boholano	15					fruit trees		Tanguile	30 hills	goat	4	
		1	Leyteño	8							Yakal	80 hills	pig	5	
			Cebuano	27							Guijo	50 hills	duck	2	

6.a.3 Controlling the entry of visitors to MHRWS

Unauthorized entry to MHRWS is one problem which affects the conservation efforts for the biodiversity in the property. Visitors who enter the property without permits may not be oriented on the proper conduct inside MHRWS. Hence, they are the most probable cause of damage as compared to those who enter with permits.

One of the protection measures which are regularly conducted by the MHRWS Management is the monitoring of illegal entries. This monitoring activity is performed by the PASO personnel with complementation by the Bantay Gubat members assigned at the different entry points of the property. Since the closure of the property to visitors in April 2010, there has been no report of illegal entry inside the property.

6.a.4 Regulating the extraction of flora, fauna and/or other resources from the MHRWS

Another protection measure being conducted by the MHRWS Management is the monitoring of illegal gathering of plants, animals and other resources inside the MHRWS. Similar to previously mentioned problem, parties who extract resources inside the property without permits are often have the tendency to cause more damage. Again, constant monitoring activities by the protection teams help to deter such activities. IEC activities among the MHRWS occupants also help to prevent any illegal resource extraction from the property by increasing their awareness and inspiring them to be vigilant against such violations.

6.a.5 Mitigating the unsustainable land use practices adjacent to the MHRWS

A number of fauna have habitats which extend beyond the boundaries of the property. Thus, activities adjacent to MHRWS will have an impact either directly or indirectly on the biodiversity conservation efforts of management. Thus constant monitor of activities even outside of the property is done by the PASO as well. Results of recent monitoring activities, however, showed that such potentially deleterious activities outside of the property are too far at the moment to pose any negative impact on the property. Nevertheless, the PAMB, along with the LGUs and the PASO, continue to conduct IEC campaigns to increase awareness and support for the conservation of the property. Figure 6.1 shows the photomap of recent monitoring of MHRWS.

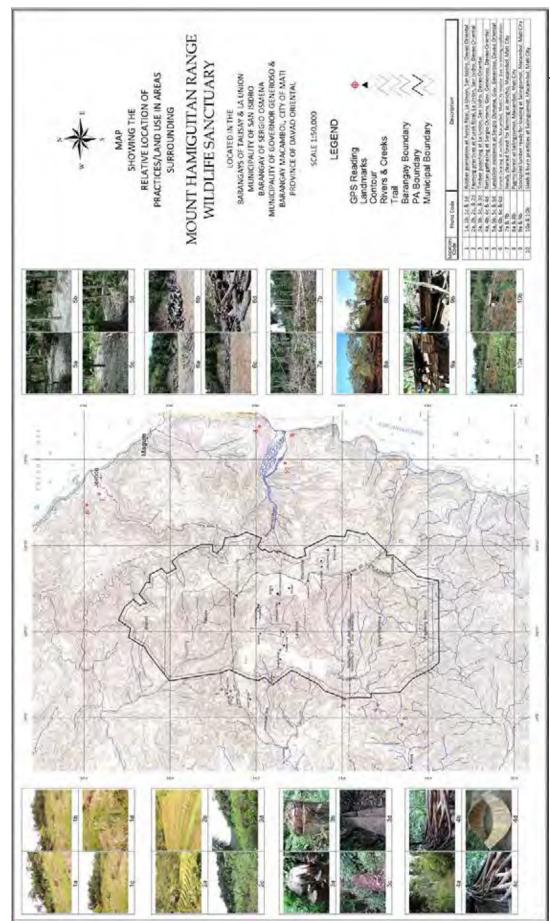


Figure 6.1. Photomap of the recent monitoring of MHRWS

6.a.6 Effective management and administration of the protected area

Management Effectiveness Assessment (MEA) is the evaluation process of how well a protected area is being managed primarily to the extent to which it is protecting values and achieving goals and objectives of the protected areas (Hockings, Stolton, Leverington, Dudley, & Courrau, 2006). It includes consideration of design issues, the adequacy and appropriateness of management systems and processes, and the delivery of the protected area objectives including conservation of values.

The Management Effectiveness Tracking Tool (METT) is its self-assessment tool designed to measure how effective a protected area is being managed. It is a self-reflection of the PAMB on how well it is doing in managing the MHRWS as a protected area. The METT aims to determine/ track progress of protect area management effectiveness over time; to identify weaknesses and areas for improvement; and to identify and agree on adaptive strategies/activities to ensure effective management into the future. The METT will be used in MHRWS every three years to carry out management effectiveness assessment.

Figure 6.2 shows the MEA-METT Conceptual Framework. This framework helps ensure that the PA management is on the right track and can design and implement the necessary actions to rectify any deficiency in the management and protection of MHRWS.



6.b Administrative arrangements for monitoring the property

DENR: Department of Environment & Natural Resources - XI

Km. 7, Lanang Davao City 8000

Tel. No. +6382 235 1201 c/o Emmanuel Isip

Regional Technical Director for PAWCZMS

MHRWS PAMB/PASO:

Mt. Hamiguitan Range Wildlife Sanctuary-Protected Area Superintendent Office Government Center, Batobato, San Isidro, Davao Oriental E-mail: ruelcolz@yahoo.com; Mobile No. +63928 315 7277

c/o Ruel D. Colong

Protected Area Superintendent

NGO: Kalumonan Development Center, Inc.

Pob. Batobato, San Isidro, Davao Oriental

Tel. No: +6387 811 3123 c/o Justina MB Yu Executive Director

Academe/Research Institutions:

Central Mindanao University & University Town, Musuan, Bukidnon E-mail: amorosovic@yahoo.com; Mobile No. +63917 549 5084 c/o Dr. Victor B. Amoroso Scientist III & Chair, Phil. Nat'l. Committee on LTER & DIVERSITAS

Davao Oriental State College of Science and Technology Mati, Davao Oriental c/o Dr. Lea A. Jimenez Director for Research and Extention Tel. No. +6387 388 3195

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c/o Jayson C. Ibanez
Director for Research & Conservation

University of Southern Mindanao Kabacan, North Cotabato E-mail: johnariestabora@yahoo.com c/o Prof. John Aries Tabora Professor, Department of Biological Sciences

6.c Results of previous reporting exercises

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY UPDATE AS OF 30 JULY 2010

Brief Background

- The Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) is a Protected Area established under R.A. 9303 of 2004 which was enacted pursuant to R.A. 7586, otherwise known as NIPAS Act of 1992.
- MHRWS is located in the Municipalities of San Isidro and Gov. Genoroso and Mati City, all in the Province of Davao Oriental with an area of 6,834 hectares. However, it has an area of 7,132.76 hectares per boundary delineation survey.
- Mt. Hamiguitan Protected Area or the MHRWS is under the general management and administration of the Protected Area Management Board (PAMB) with members composed of National Government agencies (with DENR as lead agency), local government units (Mun. Gov't. of San Isidro, Gov. Generoso & Mati City and the Prov'l. Gov't. of Davao Oriental), Non Government Organizations, Peoples Organizations/Indigenous People and the Academic Institution.
- The day-to-day management, administration and protection of the Protected Area (including implementation of PA plans/programs/projects/activities) are being carried out by the Protected Area Superintendent (PASu) Office of the PAMB and the DENR headed by the designated PASu as the DENR Chief Operating Officer.
- Mt. Hamiguitan Range Wildlife Sanctuary in Mindanao, Philippines is the only protected forest noted for its unique bonsai field or 'pygmy' forest of 100-year old trees in an ultramafic soil. Mt. Hamiguitan has been found to have five (5) vegetation types and these are the agroecosystem, dipterocarp, montane, typical mossy and the mossy-pygmy forest.
- The diversity of habitat and plant and animal species in this PA is attributed to the geologic setting. Mount Hamiguitan is an ultramafic terrain giving rise to an ultramafic forest and associated diverse habitats and flora and fauna. At the national level, Hamiguitan is a conservation interest. At a global scale, this Protected Area is known to be habitats of globally important species of plants and animals. Being sanctuary of endemism, it possesses the highest and richest bio-diversity in terms of flora and fauna per unit area having unique, rare and threatened endemic species of outstanding universal value.
- Other points of interest inside MHRWS are the (i) Tinagong Dagat (Hidden Lake), (ii) Twin Falls, (iii) Hidden Garden all located within or at the fringe of the pygmy forest.

New Development

- There are newly discovered/recorded site-endemic species in MHRWS, meaning these species can be only found in Mt Hamiguitan and nothing in any part of the Wold. These species are the following:
 - Nepenthes peltata
 - Nepenthes micramphora
 - Nepenthes hamiquitanensis
 - Hamiguitan Hairy-tailed Rat *Batomys hamiguitan*. This is in addition to the previously recorded site-endemic butterfly *Delias magsadana* (the rarest butterfly sp.)

Regular Activites Conducted

- PA protection thru foot patrol, surveillance and detection work. This is being undertaken on a monthly basis.
- Implementation of Biodiversity Monitoring System. This is being carried out on a quarterly basis.
- PAMB operationalization. The PAMB regular and special meetings and related activities are being facilitated by the PASu office as its secretariat and implementing office.

During the Regular PAMB Meeting held on 25 March 2010, the PAMB has passed two (2) important resolutions, as follows:

- MHRWS-PAMB Resolution 2010-02, a resolution approving the indefinite closure of MHRWS to visitors/mountaineers/trekkers effective 03 April 2010 except for duly approved scientific research studies and activities in line with its 7-Point Agenda; and
- MHRWS-PAMB Resolution 2010-03, a resolution approving and adopting the 7-Point Agenda as major requirement in re-opening the MHRWS for nature recreation particularly to visitors/ mountaineers/trekkers, to be co-managed by LGU/s concerned.

Special Activities Conducted

- Delineation/demarcation of PA boundary.
 - Actual ground survey was conducted and completed in 2007 with a delineated area of 7,132 hectares, Core Zone of which is 6,48.99 hectares and a Buffer Zone of 783,77 hectares.
- Establishment of PA Management Zones.
 - The assessment/identification of proposed management zones of the PA was conducted/completed in CY 2009 with partial accomplishment on demarcation/monuments establishment and/or locating of natural markers.
 - Currently, demarcation/establishment of permanent markers and interpretative signs are ongoing and expected to be completed before the year-end.
- Preparation/formulation of PA Management Plan
 - Initial draft of PA Management Plan was done in Dec. 2009-Jan. 2010 with support from the Prov'l LGU of Davao Oriental and other stakeholders of the PA.
 - The management plan is also an important document that will form part of the Nomination Dossier of MHRWS to be inscribed in the UNESCO World Heritage List.
 - The PA Management Plan shall be completed (final/updated Mgt. Plan) on 3rd quarter, CY 2010 with funding support from the DENR-RXI.
- Preparation/packaging of the Nomination Dossier of MHRWS as World Heritage Site.
 - On 21 December 2009, MHRWS was officially and separately included in the UNESCO Tentative List of Philippine cultural and natural heritage sites to be inscribed in the World Heritage List subject to the set of requirements to be complied with the parties concerned.
 - A video material featuring MHRWS was initially prepared together with partial documents compilation and initial drafting of the Dossier with support from the Prov'l LGU of Davao Oriental and other stakeholders of the PA.
 - A complete Nomination Dossier of MHRWS shall be prepared/packaged on 3rd quarter, CY 2010 with funding support from DENR-RXI

Other Related Activities Undertaken

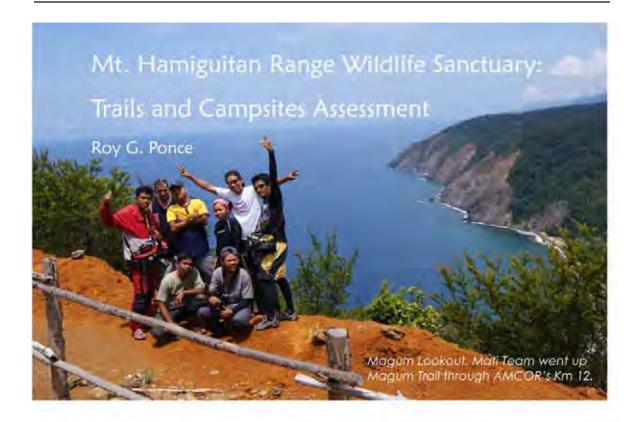
- Establishment of MHRWS-PASu Office. As required under the NIPAS Act and the special law of Mt. Hamiguitan, the PASu Office of MHRWS was established in March 2009 at the Government Center, San Isidro, Davao Oriental with support from Mun. LGU-San Isidro which provided the office building and lot area through a MOA executed between the Regional Executive Director of DENR-RXI and the Mun. Mayor of San Isidro.
- Information, education and communication (IEC). This is being undertaken formally and informally incidental to the regular and special activities conducted by the PASu and staff within and outside the PA site. The PASu has been disseminating the unique and special features of MHRWS in several conferences/symposia/fora or seminars within and outside the PA site.
- Linkages with government and non-government or private institutions. The PAMB/PASO has made formal and/or informal linkages with the following:
- Provincial Government of Davao Oriental and concerned Municipal/Brgy. LGUs led by the Prov'l Governor - for support/assistance in formulating the initial draft PA Mgt. Plan and packaging of MHRWS Nomination Dossier as World Heritage Site.
- IMPEDE and Philippine Eagle Foundation (NGOs) for research assistance and/or partnership in project implementation related to biodiversity conservation or climate change mitigation.
- Central Mindanao University thru its Lead Researcher, Dr. Victor Amoroso for assistance or partnership in research studies on Biodiversity Assessment and Conservation of MHRWS and its Environs.
- University of Southern Mindanao thru its Research Team Leader, Prof. John Aries Tabora for the conduct of research study on Natural Resource Valuation of Mt. Hamiguitan.
- ASEAN Centre for Biodiversity (ACB) for possible inclusion of MHRWS to be featured in the regular ACB Publication.
- Energy Development Corporation for assistance in photo documentation of Mt. Hamiguitan pygmy (bonsai) forest and other features of the PA and possible inclusion of MHRWS in its 2011 Company Calendar featuring the nominees as World Heritage Sites under UNESCO that include MHRWS.
- Participation of or attendance by the PASu on recent conferences/seminars/symposia, as follows:
 - Ecotourism and Basic Guiding Seminar-Workshop held at Marco Polo Hotel, Davao City, 29-30 July 2010
 - 3rd ASEAN Heritage Parks Conference held in Brunei Darussalam on 23-25 June 2010
 - PAWCZMS Sectoral Conference-Workshop held at DENR-XI, Davao City, 15 June 2010
 - 2nd National PAMB Summit held in Calamba, Laguna on 27-28 April 2010
 - Workshop-2 for Developing Proposals for Priority Protected Areas held in Tagaytay City, on 22-24 February 2010
 - Workshop on Biodiversity Partnership Program held in Quezon City on 7-9
 February 2010

- Orientation-Workshop on the Management Effectiveness Assessment of Protected Areas held in Antipolo City on 28-29 January 2010
- In order to ensure effective and efficient management, administration and protection of Mt. Hamiguitan Range Wildlife Sanctuary on a sustainable manner, the support/assistance from and strong collaboration between and among concerned stakeholders and concerned government agencies/units with the PAMB/PASO should be in place and functional.

Prepared by:

RUEL D. COLONG, M.Sc. Protected Area Superintendent

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY **Trails and Camp Sites Assessment** Report by Roy Ponce Photography by Roy Ponce, Gorjel Llanita and Clinton Polancos Technical data by Agoncillo Uyan, Jr. and Clinton Polancos



hree teams of photographers and

mountaineers went up Mt. Hamiguitan last
June 25—27, 2011 to get fresh documentation
on the state of Mt. Hamiguitan Range Wildlife
Sanctuary (MHRWS). The teams were
commissioned by the Provincial Government
of Davao Oriental through the Protected Area
Management Board and the Provincial Tourism
office to do the following tasks:

- Assess trails and campsites:
- Get GPS readings on significant sites;
- Determine carrying capacity of campsites;
- Identify alternative tourist attractions or tourism resources:
- Photo-documentation of flora and fauna along the trails; and

Record human impacts.

The teams went up the mountain from three different major trails, namely: Magum trail from Mati City; Domagooc trail from Governor Generoso and La Union trail from San Isidro.

Topography Map and Trail Descriptions

Figure 1 shows the topographic map of Mt. Hamiguitan Range Wildlife Sanctuary and the trails from the three Local Government Units that shared the Mt. Hamiguitan Range.

The Domagooc trail is the longest trail from jump-off point at Barangay Osmeña,
Governor Generoso. The trail begins with river trek that follows the Domagooc river to its source at the Pygmy field. The Domagooc trail

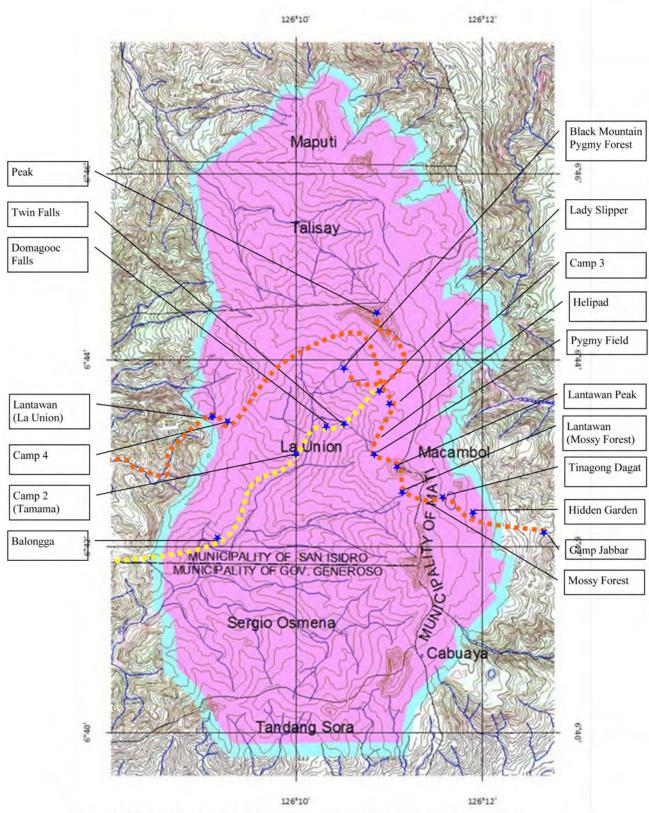


Figure 1 Mt. Hamiguitan Boundary Map and Topography; GPS reference of sites are in Table 1.

is average in terms of trail difficulty. The trail follows the Domagooc river through Dipterocarp forests, passing by Domagooc falls and Twin falls before reaching Camp 3 at the Pygmy forest. There are two campsites along the trail, the Balongga camp and Tamama camp.

The La Union trail is the shortest and nearest jump-off site from a National Highway from San Isidro, Davao Oriental. But it is the most difficult trail with mostly very steep assault after a river trek of the La Union river. Most of the trail is through the forest with few Lantawan stops. A very unique feature is Lantawan La Union where very tiny and large pitcher plant colonies can be observed.

The Magum trail of Mati City offers many picturesque spots. The trail is easy to average with gradual ascent. Significant features that can be found are the Magum Lookout, Camp Jabar, Hidden Garden, Tinagong Dagat, Mossy Forest and Lantawan Magum.

GPS Readings of Significant Sites

Table 1 details the GPS reading of significant sites in Mt. Hamiguitan Range Wildlife Sanctuary. It shows the coordinates and description of the area.

Combining the information gathered from the GPS readings and the topographic map of the MHRWS, it can observed that the



Above: Camp Jabbar and Jabbar Trails offer easy and very convenient hiking trails from forest roads constructed by Asiaticus Mining Corporation.

Bottom: The mossy forest trail from Tinagong Dagat shows evidence of recovery after almost a year that Mt. Hamiguitan is closed to visitors. The mosses and vegetation are starting to reclaim the trails. Similar characteristics are seen from Governor Generoso and San Isidro trails.



Different trails to Mt Hamiguitan: (1) River treks in parts of Domagooc and La Union Trails; (2) Wide logging road and Pine forest trails in Magum; (3) Pygmy forest trails in La Union

Table 1 GPS Readings of Trails and Significant Sites along the trails of MHRWS

Name of Site	GPS Reading		Description		
	North	East	Elevation (m)		
Macambol to La Union Traverse					
Barangay Macambol	06°50'0994"	126°11'7804"	396	Human settlement; coastal	
You-bang Logging Camp	06°47'8812"	126°13'0422"	102	Abandoned logging camp of iron- wood (Magkuno); Outside protected area	
Magum Outpost	06°46'0158"	126°14'6588"	21	AMCOR checkpoint	
Magum Lookout*	06°43'8546"	126°14'8542"	261	Magum cliffs View	
Salingcomot River*	06°43'6830"	126°13'9824"	94	Dry river bed	
Alog Flight Camp (Km 12)	06°42'5832"	126°14'3280"	226	AMCOR camp	
Jabbar Campsite*	06°42'0120"	126°13'7100"	353	Pine forest road	
End of Jabbar Road	06°42'5250"	126°13'2324"	417	Entrance to Dipterocarp Forest	
Logged Site	06°42'1560"	126°13'0644"	559	Near buffer zone; recent	
Hidden Garden*	06°42'1560"	126°12'0450"	1056	Vegetated water catchment	
Tinagong Dagat*	06°42'4536"	126°11'7216"	1077	Water catchment; pond	
Mossy Forest*	06°42'4362"	126°11'5896"	1145	Recovered mossy trails	
Lantawan Peak*	06°42'7704"	126°11'2320"	1339	Full view of Pujada Bay, Pygmy Field and Mt. Hamiguitan Range	
Pygmy Field*	06°42'7518"	126°11'0724"	1306	Pygmy forest view	
Helipad*	06°43'2150"	126°11'0040"	1187	Recovering pygmy trees around the cleared helipad	
Camp 3	06°43'5660"	126°11'0586"	1151	Established camp with toilet (La Union)	
Black Mountain*	06°43'6134"	126°10'8870"	1225	Pygmy tree clumps; Pitcher plant species; Lady slippers	
Camp 4	06°43'3092"	126°09'9870"	1149	Established camp (La Union)	
Lantawan (La Union)*	06°43'3092"	126°09'7260"	842	Pitcher plant species (tiniest)	
Governor Generoso to Camp 3 Trail					
Balongga Camp	06°42'19.5"	126°09'30.2"	-	Abandoned Rizalian settlement	
Tamama Camp*	06°43'08.1"	126°10'15.1"	-	Almaciga Forest	
Domagooc Falls*	06°43'25.3"	126°10'44.2"	-	Approximate 200 ft waterfalls	
Twin Falls*	06°43'25.9"	126°10'55.8"	-	30 minutes hike from Camp 3	

^{*} High tourism potential attraction

trails and sites identified can be located at the middle portion of the sanctuary. The northern and southern regions of the sanctuary are unexplored and free from human contact. This is a very significant observation in terms of the integrity of the wildlife sanctuary. If these trails are closely monitored and managed, the MHRWS can be well-protected at the same time be enjoyed by the visitors.

Carrying Capacity of Campsites

The campsites that were assessed in terms of area, location, resources and vegetation are all located along the trail path. Magum Trail of Mati campsites are: (1) the Jabbar; (2) Tinagong Dagat; (3) Helipad and (4) Camp 3. Governor Generoso Domagooc Trail campsites are: (1) Balongga, and (2) Tamama and San Isidro La Union Trail campsite the campsite nearest the summit and is the Camp 4.

Campsite	Approximate Area (mxm)	Carrying Capacity (Persons)
Camp Jabbar	60 x 50	280
Tinagong Dagat	48 x 32	140
Helipad	15 x 10	15
Camp 3	16 x 10	15
Balongga	30 x 18	50
Tamama	50 x 35	160
Camp 4	30 x 20	50

Table 2 shows the approximate areas, due to irregular perimeter, in square meters of each campsite. Camp Jabbar, Tinagong Dagat and Camp Tamama, offers that largest campsites while Camp 3 and Helipad are the smaller ones.

The carrying capacity of each camp site is estimated from dividing the area by 16 square meter area of an average tent of 3 persons and divided by 2 for spacing in between tent area. The approximate number of persons is the floor value of the estimate to the nearest 10.

For example in Camp Jabbar:

- Approximate Camp Area: 60x50=3000 sqm
- $300 \text{sgm} \div 16 \text{sgm} = 187.5 \text{ tents}$
- $187.5 \text{ tents} \div 2 = 93.75$
- $93.75 \times 3 \text{ persons/tent} = 281.25$
- Approximately 280 persons

While it seems that campsite carrying capacities are large, the most critical campsite are the smallest ones. the Camp 3 should be the basic for carrying capacity as crossroads of all trails. The computation are as follows:

- Approximate Camp Area: 16x10=160 sqm
- $160 \text{sgm} \div 16 \text{sgm} = 10 \text{ tents}$
- $10 \div 2 = 5$
- 5×3 persons/tent = 15
- Approximately 15 persons (Comfortable)
- Approximately 30 persons (Maximum)

Hence, Mt. Hamiguitan Range Wildlife Sanctuary carrying capacity for campers shall be limited to 15—30 persons per climb to the Pygmy Forest. Other camp sites can accommodate a huge number of campers but must be discouraged if we have to protect and conserve MHRWS. This information will be



Campsites in Mt. Hamiguitan:

(1) Tinagong Dagat—situated on an upper shelf of a dried lake; (2) Helipad camp—a small campsite in the middle of the pygmy forest; (3) Tamama camp—a clearing under Almaciga forest; (4) Camp Jabbar—offer a hiking trail through a pine forest; (5) Camp Balongga—an abandoned settlement of a Rizalian community; and (6) Camp 3—the crossroads of all trails camp, a basis for establishing MHRWS visitors or campers carrying capacity.

a very important input for the management plan for visitors in Mt. Hamiguitan.

Visitors Interval and Closed Season

Upon focus group discussion with the assessment team, one noticeable observation of the trails which were closed to visitors for almost a year is the recovery of the vegetation. Hence, period of recovery must be established for Mt. Hamiguitan trails and campsites.

The following visitors interval are believed to minimize impact from visitors and give time recovery time for the trails and campsites at the same time considering the ecotourism income balance at carrying capacity:

- Maximum of 30 persons per week during peak season months: March, April, May, November and December
- Maximum of 30 persons per two weeks during low season months: June, October, January, February
- No climb on closed season months: July, August and September.

The three-month closed season per year shall be time for rehabilitation and recovery programs for the MHRWS.

Description of Campsites

Camp Jabbar (Mati). This camp lies along the logging road created by AMCOR that covers



The Governor Generoso team led by Clinton Polancos taking break at Domagooc River.

convenient hike with roads of about 6m wide. Water sources are abundant and one cannot miss the beautiful scenery of Montane vegetation and pine forests. Since this camp has a good logging road access from Magum to Kilometer 12 of AMCOR, this can be a campsite for off-road 4WD activities, horseback riding and mountain biking.

Tinagong Dagat (Mati). This is a natural campsite situated on an upper shelf of the dried water catchment of the mythical 'Tinagong Dagat'. It offers a full view of the catchment basin now covered with grass and the remaining water resembles a pond of about half-hectare. It is surrounded by lush forest. This campsite has water sources available from small water wells dug by rattan gatherers. Around the site, we found evidences of fresh mud-marks and tracks of wild pigs.

Helipad (San Isidro). This a man-made almost half of the Magum trail. The trail offers a clearing amidst the pygmy forest when tourism



Magum lookout offers a scenic view of the Magum Cliffs. The shores below include the estuary of the dry river bed of the Salingcomot River.



The Salingcomot River, at least 4 kilometer stretch of dry river bed from the foot of Mt. Hamiguitan. There are intervals of flowing waters at the upper portion of the river.





Off-road 4WD can be an alternative ecotourism activity from Magum to Km 12 up to Camp Jabbar in Mati City. The road offers stretches of Pine forests. Also suitable for easy trekking and biking,



opened the site to the public more than a decade ago. It was a mistake of the lessenvironmentally conscious tourism programs before. The clearing has become a established campsite of about 150 square meters. It nears a creek as water source. Since it is in the midst of the pygmy field, there is shelter from wind and the vegetation will be vulnerable to campers' possible negligence. The damaged due to human impact like standing or sitting on branches of the pygmy trees surrounding the helipad for photography have slowly healed and showed recovering and sprouting branches. This means that closing the mountain for a period of time to humans is very effective in the sanctuaries selfhealing and rehabilitation response.

Camp 3 (San Isidro). This campsite is another man-made camp cleared along with the helipad, a crude toilet is available on this camp. The site is sheltered by semi-pygmy vegetation enough for wind shelter. There a good water source from a tributary creek to Twin Falls. This campsite is the focal point of Mt. Hamiguitan trails. This is the cross-trail between Governor Generoso, Mati and San Isidro. This campsite is very convenient as a base camp for exploring the significant spots of Mt. Hamiguitan like the Domagooc and Twin Falls, the Peak, the Pygmy forest, the Lantawan, Black Mountain, Tinagong Dagat and Hidden Garden and Mossy Forest. Arriving on this camp, the visitors have options for day hikes to the said attraction sites. This is where

the Batomys Hamiguitan was found.

Camp Balongga (Governor Generoso). This camp is an abandoned settlement of the Rizalian community, a minor community with a cultic belief on the country's national hero, Jose Rizal. The campsite shows the remnants of the houses, flowers and Bermuda grasses as well as the community's chapel. This site is intended as a short-stay resting camp only on the way to Camp Tamama.

Camp Tamama (Governor Generoso). For average hikers this camp site is an essential stop for a night before proceeding to Camp 3. It is situated in a cleared area under a Dipterocarp forest with mostly Almaciga trees and rattan vines. It is near the Domagooc River as water source. The night's rest of visitors will prepare them for the river trek towards Domagooc and Twin Falls and an assault to Camp 3.

Camp 4 (San Isidro). This is intended as an emergency camp from La Union trail in case visitors do not reach Camp 3 in time for the night. It has a very good water source and a short distance from La Union Lantawan where the very tiny and large pitcher plant colonies can be found. This is also the starting point of the Uwang-uwang trail known for its very steep climb on root formation of Dipterocarp trees. Also, one can opt to a slower ascent on a trail called 'Super Ferry' from this camp.

Tourist Attractions

Magum Lookout. The Magum Lookout is along
the Magum road in Barangay Macambol. The
scenic view of the Magum cliffs and Pujada
Island is an invite for adventurous off-road 4WD
up to Km 12 of AMCORs Alog Camp.

Tinagong Dagat. This the mythical sea above
the Hamiguitan where some local folks claim
that the water body rises and fall along with
the tide. Tinagong Dagat is a semi-dried lake

Salingcomot River. The Salingcomot river is a dry stretch of river bed from the foot of Mt. Hamiguitan, it is a habitat of some pockets of pygmy trees on the dry river bed. There are intervals of flowing streams in the upper portion of the dry river bed. Reports of sighting of raptors are heard in the area.

Hamiguitan Range. Its water recedes during dry season and fills up during the wet season of files a view of surrounding lush forest with foggy mists in the morning along with the activities of the birds species in the area. At night, it provides a good view of constellation watching during clear night skies without are

Camp Jabbar. This camp offers a very wide hiking trail but under the cool shadows of the Montane Pine Forest of Macambol. This site is good for off-road four-wheel drive for a day pack as well as mountain biking and trekking. The site is very ideal for birdwatching and photography of endemic flora and fauna.

Hidden Garden. The hidden garden also known as 'Little Australia' or 'Tinagong Gamay' is one of the best stops along the trail to the pygmy field. This area is a natural garden of semi-pygmy trees, pines, cedars, hardwood, and mountain flowers so arranged that it resembles like a man-made garder landscape. Its ground is not suitable for campsite because of the boggy soil. It will be best developed as one of the highlight of the

MHRWS once boardwalks are established around it to avoid disturbance of the mossy formation on the ground and the tree trunks.

Tinagong Dagat. This the mythical sea above Mt. Hamiguitan where some local folks claim that the water body rises and fall along with the tide. Tinagong Dagat is a semi-dried lake or water catchment of the a basin in Mt. Hamiguitan Range. Its water recedes during dry season and fills up during the wet season. It offers a view of surrounding lush forest with foggy mists in the morning along with the activities of the birds species in the area. At night, it provides a good view of constellation watching during clear night skies without any city light and smog interference.

Mossy Forest. The mossy forest is an hour or two of walk from Tinagong Dagat to the Pygmy Field. It showcases the Almaciga trees covered in moss, wild flowers and pitcher plants. It is home to different species of birds. Along the trail, civet cat wastes can be found along the mossy trails.

Lantawan Peak. At the boundary between San Isidro and Mati City is the Lantawan (Magum) Peak. It offers a full view of the Pujada Bay, Pujada Islands and the Pygmy Field. This is one of the best vantage point of Mt. Hamiguitan.

Pygmy Field. The Pygmy Field was brought to the public's attention when former Mayor of San Isidro, Hon. Justina MB Yu, sent a team of





Tinagong Dagat. This was once rumored by the locals as a mountain sea in Mt. Hamiguitan where the water rises and falls with the tide. The fact is that is it a dry topographic basin which fills in during wet season. It has a spectacular constellation view on clear nights and foggy mornings. The grass land is home to tiny plant and animal species.

Lantawan (Magum) provides a bird's eye view of the Pujada Bay, Pujada Islands and Macambol forests. If mining below is inevitable, it should consider the visual impact of this view to balance ecotourism objectives.

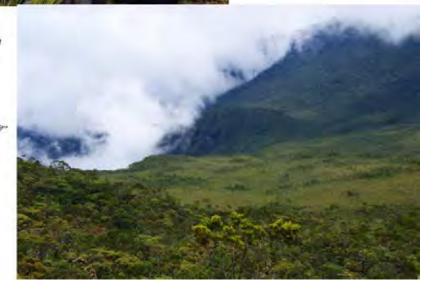




The team's privilege of documenting these natural resources and participating in the movement of pushing this site for UNESCOs World Heritage List is a priceless reward itself.



Lantawan's view of the Pygmy Field which stretched more than 5,000 hectares of understudied and undocumented flora and fauna of this unique environment.



explorers to validate the stories about thousands of hectares of dwarf trees. Her team found the Pygmy Forest and the Tinagong Dagat. Since then, Hon. Yu's passion is on the protection of these unique treasures. The Pygmy Field showcases the unique ultramafic environment where vegetation growth were stagnated due to high metallic soil content of the area. It is a frontier for scientific research on the flora and fauna that thrive in such an environment.

Black Mountain. This site in Mt. Hamiguitan is a short hike from Camp 3. This is home of colonies of the famous Lady Slipper ground orchids, the Pitcher plants, Nephentes Hamiguitanensis and Nephentes Copelandii. The Pygmy trees on this spot are sparse, as opposed to clumped and contiguous in the Helipad Pygmy Field, showcasing their natural forms.

its colonies of both the largest pitcher plants and the tiniest pitcher plants. The tiniest pitcher observed are the hardwood which specific plants even smaller than a pencil eraser head.

Domagooc Falls and Twin Falls. These two waterfalls have tributaries that pass through the Pygmy Field. Their water volume is a quick indicator of the hydrologic condition of the area. While the waters are enticing for visitors, monitoring of water volume of these waterfalls is very important in MHRWS management.

Mt. Hamiguitan Peak. The summit of Mt. Hamiguitan Range stands at 1,600 meters above sea level. The view at the peak shows that the mountain straddles between two significant bodies of water, the Davao Gulf to the west and the Pujada Bay to the east. This implies that the health condition of the mountain range will significantly determine the health conditions of the marine resources below.

Flora and Fauna Along the Trails

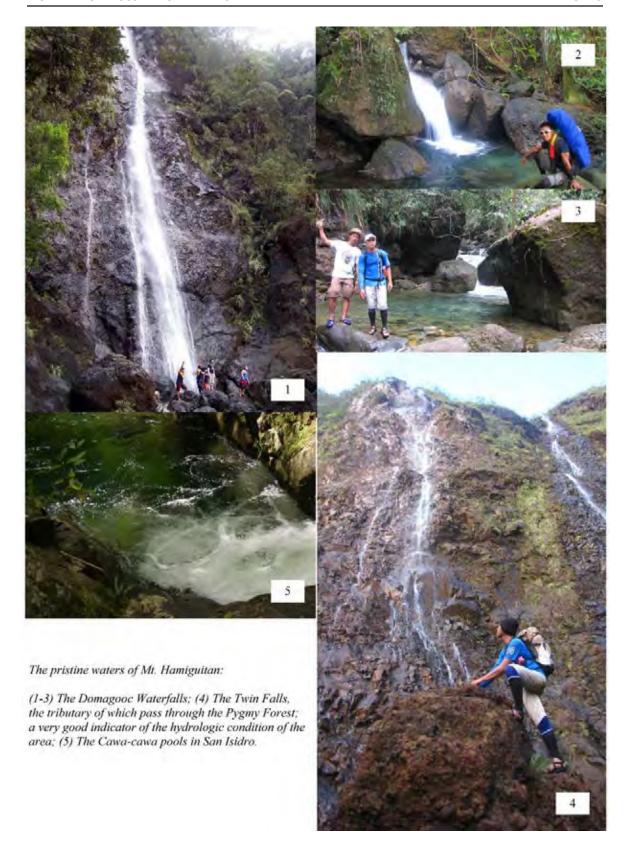
A limitation of this assessment is the short period of the documentation and reporting so as to accurately identify the plant and animal species observed along the trail, thus limiting only to general observations.

The main features to been as we traversed the mountain range are the varying vegetation types. One will pass through pine forests, dipterocarp forests, mossy forests, grasslands, and the pygmy field or shrublands. Lantawan La Union. This site is very significant in Within these vegetation types are a rich diversity of plant species. Significantly reference to Almaciga.

> Very striking are the different species of pitcher plants, orchids and hanging vines.

> Animal species observed are the presence of birds, the presence of civet cat droppings as identified by the local guide and a variety of spiders and insects.





Human Impact

Human impact are observed outside the protected area. Mainly, these are logging activities and conversion of forest land to agricultural lands in Macambol area. These logging activities are on hold while waiting for AMCOR to resume its operations.

The human impacts within the protected area that we observed are the leftovers of rattan waste and garbage by rattan gatherers found under the semi-pygmy trees in Hidden Garden. Generally, the trails and campsites are clean from human garbage.

Summary and Conclusion

The team were able to achieve the following tasks:

- Assess trails and campsites;
- Get GPS readings on significant sites;
- Identify alternative tourist attractions or tourism resources:
- Photo-documentation of flora and fauna along the trails; and
- Record human impacts.

The following are the significant findings of the assessment activity:

- 1. The trails and campsites vegetation have shown evidence of recovery after a year of closure to visitors.
- 2. There is no evidence of disturbance or

- poaching in the place except for the waste leftovers of the rattan gatherers.
- 3. In terms of trail difficulty: Magum trail is easy; Domagooc trail average and La Union trail difficult.
- 4. Magum trail offers the most picturesque trail.
- 5. GPS readings of the trails shows that human impact caused by hiking trails are confined on the middle portion of the mountain range only. The northern and southern regions of the MHRWS are practically undisturbed.
- 6. The largest campsites are Camp Jabbar, Camp Tamama and Tinagong Dagat that can hold hundreds of campers.
- 7. The smallest and most significant camp site is Camp 3. This is the cross-road of all trails in the significant sites in Mt. Hamiguitan.
- 8. The calculated carrying capacity of Camp 3 is a maximum of 30 persons per climb per week.
- Determine carrying capacity of campsites; 9. The tourist attraction sites identified within and outside MHRWS are: (1) Magum Lookout; (2) Camp Jabbar and Pine Forests; (2) Hidden Garden; (3) Tinagong Dagat; (4) Mossy Forests; (5) Lantawan (Magum); (6) Pygmy Field and Helipad; (7) Black Mountain; (8) Mt. Hamiguitan Summit; (9) Domagooc Falls and River; (10) The Twin Falls; and (11) Lantawan (La Union).
 - 10. Alternative tourist attraction includes: (1) development of visitor centers and botanical gardens showcasing Mt.









Hamiguitan flora; (3) Biking trails and (4)
Four-wheel Driving in Magum Lookout to
Km 12.

 Human impacts are confined outside the MHRWS, while limited impacts are found within by rattan gatherers.

Recommendations

- The PAMBI needs to plan with the three LGUs (Mati City, Governor Generoso and San Isidro) to establish coordination, management and control of trails and campsites.
- Mati City has to get involved in Mt.
 Hamiguitan management and development especially in the aspects of the Pine Forest trails, Hidden Garden and Tinagong Dagat within Barangay
 Macambol.
- The suggested carrying capacity shall be a maximum of 30 person visitors in a weekly interval on climb peak season; every two weeks interval during low season.
- A three-month closed period annually is suggested.
- Infrastructure development like boardwalks and view decks are necessary for ecotourism and protection of wildlife.
- Outdoors ethics like Leave No Trace and strict policies need to be in place and strictly implemented.





Assessment Team

Mati Team

Team leader, photographer Roy G. Ponce Agoncillo Uyan, Jr. Technical manager Gorjel Llanita Photographer Perlie Montes Technical crew Renato Layto Technical crew Technical crew Loe Camillo Tyron Taculad Technical crew Dionesio Cabrera Guide, porter Ricarte Castillo Guide, porter

Governor Generoso Team

Clinton Polancos Team Leader
Ralston Jayee Gabayan Technical crew
Romy Olea Technical crew
Marvin Carmelotes Technical crew
Andrew Saavedra Technical crew

San Isidro Team (With separate photo-documentation report)

Rhonson Ng Photographer
Arthur Yap Photographer
Alfredo Bulante, Sr. Guide, porter
Jonathan Justino Guide, porter

Special Thanks to: Gov. Corazon Malanyaon, Ms. Cynthia Rodriguez, PGO, PTO, Club Tikod, Baktas, Kwadro, Tamoc, Apak and OCF-DO, Inc.

7. Documentation

Yes

7.a Photographs, slides, image inventory and authorization table and other audiovisual materials

Table 7.1 presents photographs, slides and other images that are part of the final WHS nomination dossier.

ld. No.	Format	Caption	Date of Photo/	Photographer/Dire	Copyright	Contact Details of Photographer/	Non- exclusive
			Material	of the Video			cession of rights
Slides							
1	Slide	View of Mount Hamiguitan	2006	Unknown	Amoroso et al	(1) Dr. Victor B. Amoroso	Yes
2	Slide	Black spotted sphenomorphous	2006	Unknown	Amoroso et al	Central Mindanao University	Yes
3	Slide	Bonsai trees observed below the peak of Mount Hamiguitan	2006	Unknown	Amoroso et al	Maramag, Musuan, Bukidnon	Yes
4	Slide	Bonsai tree in Mount Hamiguitan	2006	Unknown	Amoroso et al	Phone: +63.917.549.5084	Yes
5	Slide	Centipede flower	2006	Unknown	Amoroso et al	Email: amorosovic@yahoo.com	Yes
9	Slide	Montane forest	2006	Unknown	Amoroso et al	See (1) above	Yes
7	Slide	Hasselt's toad	2006	Unknown	Amoroso et al	See (1) above	Yes
∞	Slide	Mossy forest located near the peak of Mount Hamiguitan	2006	Unknown	Amoroso et al	See (1) above	Yes
6	Slide	Pitcher plant	2006	Unknown	Amoroso et al	See (1) above	Yes
10	Slide	View of the forest cover of Mount Hamiguitan	2006	Unknown	Amoroso et al	See (1) above	Yes
Plates							
2.1	Photograph	Plants growing on top of thin layer of ultramafic soil and layer of rocks	2002	Unknown	Amoroso et al	See (1) above	Yes
2.2	Photograph	The twin falls	2007	Unknown	Amoroso et al	See (1) above	Yes
2.3	Photograph	Smaller waterfalls in MHRWS	2006	Jayson Ibañez	Jayson Ibañez	(2) Philippine Eagle Foundation	Yes
						Malagos, Calinan, Davao City Phone: +63 82 271-2337;	
	i					Email: falcon2car@yahoo.com	7
2.4	Photograph	The Agro-ecosystem dominated by coconut trees	2006	Unknown	Amoroso et al	see (1) above	Yes
2.5	Photograph	The dipterocarp forest dominated by Shorea species and other dipterocarp trees	2006	Unknown	Amoroso et al	See (1) above	Yes
2.6	Photograph	The Montane forest dominated by Agathis philippinensis	2006	Unknown	Amoroso et al	See (1) above	Yes
2.7	Photograph	The mossy forest dominated by C. blancoi and D. elatum	2006	Unknown	Amoroso et al	See (1) above	Yes
2.8	Photograph	The mossy-pygmy forest MHRWS	2006	Unknown	Amoroso et al	See (1) above	Yes
2.9	Photograph	Typical natural bonsai tree inside the mossy pygmy forest	2006	Jayson Ibañez	Jayson Ibañez	See (2) above	Yes
2.10	Photograph	Tinagong Dagat	Unknown	Unknown	Unknown	Unknown	Yes
2.11	Photograph	Some endemic, threatened and rare paints of Hamiguitan Range	2006	Unknown	Amoroso et al	See (1) above	Yes
2.12	Photograph	Nepenthes micramphora	2011	PASO staff	MHRWS-PASO	(3) Ruel D. Colong	Yes
2.13	Photograph	N. peltata	2011	PASO staff	MHRWS-PASO	MHRWS-PASO, Govt. Center	Yes
2.14	Photograph	N. hamiguitanensis	2011	PASO staff	MHRWS-PASO	San Isidro, Davao Oriental Email: ruelcolz@yahoo.com	Yes
2.15	Photograph	The Critically Endangered Philippine Eagle	2006	Jayson Ibañez	Jayson Ibañez	See (2) above	Yes
2.16	Photograph	The Critically Endagred Philippine Cockatoo	2006	Jayson Ibañez	Jayson Ibañez	See (2) above	Yes
2.17	Photograph	The site endemic <i>Delias magsadana</i>	2006	Alma B. Mohagan	Alma B. Mohagan	Central Mindanao University Maramag, Musuan, Bukidnon Email: almohagan@gmail.com	Yes
2.18	Photograph	Site endemic Hamuigitan hairy-tailed rat	2006	Jayson Ibañez	Jayson Ibañez	See (2) above	Yes
6.1	Photograph	Trail inside MHRWS	2011	Roy G. Ponce	Roy G. Ponce	Davao Oriental State College of Science and Technology, Mati City, Davao Oriental Email: royg.ponce@yahoo.com	Yes
Flash presentation	sentation						
	αɔ	Multimedia presentation on Mt. Hamiguitan Range Wildlife Sanctuary	2011	Ruel D. Colong	MHRWS-PASO	See (3) above	Yes

7.b Texts relating to protective designation, copies of property management systems and extracts of other plans relevant to the property

- Appendix 1 Republic Act No. 9303 dated 30 July 2004: An act declaring Mt. Hamiguitan Range and its vicinities as protected area under the category of wildlife sanctuary and its peripheral areas as buffer zone and appropriating funds therefore.
- Appendix 2 Republic Act 7586 dated 22 July 1992: An Act providing for the establishment and management of National Integrated Protected Areas System (NIPAS), defining its scope and coverage and for other purposes.
- Appendix 2A DAO 2008-26: Revised Implementing Rules and Regulations of Republic Act No. 7586 or the NIPAS Law of 1992.
- Appendix 3 Detailed description of Nepenthes peltata, a new species endemic only to MHRWS.
- Appendix 4 Detailed description of Nepenthes micramphora, a new species endemic only to MHRWS.
- Appendix 5 Photo documentation on some endemic, threatened, rare and economically important floral species in MHRWS.
- Appendix 6 Photo documentation on some endemic, threatened, rare and economically important faunal species in MHRWS.
- Appendix 7 Photo documentation on some endemic, endangered and rare butterflies in MHRWS.
- Appendix 8 MHRW PAMB Resolution 2010-02 dated 25 March 2010: A Resolution approving
 the indefinite closure of Mt. Hamiguitan Range Wildlife Sanctuary to visitors/mountaineers/
 trekkers effective 03 April 2010 except for duly approved research studies and activities in
 line with its 7-Point Agenda.
- Appendix 9 MHRW PAMB Resolution 2010-03 dated 25 March 2010: A Resolution approving and adopting the 7-Point Agenda as major requirement in re-opening the Mt. Hamiguitan Range Wildlife Sanctuary for naturare recreation particularly to visitors/mountaineers/ trekkers, to be co-managed by LGU/s concerned.
- Appendix 10 Republic Act 9147 dated 19 March 2001: An act providing for the conservation and protection of wildlife resources and their habitats, appropriating funds therefore and for other purposes.

7.c Form and date of most recent records or inventory of property

The comprehensive biodiversity inventory and assessment of MHRWS was conducted by a group of scientists from various universities in Mindanao during the period of 2004-2007. The lead university for this endeavor is the Central Mindanao University. The biodiversity assessment was done in association with the Davao Oriental State College of Science and Technology, University of the Philippines Mindanao, University of Southern Mindanao and the Philippine Eagle Foundation.

Other related research activities were also conducted separately by the University of Southern Mindanao and its collaborating universities/colleges, the Philippine Eagle Foundation and the research group of Dr. Alma B. Mohagan .

7.d Address where inventory, records and archives are held

Records of the latest inventory of the Hamiguitan Range Wildlife Sanctuary is found at the Central Mindanao University located in University Town, Musuan, Maramag, Bukidnon 8710 Philippines. Further information can be obtained from:

PASu Ruel D. Colong

MHRWS - Protected Area Superintendent's Office Government Center, San Isidro, Davao Oriental Email: ruelcolz@yahoo.com

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Municipality of Governor Generoso	Hon. Vicente D. Orencia	Mayor	Municipal Hall	+63 82 440-3541
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9. SIGNATURE ON BEHALF OF THE STATE PARTY

For the government of the Republic of the Philippines:

ALBERT F. DEL ROSARIO

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MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY

Proposed Inscription to the UNESCO World Heritage List

VOLUME 3 MANAGEMENT PLAN

1. Executive Summary

1.1 Profile

Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) was created on July 30, 2004 by virtue of Republic Act No. 9303. It is located in Region XI specifically in the Southeastern part of Mindanao and belongs to the Philippine Biogeographic Zone 14 of Central Mindanao. Its boundaries traverse along the Municipalities of San Isidro, Governor Generoso and City of Mati, Davao Oriental.

MHRWS is nestled atop the Pujada Peninsula. It is situated inside the coordinates 6039'45" to 6047'10" north latitude and 126008'30" to 126012'15" longitude. Its elevation range is from 170 to 1637 meters above sea level (masl). It has a rough to very rough terrain.

MHRWS has Type IV Climate which is characterized by even rainfall distribution throughout the year and an absence of a lengthy dry season. There is no rainfall data inside MHRWS, but the nearest rain gauge station has recorded an annual average rainfall of 1,266 millimeter (mm) with a monthly average rainfall of 105.5 mm. Average temperature recorded at the nearest weather station is 27.75°C. The lowest temperature is recorded in January at 22.4°C while the highest temperature is recorded in April and May at 33°C, respectively. Unofficial temperature recorded inside the pygmy forest is from 100C to 16.50C and the relative humidity is 98 percent.

The total area of MHRWS is 7,132.76 hectares. Out of this, 6,348.99 hectares is classified as protected area (PA) and 783.77 hectares constitute the buffer zone. The land cover is classified into agro-ecosystem, dipterocarp forest, montane forest, mossy forest and mossy-pygmy forest, but the area coverage of each land cover is still to be surveyed on the ground or through satellite imagery analysis.

Majority of the MHRWS area, particularly those where the natural tropical bonsai forests are located, is characterized by ultramafic rocks with thin soil cover which is highly acidic and has low fertility.

There are a total of 957 plant species found in the area. They are composed of 723 angiosperms, 27 gymnosperms, 164 ferns and allies, 17 mosses, 13 liverworts, 13 lichens and undetermined number of fungi species. Out of this total number of species, 35 are critically endangered, endangered or vulnerable; 33 are rare; 163 are found only in the Philippines; and, 204 are considered economically important. Eight species are recorded new for Mindanao. Moreover, there are also three species of pitcher plants found only in MHRWS, the Nepenthes peltata, N. micramphora and N. hamiguitanensis.

A total of 423 animal species which include 15 non-flying mammals, 11 flying mammals, 108 birds, 33 reptiles, 18 frogs, 142 butterflies, 31 dragonflies and damselflies, 46 spiders, four earthworms and 15 nematodes. Ten (10) of these species are either endangered, threatened or vulnerable; 26 are rare; 60 are found only in the Philippines; and, 23 are found only in Mindanao. There are also seven animals (Batomys hamiguitan, Delias magsadana, Arhopala eridanus davalma, Arisbe euphratoides, Paruparu cebuensis, Anax guttatus, Prodasineura integra). which can only be found in the pygmy forest of MHRWS.

Aside from the abovementioned species, MHRWS is also renowned for its 1,234 hectares of natural tropical bonsai forest which is considered unique worldwide. A pygmy forest where Tropical tree species such as Almaciga (Agathis philippinensis), Cedar (Dacrydium elatum) and Ulayan (Lithocarpus llanosii), among others, have average heights of only 1.4 meters while they attain heights of 20 meters or taller at the dipterocarp and montane forests .

Other prominent natural features of MHRWS include the Tinagong Dagat Lake, Twin Falls, Hidden Garden, Licub Falls and Mansadok Peak. Some watersheds of Bitaogan, Mabua, Dumagooc, Tibanban, Salingkomot and Jericho Rivers are also found inside MHRWS.

The completed management zoning for MHRWS classified 5,792.36 hectares of the area as strict protection zone (SPZ) and 1,340.40 hectares as multiple-use zone (MUZ). In the strict protection zone, only scientific studies and researches are allowed while at the MUZ, agro-forestry, sustainable use of minor forest products such as Almaciga resin and rattan, gathering of fallen branches, seeds, leaves, twigs and driftwoods as well as ecotourism activities are allowed.

Biodiversity assessment of MHRWS was already completed and researches on resource valuation and Biosystematics of the Genus Amomum Roxb are on-going.

In terms of human habitation, 39 households are located inside the buffer zone/multiple use zone. The surrounding communities recorded a minimal overall population growth of 2.04 percent during the years 2001-2007.

Sanctuary protection is being carried out effectively by the regular protection officers of MHRWS. This is being reinforced also by the community forest rangers locally called as "Bantay Gubat".

1.2 Situational Analysis

The unique features of MHRWS especially the 1,234 hectares of natural tropical bonsai forest and the presence of rare, threatened, economically important plant and animal species greatly require concerted local protection efforts as well as support from national and international institutions. The proper management of MHRWS is also deemed necessary because of its capacity to produce massive cloud formation resulting to frequent rainfalls that contribute to the sustainability of the agricultural plantations not only in its vicinity, but including the nearby provinces such as Compostela Valley Province, Davao del Norte and Davao del Sur; the vast amount of carbon it sequesters which exhibit its role in climate change mitigation; and the high altitudes of the Hamiguitan Mountain Range serve as wind break which shield the agricultural plantations at COMVAL, Davao del Norte and Davao City.

There are 1,308.14 hectares of open canopy forest and 619.91 hectares of brush land that need rehabilitation in order to improve the habitats of the plant and animal species of MHRWS.

The following are possible threats to MHRWS, if not properly addressed:

- 1. The negative effect of industrialization on the existence of the bonsai trees;
- 2. Timber poaching outside the MHRWS that may possibly encroach inside the PA if not prevented;
- 3. Illegal gathering of wildlife resources;
- 4. Destructive methods of rattan and Almaciga resin gathering;
- 5. Lack of alternative livelihood for nearby residents who are dependent on the natural resources in the vicinities;
- 6. Illegal and uncontrolled entries of visitors which can pose threats to the bonsai forest because of their lack of awareness on the proper ways take care of it; and,

7. The limited resources of MHRWS management to carry out various activities to safeguard Mt. Haguimitan.

There are several holders of existing tenure instruments inside MHRWS. They are holders of Certificate of Stewardship Contracts (CSCs), Community Based Forest Management Agreements (CBFMAs), Industrial Forest Management Agreement (IFMA) and Mineral Production Sharing Agreement (MPSA). However, they are not considered threats to MHRWS. The CSCs and CBFMAs are located at the MUZ hence, their development activities are permissible for that zone. The IFMA and MPSA are also not threats to MHRWS since the portions of MHRWS which fall inside these tenures have elevations of 1,000 masl. and already form part of the protection forests. As such, no activities which will result to the alteration of the environmental condition of the area are allowed as provided under RA 7586 or the National Integrated Protected Areas System (NIPAS). There is no ancestral domain claim inside MHRWS.

Under Republic Act 9303, MHRWS is declared as protected area. Therefore, it is legally stable. All sectors particularly the Local Government Units (LGUs), from the provincial government down to the seven barangays, and a number of NGOs are working unceasingly for its preservation, protection and management.

With all the necessary factors mentioned, MHRWS can be surely considered a unique as well as prime ecotourism destination and a new frontier for scientific researches and studies.

1.3 Management Plan

The key management issues include the following:

- 1. Preservation and protection of the natural bonsai forests, the unique flora and fauna, endangered and rare species as well as the different ecosystems inside MHRWS including additional research to determine additional features;
- 2. Strengthening the management capabilities and capacities of MHRWS management specifically the Protected Area Management Board (PAMB) & the Protected Area Superintendent Office (PASO);
- 3. Appropriate ecotourism activities to avoid damage to the different features of MHRWS; and,
- 4. Appropriate and sufficient livelihood activities of communities surrounding MHRWS to veer away their attention from exploiting the resources inside and to make them partners in protecting it.

From these key management issues, the following goals, objectives and management activities are set (Table 1.1):

Goal	Objective	Planned Activity/Project
1. Preserve and protect the ecosystems and unique features	1.1 To design appropriate protection measures	1.1.1 Assess and evaluate the efficiency and sufficiency of the current protection measures by checking on the ground if there are still illegal activities
of MHRWS and rehabilitate the		1.1.2 If insufficient, design and implement augmented protection measure(s)
מכפו ממכת וומסומנט נווכן כווו	1.2 To determine further the	1.1.3 Construction of look out towers 1.2.1 Evaluate completed and on-going researches/ studies to determine data
	other features of MHRWS	gap(s)
		1.2.2 Prepare list of data gaps
		1.2.3 Invite prospect research institution(s) to conduct researches/studies and/or
		prepare research proposals
		1.2.4 Solicit funding
		1.2.5 Conduct research study
	1.3 To rehabilitate degraded	1.3.1 Conduct field survey and mapping of the degraded habitats
	habitats/areas	(Open Canopy 1,308 ha., Brushland 620 ha.)
		1.3.2 Perform assisted natural regeneration of the 1,308 ha. open canopy forest
		using planting materials sourced from within MHRWS and vicinities
		1.3.3 Reforestation and/or agro-forestry activities for the 620 ha. brushlands
		preferably using planting materials sourced from within MHRWS and vicinities
		1.3.4 Establish nurseries (PASO & POs) to raise the needed seedlings
	1.4 To conduct Information,	1.4.1 Design the appropriate ICE strategies
	Communication & Education campaign to tenure holders inside MHRWS & adjacent areas.	1.4.2 Implement the selected ICE strategies
	1.5 To establish safety nets	1.5.1 As direct/indirect beneficiaries, enlist these communities as local partners in
	among the communities surrounding MHRWS	the monitoring and protection of MHRWS
		1.5.2 Enlist the support of other stakeholders of MHRWS and define their roles in the monitoring and protection of MHRWS

Table 1.1 Management Plan, goals, objectives and activities for MHRWS

	1.6 To impose fines and penalties for violators of prohibited acts in accordance	1.6.1 The following are the prohibited acts: a. Cutting, gathering or collecting timber or other forest products without license, b. Squatting
	9 6	c. Unlawful occupation or destruction of forest lands within MHRWS; destroying, disturbing or mere possession of any plant or animal or
		products derived MHRWS without a permit from concerned authorities;
		e. Dumping of any waste products detrimental to the MHRWS or to the plants,
		animals or inhabitants therein;
		f. Using any motorized equipment without a permit from the PAMB;
		g. Mutilating, defacing or destroying objects of natural beauty, or objects of
		interest to cultural communities;
		h. Damaging roads and trails;
		i. Mineral exploration and survey of energy resources;
		j. Constructing or maintaining any kind of structure, fence or enclosures, and
		conducting any business enterprise without a permit;
		k. Leaving in an exposed or unsanitary conditions refuse or debris, or depositing
		such in the grounds or in bodies of water;
		I. Altering removing, destroying or defacing boundary markers, monuments or any
		interpretative signs;
		m. Entry without permit of the following:
		1. Mountain climbers,
		2. Campers,
		3. Spelunkers,
		4. Study/research groups/individuals,
		5. Visitors,
		n. Mining, sand and gravel quarrying/extraction, and
		o. Buying, selling or transferring of rights over any land within MHRWS.
2. Strengthen the capabilities	2.1 To heighten the knowledge	2.1.1 Conduct refresher seminar to PAMB members on the authorities, duties and
and capacities of MHRWS PAMB	of PAMB members on their	responsibilities of PAMB members based on RAs 9303 and 7586
and PASO	authorities, duties and	2.1.2 Cross visits of PAMB members to well-managed PASO
	responsibilities	

Table 1.1 Management Plan, goals, objectives and activities for MHRWS (continuation A)

	2.2 To upgrade the skills of PASO	2.2.1 Conduct seminars for PASO staff and Bantay Gubat members on their police
	staff on the management & protection of MHRWS	powers (RA 7586) and on legal procedures
		2.2.2 Request DENR to issue DENRO authorities to Bantay- Gubat members
	2.3 To formulate strategies on how to generate sufficient	2.3.1 Collect user fees from visitors and impose fines to violators
	funding for the management & protection of MHRWS	2.3.2 Prepare proposals and solicit funding
3. Establish ecotourism business	3.1 To locate the specific spots	3.1.1 Conduct field inspection to locate potential ecotourism spots and portion(s)
activities at MHRWS without hampering its existence	which are open to visitors & those that are restricted.	that are off limits to visitors
		3.1.2 Establish trails leading to specific ecotourism spots
		3.1.3 Manual rehabilitation of abandoned logging road leading to Camp 4
		3.1.4 Install billboards and/or signage at appropriate spots
	3.2 To determine the suitable	3.2.1 Conduct ecotourism business planning. The following are the initially
	ecotourism activities inside	identified ecotourism activities;
	MHRWS	a. Tumalite Long House;
		b. Camp 4 Camping Grounds;
		c. Bonsai Forest Canopy Walk; and,
		d. Twin Falls Bathing Grounds.
	3.3 To determine the carrying	3.3.1 Conduct carrying capacity studies
	capacities for the allowed ecotourism activities	
4. Convince those residents who	4.1 To determine the residents	4.1.1. Conduct census and study of people and communities who are dependent
are engaged in illegal activities	inside and near MHRWS who are	on the resources inside MHRWS; categorize the degree of dependence on the
into partners in the protection of		resources inside MHRWS
MHRWS	MHRWS	

Table 1.1 Management Plan, goals, objectives and activities for MHRWS (continuation B)

4.2 To identify and implement	4.2.1 Conduct study of resources and /or services that can replace the illegal
alternative livelihood activities &	activities such as:
financing scheme for the	a. Establishment of nurseries of the economically important species of MHRWS;
selected livelihood activities	b. Handicraft-making using fallen branches, seeds, leaves, twigs, driftwoods, etc to
	be sold as souvenir items; and,
	c. Employment in the ecotourism projects.
	4.2.2 Design alternative livelihood implementation schemes
4.3 To conduct study of	4.3.1 Prepare project proposals
resources and /or services that	4.3.2 Solicit funds from financing institutions and donor agencies
can stop the illegal activities	4.3.3 Recipient(s) to implement the alternative livelihood activities/projects

Table 1.1 Management Plan, goals, objectives and activities for MHRWS (continuation C)

1.4 Work and financial plan

Enumerated in Table 1.2 the 10-Year Work and Financial Plan of MHRWS. The sources of the funds needed to implement this plan come from the combined national and local government agencies as well as from MHRWS NGOs.

Table 1.2 MHRWS 10 year work plan

Activity		Υ	'ear	of	Imp	len	nen	tatio	on		Budget
	1	2	3	4	5	6	7	8	9	10	
A. Preservation and protection of											
the ecosystems											
Monitoring & protection activities											3,000,000.00
Biological & ecosystems researches											3,000,000.00
Rehabilitation of degraded ecosystems											5,000,000.00
4. Conduct Information, Communication and Education (ICE) campaign											1,200,000.00
B. PAMB and PASO strengthening											
& regular activities 1. Conduct refresher seminar to PAMB members on the authorities, duties and responsibilities of PAMB members based on RAs 9303 and 7586 and cross visits.	_										100,000.00
Paralegal seminars for PASu staff and Bantay Gubat members on their police powers (RA 7586)	_										100,000.00
3. Deputize Bantay Gubat Members as Environment & Natural Resources Officers (DENRO)	_	-									600,000.00
4. PAMB meetings											3,500,000.00
C. MHRWS Ecotourism											
Conduct ecotourism business planning.	_										200,000.00
D. Community Development Activities											
Conduct community tenure assessment	-										200,000.00
Implement community alternative livelihood activities/IGPs.											3,000,000.00
E. Infrastructure Development											

Legend: ——— continuous activity ----- intermitent activity

In pursuing the foregoing goals, objectives and activities, the PAMB and PASO are equipped with a dynamic monitoring and evaluation system. This is to ensure that if any of the targeted goals, objectives and activities cannot be attained as scheduled, necessary adjustments can immediately be made. Furthermore, a management structure which will provide the needed support to carry out the targeted activities for MHRWS is also in place.

2. PROFILE OF THE PROTECTED AREA

2.1 Historical Background

The extinction of several plant and animal species as well as the destruction of their habitats worldwide are the results of negligence or the lack of knowledge about their importance to human existence. It can also be attributed to the lack of data on the distribution of certain species and the real time monitoring of the number of stocks for a particular species. The establishment of MHRWS is indeed very timely because it is still in a state where most of its features considered unique worldwide are still intact.



Plate 2.1. The bonsai field or pygmy forest of MHRWS

Photo by Dr. Amoroso

The area of MHRWS was formerly under the Timber License Agreements of R.M. Soleño and the Davao Enterprises Corporation. Luckily enough, the natural bonsai field or pygmy forest (Plate 2.1), aside from it being useless as a source of commercial timber, is shielded by the mossy-pygmy forest where trees were also small enough to qualify for commercial timber. Being so, not a single span of road was constructed inside the mossy-pygmy forest, thus, it remains intact up to now.



Plate 2.2. Portion of the 1,234 ha. tropical pygmy forest inside MHRWS.

The wondrous beauty of this mossy-pygmy forest (Plate 2.2) caught the attention of some people including the natives in the area. In 1965, an old Mandaya Chieftain Daramba Bago persistently requested the then young writer Justina MB Yu to write a story about what they considered the "mysterious Mt. Hamiguitan", whose peak was always covered with clouds. However, Ms. Yu did not act on the request because of the inaccessibility of the area. It was 28 years later in 1993, when Ms. Yu became the Mayor of San Isidro, Davao Oriental that she sent a group to document the Tinagong Dagat Lake near the peak. The Documenters, however, also accidentally discovered the outstanding landscape of stunted old gnarled trees at the tip of Mt. Hamiguitan. From then on, the Filipino Nation and the rest of the world begun to notice the breathtaking beauty of Mt. Hamiguitan.

In the succeeding years, Mayor Yu patiently and constantly requested the National Government through the then House of Representative Member Honorable Thelma Almario to declare Mt. Hamiguitan as a protected area. In response, Honorable Almario filed House Bill No. 3872 entitled "An Act Declaring Mt. Hamiguitan in the Municipality of San Isidro, Province of Davao Oriental, a National Park, Providing for its Development and Appropriating Funds Thereof." However, the Philippine Congress was not able to pass a law on this Bill. Also, in 1993, the Municipality of Governor Generoso made a similar move by requesting the national government, through Municipal Resolution No. 121-5-93 for the proclamation of the Dumagooc Watershed Reservation. Unfortunately, the national government was also not able to pass a law for this request. Finally, on July 30, 2004, based on House Bill 2777 filed by the then Davao Oriental 2nd Congressional

District Representative Joel Mayo Almario, the National Government approved Republic Act 9303, "Declaring Mt. Hamiguitan Range and its Vicinities as Protected Area under the Category of Wildlife Sanctuary and its Peripheral Areas as Buffer Zone."

Under RA 9303, "wildlife sanctuary" comprises an area which assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for their perpetuation.

2.2 The Biogeographic Zone of MHRWS

Philippines is divided into 15 biogeographic zones. Each biogeographic zone reflects biological units with a degree of common history and coherent response to perturbations and management actions. Each zone is also distinct from the other zones in the way they are affected by climatic, geologic, edaphic, and overall biotic affinities. These zones are (1) Batanes, (2) Cordillera, (3) Sierra Madre, (4) Northern and Southern Luzon, (5) Zambales, (6) Mindoro, (7) Western Visavas, (8) Eastern Visayas, (9) Central Visayas, (10) Calamian, (11) Palawan, (12) Sulu and Tawi-tawi, (13) Zamboanga, (14) Central Mindanao and (15) Liguasan.

Of these 15 biogeographic MHRWS belongs to Biogeographic Zone 14 covering Central Mindanao (Figure 2.1). This zone includes the majority portion of the main Mindanao Island and the other smaller islands surrounding it excluding Zamboanga Peninsula and Liguasan Marsh. Other prominent



Figure 2.1 Philippine Bio-geographic zones

protected areas also belong to this zone including Mt. Apo Natural Park and Mt. Kitanglad Natural Park, among others.

2.3 Regional and Local Setting

2.3.1 Regional Setting

In its entirety, MHRWS is under the political jurisdiction of Region XI (Southeastern Mindanao) (Figure 2.2) where some protected areas also exist. These protected areas include, among others, the Mt. Apo National Park, Mabini Protected Landscape and Seascape, Pujada Bay Protected Seascape and Mainit Hot Spring Protected Land-scape (Figure 2.3).

MHRWS is about 100 kilometers southeast, straight line distance, from Davao City, the regional urban center of Region XI. It is about 160 kilometers from Davao City following the national highway passing through the Municipality of San Isidro.

2.3.2 Local Setting

MHRWS is entirely within the Province of Davao Oriental. Particularly, it is situated at the center of Pujada Peninsula forming a north-south trending. It traverses between the Municipalities of San Isidro and Gov. Generoso with the Mati at its eastern periphery. It is bordered in the north by the municipality of San Isidro, in the east by Mati, in the south by Gov. Generoso and in the west by San Isidro and Gov. Generoso (Figure 2.4). It is about 50 kilometers away from the Mati by land, where the nearest airport is located.

MHRWS covers an area of approximately 7,132.76 hectares. It is geographically located within the southeastern part of Davao Oriental. It lies between the coordinates 6°39′45″ to 6°47′10″ north latitude and 126°08′30″ to 126°12′15″ longitude. It is shared by seven barangays namely, barangays Macambol and Cabuaya of Mati; La Union, Maputi and Talisay of San Isidro and Osmena Sr. and Tandang Sora of Governor Generoso all in the province of Davao Oriental. (Figure 6). Among the three municipalities, San Isidro occupies the biggest area of 4,110.98 ha. while the Mati has the smallest with 1,183.60 ha. (Table 1). At the barangay level, La Union has the biggest area of 2,284.88 ha. while Cabuaya has the smallest with 99.22 ha.

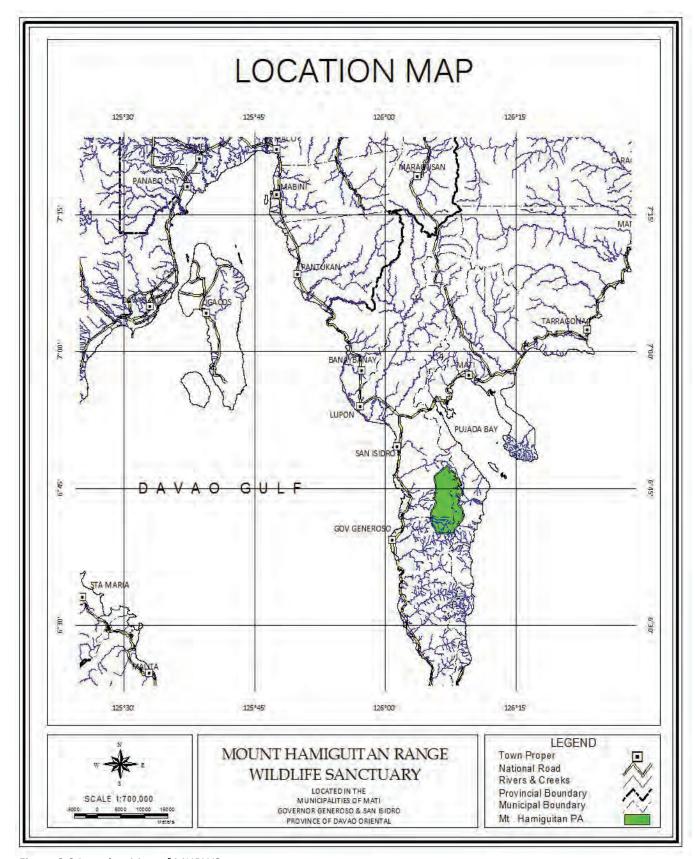


Figure 2.2 Location Map of MHRWS

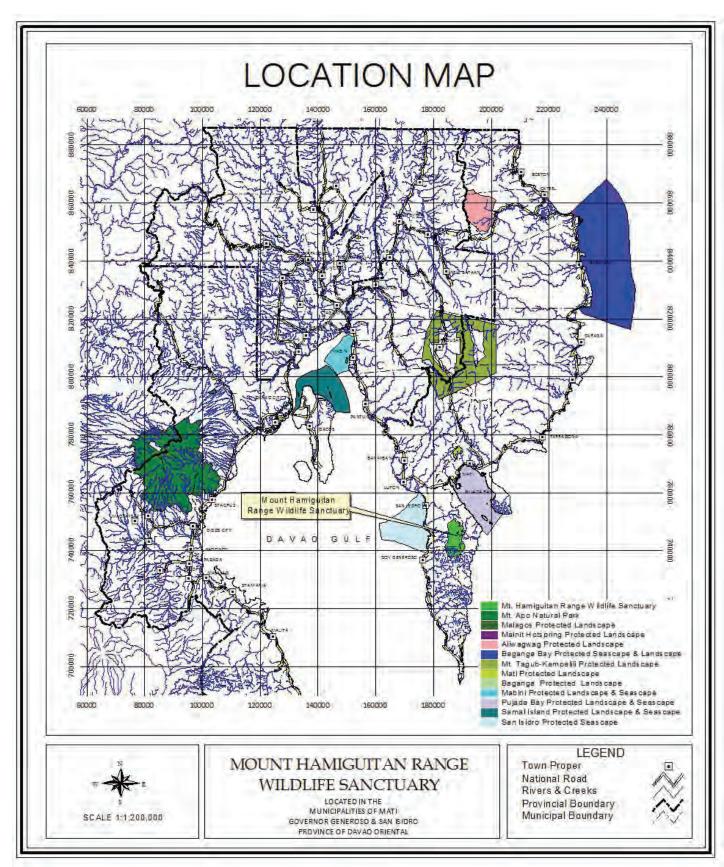


Figure 2.3 Location Map showing the other protected areas in Region XI

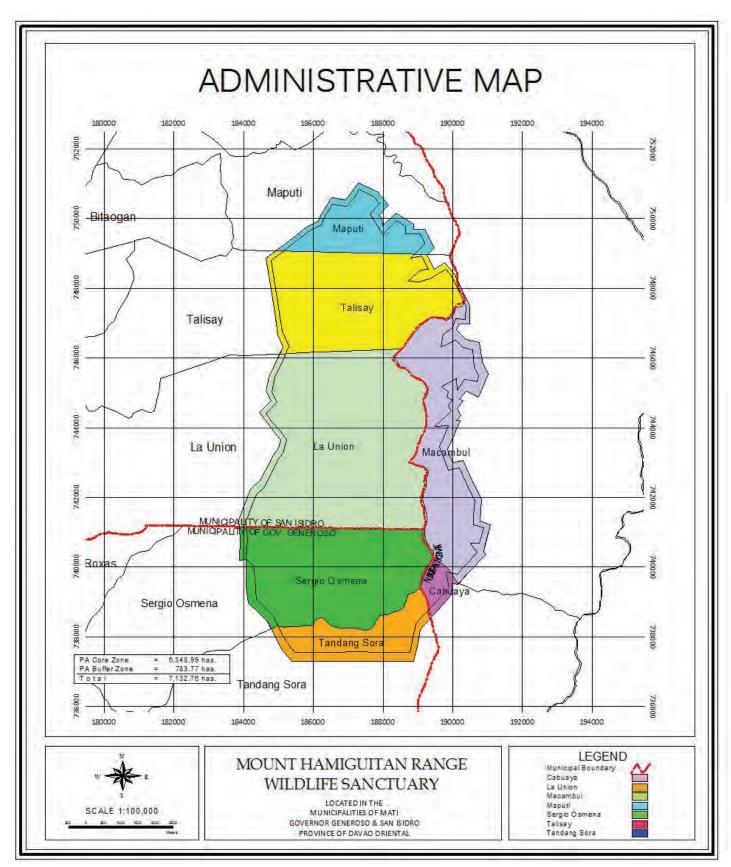


Figure 2.4 Administrative Map showing the towns and barangays covered by the MHRWS

Mun./City	San I	sidro	Gov. Gener	oso	Mat	i
	Maputi	482.35	Sergio OsmaÒa	1,347.77	Macambol	1,084.38
Barangay	Talisay	1,343.74	Tandang Sora	490.41	Cabuaya	99.22
	La Union	2,284.89				
Total		4,110.98		1,838.18	1	,183.60
Grand Total			7,132.76 he	ctares		

Table 2.1. MHRWS Area Distribution by City, Municipalities and Barangays

2.4 Elevation, Topography, Geology and Soils

The elevation range of MHRWS is from 170 to 1,637 meters above sea level (masl). Figure 2.5 shows the spatial distribution of the different elevation classes inside MHRWS while Table 2.2 shows the elevation classes of each barangays in terms of hectares. Majority of the portions of MHRWS belong to the elevation range of 500-1500 masl.

		Meter Abov	e Sea Level	
Name of Barangay	200-500	500-1000	1000-1500	1500 & above
Maputi	3.32	208.05	270.98	
Talisay	86.29	660.95	596.23	0.26
La Union	327.97	1,146.05	780.40	30.47
Sergio Osmeña	387.64	717.73	204.99	1.58
Tandang Sora	1.16	412.52	76.73	
Macambol		203.72	864.69	15.96
Cabuaya		44.44	54.79	
TOTAL	806.38	3,393.46	2,848.81	48.28

Table 2.2. Elevation Classes of Each Barangays in Terms of Hectares

MHRWS has a generally rough terrain with very steep slope gradient ranging from 8-100 percent. Figure 2.6 shows the spatial distribution of the different slope classes inside MHRWS, while Table 3 shows the different slope classes of each barangay in terms of hectares. Out of the 7,132.76 ha., 5,035.50 ha. have slopes of 50% or steeper.

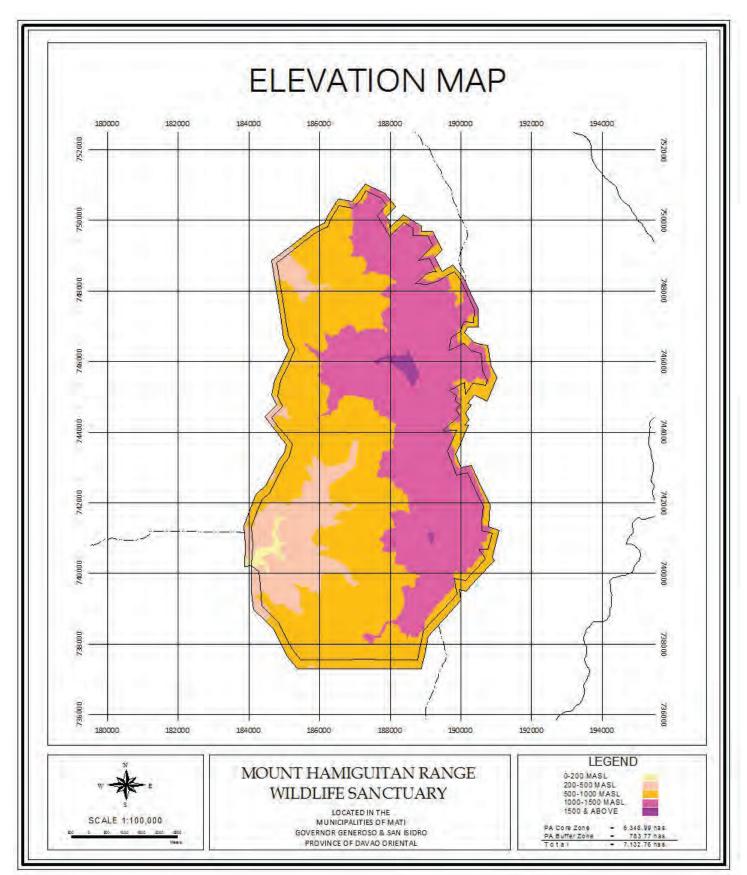


Figure 2.5 Elevation Map of MHRWS

		Slope	Class	
			50% &	
Name of Barangay	18-30%	30-50%	above	TOTAL
Maputi	207.71		274.64	482.35
Talisay	210.49	0.38	1,132.87	1,343.74
La Union	62.12	565.44	1,490.07	2,284.89
Sergio Osmena		113.87	1,233.90	1,347.77
Tandang Sora		116.32	374.10	490.42
Macambol	565.03	22.43	485.41	1,084.38
Cabuaya		54.72	44.51	99.23
			_	
TOTAL	1,045.35	873.16	5,035.50	7,132.76

Table 2.3 Slopes Class of Each Barangay in Terms of Hectares

MHRWS belongs to the Pujada Peninsula, which is interpreted to be a product of magmatic and tectonic actions generated by the subduction of the Philippine Sea Plate. The rocks associated with the oceanic crust are a mixture of sedimentary and ultramafic rocks. Ultramafic or serpentine rocks along with other soil elements such as nickel, magnesium, iron and other minerals render the soil unfavorable for normal growth of vegetation. This condition is common throughout Mt. Hamiguitan Range where the soil is not suitable for short term agricultural crops. It is very pronounced in the section of MHRWS where the pygmy forest is situated.

The soil inside MHRWS is from sandy loam to clay loam under the Malalag and Camansa series. Based on the findings of the Soil and Land Resources Evaluation for the Strategic Agriculture and Fisheries Development Zone – Comprehensive Land Use Plan (SAFDZ-CLUP) Integration Project conducted by the Bureau of Soils and Water Management of the Department of Agriculture in February 2004, the pygmy forest has a pH range of 4.1 – 5.5 which is very acidic and very low soil fertility (Table 2.4).

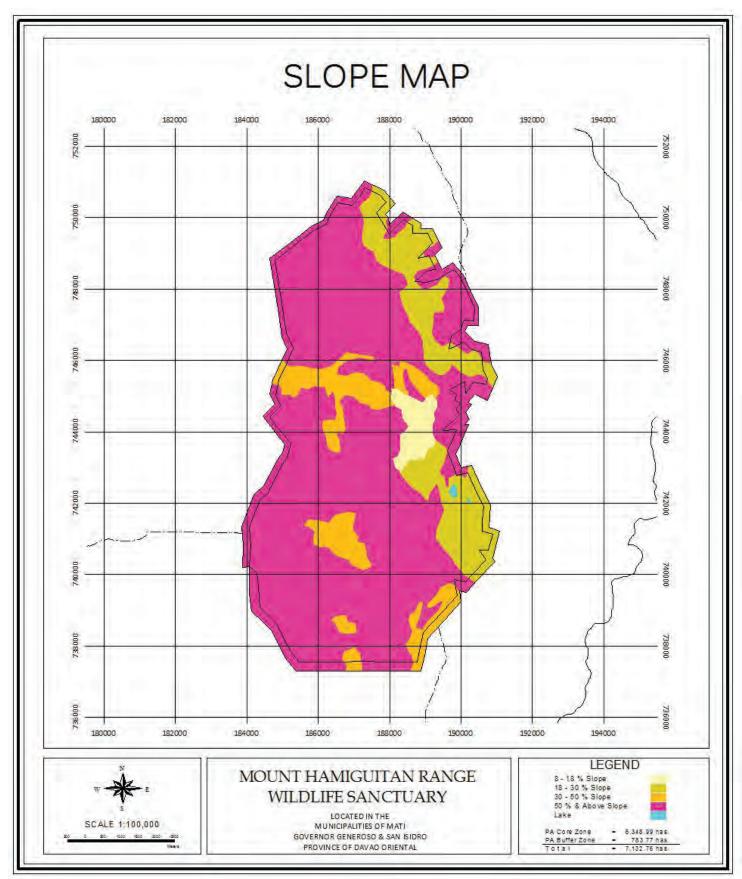


Table 2.6. Slope Map of MHRWS

Droportion	Horizon	Α	B1	B2	BoC
Properties	Depth (cm)	0-17	17-23	23-38	38-60
Particle size dis	stribution	**			
Sand		65.4	55.4	51.4	81.4
Silt		16	20	26	12
Clay		18.6	24.6	22.6	6.6
Textual Class		sand	sandy clay	sandy clay	loamy
Available moist	ture (%)	loam	loam	loam	sand
Field Capacity	1/3 bar	12.37	22.18	30.56	
Permanent Wil		33.52	52.98	61.59	
bars)	Mary and the same	21.15	30.8	31.02	
pH (H2O)		76.5	78.9	89.3	400
Organic Carbon	n (%)	4,6	5.2	5.5	4.1
Organic Matter	(%)	2.27	1.06	0.45	11.96
Available P, pp	m	3.9	1.82	0.77	20.57
		0,3	0.2	0.2	0.3
Exchangeable	bases:	*			
K		T	T	T	11.4.5
Ca		1.3	4.5	2.9	2.3
Mg			1.3	1.1	4.8
Na		0.1	0.2	0.2	0.2
Sum of Bases		1.4	6	4.2	7.3
CEC (NH4CAC) meg/100g	6.5	3.7	3.3	19.3
Base Saturatio	n on CEC (%)	>100		11.5	100
Base Saturatio	n Sum (%)	5	2	40	19
CEC Sum (cm/	(sec)	26	22.1	10.4	38.2
EC (1:1) mhos/	/cm	0.46	1.08	0.04	6
Inherent Fertilit	У	Very	1	1	
	0	low	+		

Table 2.4 Soil Characteristics Pygmy Forest in MHRWS (Pedon No. 18, Pygmy Forest, Mt. Hamiguitan, Brgy. La Union, San Isidro, Davao Oriental. Data source: Strategic Agriculture and Fisheries Development Zone – Comprehensive Land Use Plan (SAFDZ-CLUP) Integration Project. Bureau of Soils and Water Management, Department of Agriculture, 2004.)

The other noticeable geologic/landform features found in MHRWS include the Tinagong Dagat Lake (Plate 2.3), the Hidden Garden (Figure 43), the Twin Falls (Plate 2.4), and the Mansadok Peak.

2.5 Hydrology and Watershed

Found in Mt Hamiguitan are the watersheds of some rivers and creeks (Figure 2.7). These watersheds are Bitaugan, Mabua, Dumagooc/Timbo, Tibanban and Mati Cluster (Salingkomot and Jerico). Dumagooc/Timbo Watershed has the largest area of 2,942.34 ha. while Tibanban Watershed has the smallest are of 490.42 ha. (Table 5). Bitaugan, Mabua, Dumagooc/Timbo and Tibanban Rivers drain to the Davao Gulf. Jerico River drains to the Pujada Bay while Salingkomot River drains to the Pacific Ocean.



Plate 2.3 Tinagong Dagat Lake

Three of these rivers namely: Dumagooc, Tibanban and Bitaugan are the major sources of irrigation waters for the agricultural lands of the municipalities of Governor Generoso and San Isidro. Minor creeks are also seen in MHRWS, however, these are intermittent and dries up during summer. Of all the major rivers, Dumagooc River has the biggest discharge which is estimated to be at 30 cubic meters per second. And because there are no soil and forest disturbance inside, the water from the river is crystal clear as they exit MHRWS.

In addition to the various rivers and creeks found inside MHRWS, two waterfalls exist. They are the Twin Falls in barangay La Union and the Danlogan Falls in Barangay Maputi.



Tinagong Dagat is the only lake inside MHRWS. Plate 2.4 The Twin Falls It has an area of 4.11 ha. and is located at the

eastern (Mati) portion. It is situated at an elevation of 1160 masl. This lake dries up during dry season and holds water during rainy season. However, it was reported that before year 2000, this lake used to be a habitat of fresh water shrimps.

			Name of Wa	itersheds		Total
Name of	Bitaugan	Mabua	Mati Cluster	Tibanban	Timbo /	
Barangay					Dumagooc	
Maputi	482.35					
						482.35
Talisay	1,297.94	45.79				1,343.74
La Union	36.62	653.70			1,594.58	2,284.89
	30.02	033.70			1,394.36	2,204.09
Sergio					1 247 77	1 247 77
Osmena					1,347.77	1,347.77
Tandang Sora				490.42		490.42
Macambol			1,084.38			1,084.38
Cabuaya			99.23			99.23
TOTAL	1,816.91	699.49	1,183.60	490.42	2,942.34	7,132.76
IOIAL	1,010.91	033.43	1,103.00	430.42	2,342.34	7,132.70

Table 2.5 List of Watershed by Barangay in Terms of Hectares

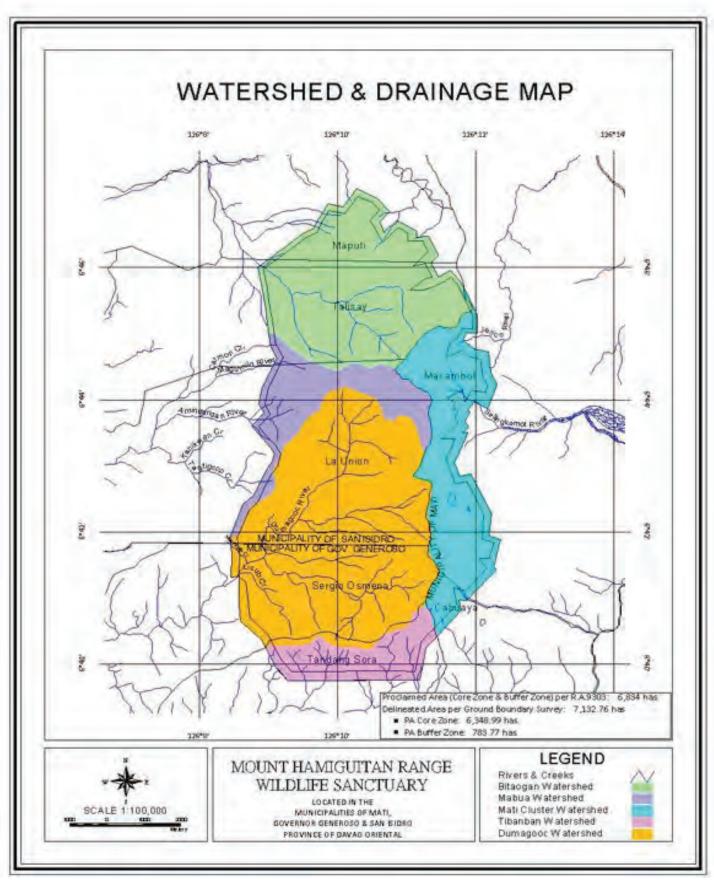


Figure 2.7 Watershed and Drainage Map of MHRWS

2.6 Climate

The climate of Mount Hamiguitan is generally wet and falls under Type IV of the Coronas Climate Classification in the Philippines. This climate type is characterized by an even rainfall distribution throughout the year. Localized rainfall usually occurs in the afternoon and night time brought about by the orographic effect. Early morning rain occurs in this area during the occurrence of general weather system and disturbance such as typhoon, monsoon and intertropical convergence zone. The year-round occurrence of rainfall in Mt. Hamiguitan is vital to the sustained existence of the natural bonsai forest because it aids the very low soil fertility in the area.

There is no rainfall data inside MHRWS. Rainfall records from 1996 to 2001 gathered from the nearest rain gauge station revealed that the month of January has a maximum rainfall output equivalent to 151mm. Annual average rainfall is 1,266 mm with a monthly average of 105.5 mm. MHRWS plays a significant role in the occurrence of rainfall in the locality (Plate 2.5).

Average temperature recorded at the nearest weather station is 27.75°C. The lowest temperature is recorded in January at 22.4°C while the highest temperature is recorded in April and May at 33°C. Unofficial temperature recorded inside the pygmy forest ranges from of 100C to 16.50C.

The relative humidity in the area is fairly constant with a minimum monthly average of 78 percent for the months of March and April and a maximum value of 82 percent for the months of July and December.



Plate 2.5 Due to the orographic effect, the low temperature at the peak of MHRWS condenses the converging water vapors resulting to frequent rainfall. This view of Mt. Hamiguitan is taken at Mati Wharf and the sea at the foreground is part of Pujada Bay which is also protected seascape

2.7 Boundaries and The Rationale of Their Location

In accordance with the technical description provided under RA 9303, the boundary of MHRWS is delineated as follows: 6,348.99 hectares PA and 783.77 hectares buffer zone for a total of 7,132.76 hectares (Figure 2.8).

The PA boundaries are located at the edges where the habitats are relatively undisturbed as compared to the lowlands. Figure 2.9 shows the portions of MHRWS with closed canopy forests and those that have open canopies and brushlands. At the core of the closed canopy area is the pygmy forest. The open canopy and brushland portions are the areas where the CBFM and ISF projects are located. Figure 14 shows the land cover map of MHRWS and Table 6 shows the land cover status at the barangay level.

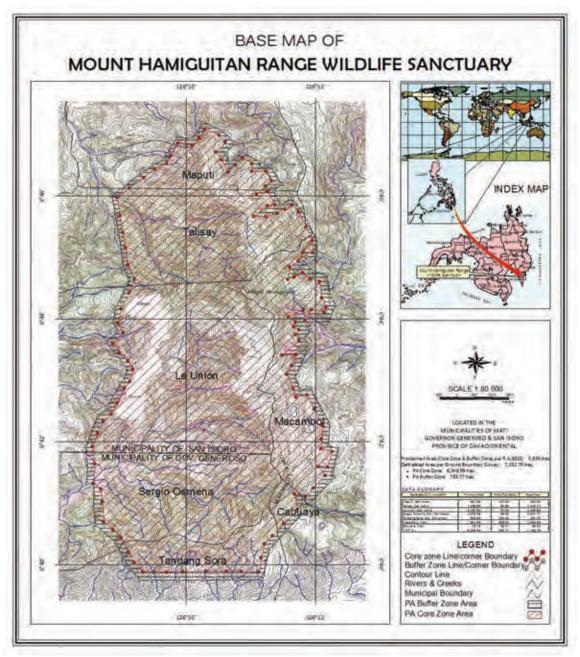


Figure 2.8. Base Map of MHRWS showing the Core and the Buffer Zones.

2.8 Biological Features

A study conducted by Dr. Amoroso, et. al. (2005-2007) entitled Biodiversity Assessment and Conservation of Hamiguitan Range and its Environs showed that there are 1,061 species of flora and fauna inhabiting Mt. Hamiguitan. It consist of 957 plant species and 423 animal species. These species belong to 181 families and 420 genera.

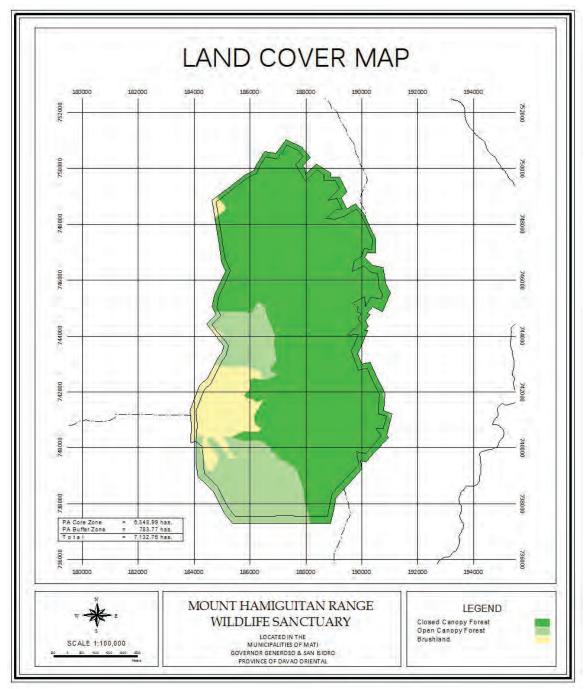


Figure 2.9. Land Cover Map of MHRWS

Name of Barangau	Vege	etative Cover (has.)		Total
Name of Barangay	Closed Canopy	Open Canopy	Brushland	Total
Maputi	482.35	7 7 1		482.35
Talisay	1,321.41		22.33	1,343.74
La Union	1,490.98	429.85	364.06	2,284.89
Sergio Osmena	542.65	571.60	233.52	1,347.77
Tandang Sora	183.73	306.69		490.42
Macambul	1,084.38			1,084.38
Cabuaya	99.23			99.23
TOTAL	5,204.71	1,308.14	619.91	7,132.76

Table 6. Barangay Land Cover Status

2.8.1 Flora

Based on all studies conducted a total of 957 species exist at MHRWS and adjacent areas. These species are distributed into 723 angiosperms, 27 conifers, 164 ferns and allies, 17 mosses, 13 liverworts, 13 lichens and undetermined number of fungi species. (Table7). It is important to note that, of the 957 species recorded, only 477 were identified while the rest are still being studied to find out what particular species they belong. Since this is the first species composition study in this area, there is a possibility that new plant species might be discovered (Annex 2 for List of Species).

From the 541 identified species, three species of pitcher plants, namely *Nepenthes peltata*, *N. micramphora and N. hamiguitanensis* are new species while eight others are new record for Mindanao (Table 2.8)

In terms of conservation status, 171 species (17.87%) are Philippine endemic, 35 species (3.66%) threatened, 33 species (3.45%) rare and 204 species (21.32%) are considered economically

PLANT GROUP	FAMILIES	GENERA	SPECIES
Angiosperms	106	296	723
Gymnosperms	4	8	27
Ferns	28	64	151
Fern Allies	3	3	13
Mosses	11	12	17
Liverworts	10	10	13
Lichens		13	13
Fungi	6	21	-
TOTAL	166	427	957 (416*)

Table 7. Total Number of Families, Genera and Species of Flora at MHRWS

important species (Table 2.9). Out of the 35 threatened species, six are further classified as critically endangered, seven endangered, 20 vulnerable while two are other threatened species (Table 2.10). Plate 2.6 shows *Nepenthes micramphora*, one of the new species recently discovered

FAMILY/SPECIES	NEW F	RECORD
	Philippines	Mindanao
I. ELAEOCARPACEAE		
Elaeocarpus argenteus		/
2. Elaeocarpus verticillatus		/
II. IRIDACEAE		
3. Patersonia lowii		1
III. MELASTOMATACEAE		
4. Astronia lagunensis		. / 1
IV. NEPENTHACEAE		
5. Nepenthes argentii		1
6. Nepenthes peltata), i	
7. Nepenthes micramphora	1	
8. Nepenthes hamiguitanensis	1	
9. Nepenthes mira	17	
V. SCHIZAEACEAE		7
10. Schizaea inopinata		7
11. Schizaea malaccana		1
TOTAL	3	8

Table 2.8 Newly recorded plants in the Philippines and in Mindanao from MHRWS.

in MHRWS.

The critically endangered species found in Hamiguitan Range include *Nepenthes copelandii, Paphiopedilum adductum, Platycerium coronarium, Rhododendron kochii, Shorea astylosa* and *Shorea polysperma* (Plate 2.7). Dr. Amoroso, et. al. noted that there is a need to protect and conserve the habitat of *N. copelandii* in this area since this plant species is critically endangered, endemic and rare.



Plate 2.6. *Nepenthes micramphora*, a newly recoded specis in the Philippines

Plant	Conservation Status						
Group	Endemic	Threatened	Rare	New Record	Economic		
Angiosperm	160 (22.13%)	25	15	11	161		
Gymnosperm	1 (3.70%)	1	3		9		
Ferns	10 (6.62%)	6	13	44	28		
Fern Allies		3	2		6		
Total	171 (17.87%)	3.5	33	11	204		

Table 2.9 Conservation Status of Plant Species in Mt. Hamiguitan and Vicinitie

PLANT GROUP		TH	REATENE	ED SPECIES	- Trans
	CES	ES	V	OTS	TOTAL
Angiosperms	5	5	13	2	25
Gymnosperms			1		1.1
Ferns	1.0	1	4		6
Fern Allies		1	2		3
TOTAL	6	7	20	2	35

Legend: CES – Critically endangered species

V – Vulnerable

ES – Endangered species

OTS - Other threatened species

Table 2.10 Threatened Species of Flora Observed At Hamiguitan Range.



Paphiopelum ciliolare, rare and ornamental plant.



Nepenthes copelandii, one of the six critically endangered plants found in MHRWS



Paphiopedtlum adductum, endemic, rare and ornamental plant.



Tainia maingayi, new plant record in the Philippines

Plate 2.7. Critically endangered floral species in MHRWS

2.8.2 Fauna

Recent studies also revealed that a total of 422 animal species were recorded in Mt. Hamiguitan Range (Table 11 and Appendix 3 for the list of species). These include flying and non-flying mammals, birds, reptiles, amphibians and butterflies. They are distributed into 29+ orders, 98 families and 256 genera. Of the total animal species, 124 are endemic to the Philippines while 39 are endemic to Mindanao (Table 12). In terms of conservation status, 72 are threatened wherein two are critically endangered, six are endangered, 19 are vulnerable while the rest are other threatened species. There are also 113 rare species. Plate 2.8 shows some of the endemic, rare

FAUNAL GI	ROUP	ORDER	FAMILY	GENUS	SPECIES
VERTEBRATE F	AUNA				17.0
Non-volant mamm	als	6	10	14	1.5
Volant mammals		1	4	10	1.1
Aves		14	37	74	108
Reptiles		1	8	20	33
Amphibians		1	.5	10	18
	Sub-total	23	64	128	179
INVERTEBRATE	FAUNA				
Butterflies			5	68	142
Damselflies/Drago	nflies		12	24	31
Spiders			8	17	46
Earthworms			2	4	4
Nematodes		6	7	15	15
	Sub-total	6	22	104	236
	TOTAL	29	98	256	422

Table 2.11 Number of Families, Genera and Species of Fauna in Mt. Hamiguitan.

and vulnerable fauna in MHRWS.

a. Bats

Eleven species of bats are found in four habitat types in MHRWS. These include fruit-eating and insect-eating bats. Although there was no capture,

b. Small Non-flying Mammals

A total of 15 species of non-flying mammals were documented inside MHRWS. They include warty pig, deer, civet, tarsier, macaque and rodent. One rodent, the Batomys hamiguitan, is found only at Mt. Hamiguitan. Another species with high conservation value is the tarsier (Tarsius syrichta).

c. Birds

There are 108 species from 37 families and 74 genera of birds found in Mt. Hamiguitan. Thirty three percent (33%) of the total bird species are endemic in the Philippines and 19 percent are endemic in Mindanao. Only nine migratory birds were recorded. Twenty one percent (21%) of the species are resident breeders in Mindanao. Of the total bird species, four are threatened species.

Shown in Plate 2.9 is the critically endangered Philippine Eagle *Pithecophaga jefferyi*.

d. Herps (Amphibians and Reptiles)

There are 51 Herps species found in Mt. Hamiguitan – 18 amphibians and 33 reptiles. Two (2) skink species might be new records for anuran species.

alterative autopa	TOTAL			CON	SERVATION ST	ATUS		
ANIMAL GROUP	NO. OF	ENDE	MIC	SE CONTRACTOR		VULNERABLE	RARE	TOTAL
	SPECIES	PHILS.	MIN.	ENDANGERED	THREATENED			
VERTEBRATE FAUNA								
Volant mammals	15	5	2					
Non-volant				2	1	1	1	0
Mammals	-11	6	4					
Aves	108	20	10	2	Y	6	-0-	4
Reptiles	33	12	5	ú	o.	0	7	7
Amphibians	18	7	.0	ō.	Ü.	Ö.	4	4
Sub-total	179	50	21	4	2	1	30	21
INVERTEBRATE FAUN	A							
Butterflies	142	44	22		**		15	15
Damselflies/Dragonflies	31	- 8					2	
Spiders	46							
Earthworms	4							
Nematodes	15	7						
Sub-total	236	59	22	-	÷-			15
TOTAL	422	60	43	4	2	4		26

Table 2.12 Conservation status of vertebrates and invertebrate of MHRWS

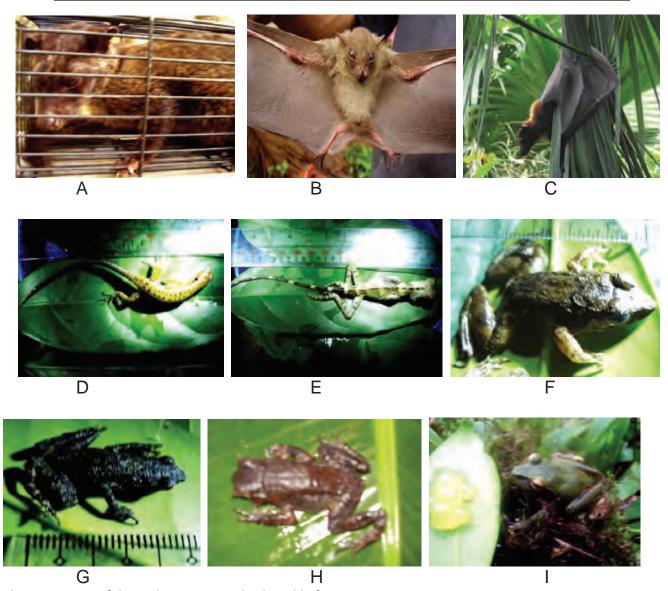


Plate 2.8. Some of the endemic, rare and vulnerable fauna in Mt. Hamiguitan.

- A. Paradoxurus hermaphroditus
- B. Haplonycteris fischeri
- C. Acerodon jubatus
- D. Sphenomorphous variegatus
- E. Gonyocephalus semperi
- F. Limnonectes magnus
- G. Ansonia muelleri
- H. Megophrys stejnegeri
- I. Philautus acutirostris

e. Butterflies

MHRWS is home to diverse and endemic butterfly species. A total of 142 species of butterflies have been identified from 65 genera and five families. Of these, 44 species are endemic: four site 22 Philippine endemic, two eastern Mindanao endemic, 16 Mindanao endemic, and four species is site endemic such as *Coladenia ochracea*, *Colandenia semperi*, *Arisbe euphratoides* and *Delias magsadana* the rarest of them all and can be found only in the mossy-pygmy forest of the sanctuary.

Seven species are new recorded for Mindanao. Trend of species richness for butterflies revealed an increasing trend from agro-ecosystem to montane forest and decreasing from typical mossy to mossy-pygmy forest. Inferring this trend on the vegetation type, the dipterocarp forest has been found to be the home of the most endemic and threatened species followed by the montane forest and the mossy-pygmy forest. Rare species have been observed starting from the dipterocarp up to the mossy-pygmy forest.

For the conservation status of butterflies, Table 13 indicates their endemicity and conservation

Table 2.13 Endemic and Rare Species of Butterflies That Must be Given High Priority for Protection and Conservation.

SPECIES	FAMILY	STATUS
Delias. Magsadana	Pieridae	Rare, Site endemic
Acrophtalmia leto ochine	Nymphalidae	Rare, Mindanao endemic
Eurema brigitta brigitta	Pieridae	Rare, Philippine endemic
Eurema sarilata sarilata	Pieridae	Rare, Philippine endemic
Moduza thespian	Nymphalidae	Rare, Philippine endemic
Monodontides apona	Lycaenidae	Rare, Philippine endemic
Mycalesis felderi felderi	Nymphalidae	Rare, Philippine endemic
Potanthus mingo mingo	Hesperidae	Rare, Philippine endemic
Ragadia melindina melindina	Nymphalidae	Rare, Philippine endemic
Suada albino	Hesperidae	Rare, Philippine endemic
Tacola magindana magindana	Nymphalidae	Rare, Philippine endemic
Zeuxidia sibulana sibulana	Nymphalidae	Rare, Philippine endemic

(Adopted from Amoroso et al 2007)

status. Shown in Plate 2.10 is the site endemic butterfly *Delias Magsadana*.



Plate 2.10. Site endemic Delias Magsadana



Plate 2.9. A pair of critically endangered *Pithecophaga jefferyi* nesting at the foot of MHRWS

f. Odonata

A total of 31 species of odonata under 11 families are recorded in the nominated property. It includes two new species and two unverified species of damselflies. Species richness and abundance of Odonata is increasing from agroecosystem (1-400 masl) with 4 species, dipterocarp (400-900 masl) with 14 species, highest in montane (1000-1200 masl) with 31, mossy (1300-1400 masl) with 10 and pygmy (1500-1600 masl) with 7 species. Species noted in the study are mostly wide ranging species with no altitudinal preference. The study concluded that the 31 species total number of Odonata, the presence of two new species, the 94% endemic damselflies and 33.3% endemic dragonflies of Mt. Hamiguitan Wildlife Sanctuary are significant for conservation concern.

g. Spiders, Nematodes and Earthworms

Natural Resource Valuation of Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) was the most recent study conducted in 2008-2009 by the University of Southern Mindanao in collaboration with other universities and colleges. Results of the study had been presented to the PAMB of MHRWS on 30 September 2010. Among the species studied are spiders, nematodes and earthworms. Study revealed 46 species of spiders, four earthworms and 15 nematodes.

2.8.3 Habitats and Ecosystems

The habitats in MHRWS is consist of the agro-ecosystem, dipterocarp forest, montane forest, mossy forest and mossy-pygmy forest. Figure 2.10 shows the typical sequence of the five ecosystems starting from the agro-ecosystem which is adjacent to the agricultural lands (outside of the MHRWS) going to the topmost which is the mossy-pygmy forest ecosystem at altitudes of

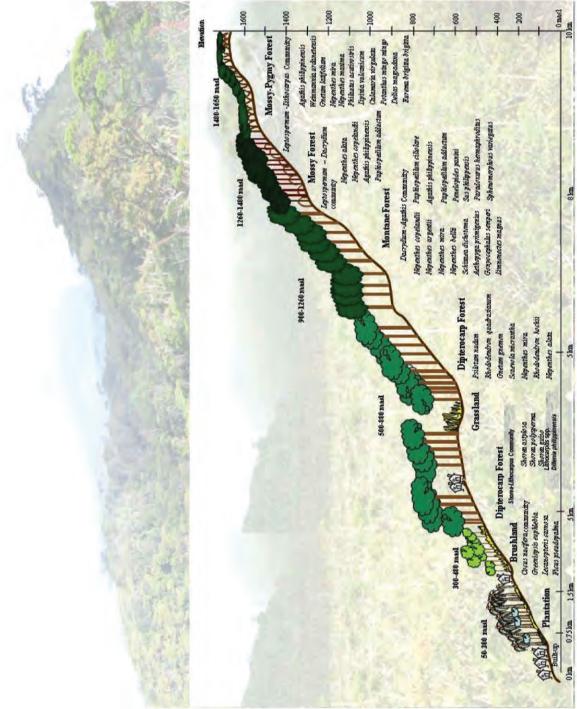


Figure 2.10 Typical Sequence of the Five Ecosystems in MHRWS. (Adopted from Amoroso et al 2007)



Plate 2.11 The Typical Agro-Ecosystem of MHRWS at Lower Elevations. (Photo by Amoroso)

1,500 masl and higher.

a. Agro-ecosystem

The agro-ecosystem is the first ecosystem coming from the lowland. In the municipalities of San Isidro and Gov. Generoso side, it has an altitude of 175-420 masl. This ecosystem is common in the CBFM and ISF areas. Coconut and banana plantations dominate this type of ecosystem (Plate 2.11). However, remnants of dipterocarp trees can also found within the vegetation indicating that the area used to be a dipterocarp forest, but is now converted into agro-forestry plantations. Noteworthy is the presence of *Shorea guiso* and *S. polysperma* which are critically endangered species.

Despite being mostly an agro-forest plantation area, a lot of floral species still exist in these areas. Amoroso et al (2007) recorded some 246 plant species in this ecosystem, 44 of them are endemic (Table 23). However, for the fauna, only the butterflies (22 spp.) were sighted in this area.

b. Dipterocarp Forest

The Dipterocarp forest is the next ecosystem above the agro-ecosystem. This ecosystem is located at an elevation between 500 and 900 masl (Plate 2.12). All throughout MHRWS, a total of 418 plant species were recorded in this ecosystem. The average tree height in this type of forest ranges from 5 to 30 meters and the average height is 14 meters.



Plate 2.12 The Dipterocarp Forest which Hosts the Highest Number of Animal Species from Among the Five Ecosystems of MHRWS. (Photo by Amoroso)

SPECIES OF TREES	LOCAL NAME	SIV (%)*	RANK
Lithocarpus Ilanosii	Ulayan	50.01	1 st
Shorea astylosa	Yakal	45.80	2 nd
Zanthoxylum diabolicum	Badbad	42.82	3 rd
Xanthostemon sp.	Magkuno	39.11	4 th
Calophyllum blancoi	Bitanghol	33.08	5 th
Xanthostemon verdugonianus	Magkuno	26.95	6 th
Unidentified sp.	Tagokan	26.30	7 th
Tristaniopsis sp.	Malabayabas	25.70	8 th
Schefflera sp.	Malapagi	25.70	9 th
Shorea polysperma	Tanguile	25.18	10 th
Garcinia sp.		24.45	11 th
Myristica philippensis	Duguan	21.66	12 th
Symplocos polyandra	Sagimsim	20.24	13 th
Alangium meyeri	Putian	17.41	14 th
Unidentified sp.	Itoman	15.00	15 th

^{*} Species Importance Value (SIV) is a rough and overall estimate of the influence or importance of plant species in the community.

Table 2.14 Summary of Tree Species in the Dipterocarp Forest with Their Species Importance Value and Ranks.

PLANT GROUP	SPECIES	LOCAL NAME	SIV (%)	RANK
Vine	Alyxia rosmarinifolia		155.99	1st
Vine	Freycinetia sp.3		102.82	2 nd
Herb	Psilotum nudum		86.99	3 rd
Vine	Freycinetia sp.2		85.40	4 th
Herb	Tectaria griffithii		83.95	5 th
Vine	Calamus sp.5	Putian	80.98	6 th
Herb	Freycinetia sp.1	1000	68.74	7 th
Herb	Dipodium paludosum		66.88	8 th
Vine	Calamus sp.1	Bugtungan	61.84	9 th
Vine	Freycinetia sp.1		59.80	10 th

Table 2.15 Summary of Species of Shrubs, Herbs and Vines in the Dipterocarp Forest with Their Species Importance Value and Ranks.

Presented in Table 2.14 are the top 15 tree species recorded inside the dipterocarp forest according to their species importance value (SIV). The species with the highest importance value is Ulayan (Lithocarpus Ilanosii) while Alyxia rosmarinifolia has the highest importance value among the herbs and vines (Table 2.15).

In terms of the faunal component, the dipterocarp forests is the habitat of 146 animal species (Table 21). Among the five ecosystems, this is where most of the animal species are found. All the animal groups in MHRWS are represented in this ecosystem, from mammals to the invertebrate butterflies.

c. Montane Forest

The montane forests (Plate 2.13) exist at an altitude range of 920-1160 masl. This type of forest is characterized by the presence of numerous species of mosses, lichens and epiphytes. A total of 462 plant species are recorded in this ecosystem. Table 2.16 shows the top 15 tree species recorded in the montane forests according to their SIV. Among them, *Falcatifolium gruezoi* has the highest SIV. The height of trees in this forest ranges from 5-25 meters and the average height is 12 meters. Plate 2.14 shows the *Agathis philippinensis* at the montane forest.



Plate 2.13 The montane forest of MHRWS (Photo by Amoroso)

For the shrubs, herbs and vines, there are 10 species recorded in the montane forests (Table 2.17). The species with the highest SIV is the *Tapeinidium sp. 1*

SPECIES OF TREES	LOCAL NAME	SIV (%)	RANK
Falcatifolium gruezoi		37.33	1 st
Shorea polysperma	Tanguile	30.44	2 nd
Agathis philippinensis	Almaciga	27.87	3 rd
Syzygium sp.	Lumboy-lumboy	27.54	4 th
Calophyllum blancoi	Bitanghol	26.39	5 th
Osmoxylon simplicifolium		23.50	6 th
Schefflera sp.	Malapagi	21.10	7 th
Dacrydium elatum	Cedar	18.48	8 th
Unidentified sp.	Hindang	18.27	9 th
Zanthoxylum diabolicum	Badbad	17.50	10 th
Weinmannia urdanetensis		16.32	11 th
Barringtonia sp.	Malagubat	15.58	12th
Unidentifed sp.	Tagokan	13.72	13 th
Cinnamomum mercadoi	Cinamon	13.49	14 th
Unidentified sp.	Ba-it	13.22	15 th

Table 2.16. Summary of Tree Species in the Montane Forest with Their Species Importance Value and Ranks.



Plate 2.14 A giant Agathis philippinensis inside the montane forest. (Photo by Amoroso)

PLANT	SPECIES	LOCAL NAME	SIV (%)	RANK
Herb	Tapeinidium sp.1		82.11	1 st
Vine	Freycinetia sp.1		82.11	2 nd
Herb	Cyathea merillii		74.28	3rd
Herb	Taenitis sp.1		49.70	4th
Vine	Calamus sp.1	Bugtungan	45.40	5 th
Shrub	Rhododendron sp.1	A Salar	33.87	6 th
Herb	Tapeinidium sp.2		23.88	7 th
Vine	Calamus sp.5	Putian	23.88	8 th
Vine	Piper sp.2		17.63	9 th
Vine	Smilax sp.1		17.63	10 th

Table 2.17 Summary of Species of Shrubs, Herbs and Vines in the Montane Forest with Their Species Importance Value and Ranks.

Among the animals in MHRWS, 105 species inhabit the montane forests. Just like the dipterocarp forests, all the animal groups are represented in this ecosystem, but a little lower in terms of number of species than in the dipterocarp forests.

d. Mossy Forest

The typical mossy forest (Plate 2.15) is situated at an altitude range of 1160-1350 masl. Mosses are observed to be very thick in this vegetation type which covers the roots and tree trunks (Figure



Plate 2.15 The mossy forest showing thich mosses covering tree trunks and roots. (Photo by Amoroso)

33). A total of 246 plant species are recorded in this ecosystem.

Presented in Table 2.18 are the top 15 tree species in terms of their SIV. Gordonia subclavata has the highest SIV. The height of trees in this forest ranges from 6-15 meters with an average tree height of 11 meters. For the shrubs, herbs and vines, *Freycinetia sp.* has the highest SIV (Table

SPECIES OF TREES	LOCAL NAME	SIV (%)	RANK
Gordonia subclavata		27.00	1 st
Unidentfied sp.	Tagokan	16.50	2 nd
Agathis philippinensis	Almaciga	5.33	3 rd
Osmoxylon simplicifolium		5.25	4 th
Aralia sp.		5.00	5 th
Unidentifed sp.	Buyo-buyo	5.00	6 th
Zanthoxylum diabolicum	Badbad	4.50	7 th
Falcatifolium gruezoi	Chinese Cedar	4.33	8 th
Calophyllum blancoi	Bitanghol	4.00	9 th
Euonymus javanicus	Tabaan	4.00	10 th
Timonius appendiculatus		4.00	11 th
Arthrophyllum ahernianum		3.50	12 th
Dacrydium elatum		3.50	13 th
Polyosma sp.		3.50	14 th
Weinmannia urdanetensis		3.50	15 th

Table 2.18 Summary of Tree Species in the Mossy Forest with Their Species Importance Value and Ranks

PLANT GROUP	SPECIES	LOCAL NAME	SIV (%)	RANK
Vine	Freycinetia sp.1		126.97	1 st
Herb	Selaginella sp.1	54.79	2 nd	
Herb	Hymenophyllum sp.1	47.88	3 rd	
Vine	Alyxia sp.1		26.50	4 th
Herb	Tapaeinidium sp.1		25.32	5 th
Herb	Selaginella elegans		22.57	6 th
Herb	Cyathea sp.1		16.80	7 th
Vine	Calamus sp.1	Bugtungan	12.38	8 th
Herb	Cyathea sp.2	33.00.00	12.05	9 th
Herb	Colsita sp.1		11.09	10 th

Table 2.19 Summary of Species of Shrubs, Herbs and Vines in the Mossy Forest with Their Species Importance Value and Ranks.

2.19).

Among the animal species, only butterflies composed of 12 species are recorded inside the mossy forests.

e. Mossy-Pygmy Forest

The mossy-pygmy forest inside MHRWS exists starting at around 1,200 m asl elevation. It has a

unique and interesting feature. A total of 338 plant species is recorded in this ecosystem. Species of *Agathis (Plate 2.16), Lithocarpus, Falcatifolium, Leptospermum* and *Cinnamomum* with a height of more than 30 meters in the dipterocarp and montane forests, become stunted in the mossypygmy forest, with heights of less than 3 meters. This is due to the ultramafic conditions of the soil.

This forest type has a substrate predominated by ultrabasic rocks which leaves the soil with high concentration of iron and magnesium, thus only a specialized group of plants grow in the area. Oftentimes, plants here are dwarfed (Plates 2.17, 2.18, 2.19). Table 2.4 indicates that the soil has a very low inherent fertility. The frequent rain in this ecosystem helps the plants survive amid the harsh environment.

Presented in Table 2.20 is the summary of tree species in the mossy-pygmy forest with their SIV.





Plate 2.17. A. philippinesis at mossy-pygmy forest

Plate 2.16. A. philippinesis at montane forest

Tristaniopsis micrantha has the highest SIV while *Garcinia sp.* has the lowest SIV. Table 2.21 shows the herbs, shrubs and vines with the SIVs and ranks at the mossy-pygmy forest.

Mossy-pygmy forest is also home to many endangered, endemic and rare fauna such as *Lipinia vulcanicum* (Girard's Tree Skink), *Calamaria virgulata* (Southern Worm Snake) and *Phyton reticulatus* (Reticulated Phyton) for reptiles; *Sus philippensis* (Philippine Warty Pig) for mammals; and *Philautus acutirostris* (Pointed-Snouted Tree Frog) for amphibians. The site endemic *Delias magsadana* and the new rat species, *Batomys hamiguitan* (Plate 2.20) are also found in this

SPECIES OF TREES	LOCAL NAME	SIV (%)	RANK
Tristaniopsis micrantha		46.15	1 st
Leptospermum flavescens		43.57	2 nd
Calophyllum blancoi	Bitanghol	36.49	3 rd
Dacrydium elatum	Cedar	31.71	4 th
Falcatifolium sp.		29.03	5 th
Zanthoxylum diabolicum	Badbad	25.55	6 th
Leptospermum flavescens		23.12	7 th
Symplocos polyandra	Sagimsim	11.60	8 th
Weinmannia urdanetensis		10.76	9 th
Falcatifolium gruezoi		10.08	10 th
Alstonia sp.		9.54	11 th
Agathis philippinensis	Almaciga	9.42	12 th
Podocarpus sp.	The Carry of the C	6.92	13 th
Lithocarpus Ilanosii	Ulayan	6.71	14 th
Garcinia sp.	***************************************	6.67	15 th

Table 2.20 Summary of Tree Species in the Mossy-Pygmy Forest with Their Species Importance Value and Ranks

PLANT GROUP	SPECIES	LOCAL NAME	SIV (%)	RANK
Herb	Machaerina sp.1		154.59	1st
Herb	Dicranopteris hirta		98.71	2 nd
Shrub	Myrsine avenis		20.56	3 rd
Shrub	Vaccinium halconense	Wild berry	19.83	4th
Vine	Nepenthes mira	Pitsel-pitsel	19.42	5 th
Herb	Scleria sp.1	Cristian Park	18.54	6 th
Shrub	Melastoma crinitum		14.39	7 th
Shrub	Vaccinium gitingense		13.72	8 th
Shrub	Myrsine amorosoana		13.30	9 th
Herb	Hedyotis sp.1		7.34	10 th

Table 2.21 Summary of Species of Shrubs, Herbs and Vines in the Mossy-Pygmy Forest with Their Species Importance Value and Ranks.



Plate 2.18. A bonsai tree inside the mossy pygmy forest



Plate 2.19. A natural bonsai *Agathis philippinensis* inside the mossy-pygmy forest which bears fruit.

ecosystem.

Comparing the five ecosystems of MHRWS, the montane forests have the highest number of plant species while the agroecosystem and the mossy forests have the least (Table 2.22). The montane forests also have the most number of species in all plant groups. The reasons or factor(s) why

the montane forest is most diversified is yet to be determined by further studies.

In terms of their conservation status, montane forest has the most number of endemic species while the agroecosystem has the least (Table 2.23). The montane and the pygmy forests have the same number of rare species while the agro-ecosystem has the least.

For the threatened species, the dipterocarp forest has the most number while the mossy-pygmy forest has the least. For the number of economically important species,



Plate 2.20 The Hamiguitan batomys

PLANT GROUPS	VEGETATION TYPES							
	AGROECOSYSTEM	DIPTEROCARP	MONTANE	MOSSY	MOSSY- PYGMY			
Angiosperms	204	326	340	179	272			
Gymnosperms	3	12	16	7	13			
Ferns	37	71	96	57	50			
Fern Allies	2	9	10	3	3			
TOTAL	246	418	462	246	338			

Table 2.22 Species Richness of Flora in the Different Vegetation Types in Mt. Hamiguitan

the dipterocarp forest has the most number while the mossy forest has the least.

In terms of the richness of fauna, the dipterocarp forest has the most number of animal species while the mossy forest has the least (Table 19). It is significant to note that no vertebrate fauna is found in the mossy forests. The reason or factor behind this still needs to be looked into. The vertebrate fauna is also absent in the agroecosystem, but this can be attributed to the presence of humans in this ecosystem which drives away the wild animals. Butterflies are present in all five ecosystems for the reason that all ecosystems in MHRWS have flowering plants which are the

CONSERVATION		VEGETATION TYPES					
STATUS	AGRO- ECOSYSTEM	DIPTEROCARP	MONTANE	MOSSY	MOSSY- PYGMY		
Endemic	44	78	86	49	66		
Threatened							
CES	2	2	4	1	2		
ES	2	4	6	1	2		
1.1	/ 9	14	10	8	5		
OTS	3 2	2					
Rare	3	16	23	23	22		
Economically Important	98	114	105	65	75		
Species							

Legend: CES – Critically endangered species ES – Endangered species V – Vulnerable OTS – Other threatened species)

Table 2.23 Status of Floral Species Per Vegetation Type Based on Transect Walk and Sampling Plots.

sources of nectars for them.

In terms of the species richness, the forest has the most number of vertebrate animals (Table 2.24). It also has the most number of threatened fauna (Table 2.23). On the other hand, the montane forest has the most number of rare animal species. Status of Vertebrate Faunal Species

PLANT GROUPS		VEGETATION	TYPES	10-00-01	71-1-1
	AGROECOSYSTEM	DIPTEROCARP	MONTANE	MOSSY	MOSSY- PYGMY
VERTEBRATE FAU	NA				
Non-volant	4	8	3	14	3
Mammals		101			
Volant Mammals	=	6	2	-	3
Birds	4	46	22	4	26
Reptiles	Let	8	7		6
Frogs	2	10	4	₩.	3
Sub-total		78	38		41
INVERTEBRATE FA	UNA			- 636	
Butterflies	22	68	67	12	8
Sub-total 22		68	67	12	8
TOTAL	22	146	105	12	49

Table 2.24 Species Richness of Fauna in the Different Vegetation Types in Mt. Hamiguitan.

Per Vegetation Type.

For the distribution of the butterflies, the dipterocarp and the montane forests have the same numbers of butterfly species while the mossy and the pygmy forests have the least (Table 21). With this data, it can be inferred that, since butterflies are attracted to flowers for their sources of food, the mossy and pygmy forests have fewer flowers than the dipterocarp and the montane

forests.

2.9 Nature Recreation Potential

MHRWS has high ecotourism potential with the existence of various features for tourism and recreation which include the following (Figure 2.20):

- a. Tinagong Dagat Lake. It has an area of approximately 5 hectares. The water in the lake is stagnant and fresh (Plate 2.3).
- b. Natural Tropical Bonsai Field or the Pygmy Forest (Plate 2.21). It is located southeast of Mt. Haguimitan with an estimated land area of 1,234.56 hectares. The abundant vegetations are Almaciga, Cedar, Lokinai Yakal, Dapdap and Bitanghol. These trees are only about 1.4 meters high,



Plate 2.21 The natural tropical bonsai fields

but their age is already about 100 years old.

- c. Twin Falls. It is located at the lower fringe of the bonsai fields. It is a picnic and bathing area for visitors of MHRWS. The water of these falls come from the bonsai fields which act like a huge sponge absorbing rainwater and gradually releasing the excess water into the falls (Plate 2.4).
- d. Licub Falls. It is located at the headwaters of Dumagooc River which could be developed for eco-tourism and recreation purposes. There are also other waterfalls inside MHRWS (Plate 2.22) which have ecotourism potentials.
- e. The Mansadok Peak or Mt Hamiguitan Peak. It is 1,637 masl and is an alternative site for mountaineers. This peak can seldom be seen in the afternoon since it is often covered with fogs (Plate 2.23).
- f. Hidden Garden. At first glance, this garden appears like a landscaped garden planted with uniform-sized 6-meter tall Tinikaran trees (*Leptospermum flavescens*) and the forest floor carpeted with moss. In reality, no human being ever planted a single tree nor did any landscaping in the place. The Hidden Garden is situated at the ecotone of the mossy and the montane forests at an elevation of 1,135 masl (Plate 2.24).

2.10 Human Population and Land Use

During the enactment of RA 9303, there were 41 households inside MHRWS; 40 households at Sitio Mandapuayon, Barangay Sergio Osmeña, Gov. Generoso and one at Sitio Tumalite, Barangay La Union, San Isidro. These households were either inside CBFM or ISF areas. In the Mati side,

there were no households inside the MHRWS because the soil in this part is acidic and soil nutrients is low, therefore, it is not suitable for agricultural crops. The same soil condition is true in other parts of MHRWS especially where the bonsai fields are located.

Recent report by the purok leader of Sitio Mandapuayon revealed that the household number in this area decreased to only 31 with a total population of 96. The reason for the decrease is that some of the occupants transferred



Plate 2.22 An unnamed waterfalls inside the MHRWS

residence to Purok 7, Sitio Badiang because of the improvement of the living condition in that area. Road accessibility is greatly improved, water supply is stable and electricity as well as public school are available. The lone settler in Sitio Tumalite, La Union, San Isidro remained in the area.

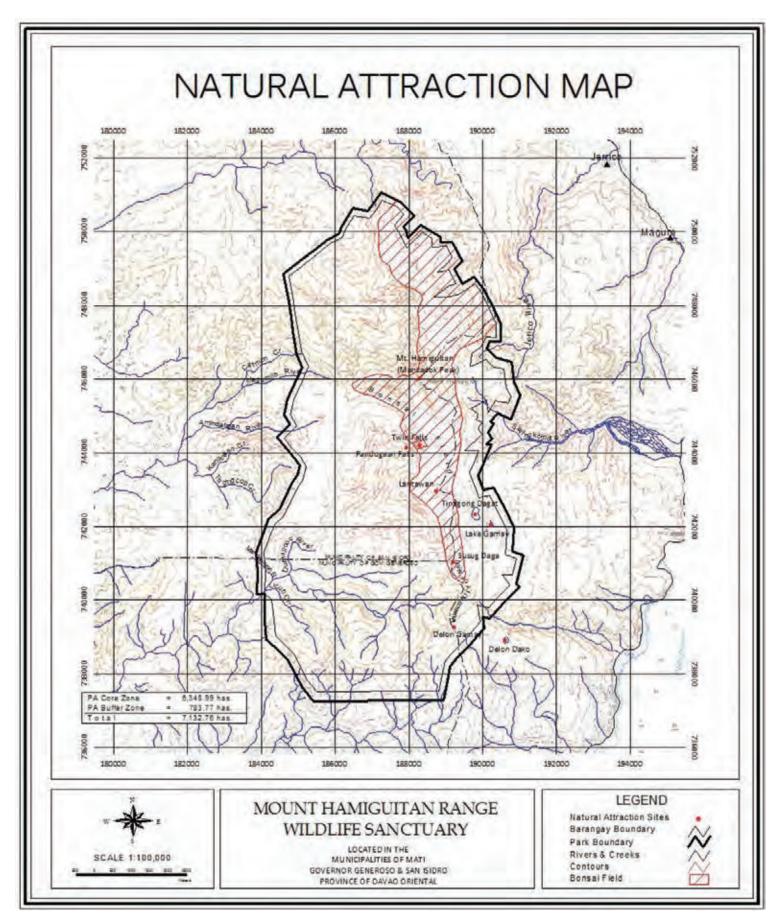


Figure 2.20 Natural Attraction Map Indicating the Unique and Beautiful Features of MHRWS





Plate 2.23. The Mansadok Peak

Plate 2.24 The Hidden Garden

Hence, there is no problem regarding illegal settlement inside the MHRWS.

Table 2.25 shows the population of the surrounding barangays of MHRWS from year 2000 to 2007. Of the seven barangays, Cabuaya has the highest population growth followed by La Union. Sergio Osmena and Maputi experienced population decrease. Overall, the seven barangays have a population increase of 662 or 2.04% for the past seven years. This is quite low and is good for MHRWS because slow population increase means there is only minimal human pressure added on the natural resources in MHRWS. Except for the areas in La Union, San Isidro, Sergio Osmeña and Gov. Generoso, land encroachment for agricultural conversion is not much of a problem for MHRWS.

2.11 Current Project Activities and Research

The current activities of the PAMB and DENR are focused more in the Protection and Preservation of the MHRWS to ensure sustainable existence of wild plants, animals and other resources. These activities are composed of:

a. Protected Area (PA) Protection

In order to effectively protect and conserve the natural physical and biological resources of MHRWS and the immediate vicinity, patrol detection and surveillance work are being conducted regularly by the designated PASO Technical Staff together with the LGU-Forest Guards locally known as "Bantay Gubat", and the members of the People's Organization of the community. To further reinforce the manpower doing the protection for MHRWS, San Isidro appointed ten forest guards from Barangays La Union and Talisay. Governor Generoso has three forest guards from Barangay Sergio Osmeña, Sr. and Barangay Tandang Sora has five forest guards as their respective

Barangay	Popula	Change	
	Yr. 2000	Yr. 2007	
La Union	4,683	5,007	+324
Maputi	619	481	-138
Talisay	2,317	2,348	+31
Sergio OsmeÒa	1,995	1,775	-220
Tandang Sora	1,168	1,337	+169
Cabuaya	1,612	1,956	+344
Macambol	3,454	3,604	+150
Total	15,846	16,508	+662 (2.04%)

Data source: 2008 Region XI Statistical Yearbook

Table 2.25 Population Dynamics of Barangays Surrounding MHRWS.

counterparts in protecting MHRWS.

b. PA Delineation and Demarcation

Under DAO 1992-25, there were nine zone classifications inside a PA. These include strict protection zone, sustainable use zone, restoration zone, habitat management zone, multiple use zone, buffer

zone, cultural zone, recreational zone and special use zone. However, under DAO 2008-17, these were combined into two, the strict protection zone and the multiple use zone.

DAO 2008-17 describes SPZ as areas or zone consisting of natural areas with high biodiversity value, closed to all human activities except for scientific studies and/or ceremonial or non-extractive use by the indigenous cultural communities/indigenous peoples. It may also include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent



Plate 2.25 Boundary signage of MHRWS

protection, even if these areas are still at various stages of regeneration.

The following criteria were used in the identification of the SPZ:

- 1. Remaining natural vegetation or ecosystems representative of the biogeographic zone such as lowland forest, coral reefs, seagrass beds and old growth mangroves;
- 2. Habitat of wildlife, either threatened or endemic to the area, necessary in part or wholly to complete their life cycle; and/or,
- 3. Areas that would need restoration or rehabilitation to maintain the ecological integrity of the Strict Protection Zone once restored.

On the other hand, MUZ is described as areas or zone for settlement, traditional and/or sustainable land-use, including agriculture, agro-forestry, and other income generating or livelihood activities may be allowed consistent with the Protected Area Management Plan. The zone includes, among others, areas of high recreational, tourism, educational or environmental awareness values and areas consisting of installation allowed under existing guidelines and of national significance/interest such as facilities/structures for renewable energy, telecommunications and electric power generation, among others.

All areas that did not fall within the criteria for SPZ were classified as MUZ. The MUZ will be subzonified into more specific uses such as ecotourism sites, agro-forestry areas and other uses that may be indentified later.

The delineation of the protected area (Plate 2.25) was initiated on December 2006 by the Land Evaluation Party (LEP) — Network Survey Team of DENR Region XI, Davao City. The delineation/demarcation survey of the Protected Area was accomplished on November 20, 2007 which covers portion of Mati as well as the Municipalities of San Isidro and Governor Generoso. The following MHRWS boundary lines and corners were established on the ground:

PA Boundary lines : 115 corners/43.335 kilometers
Buffer Zone Lines : 96 corners/40.942 kilometers
Total : 211 corners/84.277 kilometers

Table 2.26 shows the land area distribution of the components by barangay. It can be gleaned that Barangay La Union has the highest land area that falls under the MHRWS while Barangay Cabuaya



Plate 2.26 Boundary marker for the buffer zone



Plate 2.27 Boundary marker for SPZ

has the lowest.

Management zoning was also conducted and the entire MHRWS was subclassified into MUZ and SPZ. The survey result showed that out of the 7,132.76 hectares, 1,158.01 hectares fall under MUZ while 5,974.75 hectares under SPZ. Table 2.27 and 2.28 show the area distribution of the MUZ and SPZ, by barangay. Figure 2.21 shows the spatial distribution of the MUZ and SPZ of MHRWS.

c. Biodiversity Monitoring System (BMS)

The BMS is the conduct of quarterly monitoring to determine changes in the trends of biodiversity for decision-making in PA management. It also enhances community participation because community members get a chance to observe the trends of the use of resources in the area. The methods used in doing BMS are as follows:

i. Focus Group Discussion (FGD). It is conducted quarterly. This method generates information regarding trends in the use of resources, status of selected resources and status of households benefiting from the use of resources. The information is based mainly on local communities' own perception of the trends. Results of the FGD provide a clear and better picture of the general

Name of Barangay	PA Buffer Zone	PA Core Zone	Total
Maputi	120.99	361.36	482.35
Talisay	84.85	1,258.89	1,343.74
La Union	97.29	2,187.60	2,284.89
Sergio Osmena	68.68	1,279.09	1,347.77
Tandang Sora	133.48	356.93	490.42
Macambul	253.01	831.36	1,084.38
Cabuaya	25.47	73.76	99.23
TOTAL	783.77	6,348.99	7,132.76

Table 2.26 MHRWS Component Area Distribution by Barangay

trends of resource use.

ii. Field Diaries. This method involves standardized recording of routine observation on resource use and wildlife in a simple pocketbook or data sheet. The information or data may be an own observation or a second hand information. This is being used by PA staff during regular patrols and other field activities within the MHRWS.

iii. Photo Documentation is done at one permanent point by taking photo of the landscape from the same place every quarter. The new photos are compared with the older ones to detect changes

Name of	Multiple Us		
	CBFMA ETPATS &	Rest of Buffer	Total
Barangay	CSC(ISFP)	Zone	
Maputi		120.985	120.99
Talisay		84.849	84.85
La Union		97.289	97.29
Sergio Osmena	315.17	68.68	383.85
Tandang Sora	59.07	133.481	192.55
Macambol		253.014	253.01
Cabuaya		25.472	25.47
TOTAL	374.24	783.77	1,158.01

Table 2.27 MHRWS MUZ Distribution by Barangay

		Strict P	rotection Zone			
	Tinagong	CBFMA			Rest of Core	Total
Bonsai Field*	Dagat	NAKRISMA	CBFMA SAFAI	Lake Gamay	Zone	
174.39		155.98			30.99	361.36
361.09		322.59			575.21	1,258.89
491.87			263.90		1,431.83	2,187.60
7.78					956.14	963.92
					297.86	297.86
199.37	4.11			1.60	626.28	831.36
		·			73.76	73.76
1,234.50	4.11	478.57	263.90	1.60	3,992.07	5,974.75

Table 2.28. MHRWS SPZ Distribution by Barangay

in the forest cover.

iv. Transect walk are similar to routine patrolling using field diary. However, transects are permanent demarcated routes where there are precise recommendation on where to walk. Transect walk are done quarterly.

There are 2 BMS sites established within the PA. One (1) in Sitio Malinawon, La Union, San, Isidro and the other one in Purok 6, Molave, Barangay Tandang Sora, Governor Generoso.

d. Research Activities

A research entitled Biodiversity Assessment and Conservation of Hamiguitan Range and Its Environs which was a collaborative endeavor among scientists from Central Mindanao University, Davao Oriental State College of Science and Technology, University of the Philippines in Mindanao and University of Southern Mindanao was already completed. It recorded 1,061 animal and plant species, excluding lower plant forms and insects. The study showed the diverse composition of species in MHRWS.

In 2004, the Philippine Eagle Foundation, Inc. conducted an expedition in the area and recorded 104 bird species, 16 frogs, 19 lizards and snakes, 16 bats and 6 rodents. Out of these, 32 birds, 5

rodents, 6 bats, 12 frogs and 8 snakes were endemic to the Philippines.

On-going research for MHRWS are the following:

- 1. Resource Valuation of Hamiguitan Mountain Range. This is a collaborative research activity involving the University of Southern Mindanao, Mindanao State University, Southern Christian College, Cebu Biodiversity Conservation Foundation and the National Museum.
- 2. Biosystematics of the Genus Amomum Roxb. (Family Zingiberaceae) in the Philippines.

e. Protected Area Management Plan

The Protected Area Management Plan is currently being prepared by accredited professionals in coordination with the PAMB, PASO, DENR and concerned LGUs in Davao Oriental. The financial requirement for the plan preparation is bank-rolled by the Provincial Government of Davao Oriental.

f. Accreditation as World Heritage Site

The team consisting of the PAMB, PASO, DENR, Davao Oriental Provincial Government, Office of the House of Representative 2nd Congressional District of Davao Oriental and the municipal governments of San Isidro and Governor Generoso and the Mati exerts a unified effort for the recognition of MHRWS as a World Heritage Site which is being processed by the UNESCO.

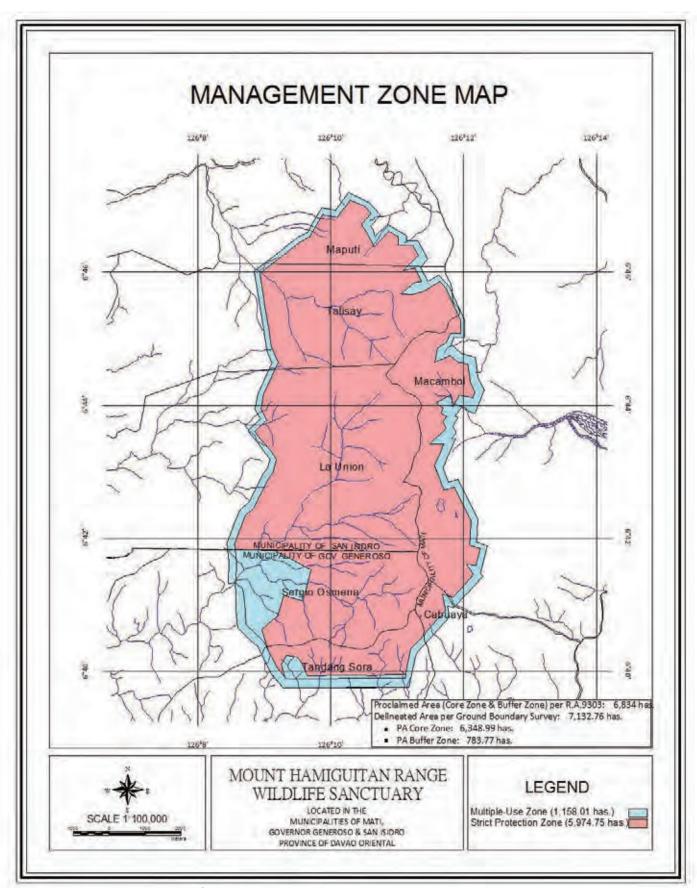


Figure 2.21 Management Zone Map of MHRWS

3. SITUATIONAL ANALYSIS

3.1 Conservation Value

MHRWS has a paramount conservation value not only in the Philippines, but worldwide as well. Having several distinct forest formations, the range of vegetation differs elsewhere. Mt. Hamiguitan's 1,234 hectares of mossy—pygmy forest with gnarled suffrutescent floral species of Epacridacea is dominated by 1.4 meter tall floral species of *Leptospermum flavescnens* and *Wendlandia nervosa*. This summit formation characteristic is unique and can be considered one of the few habitats in the world, most important for ecological specialization.

Below the summit formation are the high and mid-montane forest areas which support the second largest remaining prime populations of woodland vegetation in the country. This habitat form the last identified strongholds of one of the largest and most threatened eagles in the world, the majestic Philippine Eagle (*Pithecophaga jefferyi*) which is considered as an outstanding universal value for science and conservation.

MHRWS has also the exceptional natural habitat because of its very high and most diverse flora and fauna in terms of numbers of wildlife endemism per unit area. It harbors around 1,061 species of both flora and fauna which are almost all endemic to Mindanao. Mt. Hamiguitan also has the high to highest diversity indices per unit area of unique, endangered and rare species.

3.2 Biodiversity Concerns

The presence of plant and animal species which are endemic to Mt. Hamiguitan is the topmost concern for biodiversity. Being specific to this area, there is an utmost urgency to preserve and isolate the habitats of these species for their sustained existence. In addition, of the 1,046 flora and fauna specimens collected and/or observed, a considerable number has not yet been identified in terms of the specific species they belong.

3.3 Externalities

The benefits that are derived in maintaining the excellent condition of MHRWS are not limited only to the immediate communities. It extends to the nearby towns and provinces. The rainfalls resulting from the clouds that are formed atop Mt. Hamiguitan are not only confined to the immediate environs. Oftentimes, these reach the nearby provinces of Compostela Valley Province, Davao del Norte and even Davao del Sur as well as Davao city where several agricultural plantations exist.

The verdant forests of MHRWS also contain vast amount of carbon. This exhibits its importance in carbon sequestration and in mitigating climate change. It also produces ample amount of oxygen, through the photosynthetic process, which contribute to the better health of the residents in the surrounding areas.

The prevailing winds in the region have the southeast general direction. The relatively high altitudes of the Hamiguitan Mountain Range serve as wind break which shield the agricultural

plantations at COMVAL, Davao del Norte and Davao City.

3.4 Habitat and Wildlife Rehabilitation Needs

Out of the 7,132.76 hectares total area of MHRWS, 1,308.14 hectares is open canopy forest while 619.91 hectares is brush land. Being the habitat of several endemic faunal species, it is of equal importance that these open canopy forests and brush lands be restored into closed canopy forests. The other areas are still in their pristine state, hence, there is no need for rehabilitation.

3.5 Management Constraints

The constraints confronting the management of the PA are as follows:

a. Negative Effect of Industrialization to the Existence of the Bonsai Trees

It is a known fact that the natural bonsai trees at the pygmy forest of MHRWS survived in that area despite the inherent very low fertility and highly acidic soil. One factor that they depended on is the frequent rain occurrence in the area. This frequent rain is due to the orographic effect wherein water vapor converges at the peak, and due to the cold temperature, condenses resulting to rainfall.

The plan of a multinational mining company to construct a nickel processing plant in the vicinity might alter this condition. The high temperature required to extract pure nickel from the ore might raise the ambient temperature that may reduce the occurrence of rainfall over the pygmy forest. If a prolonged absence of rain happens, there is the possibility that the thin soil layer supporting the bonsai trees might dry up and would result to the death of these bonsais. Although this scenario is speculative, there is a possibility for it to happen. Thus, a thorough and accurate environmental impact study must be required prior to the construction of the said processing plant to ensure the sustained existence of the pygmy forest of MHRWS.

b. Timber Poaching

Timber poaching (Plate 3.01) is rampant in some forest areas below and outside the MHRWS. This is happening allegedly because of the concerted efforts of the illegal logging financers and few local residents who find this type of activity the most readily available source of income. And, although their operations are still outside, there is the possibility that this illegal activity will be done inside the MHRWS because of the abundance of commercial timber inside the dipterocarp and the montane forests.

c. Gathering and Collecting of Wildlife Resources

The result of the biodiversity assessment study revealed that some rare and endemic species are present inside MHRWS. Also, the documentation by some visitors and the subsequent publications in the different media outlets spread the information on the beautiful and rare flowers and other ornamental plants especially the century-old natural bonsai trees found in MHRWS. This will give an idea to some bioprospectors to venture into gathering any of these species, thus, endangering the existence of the Mt. Hamiguitan endemic species (Plate 3.02).

d. Destructive Method of Rattan Gathering

Some unscrupulous rattan gatherers have the practice of cutting down the trees where the rattan climb. Although rattan gathering has minimal negative environmental impact, the cutting of trees will result to bigger negative impact and must be prevented.

e. Destructive Method of Tapping for Almaciga Resin

Some residents in the nearby communities tap resin from Almaciga or *Agathis philippinensis*. However, they perform the improper tapping technique by just chopping a portion of the tree trunk and cutting not just the bark, but including a portion of the wood. This practice is harmful to the tree and can even result to its death in some instances.

f. Illegal Entry

There are some visitors particularly those who have contacts or relatives in the surrounding communities who climb Mt. Hamiguitan without acquiring permit from the local authorities. This practice will pose threat to the area especially if these illegal visitors are not aware of the proper conduct (Plate 3.03) that must be followed once inside the MHRWS. Aside from this, the PA management and the local government are deprived of the expected revenues.

g. Lack of Alternative Livelihood of Some Residents

There are some residents in the communities surrounding MHRWS who are dependent on timber poaching activities (Plate 3.05). Though it is not being done in MHRWS, there is still a possibility that they will operate inside. Stopping timber poaching or illegal logging will not entirely solve the problem since those residents who are involved in these activities will be left with no other livelihood source, thus, they are considered a threat to MHRWS.

h. Influx of Tourists and Mountaineers

The spread of information on the marvelous features of MHRWS attract the attention of nature enthusiasts not just in Philippines, but worldwide. Because of this, there is a great possibility for visitors to flock in the area (Plate 3.04) in the near future. To date, the maximum carrying capacity of MHRWS is not yet determined. The required facilities, especially the hygiene facilities for the visitors are also not in place. Hence, there is a need to conduct an ecotourism business plan in order to ensure



Plate 3.01 Timber poaching outside MHRWS.

smooth visitor management in the area.

i. Financial and Institutional Sustainability

Being a relatively new PA, there are several tasks that must be performed. There are issues as well as concerns also that need to be dealt with. These include, the hold and control of the PAMB (Plate 3.06) and PASO over the PA; the continuance of research activities to determine the other features of MHRWS which are not yet known; the formulation of a responsive ecotourism business plan; the formulation and implementation of alternative livelihood activities for residents inside and nearby communities; and, the resolution of issues concerning authority of the



Plate 3.02 A squirrel caught from Mt. Hamiguitan

PAMB over the PA over as against tenure holders who have prior rights.

To successfully deal with concerns and issues, the PAMB and the PASO must be fully equipped

with a recognized authority and sufficient management as well as financial capabilities.

Under RA 9303, the *PAMB serves as* the highest policy-making body of the MHRWS. The following are the specific powers and functions of the MHRWS PAMB:

- 1. Review, approve and adopt a management plan for MHRWS;
- 2. Review the deputation of individuals/groups to augment the MHRWS protection personnel, and thereafter indorse the list to the regional executive director for approval;
- 3. Fix and impose administrative fees for the use of MHRWS and fines for



Plate 3.03 A visitor steps on a bonsai during his visit inside the area. This act is prohibited under the NIPAS Law.source: www.davaotraveller.com

violations of prohibited acts in the MHRWS;

- 4. Approve contracts and agreements consistent with the purpose of establishment of MHRWS under RA 9303 except international contracts and agreements;
- 5. Accept donations and grants in the forms of contributions and endowments;
- 6. Review and approve a work and financial plan for MHRWS;
- 7. Coordinate with other government agencies, academic institutions, etc., involved in the management, development and conservation of MHRWS;
- 8. Submit an annual report to the DENR Secretary;
- 9. Delegate authority to the MHRWS PAMB Executive Committee;
- 10. Prepare or cause the inventory of protected flora and fauna;
- 11. Permit, control or regulate the following within MHRWS:
 - a. Infrastructures,
 - b. Public utilities,
 - c. Occupancy of appropriate management zones,
 - d. Dumping of waste,
 - e. Use of motorized equipment,
 - f. Business enterprise,
 - g. Other use of MHRWS such as mountain climbing, and
 - h. Recreational activities;



Plate 3.04. Remains of an illegally cut tree outside MHRWS



Plate 3.05. A number of trekkers explore MHRWS



Plate 3.06 MHRWS PAMB holds regular meeting

- 12. Promulgate rules and policies for the conduct of its business; and,
- 13. Initiate and file suits against entities whose existence and/or operations have detrimental effect on MHRWS.

On the other hand, under RA 9303, the PASO, which is headed by the PASu who is the chief operation officer of MHRWS, is tasked to perform the day-to-day management, protection and administration of MHRWS. Under DENR Administrative Order No. 2008-26 the following are the specific duties and responsibilities of the PASu:

- 1. Enforce rules and regulations to protect the area from trespassing, damage, vandalism and illegal occupancy. In cases of seizure, of the apprehended items, the disposition of confiscated items shall be subject to the clearance from the PAMB except those items that are held under custodia legis, those that are the subject of donation, those that must be deposited with appropriate government agency, and those that will be utilized for the DENR's own needs in accordance with the existing related rules and regulations;
- 2. Issue permits for the use of facilities and amenities except for those considered as special uses as defined under this Order;
- 3. Issue certification whether the proposed activity or project is allowable or not within the management zones;

- 4. Issue cutting permit for planted trees for a volume of up to five (5) cubic meters per applicant per year for traditional and subsistence uses by ICCs/IPs and tenured migrants only. Provided, that PACBRMA holders with affirmed Community Resource Management Plan (CRMP) shall no longer be issued cutting permits. Provided further, that the total volume of extraction does not exceed the limit set by the PAMB and the location of extraction is within the appropriate site within the multiple use zone;
- 5. Issue Certificate of Origin and/or transport permits for natural resources and other products collected/gathered from the protected area in accordance with the resource use instruments/ agreements or gratuitous permits issued by the PAMB and/or the DENR;
- 6. Submit quarterly progress reports to the PAMB;
- 7. Serve as Head Secretariat to the PAMB and its Executive Committee;
- 8. Collect and/or receive pertinent fees, charges, donations and other income for the protected area. Provided, that such fees, charges, donations and other income collected/received shall be reported regularly to the PAMB in accordance with the existing guidelines;
- 9. Prepare and recommend to the PAMB approval of the annual work and financial plans of the protected area based on the IPAP or the Management Plan;
- 10. Develop management information system to ensure that relevant and updated information are available for planning, monitoring and decision-making; and
- 11. Perform other relevant functions that the RED or PAMB may delegate.

3.6 Land Use

Under the Philippine Land Classification System the entire 7,132.76 ha. total area of MHRWS is classified as timberland under L.C. Map Nos. 2660 and 2687 certified on September 05, 1975 and July 23, 1971, respectively. Of this total, 894.77 ha. are under CBFMAs, 256.54 ha. under CSCs while 2,415 ha. under IFMA prior to its enactment as a protected area (Figure 2.22). However, the IFMA area is not much of an issue since its elevation is 1000 masl and higher, which means that this area is precluded from any development activity, other than conservation and protection.

On the other hand, the CBFMAs and CSCs fall under the MUZ, hence, the land uses in these areas are not inconsistent with the PA management objectives. There was no specific land use for the remaining area which means that PAMB and PASO do not have much obstacles in carrying out the conservation, protection and other related activities for these portions as long as the relevant policies and regulations are followed.

3.7 Local People's Interest, Rights and Concerns

The indigenous people inside or at the vicinity of MHRWS belong to the Mandaya Tribe. Some of them belong to the 40 household occupants at Bgy. Sergio Osmeña, Gov. Generoso. The other Mandaya group resides at Bgy Macambol, but are residing outside the MHRWS.

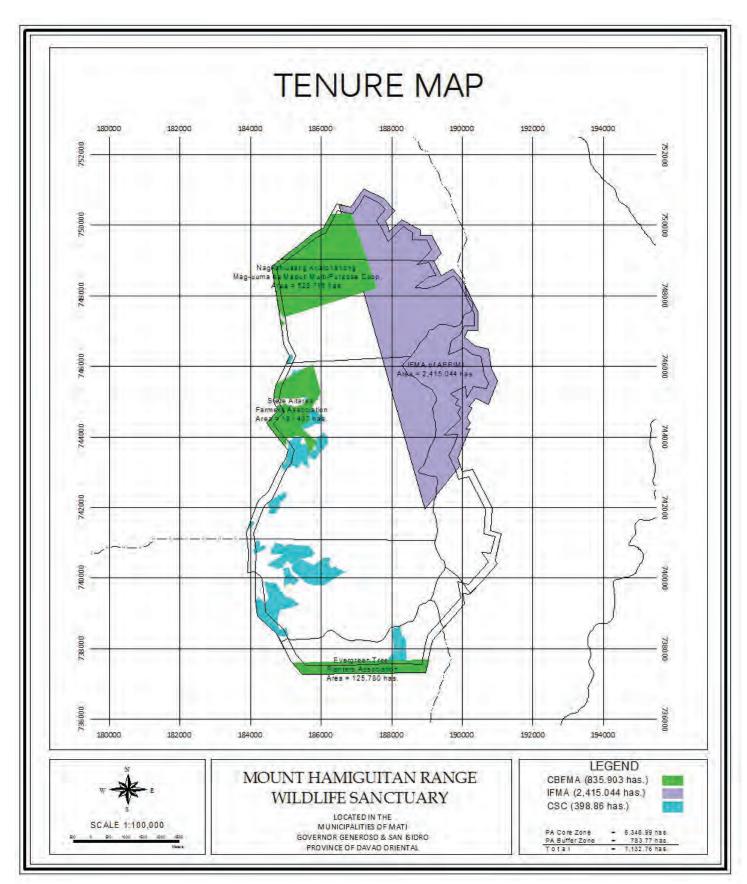


Figure 2.22 The land use status of MHRWS indicating the existing tenure instruments.

The other groups living below the MHRWS are migrants from other parts of the Philippines and have settled in the area several decades ago. Some of them were born in the area, hence, they considered this area their permanent residence.

Whether indigenous people or migrants, they have a common interest to derive benefits from the forest and other natural resources in the area. Thus, if MHRWS is to be developed into a prime ecotourism destination, it is important to involve these local people in order for them to benefit from such economic activity and to make them realize that they are also stakeholders of the area.

In addition, the flash flood that happened in Macambol in the 1970s which was caused by rampant illegal logging also made them realize about the importance of maintaining sufficient forest cover in these areas in order to avoid occurrence of the same incident in the future.

3.8 Development Potential

MHRWS is a very potential eco-tourism site. It is one of the best places for nature lovers, adventurers and scientifically inclined individuals and groups. Its more than a thousand hectares natural bonsai fields which feature diverse and rare plant species is what attracts tourists most, both local and international. Incidentally, the said natural bonsai fields is also the habitat of the newly discovered rat species, the Hamiguitan batomys and the site endemic *Delias magsadana*. MHRWS is also an ideal place for the sustained existence of plant and animal species, including those considered rare. It can be utilized as a venue for scientific researches specifically those that have something to do with biodiversity and human health.

3.9 Role of LGU, NGO and Special Groups

Even before the declaration of MHRWS as a protected area, some LGUs of Davao Oriental are already in the forefront of conducting different protection and conservation activities. In 1993, Gov. Generoso passed Municipal Resolution No. 121 requesting the Philippine Congress to declare Mt. Hamiguitan as a wildlife sanctuary. In 2000, San Isidro, under the leadership of then Mayor Justina Yu, passed Municipal Resolution No. 81 for the same purpose and then Representative Joel Mayo Almario sponsored House Bill No. 2777 which became the basis for Congress to enact Republic Act No. 9303 establishing MHRWS which also became a component of the Philippine National Integrated Protected Area System (NIPAS).

The following are the other actions of LGUs for MHRWS:

a) Municipality of San Isidro

- Allocated monetary support as a commitment intended for MHRWS
- Offered vacant office for PASO at SB Building and other mobility facilities to facilitate the implementation of the Protected Area
- Appointed 10 Bantay Gubat from two (2) barangays of La Union and Talisay to effectively protect Mt. Hamiguitan Range Wildlife Sanctuary and its vicinities;

Name of			Ter	nure		
Name of Barangay	CBFMA NAKRISMA	CBFMA SAFAI	CBFMA ETFATS	CSC(ISFP)	IFMA APPIMI	Total
Maputi	155.98					155.98
Talisay	322.59					322.59
La Union		290.50		15.75		306.25
Sergio Osmena				210.89		210.89
Tandang Sora			125.70	29.90		155.60
Macambol					2,415.04	2,415.04
Cabuaya						
TOTAL	478.57	290.50	125.70	256.54	2,415.04	3,566.35

Table 3.1 Existing land tenures inside MHRWS

- Formulated ordinance no. 146, s. 2000 regulating mountain climbing activity preferably at Bonsai Field as proposed Eco-tourism Project; and,
- Organized porters since 2001 for Mt. Hamiguitan as an alternative livelihood for the local community.

b) Municipality of Governor Generoso

- Allocated monetary support as a commitment intended for MHRWS; and,
- Utilized three (3) Bantay Gubat from Barangay Sergio Osmeña, Sr. and five (5) Bantay Gubat of Barangay Tandang Sora to protect Mt. Hamiguitan Range Wildlife Sanctuary

c) Davao Oriental Provincial Government

Committed to ensure environmental protection and the conservation of the existing natural resources of the province, the Provincial Government of Davao Oriental extended its full support to MHRWS. It has bank-rolled the financing of the preparation of the management plan aside from other logistic and manpower support.

d) Office of the Representative of the 2nd Congressional District of Davao Oriental

Aside from sponsoring House Bill 2777 which led to the enactment of RA 9303, the Representative of the 2nd Congressional District of Davao Oriental is also instrumental for the budget appropriations from the national government needed for the operationalization of the MHRWS PAMB and PASO.

Non-Government Organizations have also been actively supporting MHRWS. The following are the NGOs who lobbied for the protection of MHRWS and their activities:

a) Philippine Eagle Foundation, Inc.

established. Its primary concern in the area is the protection of the Philippine Eagle which inhabits the place. In so doing, it has also contributed in the preservation and protection of the other wildlife present in the area.

b) Kalumonan Development Center

- Established backyard gardening within the community adjacent to Mt. Hamiguitan using coco husk as an alternative livelihood project.
- Assist in different environmental activities such as coastal and river clean-up, tree planting, among others
- Bee culture
- Coco fiber flower vase/pots
- Presented the unique features of Bonsai field and other flora of Mt. Hamiguitan during the Hiyas Ng Turismo in Manila represented by its Executive Director Justina MB Yu

c) IMPEDE

• Provided environmental projects within CBFM areas which serve as a buffer zone of the PA. The projects are with funding assistance from UNDP

d) Luwas Kinaiyahan

- Assisted in the environmental protection and conservation of the PA
- e) MHRMS Council Support
- Assists PAMB operations and the implementation of RA 9303
- Committed on the protection of biodiversity conservation and sustainable development
- Assisted all research activities and came up with policy recommendations for the conservation and sustainable use of Mt. Hamiguitan Biodiversity

f) Davao Oriental State College of Science and Technology

Serves as the academic institution partner of MHRWS

The academe, scientists, environmental advocates and NGOs have also conducted several initiatives to strengthen the protection and management of the sanctuary and policy formulation of PAMB. Assistance is in the form of research projects and studies and capacity-building of stakeholders of the MHRWS.

3.10 Changes Required in Legal Status

Being established under a Republic Act made MHRWS a component of the NIPAS, hence, there is

no more changes required on its legal status. However, what remains to be established yet is the authority of the PAMB over the administration of MHRWS in the ground.

4. MANAGEMENT PLAN

4.1 Key Management Issues

The following are the key management issues that need to be addressed through the concerted efforts of all the concerned sectors to ensure the sustainability of MHRWS.

a. Preservation and protection of the natural bonsai forests, of the unique flora and fauna, endangered & rare species and the different ecosystems inside MHRWS including additional research to determine additional features.

The features of MHRWS particularly the 1,234 ha. of natural bonsai forests with some rare flora and fauna and some species that are endemic in this area, make it unique worldwide. Based on these facts, MHRWS can be considered as a world heritage. Hence, it is of paramount importance to preserve the natural treasures of Mt. Hamiguitan and to rehabilitate the degraded habitats.

b. Strengthen management capabilities and capacities of MHRWS management specifically the PAMB and PASO.

There are tasks that must be undertaken by the PAMB and PASO and some issues that need to be resolved regarding MHRWS. These include social, political and legal issues. In order to effectively deal with these concerns, the capabilities of the PAMB and the PASO must be strengthened.

c. Determine appropriate ecotourism activities to avoid damage of the different features of MHRWS.

Appropriate ecotourism activities must be determined to ensure that any activity to be carried out inside and near MHRWS does not bring any harmful effect to its ecosystems. In addition, the carrying capacities of specific areas inside or near MHRWS must also be determined so that maximum level for each activities can be prescribed.

d. Determine appropriate and sufficient livelihood activities of communities surrounding MHRWS to divert their attention from exploiting the resources inside and make them partners in protecting it.

The biggest and the persistent threat to MHRWS are the communities inside and surrounding it. There are community members who do not have any permanent livelihood other than to extract natural resources near and inside MHRWS. Hence, there is a need to exert effort to divert their dependence from extracting resources inside MHRWS.

4.2 Goals, Objectives and Management Activities

Shown in Table 4.1 are the identified goals, objectives and the corresponding activities and/ or projects. They are presented in a cascaded format such that a certain goal has two or more

Goal	Objective	Planned Activity
Preserve and protect the ecosystems and unique	1.1 To design appropriate protection measures	1.1.1 Assess and evaluate the efficiency and sufficiency of the current protection measures by checking on the ground if there are still illegal activities
features of MHRWS and the		1.1.2 If insufficient, design and implement augmented protection measure(s)
rehabilitation of degraded		1.1.3 Construction of look out towers
habitats therein	1.2 To determine further the	1.2.1 Evaluate finished and on-going researches/ studies to determine data gap(s)
	other features of MHRWS	1.2.2 Prepare list of data gaps
		1.2.3 Invite prospect research institution(s) to conduct researches/studies and/or prepare
		research/study proposals
		1.2.4 Solicit funding
		1.2.5 Conduct research/ study
	1.3 To rehabilitate degraded	1.3.1 Conduct field survey and mapping of the degraded habitats/ areas either in Open
	habitats/areas	Canopy or Brushland
		1.3.2 Perform assisted natural regeneration of the 1,308 ha. open canopy forests using
		planting materials sourced from within MHRWS and vicinities
		1.3.3 Reforestation and/or agro-forestry of the 620 ha. brushlands preferably using
		planting materials sourced from within MHRWS and vicinities
		1.3.4 Establish nurseries at PASO & POs to raise the needed seedlings
	1.4 To conduct ICE	1.4.1 Design the appropriate ICE strategies
	(Information, Communication & Education) campaign to tenure holders inside MHRWS & adjacent areas	1.4.2 Implement the selected ICE strategies

Table 4.1 MHRWS Goals, Objectives and Planned Activity

among the communities monitoring and protection of MHRWS 1.5.2 Enlist the support of other stakeholders of MHRWS and define their roles in the monitoring and protection of MHRWS 1.5.2 Enlist the support of other stakeholders of MHRWS 1.5.2 Enlist the support of other stakeholders of MHRWS 1.5.2 Enlist the support of other stakeholders of MHRWS 2.5.2 Enlist the support of other stakeholders of MHRWS 3.6.1 The following are the prohibited acts: 4.6.1 The following are the prohibited acts: 5.5 Quarting: 6.6 Hunting, destroying, disturbing or mere possession of any plant or animal or products derived therefrom without a permit from concerned authorities; 6.6 Multilating of any waste products detrimental to the MHRWS or to the plants and animals or inhabitants therein; 7.6 Using any motorized equipment without a permit from the PAMB; 8.6 Multilating of detaxing or destroying objects of natural beauty, or objects of interest to cultural communities; 9. Constructing or maintaining any kind of structure, fence or endosures, and conducting any business enterprise without a permit; 1.6 Constructing or maintaining any kind of structure, fence or endosures, and conducting any business enterprise without a permit; 1.7 Leaving in an exposed or unsanitary conditions refuse or debris, or depositing such in the grounds or in bodies of waser; 1.4 Thering removing, destroying or delacing boundary markers, monuments or any interpretative sines.	1.5 To establish safety nets	1.5 To establish safety nets 1.5.1 As direct/indirect beneficiaries, enlist these communities as local partners in the
MHRWS pose fines and or violators of cts in accordance 3	the	monitoring and protection of MHRWS
for violators of d acts in accordance 1303	/ Miles	1.5.2 Enlist the support of other stakeholders of MHRWS and define their roles in the
for violators of d acts in accordance 1303		monitoring and protection of MHRWS
d acts in accordance 1303	1.6 To impose fines and	1.6.1 The following are the prohibited acts:
tts in accordance	7	
b. Squatting. c. Unlawful occupation or destruction of forest lands within MHRWS; d. Hunting, destroying disturbing or mere possession of any plant or animal or produce involved therefrom without a permit from concerned authorities; e. Dumping of any waste products detrimental to the MHRWS or to the plants and an or inhabitants therein; f. Using any motorized equipment without a permit from the PAMB; g. Mutilating, defacing or destroying objects of natural beauty, or objects of interest cultural communities; h. Damaging and leaving roads and trails in a damaged condition; k. Mineral exploration and survey of energy resources; j. Constructing or maintaining any kind of structure, fence or endosures, and conduct any business enterprise without a permit; k. Leaving in an exposed or unsanitary conditions refuse or debris, or depositing such grounds or in bodies of water; l. Altering removing, destroying or defacing boundary markers, monuments or any interpretative signs;		a. Cutting, gathering or collecting timber or other forest products without license;
c. Unlawful occupation or destruction of forest lands within MHRWS; d. Hunting, destroying, disturbing or mere possession of any plant or animal or produce derived therefrom without a permit from concerned authorities; e. Dumping of any waste products detrimental to the MHRWS or to the plants and an or inhabitants therein; f. Using any motorized equipment without a permit from the PAMB; g. Mutilating, defacing or destroying objects of natural beauty, or objects of interest cultural communities; h. Damaging and leaving roads and trails in a damaged condition; i. Mineral exploration and survey of energy resources; j. Constructing or maintaining any kind of structure, fence or enclosures, and conduct any business enterprise without a permit; k. Leaving in an exposed or unsanitary conditions refuse or debris, or depositing such grounds or in bodies of water; l. Altering removing, destroying or defacing boundary markers, monuments or any interpretative signs;		b. Squatting.
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Altering removing, destroying or defacing boundary markers, monuments or any interpretative signs;		grounds or in bodies of water;
interpretative signs;		1. Altering removing, destroying or defacing boundary markers, monuments or any
		interpretative signs;

Table 4.1 (Cont'd). MHRWS Goals, Objectives and Planned Activity (continuation A)

2. Strengthen the capabilities and capacities of MHRWS	10.7.43337	
	and responsibilities 2.2 To upgrade the skills of	2.1.2 PAMB members to undergo cross visits to well-managed PAs 2.2.1 Conduct seminars for PASO staff and Bantay Gubat members on their police powers
	PASO staff on the management & protection of	(RA 7586) and on legal procedures
	MHRWS	2.2.2 DENR to issue DENRO authorities to Bantay Gubat members
	2.3 To formulate strategies on	2.3 To formulate strategies on 2.3.1 Collect user fees from visitors and impose fines to violators
	how to generate sufficient funding for the management & protection of MHRWS	2.3.2 Prepare proposals and solicit funding

Table 4.1 (Cont'd). MHRWS Goals, Objectives and Planned Activity (continuation B)

3. Establish ecotourism	3.1 To locate the specific	3,1.1 Conduct field inspection to locate potential ecotourism spots and portion(s) that are
business activities at MHRWS	spots which are open to	off limits to visitors
without hampening its.	visitors & those that are	3.1.2 Establish trails leading to specific ecotourism spots
existence	restricted ones	3.1.3 Manual rehabilitation of abandoned logging road leading to Camp 4.
		3.1.4 Install billboards and/or signage at appropriate spots
	3.2 To determine the suitable.	3,2.1 Conduct ecotourism business planning. The following are the initially identified
	ecotourism activities inside	ecotourism activities:
	MHRWS	a. Tumalite Long House,
		b. Camp 4 Camping Grounds,
		c. Bonsai Forest Canopy Walk,
		d. Twin Falls Bathing Grounds.
	3.3 To determine the carrying capacities for the allowed ecotourism activities	3,3,1 Conduct carrying capacity studies
4. Transform those residents	4.1 To determine the	4.1.1. Conduct census and study of people & communities who are dependent on the
who are engaged in illegal	residents inside and near	resources inside MHRWS and categorize the degree of dependence
activities into partners in the	MHRWS who are dependent	
protection of MHRWS	on the resources of MHRWS	
	4.2 To identify and implement	4,2.1 Conduct study of resources and /or services that can replace the illegal activities such
	alternative livelihood	35.
	activities & financing scheme	a. Establishment of nurseries of the economically important species of MHRWS;
	of the selected livelihood	b. Handicraft-making using fallen branches, seeds, leaves, twigs, driftwoods, etc to be sold
	activities	as souvenir items; and
		c. Employment in the ecotourism projects.
		4.2.2 Design alternative Invelihood implementation scheme
	4.3 To conduct study of	4.3.1 Prepare project proposals
	resources and /or services	4,3,2 Solicit funds from financing institutions and donor agencies.
	that can replace the illegal activities	4.3.3 Recipient(s) to implement the alternative livelihood activities/projects

Table 4.1 (Cont'd). MHRWS Goals, Objectives and Planned Activity (continuation C)

objectives, and each objective has one or more planned activity or project. The conduct of each of the planned activity will lead to the attainment of each specific objective.

5. SPECIAL CONCERN: SECOND LAYER OF DEFENSE FOR MHRWS

Being unique worldwide reinforced by its inherent high conservation values, there is an urgent need to maintain the protection of MHRWS. Hence, aside from the forest rangers and bantay gubat members, there is a plan to use the existing as well as future CBFMAs (Table 5.1 and figure 5.5), CSCs and other tenure instruments that might be issued in the timberland areas surrounding MHRWS as the second layer of defense for MHRWS. For this purpose the following actions shall be taken by the PAMB and PASO:

- 1. Coordinate with the concerned CENROs and LGUs for MOAs to strengthen joint efforts with parties/organizations holding the respective tenure instruments;
- 2. Design institutional mechanisms and arrangements for these tenure holders to function effectively as second layer of defense for MHRWS; and,

Municipality	СВҒМА	Area (ha.)
San Isidro	NAKRISMA	1,000
	NMTC	350
	SAFAI	450
Gov. Generoso	ETPATS	3,300
	OFMPC	3,180
Mati	MCC	1,000
	CCMPC	5,000
Total	7	14,280

Table 5.1 Existing CBFMAs Surrounding MHRWS which Serve as Second Layer of Defense for MHRWS Protection.

3. In coordination with the concerned CENROs and LGUs, institute measures to strengthen the capabilities of these tenure holders for the effective and efficient management of their respective tenured areas.

6. MONITORING AND EVALUATION

The monitoring and evaluation system being adopted by the MHRWS Management is a practical, simple and a concrete one. All the goals and objectives are laid out and evaluated on a regular basis.

Goals undergo annual evaluation, while objectives are subjected to an evaluation interval of not more than one year, depending on how critical the attainment of a certain objective is. The more critical the objective is, the shorter the interval is. Goals and objectives which are not attained on the targeted time are evaluated to determine the factors behind the non-attainment, after which, remedial or alternative action plan(s) is formulated (Figure 6.1).

The PAMB reviews goals and objectives annually and formulate and/or approve remedial or

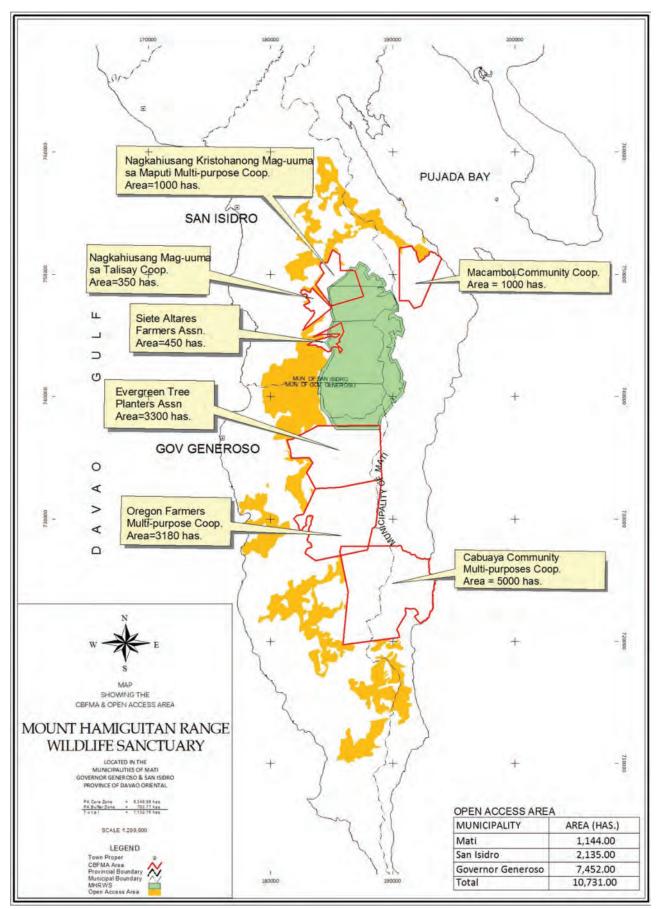


Figure 5.1 Map showing the existing CBFMAs surrounding MHRWS

alternative action plan(s). On the other hand, the PASO s remedial or alternative action plan(s) in between the annual review for each specific objective listed in the annual plan duly approved by the PAMB.

This M and E System has a dynamic feature. The flow chart (Figure 56) shows that at any given time within the year, the PASO can seek remedial or alternative action(s) if and when a certain goal, objective or planned activity cannot be accomplished. The PASu should, however, make sure that the remedy or alternative action is within his authority. In case a remedy or alternative action is outside of the approved annual plan, the PASu must seek the approval of the PAMB.

For the overall management assessment, MHRWS is employing the Management Effectiveness Assessment – Management Effectiveness Tracking Tool (MEA-METT). This assessment system is done every three years to assess how well this protected area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives based on the following framework (IUCN-WCPA Guidelines, 2006): Figure 6.2 shows the MEA-METT Conceptual Framework.

This framework helps ensure that the PA management is in the right tract and can design and implement the necessary actions to fill up any deficiency in the management and protection of the PA.

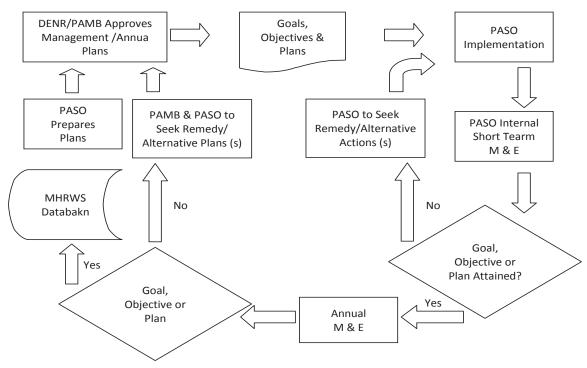


Figure 6.1. MHRWS Monitoring and Evaluation Logic

In terms of biodiversity monitoring, MHRWS Management is using the Biodiversity Monitoring System (BMS) (Please refer to Section 2.11c)

MANAGEMENT INFORMATION SYSTEM (MIS) AND GEOGRAPHIC INFORMATION SYSTEM (GIS)

A computer with a GIS program will be acquired to store all the data and information regarding

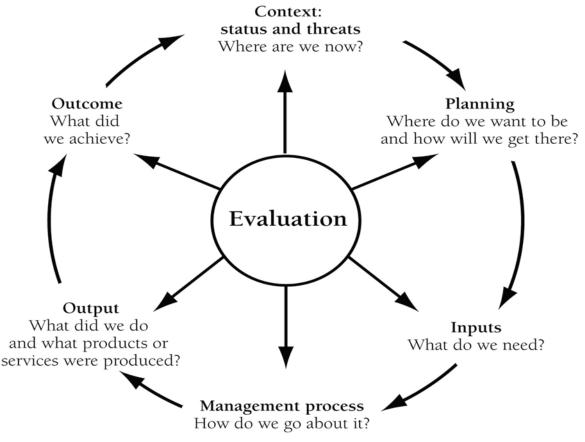


Figure 6.2. MEA-METT Conceptual Framework.

the MHRWS. Aside from the printer which is a standard peripheral of the computer, a scanner will also be acquired so that electronic files of documents can be stored. A PASO staff will be assigned to handle data banking and GIS tasks.

8. ADMINISTRATION

8.1 Organization

Figure 8.1 shows the interrelationship among the agencies which are concerned in the management of MHRWS. RA 9303 stipulates that all protected areas shall be under the control and administration of the Department of Environment and Natural Resources. The DENR (through the PAWB), being the national government agency which is mandated for the management of all the protected areas in the Philippines, has the overall jurisdiction of the MHRWS. It is represented locally by the RED of DENR-XI. The RTD for PAWCZMS assists the RED on PAMB concerns while the PENRO of Davao Oriental assists the RED in the supervision of the PASO.

The DENR has also relegated its authority to the PAMB to administer over the MHRWS on its behalf.

The MHRWS PAMB has the responsibilities of ensuring the management plan implementation and in acquiring the necessary resources for the plan implementation.

On the other hand, the PASO is in charge of executing/implementing the plan. The PASO also takes charge in preparing annual plans which are subject to the approval of the PAMB/DENR. The PASU takes order directly from the PAMB and the DENR.

By having representatives to the PAMB, the MHRWS LGUs and other stakeholders participates through the PAMB. In terms of the monitoring and protection activities, the LGUs directly participate through the Bantay Gubat. Academic/research institutions, who conduct researches/studies inside MHRWS, coordinate with the PAMB and the PASO.

8.2 Staffing

The following is the current staffing of the MHRWS:

- 1. Technical/Administrative Services
 - 1.1 Protected Area Superintendent
 - 1.2 Asst. Protected Area Superintendent
 - 1.3 Head PA Protection Officer/Chief, Surveys Unit
 - 1.4 PA Administrative Aide/Driver
- 2. Support Staff
 - 2.1 Patrol Sector 1 (San Isidro, Davao Oriental)
 Three (3) Protection and Warden Officers
 - 2.2 Patrol Sector 2 (Gov. Generoso, Davao Oriental)Two (2) Protection and Warden Officers
 - 2.3 Patrol Sector 3 (Mati, Davao Oriental)
 Two (2) Protection and Warden Officers

8.3 Work and Financial Plan

Based on the key management issues, goals and objectives, the corresponding activities and the corresponding budget are enumerated in Table 8.1 below (MHRWS 10 year work plan).

Other activities which are not included in this plan may be carried out provided the fund source(s) is secured.

The current funding for the 10-year MHRWS Management Plan comes from combined sources. At present, the main fund source is from the national government with contributions from the Provincial Government of Davao Oriental and the three municipalities of MHRWS. The amounts of funds provided are as follows:

DENR	PHP 5,000,000.00
Office of the Representative Davao Or. 2nd District	10,000,000.00
Provincial Government of Davao Oriental	5,000,000.00
Municipality of San Isidro	1,000,000.00
Municipality of Mati	500,000.00

Municipality of Governor Generoso500,000.00Kalumunan Development Center (NGO)2,000,000.00TotalPHP 24,000,000.00

There are other possible sources of fund for MHRWS. One is the IPAF or the integrated protected area fund. An integrated protected area fund has been set up by the NIPAS Act. Section 16 of the NIPAS Act states:

In augmenting further its fund, the MHRWS PAMB may solicit and receive donations, endowments, and grants in the form of contributions, and such endowments shall be exempted from income or gift taxes and all other taxes, charges or fees imposed by the Government or any political subdivision or instrumentality thereof. All incomes generated from the operation of the System or management of wild flora and fauna shall accrue to the Fund and may be utilized directly by the DENR for the above purpose. These incomes shall be derived from:

- a. Taxes from the permitted sale and export of flora and fauna and other resources from protected areas;
- b. Proceeds from lease of multiple-use areas;
- c. Contributions from industries and facilities directly benefiting from the protected area; and
- d. Such other fees and incomes derived from the operation of the protected area.

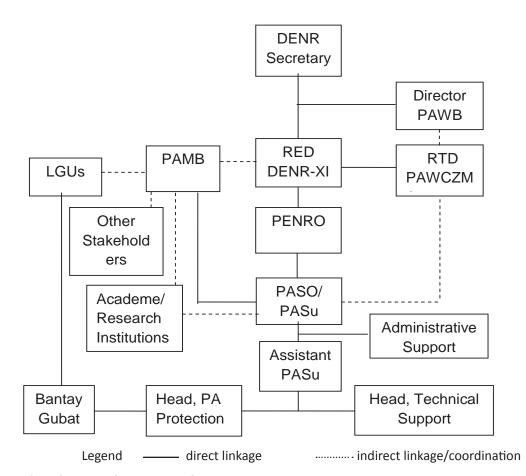


Figure 8.1 MHRWS Management Structure

Activity	1		Yea	r of	Imp	lem	enta	ation	1		Budget
	1	2	3	4	5	6	7	8	9	10	
A. Preservation and protection of the											
ecosystems											
Monitoring & protection activities	F										3,000,000.00
2. Biological & ecosystems researches											3,000,000.00
Rehabilitation of degraded ecosystems											5,000,000.00
Conduct Information, Communication and Education (ICE) campaign											1,200,000.00
B. PAMB and PASO strengthening &											
regular activities											
Conduct refresher seminar to PAMB members on the authorities, duties and responsibilities of PAMB members based on RAs 9303 and 7586 and cross visits.	_										100,000.00
Paralegal seminars for PASu staff and Bantay Gubat members on their police powers (RA 7586)	_	-									100,000.00
3. Deputize Bantay Gubat Members as Environment & Natural Resources Officers (DENRO)	-	-									600,000.00
4. PAMB meetings											3,500,000.00
C. MHRWS Ecotourism	+										
Conduct ecotourism business planning.	†-										200,000.00
D. Community Development Activities											
Conduct community tenure assessment	<u> </u>										200,000.00
Implement community alternative livelihood activities/IGPs.											3,000,000.00
E. Infrastructure Development											
Trail development	† –	_									200,000.00
Look-out towers (3) construction	+		<u> </u>								900,000.00
Foot bridge construction (at bonsai forest)			_								3,000,000.00

Table 8.1 MHRWS 10 year work and financial plan

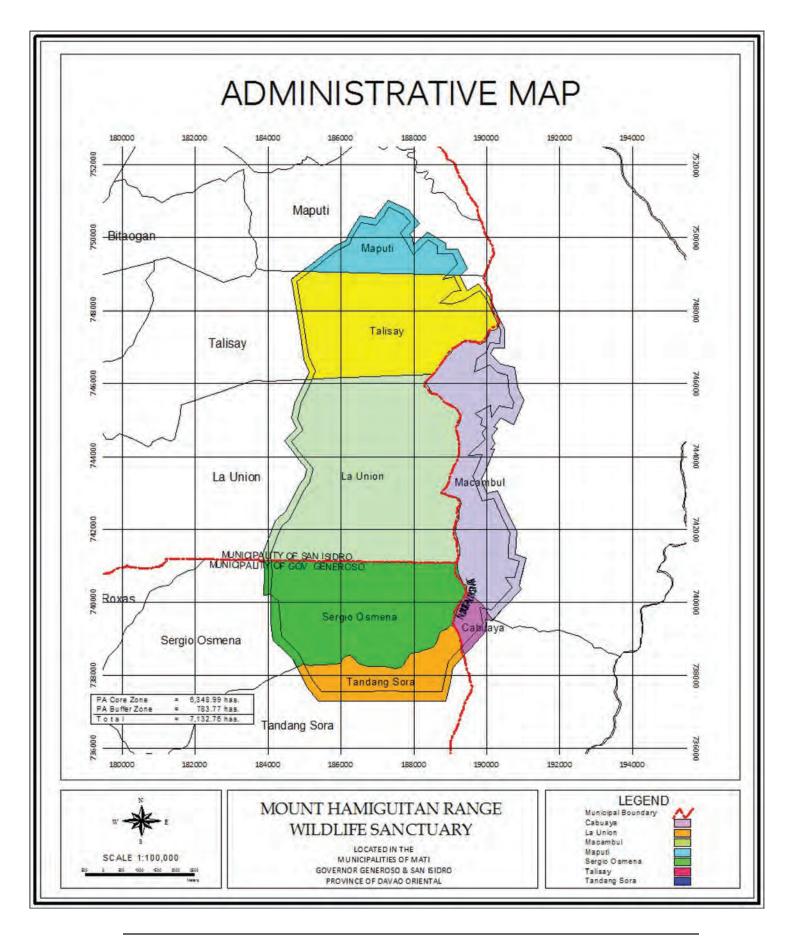
Legend	—— continuous	intermittent activity	

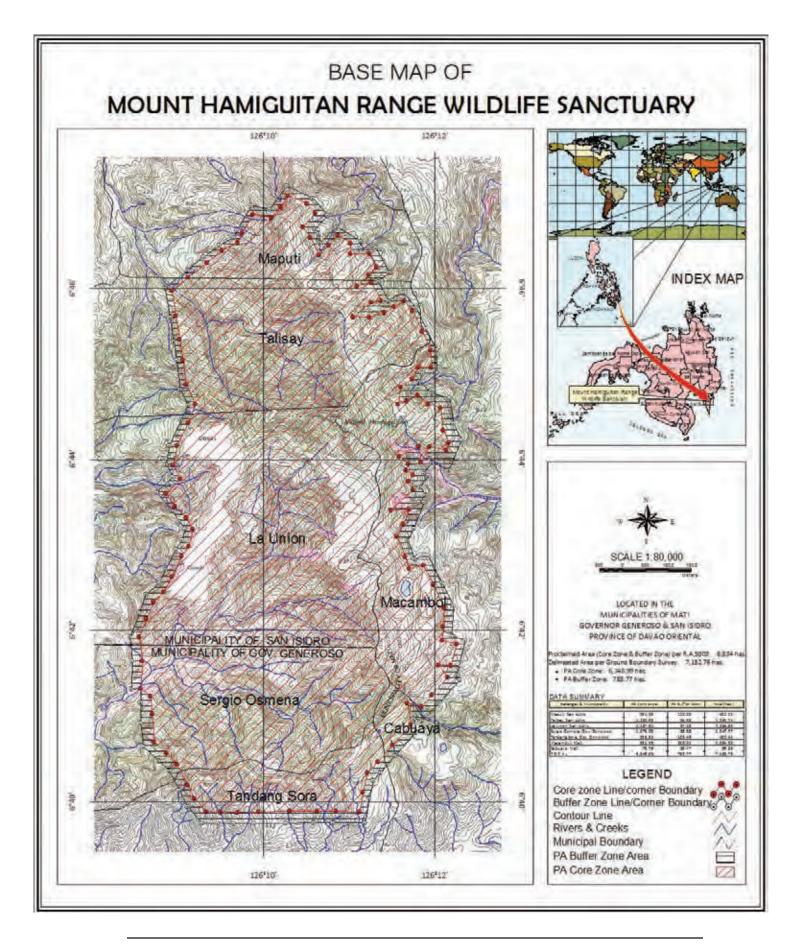
Disbursements from the Fund shall be made solely for the protection, maintenance, administration, and management of the System, and duly approved projects endorsed by the PAMB, in the amounts authorized by the DENR.

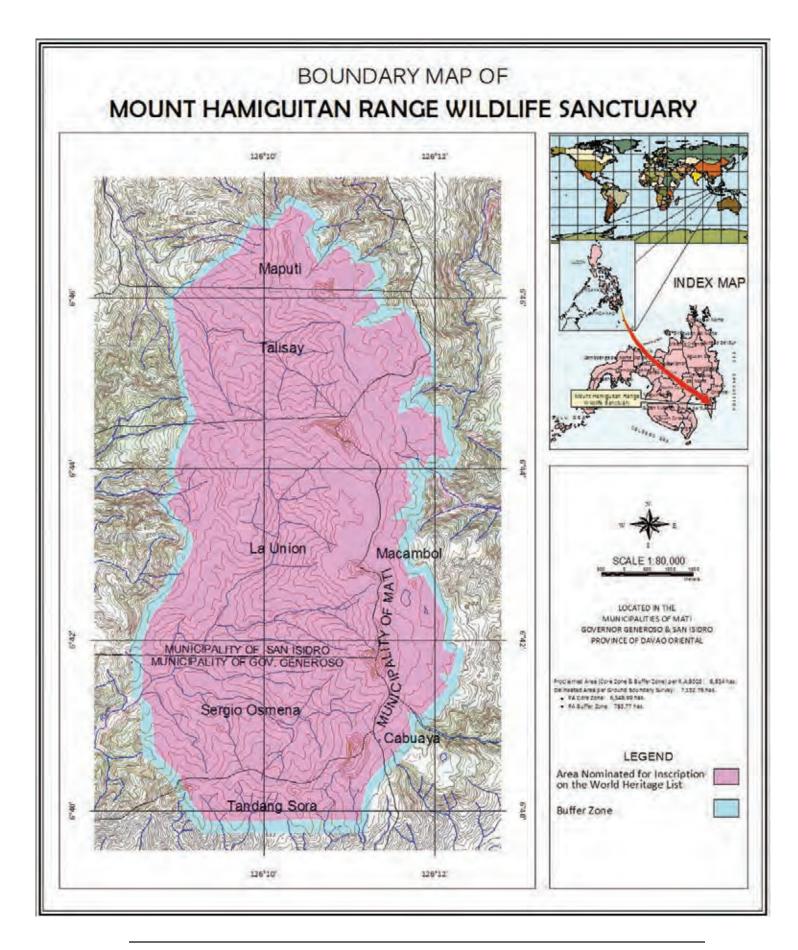
- 9. APPENDICES
- **9.1 Maps**
- 9.2 MHRWS Flora
- 9.3 MHRWS Fauna
- 9.4 Conservation Status of Some MHRWS Flora
- 9.5 Conservation Status of Some MHRWS Fauna

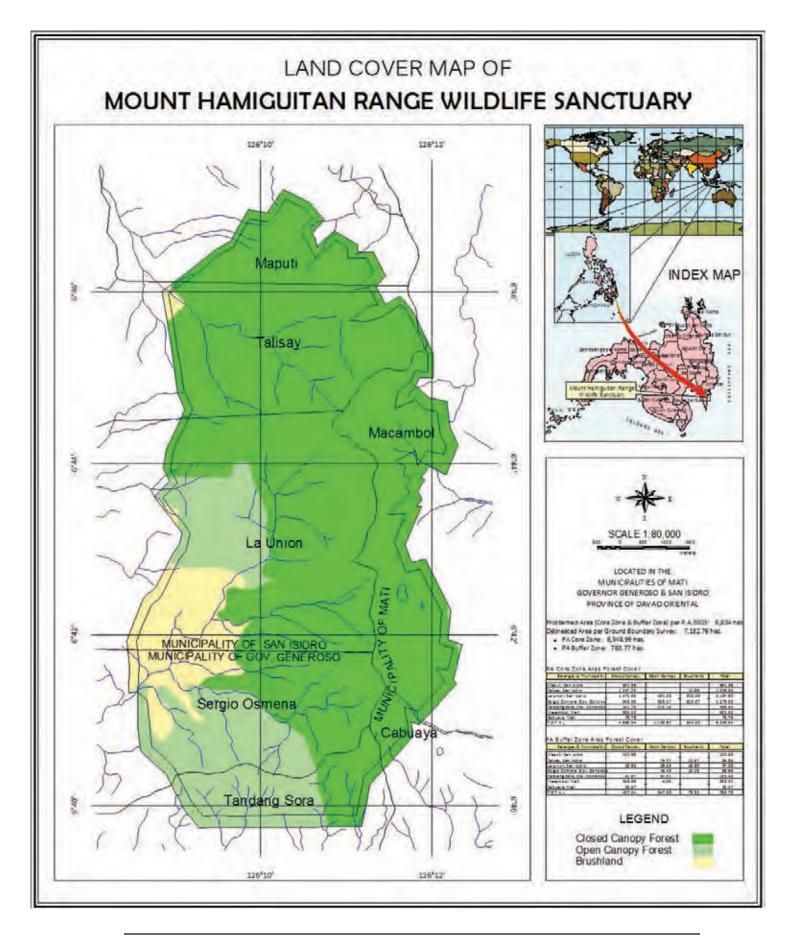
APPENDIX 1

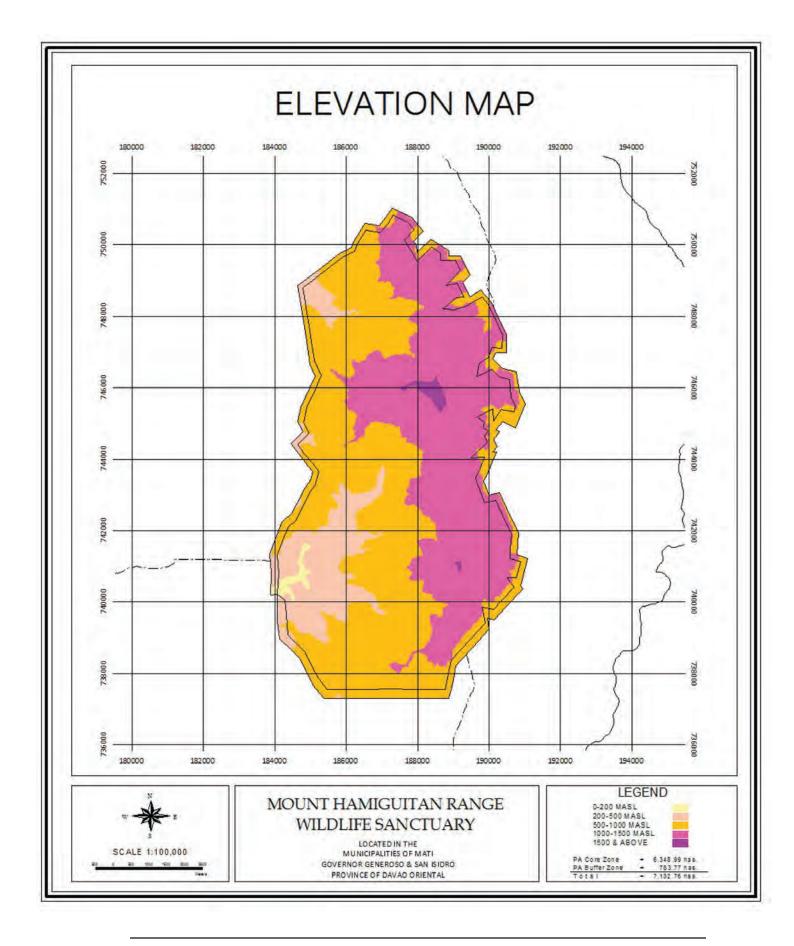
MHRWS Maps

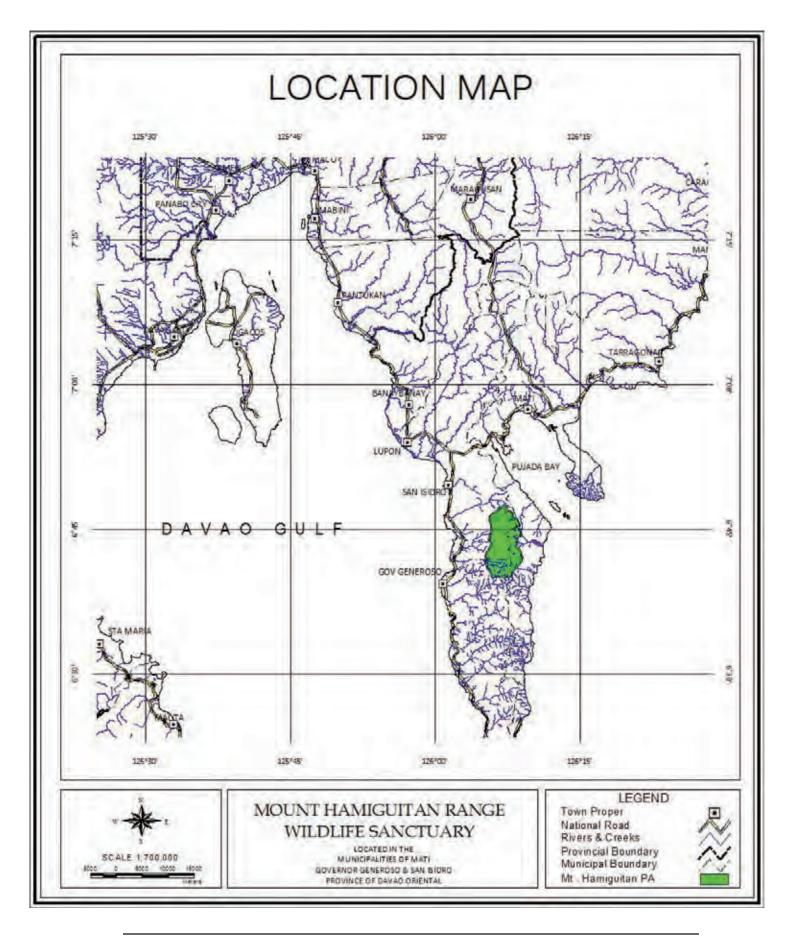


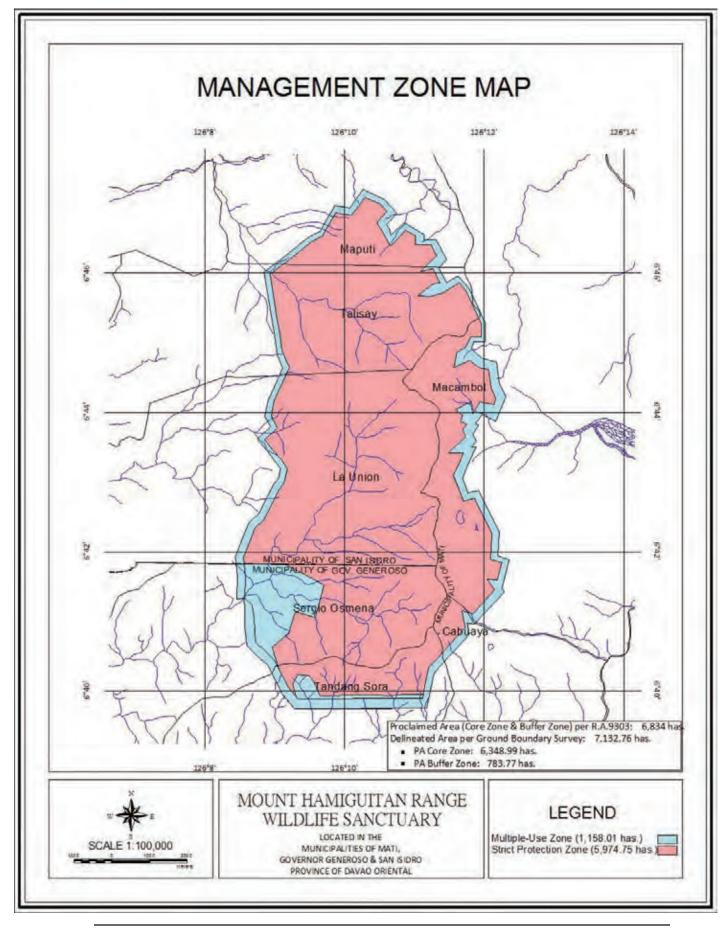


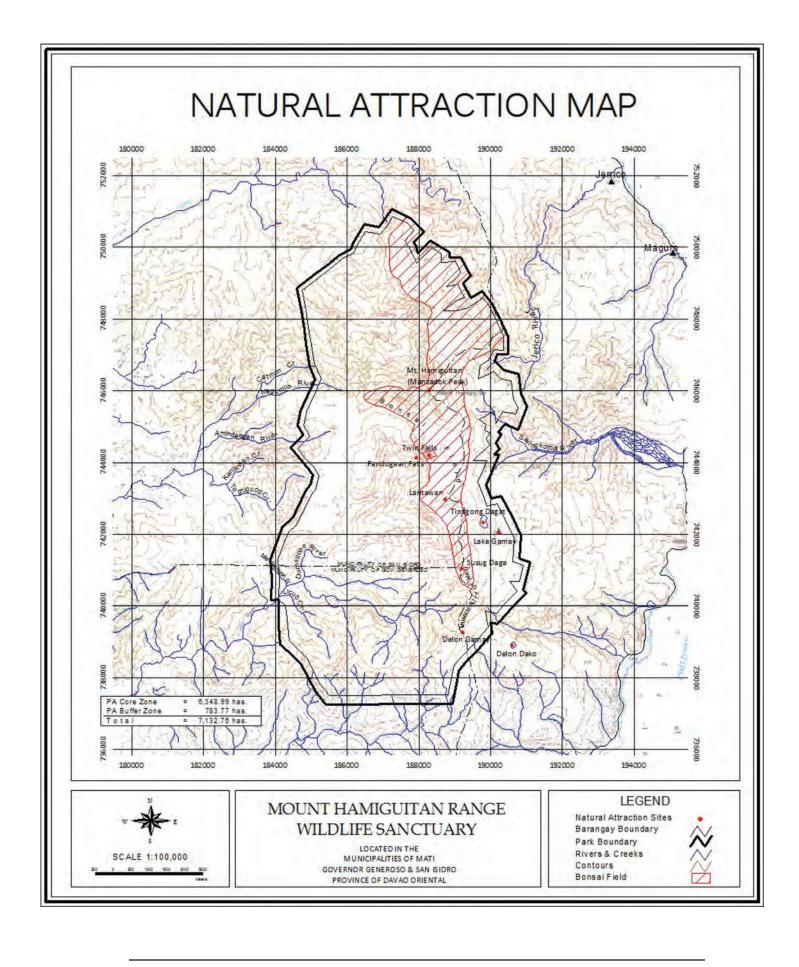


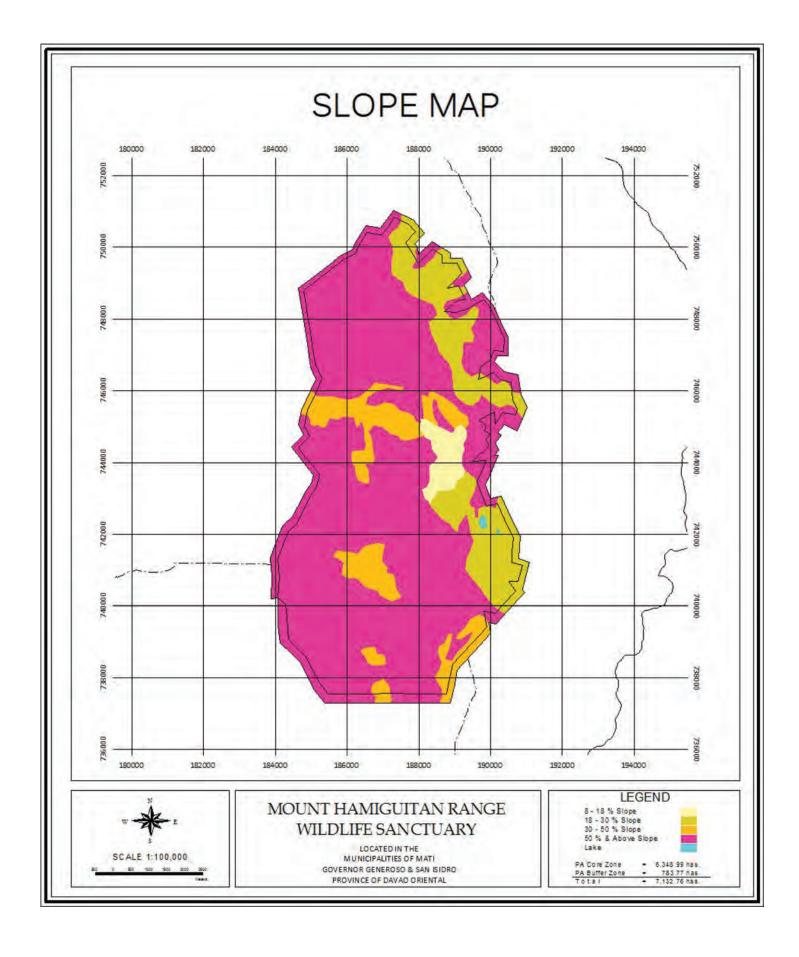


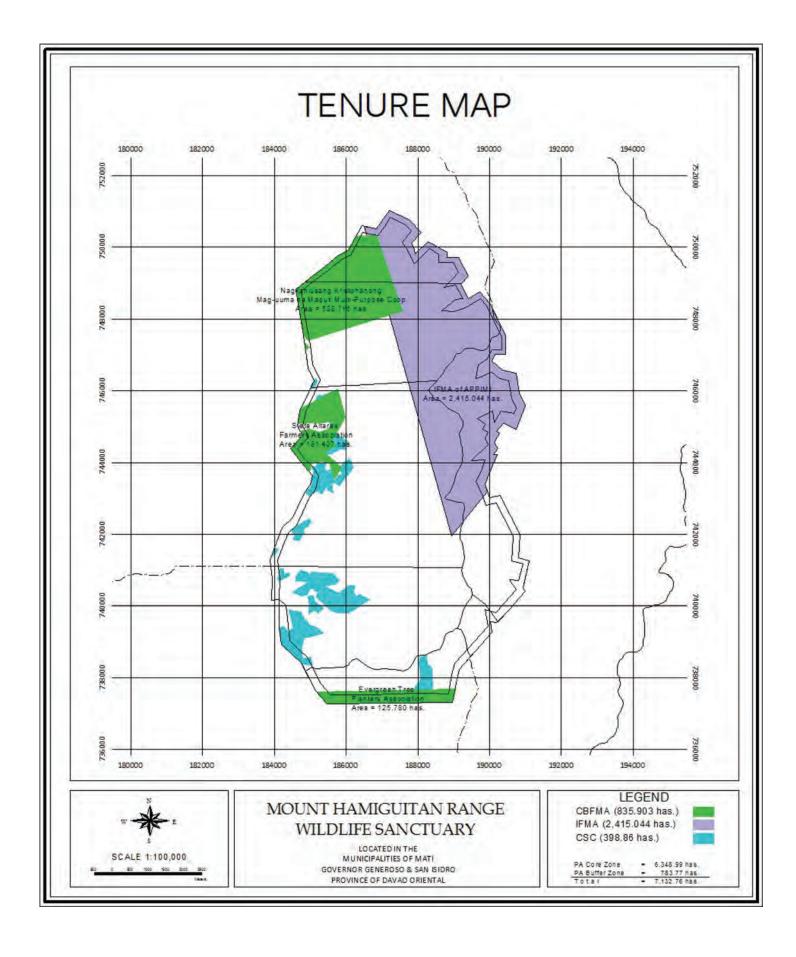


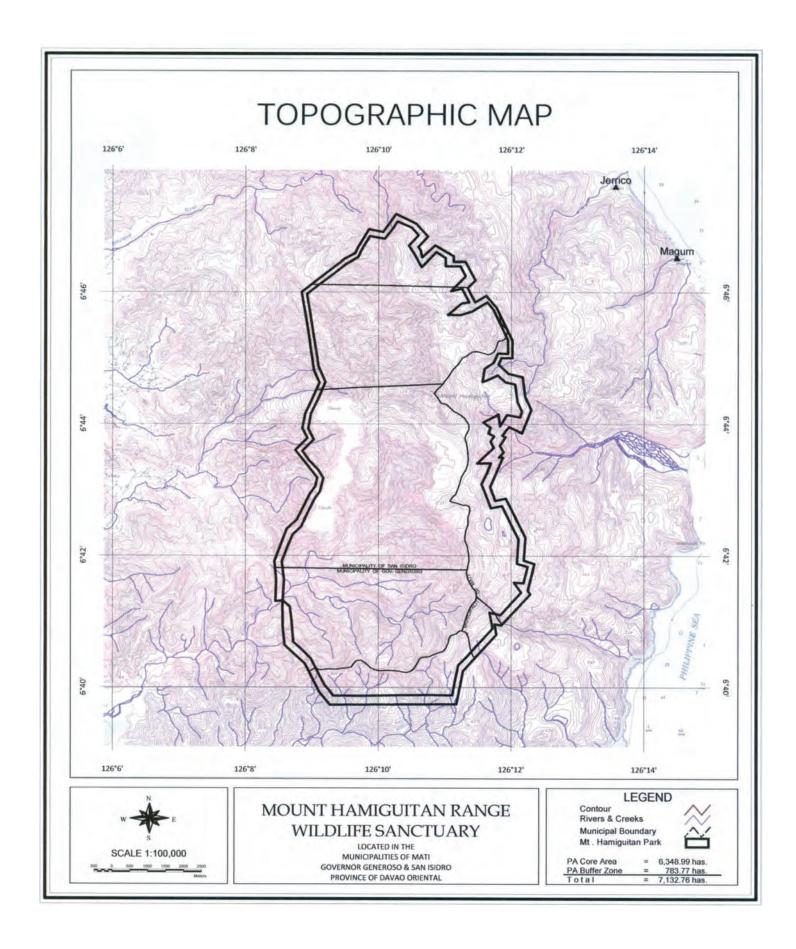


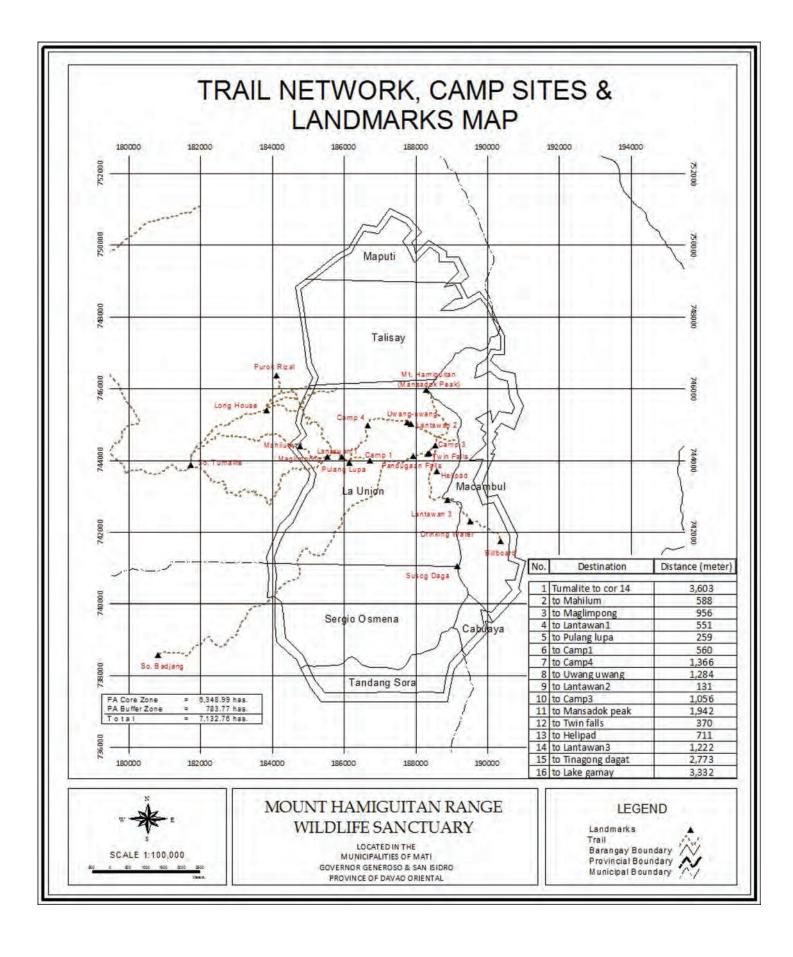


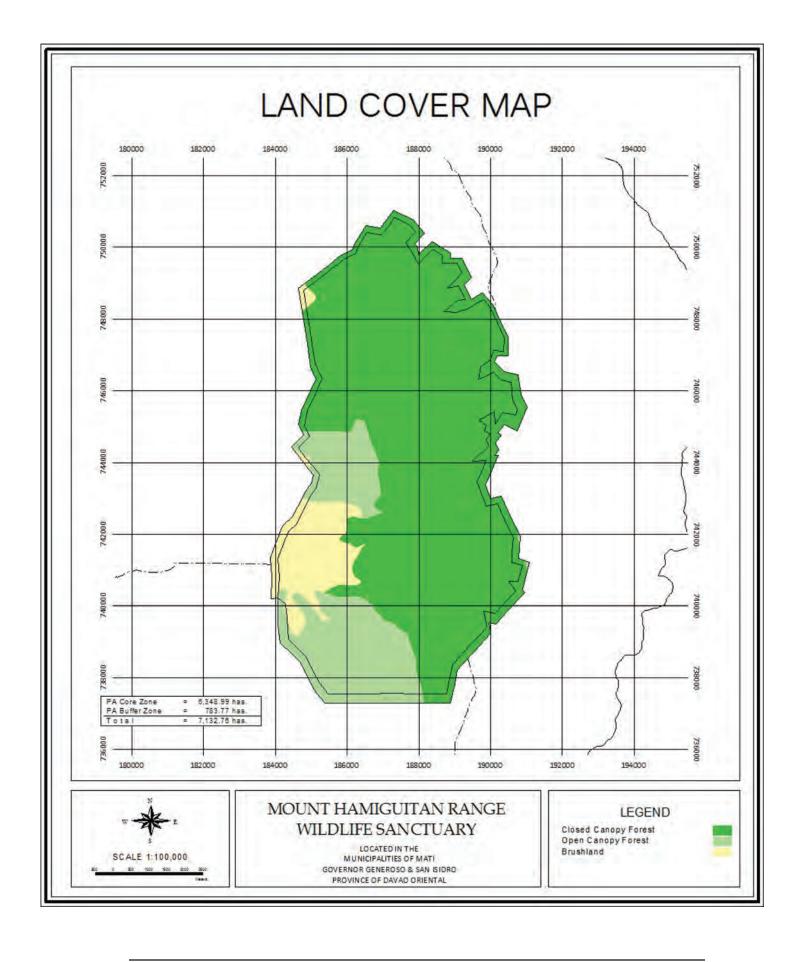


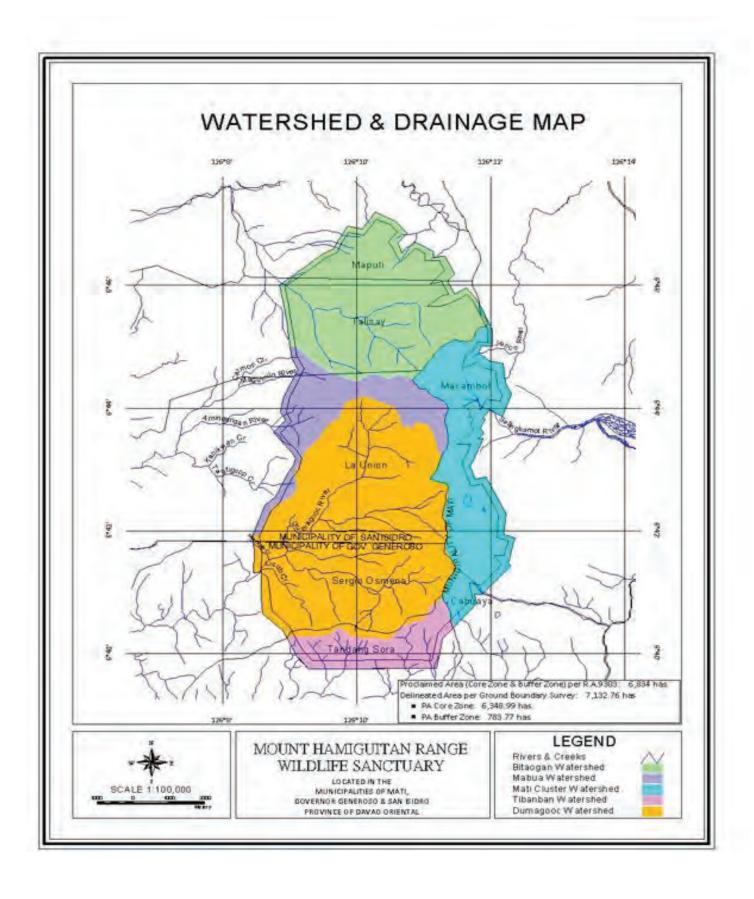












Appendix 2. List and Distribution of MHRWS Flora. (Amoroso et al 2007, PEF 2007 & Tabora 2010)

			VEGETATION TYPES						
	PLANT GROUP	LOCAL NAME	AE (75-420 m. asl)	DF (420-920 m. asl)	MF (920- 1160 m: asl)	MoF (1160- 350 m. asl)	Mo-PF (1160-1200; 1450-1600 m. asl)		
ANGIO	DSPERMS								
L	ACANTHACEAE			100			100		
	Hemigraphis sp. 1		1	1			1		
	Hemigraphis sp 2		1	1 2	1-	- 0	100		
	Hypoestes subcapitata C. B. Clarke		1 111111	1	1	1	1		
	Hypoestes sp. 1			1	1		1		
	Hypoestes sp. 2			7.9			1		
11.	ACERACEAE			W					
	6. Acer sp. 1		1	1.					
Hr.	ACTINIDACEAE								
	Saurauia sampad Elm.		1	1	1				
4.7	8. Saurauia sp. 1			1	/				
IV.	ALANGIACEAE								
	Alangium meyeri Merr.			./.	1				
15	10. Alangium sp. 1				-/		/		
V.	ALPINIACEAE			7		Y			
	11. Alpinia sp. 1		1.1	1,0		/	1		
	12. Alpinia sp. 2		1	1		1			
VI.	ANACARDIACEAE	Waste marks	100	- Ý	7		- Y		
	13. Bucchanania sp. 1	Manga-manga	4	1.7	/		1		
	14. Buchanania arborescens (Bl.)	Busongan	1	/	,	y.	- >		
	15. Buchanania nitida Engl	100	7	4	1	1	,		
	16. Mangifera sp. 1			1					
	17. Mangifera altissima Blco		1	4					
	18. Mangifera indica L.	Misser	1	/		4			
1.00	19. Semecarpus cuneiformis Blco.	Nagas	1	1	,	1	/		
VII.	ANNONACEAE	Tarrelations	3				7		
	20. Anaxagorea javanica Bl.	Talibokbok	, X	1		1	1		
	21. Artabotrys cagayanensis Merr.		7	1	1				
	22. Enicosanthrum klemmei Merr.		1	4	-				
	23. Goniothalamus sp. 1			1	4				
	24. Goniothalamus sp. 2	Danna	V	1	4)		
	25. Haplostichanthus lanceolata (Vidal) Heusden	Banga		1 7	1	9	4		
	26. Haplostichanthus sp. 1			5	- 1		1 5		
VIII.	27. Uvaria goloensis Merr. APOCYNACEAE			1	1		1		
VIII.	28. Alstonia angustiloba Miq.				1	7	7		
	29. Alstonia parvifolia Merr.	Dita			4	/	1		
	30. Alstonia sp. 1	Dita		9	1	1	1 6		
	31. Alyxia rosmarinifolia Merr.			7	1	1	1		
	32. Alyxia concatenate (Blco.) Merr.		9.0	100		, A,	1		
	33. Alyxia palawanensis Elm.		-1				1		
	34. Alyxia parvifolia Merr.				1	1	1 -1		
	35. Alyxia sp. 1					Y.	1		
	36. Alyxia sp. 2					17.0	1		
	37. Alyxia sp. 3				1		1		
	38. Alyxia sp. 4				1				
	39. Alyxia sp. 5			100	1	7	7		
	40. Chilocarpus sp. 1		96/	1		1			
	41. Kibatalia sp. 1	Kamagong	-7	1	1				
	42. Ochrosia glomerata (Bl.) F - Muell.	114111494119	1	1	1				
	43. Tabernaemontana megacarpa Merr.		1	1	1				
	44. Tabernaemontana pandacaqui Poir.		120	1	1	1	1		
IX.	APOSTASIACEAE			1					
	45. Apostasia wallichii R. Br.			1	y		1		
X.	AQUIFOLIACEAE			1 A A		100			
	46. liex crenata Thunb.				1	1	1		
	47. liex crenata fm luzonica Elm.					1	1		
	48. liex retustip Elm.					1	1		
	49. liex sp. 1				1				

	50. liex sp. 2				1		
	51. liex sp. 3	Sagimsim			1	1	1
XI.	ARACEAE	oug		language of			4
	52. Alocasia zebrina C. Koch & Veitch		1	1		1	
	53. Alocasia philippinensis*	Tulo	1/4	1		1 VA	
	54. Alocasia sp.*	Gabi-gabi		1			
XII.	ARALIACEAE	Cubi gusi		177			
3171	55. Aralia sp. 1			1	1	1	1
	56. Aralia sp. 2			1	1	7	7
	57. Arthrophyllum ahernianum Merr.	Hagdag Uwak	1	4	1	1	
	58. Arthrophyllum pulgarense Elm.			1	9		1
	59. Arthrophyllum sp. 1	Hagdag Uwak		V.		1	2
		Hagdag Uwak				7.	1
	60. Arthrophyllum sp. 2	Hagdag Uwak		/		7	
	61. Osmoxylon simplicifolium (Elm.) Philipson			4	T.		1
	62. Osmoxylon sp. 1		1	1		V	
	63. Osmoxylon sp. 2	44.25.23.2	1	1	/	4	100
	64. Polyscias nodosa (Bl.) Seem	Hagdan ug				1	1
	and the victorial state of	Uwak					VI.
	65. Polyscias sp. 1	Hagdan ug					1
		Uwak		100			400
	66. Pothos sp. 1		1	1	1		
	67. Rhaphidophora sp. 1		1	f	1		1,010
	68. Schefflera albido-bracteata Elm.		1	1			1
	69. Schefflera foxworthyi Merr.		1				I
	70. Schefflera sp. 1		1	1	1		1
	71. Schefflera sp. 2		1	1			
KIII.	ARECACEAE						
-11/4	72. Calamus merrilii Becc.	Palasan		1	1	1	
	73. Calamus ornatus var. philippinensis Becc.	Limuran		1	1	1	1
	74. Calamus viridissimus Becc	-9333-5-600		1	1	1	- 0
	75. Calamus sp. 1	Bugtungan		1	1	1	1
	76. Calamus sp. 1	Tawin			1	1	7
	77. Calamus sp. 2	Designer,			1	100	
	77, Galamus sp. 5	Uway		1.00			
	70 Calaman and A	Pa'ag-daga		Y	7	7	,
	78. Calamus sp. 4	Putian		/	1	1	1
	79. Calamus sp. 5	Putian			1	1	4.
	80. Cocos nucifera L.		1		7	- 2	- 7
	 Heterospathe intermedia Becc. 				/	4	1
	82. Pinanga philippinensis Becc	A Constant		-9	- 0	1	
	83. Pinanga rigida Becc.	Palmera		1	- (1	1
	84. Pinanga sp. 1	Palmera				1	
	85. Pinanga copelandii	Palmera			1	1	/
	86. Pinanga mawalata	Palmera			1	1	4.0
	87. Pinanga sp. 4	Palmera				1	
	88. Pinanga speciosa	Palmera			1	1	1
	89. Pinanga insignis	Palmera			- 1	1	1
	90. Pinanga sp. 7	Palmera				1	
KIV.	ARISTOLOCHIACEAE	100000000000000000000000000000000000000		1 4500		- 600	
22.4	91. Aristolochia sp. 1		1	f			
	92. Aristolochia sp. 2		1	1			
V.	ASCLEPIADACEAE						
142	93. Dischidia diphylla R. Br.		1	1	1	1	400
	94. Dischidia elmeri Schltr.		.6	No.	1		1
				1	1		-
				7	1		
	96. Dischidia sp. 1				10		
	97. Dischidia sp. 2			7	1		
	98. Dischidia sp. 3			1	4		1.
	99. Hoya bulusanensis R. Br.		1	1	1		7.
	100. Hoya incrassate Warb.		1	1	1		
	101. Hoya meliflua (Blco.) Merr.		1	1	1		9.
	102. Hoya pentaphlebia Merr.			1	1		1
	103. Hoya mindorensis Schltr.			1			
	104. Hoya sp. 1		1	1			
	105. Hoya sp. 2		1	1			
VI.	BALANOPHORACEAE			1			
19.3	106. Balanophora papuana Elm.					1	
VII.	BEGONIACEAE	2 2			4.46		
. 5.00	107. Begonia sp. 1	(herb)	1	1	1		
	108. Begonia sp. 2	(herb)	1	1	1		
					1		CT.

	109. Begonia sp. 3	T-	1	T T			
XVIII.	BIGNONIACEAE		1	/			1
Avin.	110. Radermachera coriacea Merr.		7	I	1	7	1
	111. Radermachera gigantean (Bl.) Miq.		I	A.	· ·		
XIX.	BOMBACEAE						
	112. Durio zibethinus Murr.		1				
XX.	BURSERACEAE		1997				
	113, Canarium asperum Benth.		1	1	1		
	114. Canarium hirsutum Willd	2.5	1	F	1	- V	
	115, Canarium sp. 1	Pili	100	1	1	1	
VVI	116. Dacryodes sp. 1			1	1		
XXI.	CAESALTHENIACEAE 117. Gleditsia sp. 1			-			
XXII.	CAMPANULACEAE	Wild pechay		7-7-1		W	
200	118. Pentaphragma grandiflorum Kurz.	Tria pooriay			-1	1	
XXIII.	CASUARINACEAE				10	600	
	119. Casuarina equisetifolia L.	Agoho	1	I		0.0	
	120. Ceuthosma palawanense L. Johnson	Agoho		1.66		7.	
	121. Ceuthosma sp. 1		1	1		1	1
XXIV.	CELASTRACEAE			192			
	122. Euonymus javanicus Bl.			1	1	V	0.00
	123. Euonymus sp. 1			1	40.0		1
	124. Microtropis platyphylla Mer. 125. Salacia venosa Linn		Y	.,			
XXV.	CHLORANTHACEAE						
WAY.	126. Ascarina philippinensis C.B. Rob.			1	31	1	
	127. Ascarina prinippinensis C.B. Nob.			1	,	A	
	128. Licania splendens Elm.			1	1	1000	0.0
	129. Sarcandra glabra ssp. brachystachys (Bl.)				1	1	1
	Verdcourt					1911	
	130. Sarcandra sp. 1						
XXVI.	CLETHRACEAE			1.0	- 0		
	131. Clethra canescens var. novoguineensis			1	1	1	
vvv m	(Kaneh. & Hatus.) Sleum		l made in			100	
XXVII.	CLUSIACEAE	Bitangkol	7	1	7		
	132. Calophyllum auriculatum Merr. 133. Calophyllum blancoi Pl. & Tr.	Bitangkoi		1	1	1	1
	134. Calophyllum brachyphyllum Merr.			i	1	,	1
	135. Calophyllum inophyllum L.			1	1		1
	136. Calophyllum rigidulum Linn.		1				
	137. Calophyllum soulattri Burm.		T				
	138. Calophyllum sp. 1	2.5	100	J.			L V
	139. Calophyllum sp. 2	Magolingon	1 2 2	100	1		/
	140. Cratoxylum formosum (Jack) Dyer		1	1			
	141. Desoxyllum arborescens (Blume) Miq.		1	17			/
	142. Garcinia binucao (Blco.) Choisy 143. Garcinia gitinensis Elm.		1	1	1	9	1
	143. Garcinia gitinensis Elm. 144. Garcinia rubra Merr.	Batwan	i i	1	/	1	1
	145. Garcinia tetranda Elm.	Datwaii		1	7	W	
	146. Garcinia sp. 1			1	1		
	147. Garcinia sp. 2				100	1	1
	148. Garcinia venulosa Blco.						1
XXVIII	COMBRETACEAE	63.1	4,0				
	149. Terminalia catappa L.	Talisay	1				
	150. Terminalia citrine (Gaertn.) Roxb. Ex Flem	Magtalisay	4			1	
	151. Terminalia foetidissima Griff.		1	1	9	1	
	152. Terminalia sp. 1 153. Combretum sp. 1			F	1	1	
XXIX.	COMPOSITAE			,			
MAIN	154. Gynura sp. 1						1
	155. Vernonia florescens Elm.				1		7
XXX.	CONVULVOLACEAE		9.	344			14-
1000	156, Erycibe terminaliflora Elm.	Basbason	1	1	1		
	157. Merremia peltata (L.) Merr.	100	1	1	1		
CORNA				100			
	158. Mastixia sp.						
XXXI.	CUCURBITACEAE		9				
VVVII	159. Melothria indica Lour		Y	1		191	
XXXII.	CUNONIACEAE						

	160. Weinmannia hutchinsonii Merr.						1
	161. Weinmannia urdanetensis Elm.		10 000		1	7	1
	162. Weinmannia sp. 1				1	1	
XXXIII.	CYPERACEAE						
	163. Emilia sp. 1			/	1		
	164. Machaerina disticha (C.B. Clarke) T. Koyama			1	1		
	165. Machaerina glomerata (Gaudich.) T. Koyama			1	1		
	166. Machaerina sp. 1			,	1		
	167. Scleria sp. 1			4	1		
	168, Scleria sp. 2			-/	1		У.
	169. Scleria sp. 3					- 1	1
VVVIII.	170. Themeda sp. 1						1
AAAIV.	DAPHNIPHYLLACEAE				,	7.	4
	171. Daphniphyllum buchananifolium Hall					4	5
	172. Daphniphyllum sp. 1 173. Daphniphyllum sp. 2					7	1
XXXV.	DATISCACEAE						
MANY.	174. Octomeles sumatrana Míq.		7	1		7 4 1	
XXXVI.	DILLENIACEAE			1			
	175. Dillenia sp. 1	Catmon				190	1
	176. Dillenia philippinensis Rolfe	Calificati	7	1	1	1	
XXXVII.	DIOSCOREACEAE		1	1.4			
a constant	177. Dioscorea Ioheri Prain & Burk			1	1		V
	178. Dioscorea sp. 1			1	1		
	179. Dioscorea sp. 2			1	1		
	180. Dioscorea sp. 3			1	1		
	181. Dioscorea sp. 4			1	1		
	182. Dioscorea sp. 5				1	1	
	183. Dioscorea sp. 6				1	1	
XXXVIII.	DIPTEROCARPACEAE			0.00	- 66	464	
	184. Dipterocarpus grandiflorus Blco.	200.00	1	1	4		
	185. Shorea astylosa Foxw.	Yakal	1	1	1	0	
	186. Shorea contorta Vid	Sec.	1	1	1	1	
	187. Shorea guiso (Blco.) Bl.	Giho	1	1	-/		
	188. Shorea negrosensis Foxw.	Red Lawaan	1	1			
	189. Shorea ovata Dyer ex Brandis	Teachille	1	4	4		
	190. Shorea polysperma (Blco.) Merr.	Tanguile	1	1	. /		
	191, Shorea sp.1 192, Vatica sp. 1			1			Y
	193. Vatica sp. 1	Apitong	1	1			
XXXIX.	EBENACEAE	Apitorig		1			
AAAIA	194. Diospyros ferrea var. buxifolia (Rottb.) Bakh.		1	1			
	195. Diospyros philippinensis A. DC.		1	7			
	196. Diospyros sp. 1		1				1
	197. Diospyros sp. 2						1
	198. Diospyros sp. 3						1
XL.	ELAEOCARPACEAE						
	199. Elaeocarpus affinis Merr.		1	1			
	200. Elaeocarpus angustifolius Merr.				1	1	100
	201. Elaeocarpus argenteus Merr.				-0.00	1	1
	202. Elaeocarpus calomala (Blco.) Merr.			1	1	X	1
	203. Elaeocarpus colmenicula var. vendula Merr.				1	(a)	1
	204. Elaeocarpus merrittii Merr.				100		1
	205. Elaeocarpus parvilimbus Merr.				1		- 1
	206. Elaeocarpus sp. 1			1			I
	207. Elaeocarpus sp. 2			la de la constante de la const	1		1
	208. Elaeocarpus venosus C.B. Rob.		1	I.			LG:
	209. Elaeocarpus verticillatus Elm.			1	1	1	1
XLI.	EPACRIDACEAE					100	
	210. Styphelia suaveolens Warb.					A 1	/
XLII.	ERICACEAE		1		1 11		
	211. Costera sp. 1		V 1				1
	212. Diplycosia apoensis Elm.				-06		T
	213. Gautheria sp. 1		100		1		
	214. Osmelia philippina (Turcz.) F. – Vill.		1	1	100		
	215. Rhododendron acrophilum Linn				1		
	216. Rhododendron kochii Stein.			1	1		
	217. Rhododendron quadrasianum Vid.			1	1		L

	218 Rhododendron quadrasianum var			-	1 - 1		T = 1
	218. Rhododendron quadrasianum var. davaoense (Copel. F) Sleum.				1	71	
	219. Rhododendron quadrasianum var.				1		
	intermedium Merr.				9	Ŷ	i.
	 Rhododendron quadrasianum var. marivelense (Copel.f) Sleum. 				,	1	
	221. Rhododendron quadrasianum yar.			1	1		
	rosmarinifolium (Vid.) Copel. f.		100				
	222. Rhododendron vidalii Rolfe. 223. Rhododendron sp. 1		-1	- /			
	224. Rhododendron sp. 2						1
	225. Rhododendron sp. 3						1
	226. Rhododendron sp. 4		· · ·	1			1
	227. Vaccinium brachytrichum Sleum. 228. Vaccinium cumingianum Vid. var. igorotorum		1	- 7	1		
	Copel. f.						1.
	229. Vaccinium gitingense Elm.			1	1		, , , , , , , , , , , , , , , , , , ,
	230. Vaccinium halconense Merr. 231. Vaccinium sp. 1				1		1
	232. Vaccinium sp. 2	Wild strawberry		1	,		4
	233, Vaccinium sp. 3	124 124 134		1 1	1		1
XLIII.	234. Vaccinium sp. 4 ERIOCAULACEAE						1
VEIII)	235. Eriocaulon sp. 1				1		1
XLIV.	EUPHORBIACEAE				0.0		
	236. Agrostistachys sp. 1		7	7			7
	237. Alchornea rugosa (Lour.) Muell. 238. Aleurites moluccana (L.) Willd.		7	1			
	239. Antidesma cumingii MuellArg.			1	1		. 93
	240. Antidesma microcarpum Elm.		100	1	1.		1
	241. Aporosa sphaeridophora Merr. 242. Breynia cernua (Poir.) MuellArg.	Tulog-tulog	4	1			
	243. Codiaeum luzonicum Merr.	(diog-talog	ý	1			
	244. Dimorphocalyx murinus Elm.		1	1			
	245. Endospermum peltatum Merr. 246. Glochidion canescens Elm.		1	1	5		100
	247. Macaranga bicolor MuellArg.		,	1	1		7
	248. Macaranga caudatifolia Elm		1	1	1		
	249. Macaranga cumingii (Baill.) MuellArg.		4	1	1		
	250. Macaranga hispida (Bl.) MuellArg. 251. Macaranga tanarius (L.) MuellArg.	Binunga	7				
	252. Mallotus lackeyi Elm.	Diridilga	ý				
	253. Omalanthus sp.						1
	254, Sauropus villosus (Blco.) Merr.		4	1	,		
XLV.	255. Suregada glomerulata (Bl.) Baill. FABACEAE		1	1		7.71	1
	256. Cynometra copelandii Elm.		1	1		1	T.
	257. Cynometra sp. 1		- 10	1	7.		8.5
	258. Ormosia calavensis Azaola ex Blco. 259. <u>Bauhinia sp.</u> *	(vine)	1	1			
	260. Pterocarpus indicus Willd.	(tille)	1				
XLVI.	FAGACEAE	YICA: S.					
	261. Bauhinia sp. 1 262. Lithocarpus apoensis Elm.	Ulayan Ulayan	X	1			7
	263. Lithocarpus solerianus (Vid.) Rehd.	Ulayan			7		1
	264. Lithocarpus Ilanosii (A. DC.) Rehd.	Ulayan	1	1		1	7
	265. Lithocarpus sp. 1 266. Lithocarpus sp. 2	Ulayan Ulayan	1	1		1	1.
	267. Lithocarpus sp. 2	Ulayan		1	j		
	268. Lithocarpus sp. 4	Sieden.			Ż	1	
XLVII.	FLACOURTIACEAE			v			
	269. Casearia grewiaefolia Vent 270. Flacourtia rukam Zoll. & Mor.		1	1		1	1
	271, Flagellaria indica L.					1	1
	272, Flagellaria sp. 1		0.0	300	1		
	273. Osmelia philippina (Turcz.) FVill.		1	1			
	274. Osmelia sp. 4 275. Xylosma luzonense Presl.		1	1			
FLAGE	LARIACEAE		X)				
	276. Flagellaria indica*	Balinguai					1

XLVIII.	GESNERIACEAE						
	277. Aeschynanthus miniaceous R. Br.	1	1	1	- 5		
	278. Aeschynanthus sp. 1			1	1		
	279. Aeschynanthus sp. 2			1	1		
	280. Aeschynanthus sp. 3				1	1	1
	281. Aeschynanthus sp. 4			rý.	1	1	1
	282. Aeschynanthus sp. 5		- 4	/			
	283. Agalmyla persimilis R. Br.		1	1			
	284. Agalmyla sp. 1			1	7	9	
	285. Agalmyla sp. 2 286. Agalmyla sp. 3				,	1.6	
	287. Cyrtandra quisumbingii Merr,				1		1
	288. Cyrtandra sp. 1				1		1
	289. Cyrtandra sp. 1			1	/		
XLIX.	GOODENIACEAE			2.0	4.0		100
2.000	290. Scaevola micrantha (Krause) Prest.			1	1		1
	291. Scaevola sp. 1				1		1
	292. Scaevola sp. 2				1		T.
L.	GROSSOLANIACEAE				47		
	293. Polyosma retusa C. B. Rob.						1
	294. Polyosma sp. 1			1		1	T
LL.	HYDRANGIACEAE						100
	295. Irea magnifolia Merr.		1	100			
	296, Irea sp. 1			1			
	297. Cratoxylon formosum Dyer.		1	1			
	298. Cratoxylon sumatranum subsp. Sumatranum		- X				
	FVIII.			- v	- V		
LII.	299. Hypericum geminiflorum Thunb.			/	1		
FILE	IRIDACEAE			1 1 1 1 1 1	9	9	97
LIII.	300. Patersonia lowii Stapf. ISOTEDACEAE					Υ.	1.
Line	301. Barringtonia sp. 1			T.	1		
	302. Barringtonia sp. 2			1-71	5		
LIV.	IXONANTHACEAE						
L) V.	303. Ixonanthes sp. 1				1	7	
LV.	LABIATAE						
	304. Plectranthus javanicus (Bl.) Benth.		7	1			
LVI.	LAMIACEAE		- W	100			
	305, Gmelina arborea Roxb.		1				
LVII.	LAURACEAE						
	306. Actinodaphne apoensis Nees		1	I	1		
	307. Actinodaphne sp. 1	La rock	1	1		0.4	4.0
	308. Cinnamomum mercadoi Vid.	Kalingag		1	1	1	L L
	309. Cinnamomum microphyllusm Quis & Merr.			100		1	1/1
	310. Cinnamomum sandkuhlii Merr.						1
	311. Cinnamomum sp. 1	4000000			1		
	312. Cinnamomum sp. 2	Bolonganon		1			
	313. Cinnamomum sp. 3				4		
	314. Cinnamomum sp. 4				1		Y
	315. Cryptocarya parvifolia Merr.		7				/
	316. Litsea leytensis Merr. 317. Persea americana Mill.		1				
LECYT	HIDACEAE		,		- 100		
LECTI	318. Barringtonia sp. *	(tree)			1		
LVIII	LEGUMINOSAE	(noc)					
E VIII	319. Albizia lebbekoides (DC.) Benth.		1				
	320. Archidendron clypearia var. casai (Blco.)		1		1		
	Nielsen		100	4.4.	100		4.0
	321. Bauhinia sp. 1			1			1
	322. Bauhinia sp. 2			1			
	323. Cynometra copelandii Elm.			1			
	324. Cynometra sp. 1			1			
	325. Spatholobus macrospermum Elm.		1				
LIX.	LENTIBULARIACEAE						
	326. Utricularia sp. 1			1	1		
LX.	LILIACEAE			I CAC	2.1		
	327. Dianella ensifolia (L.) DC				7		
	328. Dianella insignis Lam.			1			7.
TVI	329. Dianella sp. 1						L
LXI.	LOBELIACEAE		1	T .	1		

	330. Isotoma guerreniana Lindl.			1	1		1
LXII.	LOGANIACEAE		10 00				1 7 70 9
	331. Buddleja sp. 1			/			100
	332. Buddleja sp. 2	No. Conference on the conference of the conferen	100	1 2 2 2			1 6
	333. Fagrea sp. 1 \shrub;	Kalachuchi sa					I I
	334. Fagraea sp.2*/ hemi-epiphyte	lasang		7			1.
	335. Geniostoma rupestre Forst.			1			7
	336. Geniostoma sp. 1						1
	337. Geniostoma sp. 2 338. Geniostoma sp. 3						5
XIII.	LORANTHACEAE						Α,
XIII.	339. Amyema halconense Elm.	Malatalisay					1
	340. Amyema edanoi Elm.	Malatalisay		>/.			A
	341. Amyema incarnatiflora (Elm.) Danser		1	100			1000
	342. Amyema sp. 1						1
	343. Cania sp. 1			I			100
	344. Unidentified sp. 1				1		
	345. Unidentified sp. 2				1		
	346. Phrygilanthus obtusifolius Merr.			L.	- 4		
	347. Phrygilanthus sp. 1			1	1		
XIV.	MAGNOLIACEAE						
	348. Magnolia philippinensis Linn,						1
	349. Magnolia sp. 1		0.0	1			
XV.	MALVACEA		- 1				
	350. Colona serratifolia Cav.			1	7		
XVI.	351. Sercolia sp. 1 MARANTHACEAE			1	1		
AVI.	352. Phrynium philippinense			1			
XVII.	MELASTOMATACEAE			7			
vil.	353. Astronia lagunensis Merr.						1
	354. Astronia sp.*	(tree)			1		
	355. Everettia pulcherrima*	Mangurima			1		
	356. Medinilla apoensis C.B. Rob.	Man gamme		- F	1		
	357. Medinilla cumingii Vand.				1		
	358. Medinilla magnifica Lindl.			1	1		
	359. Medinilla malindangensis Merr.			1	1		
	360. Medinilla pachygona C.B. Rob.			7400	1	1	1
	361. Medinilla pendula Merr.				1	1	
	362. Medinilla ramiflora Merr.					100	1
	363. Medinilla sp. 1			/			
	364. Medinilla sp. 2			1	1	1	
	365. Medinilla sp. 3				7 11		
	366. Medinilla sp. 4				V		1
	367. Medinilla sp. 5				4		1
	368. Medinilla sp. 6 369. Medinilla sp. 7				1		- L
	370. Medinilla sp. 7				1		
	371. Medinilla sp. 9	Kalaglag		4 1 4	1		
	372. Medinilla surigaensis Merr.	Maiaglag		1	1		1
	373. Melastoma crinitum Naud	Malarosa	1	1	1		
	374. Melastoma malabathricum L.	MINUTE ALA					1
	375. Memecylon gracilipes C.B. Rob.			1		1	
	376. Memecylon sp. 1			7.5			1
	377. Memecylon sp. 2					1	
	378, Viccarianthia pulcherrima	Halimbabawod			1		
XVIII.	MELIACEAE			- 9000			1000
	379. Aglaria clarkia Merri	Pangi	1	1			1
	380. Dysoxylum arborescens (Blm.) Miq.	100	1	1			
	381. Dysoxylum sp. 1	Part and the	1	73	(8 - 2 -		130
	382. Vavaea amicorum Benth.	Bansilan			1	1	1
VIII	383. Vavaea sp. 1					1	1
XIX.	MENISPERMACEAE						
	384. Hypserpa sp. 1			1	1		
	385. Parabaena echinocarpa Diels.			1			
vv	386. Anamirta sp. 1* MORACEAE		3-49	1			
XX.	387. Artocarpus communis J.R. & G. Frost		3	1			
	388. Artocarpus heterophyllus Lamk		1	1			
				1			
	389. Artocarpus odoratissimus Blco.		1				

	391. Ficus ampelas Burm.	Magkuno	1	1	7		
	392. Ficus aurantiacea var. parviflora Corner	Connect	7		1		1
	393. Ficus benguetensis Merr. 394. Ficus botryocarpa Miq.	Canapay					
	395. Ficus cumingii var. worcesteri (Merr.) Corner			7	. 1		
	396. Ficus fiskei Elm.	Sagosahis	1	1	7		
	397. Ficus pseudopalma Blco.	Canapay,	1	1		1	
	398, Ficus septica Burm.	Tubog	1			1	
	399. Ficus obscura var. scaberrima (Bl.) Miq.	,	1			300	
	400. Ficus sp. 1				1	9 11	
	401, Ficus sp. 2			1			
	402. Ficus variegata var. garciae (Elm.) Corner		1				
	403. Polkilospermum moluccana	- V	1				
olas las	404. Poikilospermum suaveolens (Bl.) Merr.	Hanopol	1				
XXI.	MYRISTICACEAE		· ·				
	405. Myristica basilinica Merr.		4		9		
	406. Myristica philippensis Lam.		1	1 4	1		
XXII.	407. Myristica sp. 1			1			
AAII.	MYRSINACEAE 408. Ardisia elmeri Mez				7		1
	409. Ardisia reynosii Merr.				1		5
	410. Ardisia sp. 1					6. 1	1
	411. Ardisia sp. 2					1	1
	412. Ardisia sp. 3					- 1/ 6/	1
	413. Ardisia sp. 4				1	90	
	414. Ardisia sp. 5			1	100		
	415. Ardisia sp. 6		1				
	416. Ardisia tomentosa Presl.			1	1		1
	417. Discocalyx psychotrioides Elm.			1			
	418. Discocalyx sp. 1			1		250	
	419. Myrsine amorosoana Pipoly			11 100	1	1	1
	420. Myrsine avenis (Bl.) DC.					1000	
	421. Myrsine fastigiata A. DC.				0.75		1
	422. Myrsine sp. 1				4		.1
	423. Myrsine sp. 2						
	424. Myrsine sp. 3				(V.
	425. Myrsine sp. 4						6
	426. Myrsine sp. 5 427. Myrsine sp. 6						5
	428. Myrsine sp. 7						5
	429. Myrsine oblongibacca (Merr.) Hosaka			1			,
	430. Rapanea sp. 1				1		1
XXIII	MYRTACEAE						
	431. Cania microphylla (Quis. & Merr.) Wils.			1			1
	432. Cleistocalyx arcuatinervius Merr. & Perry			1			1 2 20
	433. Cyrstania sp. 1			1	1		
	434. Decaspermum blancoi Vid.			1	1		
	435. Decaspermum fruticosum J.R. & G. Forst		1	1	1		1600
	436. Decaspermum sp. 1			4500			I
	437. Decaspermum vitis Vid.	Parameter Control	1	1	1		1
	438. Leptospermum flavescens J. Sm.	Payuspus		1		1	1
	439. Leptospermum javanicum Forst.				1		1
	440. Leptospermum sp. 1			1 X			I
	441. Leptospermum sp. 2			1			
	442. Mernsia sp. 1						1
	443. Mernsia sp. 2						1
	444. Mernsia sp. 3 445. Myrtax sp. 1				. 9		1
	446. Psidium guajava L.		7				
							1
	447. Rhodomyrtus sp. 1 448. Rhodomyrtus surigacensis Elm.		7				1
	449. Syzygium affine Merr.		1	1		1	Y
	450. Syzygium cardiophyllum Merr.				1		ý
	451. Syzygium cavitense Merr.				1		1
	452. Syzygium clavellatum Merr.			I August		7	
	453. Syzygium densinervum Merr.	Lumboy-	1	1			
	- Sand Action Service Control Paris	lumboy		1 4 1			
	454, Syzygium durum Merr.	Wild Makopa			1		
	455. Syzygium ecritori (Merr.) Merr.					1	
	456. Syzygium merrittianum (C.B. Rob.) Merr.						

	457. Syzygium rizalense Merr.						1
	458. Syzygium sp. 1		1	1	1	1	1
	459. Syzygium sp. 2	P=4 1		1	1		0.0
	460. Syzygium sp. 3			1	1		
	461. Syzygium sp. 4			7	1		
				100	1		
	462. Syzygium sp. 5			- Carrier 1			
	463. Syzygium sp. 6			v.	/		
	464. Syzygium copelandii (C.B. Rob.) Merr.			1			
	465. Timonius sp.2			1000			T
	466. Timonius sp.3			1			
	467. Tristaniopsis micrantha Wils. & Waterh.		1	100			
	468. Tristaniopsis decorticata	Magubayabas		1		1	1
	469. Tristaniopsis sp. 2	Malabayabas		1	1		
	470. Xanthomyrtus diplycosifolia (C.B. Rob.) Merr.	(10/0/20/0/20/2		1 - 12			1
	471. Xanthostemon sp. 1			Y	1		1
	472. Xanthostemon verdugonianus Naves	Mangkuno		Y			100
LVVIII		Mangkuno		7			
LXXIV.	NEPENTHACEAE	Section Control					
	473. Nepenthes alata Blco.	Pitsel-pitsel	1	/	1	/	1
	474. Nepenthes argentii Jebb & Cheek	Pitsel-pitsel			1		1
	475. Nepenthes copelandii Merr.	Pitsel-pitsel			1	1	1
	476. Nepenthes bellii K. Kondo	Pitsel-pitsel			1	1.20	1
	477. Nepenthes maxima Reinw. ex. Nees	Pitsel-pitsel		1 (0) pop m (1	1	1
	478. Nepenthes peltata Sh. Kurata (2008)	Pitsel-pitsel		1	7	7	,
		Pilsei-pilsei		1	1	1	1
	(N. mira)	500 D 200 D				2.7	
	479. Nepenthes micramphora V.B.Heinrich,	Pitsel-pitsel		/		1	
	S.McPherson, Gronem. & V.B.Amoroso	And the second					
	(2009)	Pitsel-pitsel					
	480. Nepenthes hamiguitanensis Gronem.,	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7	· f	1		
	Wistuba, V.B.Heinrich, S.McPherson, Mey &			1 C. XI.			
	V.B.Amoroso (2010)						
LXXV.						1	1
LAAV.	OCHNACEAE			1 2	7	-6	1
C. Chine in	481. Brackenridgea fascicularis (Blco.) FVill.			/	1	(C)	
LXXVI.	ORCHIDACEAE				1	1	
	482. Appendicula sp. 1						
	483. Appendicula sp. 2			1000	1	1	1
	484. Bulbophyllum cumingii (Lindl.) Reich			1		1 2	1.74
	485. Bulbophyllum sp. 1				7		
					1		1
	486. Bulbophyllum sp. 2				4	5	- 5
	487. Bulbophyllum sp. 3				1	X	, j
	488. Cephalantheropsis sp. 1				1	1	1
	489. Ceratostylis retisquama reichb. f.			=.J.	1		I
	490. Ceratostylis sp. 1				1	1	1
	491. Cryptostylis arachnites (Blm.) Hassk.			9,0	1	1	1.0
	492. Dendrobium sanderae var. Purigaense Quis.			1		40	
	493. Dendrobium sp. 1			1/			
				1	,		1
	494. Dendrobium sp. 2			1	1		
	495. Dendrobium sp. 3			1	1		1
	496. Dendrobium uiniflorum Griff.			J			
	497. Dendrochilum quadrilobum Ames				1		
	498. Dendrochilum sp. 1						
	499. Dendrochilum sp. 2						
	500. Dendrochilum sp. 3				1		
							0.00
	501. Dendrochilum sp. 4				.0		
	502. Dendrochilum sp. 5				1	1	1
	503. Dilochia elmerii Ames						1
	504. Dilochia sp. 1					1	1
	505. Diplocaulobium clemensii Kranzl.					1	1
	506. Dipodium paludosum (Griff.) Reichb.				1	1.00	30
	507. Epigeneium stella-silvae (Loher & Kranzl.)				7		
					I.	7 11	
	Summerh.						
	508. Epipogium sp. 1				0.00		1
	509. Eria sp. 1				1		
	510. Flickingeria bancana Hawkes						1
	511. Flickingeria sp. 1						1
				6			1
	512. Flickingeria sp. 2			V.			. V.
	513. Lepidogyne longifolia Blm.		0	1			
	514. Liparis viridiflora (Bl.) Lindl.		1				
	515. Liparis sp. 1			1	1		
	516. Malaxis sp. 1		1				
	517. Paphiopedilum adductum Asher						

	518. Paphiopedilum ciliolare (Reichenbach.f)Stein			7	1	1	
	519. Plocoglottis acuminata Ames	100 0 11		1	19	1	10.00
	520. Podochilus sp. 1				1		1
	521. Podochilus sp. 2				1		1
	522. Spathoglottis sp. 1		2.0		1		- K
	523. Spathoglottis sp. 2		1	/			
	524. Spathoglottis sp. 3		/	/			1
	525. Spatholobus macrospermum						1
	526. Tainia maingayi Hook. f.			4			7
	527. Trichoglottis tamesisii Quis. & Schwein f. 528. Trichotosia sp. 1			1			1.
	529. Trichotosia sp. 1				1		1
LXXVII.	PANDANACEAE						
LAAVII	530. Freycinetia arborea Merr.			1	1	1	P
	531. Freycinetia ensifolia Merr.			1		100	1
	532. Freycinetia sp. 1	Tuang (vine);		1.0	1		
	533. Freycinetia sp. 2	Hemi-epiphyte		1		9-1	
	534. Freycinetia sp. 3	20 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -			-	1	1
	535. Freycinetia sp. 4			1	1		
	536. Freycinetia sp. 5				-1		1
	537. Pandanus copelandii Merr.			3	1	1	1
	538. Pandanus cubicus St. John		1	1	1	772.0	10
	539. Pandanus depauperatus Merr.			L	1	100	
	540. Pandanus glauciphyllus C.B. Rob.			- Feb.	1	1	
	541. Pandanus sp. 1	2.5	1				17-
	542. Pandanus sp. 2	Baliw	1		40.0		1
	543. Pandanus sp. 3				1		1
	544. Pandanus sp. 4				1	1	1
. comme	545. Pandanus sp. 5					1	1
LXXVIII.	PIPERACEAE	water than the			4		9.7
	546. Piper lessertianum var. oblongibaccum C.	Buyo-buyo		4	1	1	
	DC.	Buyo-buyo		4	4		/
	547. Piper moluccanum C. DC.	Buyo-buyo		/	4		- 7
	548. Piper sp. 2	Buyo-buyo		,	,		/
	549. Piper sp. 3	Buyo-buyo		1	,		
LXXIX.	550. Piper sp. 4 PITTOSPORACEAE			1	,	9	1
LANIA.	551. Pittosporum pentandrum (Blco.) Merr.		7	1	1	- A-	,
	552. Pittosporum sp. 1			1,4			1
	553. Pittosporum sp. 2						
LXXX.	POACEAE	(herb)					1
- 0.00	554. Emilia sp.1*	(10.0)			1	1	1
LXXXI.	POLYGALACEAE				1	1	
	555. Polygala sp. 1				1		1
	556. Polygala sp. 2						1.00
	557. Polygala venenosa Juss ex. Poir				100		
LXXXII.					1		1
	558. Helisia robusta var. integrifolia (Elm.) Sleum.			A 1	1		1
	559. Helisia robusta var. robusta R. Br. Ex Wall.				1		1
	560. Helisia sp. 1	1.				1	
LXXXIII	RHAMNACEAE	Y r	1 6 1			1	
	561. Alphitonia sp 1		1	1	- 20		
	562. Sageretia sp. 1		100	7	1		
LXXXIV.	RHIZOPHORACEAE						
	563. Gynotroches axillaries Bl.				1		L
LXXXV.							40,00
	564. Rhaphiolepis philippinensis Vid.				0		1
	565. Rubus filifolius Sm.				1		
L WWW.	566. Rubus periformis Merr.				1		
LXXXVI.	RUBIACEAE						
	567. Antirhea benguetensis (Elm.) Val.			, , , , , , , , , , , , , , , , , , ,			
	568. Argostemma sp. 1			/	1	/	1
	569. Bikkia sp. 1		Y	/	1		
	570. Canthium dicoccum (Gaertn.) Merr.		4	1	2.1		
	571. Coffea arabica L.		1	1	4	4	
	572. Greeniopsis euphlebia Merr.		1	T	1	- X	
	573. Greeniopsis megalantha Merr. 574. Hedyotis buruensis (Mlq.) Val.			1			
	or T. Licuyotta bulucilala (Mily.) Val.			1		4	

575. Hedyotis elmerii Merr.				1	I	11
576. Hedyotis sp. 1			1	1	1	1
577. Hedyotis sp. 2			J	1		1
578. Hedyotis sp. 3	1 / 5 1		10000	1		1
579. Hydnophytum formicarum Jack	Balay sa					1
580. Hydnophytum sp. 1	lamigas Balay sa		I			
581. Hydnophytum sp. 2	lamigas Balay sa		1	-1		1
582. Ixora chartacea Elm.	lamigas		1		1	
583. Ixora ilocana Merr.		1				
584. Ixora macgregori C.B. Rob.		L	1			
585. Ixora macrophylla Bartl.		T	1			
586. Ixora sp. 1		1	10000	. 20		
587. Ixora tenuipedunculata Merr.		10.7		1		
588. Mameya sp. 1			Δ.	1		
589. Morinda citrifolia L.		1				
590. Myrmecodia tuberose Bl.		1	0 4 0			
591. Mycetia javanica (Bl.) Reinw. ex Korth		100	1	40.1		T
592. Neonauclea calycina (Bartrl.) Merr.		9	1	1		
593. Neonauclea glabra (Roxb.) Bakh.		1	1			
594. Neonauclea media (Havil.) Merr.		1	1			
595. Neonauclea sp. 1		100	1 /2 - 1	/		
596. Neonauclea sp. 2		1	1			
597. Nertara deppressa					1	95
598. Ophiorrhiza sp. 1				1	/	1
599. Psychotria acuminatissima Merr.		1				1
600. Psychotria crassifolia Merr.		1				
601. Psychotria cuneata Merr.		/				l v
602. Psychotria diffusa Merr.		7			1	1
603. Psychotria gitingensis Elm.		4			1	/
604. Psychotria sibuyanensis Elm.		1				
605. Psychotria sp. 1		,				
606. Psychotria sp. 2						1 5
607. Psychotria sp. 3			1			1
608. Schradera elmeri Puff, Buchner, Greimler			1	1		1
609. Schradera sp. 1			1	1		
610. Schradera sp. 2		0	1	1		
611. Schradera sp. 3		1		^		
612. Syzygium rigidifolium Merr. 613. Tarenna sp. 1		1.				
614. Timonius appendiculatus Merr.		100		1	1	1
615. Timonius caudatifolius Elm.		1			100	
616. Timonius ferrugineus Merr.		9		1	1	1
617. Timonius hirsutus (Elm.) Merr				1	1	
618. Timonius myrmedome Elm.			- 1		1	1
619. Timonius pulgarensis Elm.			1		464	
620. Timonius sp. 1				1		
621. Timonius sp. 2			/			
622. Timonius sp. 3				1	1	
623. Timonius sp. 4					7 / 7	1
624. Timonius sp. 5						/
625. <u>Urophyllum sp.</u>	\$23 p. 1 p. 10 p.			1		
626. Wendlandia nervosa Merr,	Magbayabas			1	1	1
627. Wendlandia sp. 1				1		1
628. Wikstroemia indica				100		1
LXXXVII. RUTACEAE		Po. 1			V.	
629. Acronychia sp. 1		17			1	
630. Citrus mitis Blco.		1	1			
631. Machlorodendron sp. 1		7	/	1		
632. Melicope blancoi T. Cr. Hartley		3	1	- 4		
633. Melicope triphylla (Lam.) Merr.			1	- 1		
634. Severinia sp. 1 635. Tetrachtomia sp. 1			,	ν.	1	1
636. Tetractomia tetrandrum (Roxb.) Merr.				1	1	5
637. Tetrachtomia triilex Merr.					1	1
638. Zanthoxylum myriacanthum Wall.			1	1	,	,
639. Zanthoxylum diabolicum Elm.			7	I	7.	T

	641. Zanthoxylum sp. 2 642. Zanthoxylum sp. 3	Badbad	1 8 1	1	1	1	1
LXXXVII	643. Dictyoneura acuminate Bl. I.SABACEAE	12.00	1				
LXXXIX.	644. Meliosma sp. SANTALACEAE		4	000			T.
XC.	645. Exocarpus latifolia R. Br. SAPINDACEAE		1	1	/		
	646. Guioa koelreuteria (Blco.) Merr. 647. Guioa sp. 1		1	1	1	/	1
	648. Guioa truncate Radlk.			1	1		
	649. Nephelium ramboutan-ake 650. Unidentified sp. 1			1	1		1
	651. Unidentified sp. 2			1	7	9	
XCI.	652. Pometia pinnata J. R. & G. Forst SAPOTACEAE				,		
	653. Chrysophyllum cainito L. 654. Madhuca betis	Betis	1	ν.			
	655. Planchonella firma Miq.	Detis		1		1	1
	656. Planchonella obovata (R. Br.) Pierre 657. Planchonella sp. 1		/			1	1
	658. Planchonella sp. 2					i	1
	659. Planchonella sp. 3 660. Planchonella sp. 4		*		9 1	7	1
	661. Palaquium cuneifolium Merr.			1	1		
	662, Palaquium philippinense (Perr.) C.B Rob. 663, Palaquium sp. 1			1	1		1
XCII.	SAXIFRAĞACEAE			v			
	664. Dichroa platyphylla Merr. 665. Polyosma sp. 1			/	1		
XCIII.	SCROPLURIACEAE 666. Lindenbergia labiata Merr.				,	1	1
XCIV.	SIMAROUBACEAE						7.6
XCV.	667. Brucea javanica (L.) Merr. SMILACACEAE		/	to be and			
,1816)	668. Smilax bracteata var. heterophylla Presl.	Banag		1	1		
	669. Smilax sp. 1 670. Smilax sp. 2	Banag Banag		1	1		1
	671. Smilax sp. 3 672. Smilax sp. 4	Ronna		1	1		1
	673. Smilax sp. 5	Banag Banag		1	Ź		
XCVI.	674. Smilax leucophylla Bl. SONNERATIACEAE	Banag	1	- F			
XCVII.	675. Duabanga moluccana Bl. STAPHYLIACEAE	Luktob	7				
	676. Turpinia sp.	Badbad			1		
XCVIII.	STERCULIACEAE 677. Commersonia bartramia (L.) Merr.	Suyapao	1	7			
	678. Sterculia ceramic R. Br.]	llo-ilo (Mandaya)	1	1			
14.77	679. Theobroma cacao L.	(wandaya)	1				
XCIX.	SYMPLOCOCACEAE 680. Symplocos pendula var. hirtistylis (Clarke) Noot	Sagimsim		l. Au			1
	681. Symplocos polyandra (Blco.) Brand 682. Symplocos sp. 1	Sagimsim Sagimsim		1	1	1	1
C.	683. Symplocos sp. 2 THEACEAE			1 32 1		/	
	684. Adinandra apoensis Elm.					65	1
	685. Adinandra elliptica C. B. Rob. 686. Cleyera japonica Thunb. Sieb. Zucc. var. Montana (Merr.) Kob.			1	1	Α.	
	687. Eurya coriacea Merr					1	1
	688. Eurya nitida Thunb. 689. Eurya sp. 1	Bagabaga		1940	,	1	1
	690. Gordonia sp. 1	Bait	1	1	1	1	1
	691. Gordonia sp. 2 692. Gordonia sp. 3		1	1		1	1
	693. Gordonia sp. 4 694. Gordonia sp. 5				7	1	1

	695. Gordonia subclavata Burk.	I I		4	4	1	1
	696. Ternstroemia gymnanthera (W. & A.) Sprague 697. Ternstroemia sp. 1			4			
	698, Ternstroemia sp. 2			1		9-1	
	699. Ternstroemia toquian (Blco.) FVill.			100		1	1
CI.	THYMELAEACEAE	1.000					
	700. Aquilaria cumingiana (Decne.) Ridl.	Anilao	1	£			10
	701. Colona serratifolia Cav.					-	1
	702. Wikstroemia indica (L.) C.A. Mey 703. Wikstroemia tenuiramis Elm					4	1
	704. Wikstroemia sp. 1					1	1
CII.	URTICACEAE						
J	705. Leucosyke augusta Unr.		1	1	7		
	706. Leucosyke capitellata (Poir.) Wedd.		1	1			
	707. Leucosyke magallanensis Elm.		1				
	708. Villebrunea rubescens Bl.	2.07	1		1		
	709. Elatostema sp.*	(herb)			1		
CIII.	VERBENACEAE		-				
	710. Clerodendrum intermedium Cham.		1				
	711. Clerodendrum minahassae Teysm. & Binn.		1		,	1	
	712. Clerodendrum villosum Bl. 713. Premma odorata Blco.		,				
	714. Teijsmanniodendron ahernianum (Merr.) Bakh			7	1	7.	1
	715. Teijsmanniodendron sp.	Malapagi		1.6	1	1	7
	716. Vitex glabrata R. Br.	maispag.	1	1		2 1	
CIV.	VITACEAE		- 0	1 200			
	717. Tetrastigma sp. 1			f			
	718. Tetrastigma sp. 2			1	1		
	719. Tetrastigma sp. 3			1	1		
CV.	WINTERACEAE			5 1	4	· · ·	1
CVII	720. Drimys piperita Hook f.					3	1
CVI	ZINGIBERCEAE 721. Adelmeria sp. 1			4			- 21
	722. Adelmeria sp. 1			T		7	
	723. Unidentified sp. 1			(2)	1	1	1
CVII.	ARAUCARIACEAE						
	724. Agathis philippinensis Warb.						
CVIII.	CYCADACEAE	Almaciga		1	1	1	1
	725. Cycas circinalis L.	Line in	-0-	1.00		1 200	
	726. Cycas rumphii Miq.	Pitogo	1				
OIV	727. Cycas sp. 1	Pitogo	1				
CIX.	GNETACEAE 728. Gnetum gnemon L.	Pitogo	4				
	729. Gnetum latifolium Bl. Var. latifolium	Bago		1	1		
	730. Gnetum sp. 1	Bago			,		P
	Too. Shotam op. 1	Bago					1
CX.	PODOCARPACEAE			1000			20
	731. Dacrycarpus cumingii (Parl.) de Laubenf.	Cedar		1	1	1	1
	732. Dacrycarpus imbricatus (Bl.) de Laubenf.	Cedar		- Maria	1	1	1000
	733. Dacrycarpus sp. 1	Cedar		3"	1		-/
	734. Dacrycarpus sp. 2	Ikog sa Iring		/	1	1	1
	735. Dacrydium elatum (Roxb.) Wall.	Red Cedar		70	1	,	/
	736. <u>Dacrydium beccarii</u> 737. Dacrydium sp. 1	Cedar		P.	4	-7	
	737. Dacrydium sp. 1 738. Dacrydium sp. 2			4	,		
	739. Falcatifolium gruezoi de Laubenf.	Chinese Cedar		1	7	7	
	740. Falcatifolium sp. 1	Omnooc ocaan		1	1	1	1
	741, Podocarpus cumingii Parl.			1			1
	742. Podocarpus macrocarpus de Laubenf.			1			
	743. Podocarpus neriifolius D. Don ex Lamb.	Malaadelfa		1	1		
	744. Podocarpus rumphii Bl.			1	1		
	745. Podocarpus sp. 1			1	1		v
	746. Podocarpus sp. 2				1		1
	747. Podocarpus sp. 3 748. Podocarpus sp. 4				1		4
	749. Podocarpus sp. 4						7
	750. Phyllocladus hyphophyllus						. (
CXI.	ADIANTACEAE						
	751. Adiantum of stenochlamis						
	752. Adiantum scabrifes			III			17

	753. Antrophyum latifolium Bl.	- m n			1	1
	754. Antrophyum minuta Bl.	7	1.50	-17		1
	755. Antrophyum sp. 1	1	1	1		
	756. Vittaria ensiformis Sw		7	4	1	
	757. Vittaria sp. 2		1	1		
CXII.	758. Vittaria sp. 3 ASPIDIACEAE			ν.	- Y	1
CAII.	759. Cyclopeltis cumingiana Presl.			,		/
	760. Hermigramma taccifolia (Fee) Copel.	1	1	1		
	761. Pleocnemia irregularis (Presl.) Holtt.	1 7	1	1		
	762. Pleocnemia macrodonta (Fee) Holtt.	1	1			
	763. Pleocnemia presliana Holttum	7	1			
	764. Pleocnemia sp. 1	1	1			
	765. Pleocnemia sp. 2		1	1		
	766. Tectaria crenata Cav.		1 44	1		0.4
	767. Tectaria griffithii (Baker) Christen	I.	1	1		1
x Fun	768. Tectaria sp. 1		1	1		1
CXIII	ASPLENIACEAE		1			/
	769. Asplenium decorum Kuntze				- 70	
	770. Asplenium nidus L.		1	/	1	
	771. Asplenium tenerum Forst.	1		7		
	772. Asplenium sp. 1			1	7	
CXIV.	773. Asplenium sp. 2 BLECHNACEAE			1	A.	Y.
UNIV.	774. Blechnum capense (L.) Sch.					1
	775. Blechnum egregium Copel.			1	γ.	1
	776. Blechnum patersonii (R. Br.) Mett.					
	777. Blechnum vestitum					1
CXV.	CYATHEACEAE			1		
20321	778. Culcita sp. 1			30		100
	779. Cyathea contaminans Copel.			1	1	1
	780. Cyathea philippinensis Baker		1	1	1	1.00
	781. Cyathea sp. 1		1.0	1	1	
	782. Cyathea sp. 2					1
1.00	783. Cyathea sp. 3				1	1
CXVI.	DAVALLIACEAE				1	
	784. Davallodes hirsutum (J.Sm.) Copel.				90	
	785. Davallodes sp. 1				1	V
	786, Davallia angustata Hook, & Grev,	7			1	/
	787. Davallia aquilinum Sm. 788. Davallia heterophylla Sm.	1 5		,	1	
	789. Davallia solida (Forst.) Sw.	1 4		1		
	790. Humata heterophylla (J. Sm.) Desv.		1	1		1
	791. Humata repens Linn.	7	1	1		
CXVII	DENNSTAEDTIACEAE	1 3	1	1		
	792. Orthiopteris campylura (Kunze) Copel	100				
	793. Pteridium aquilinum (L.) Kuhn		1	1		T
CXVIII	DICKSONIACEAE	Ĭ.	1	1		100
	794. Dicksonia javanica Holt.		1000			
			1	1		
=====			- 60			
CXIX.	DIPTERIDACEAE					
OVV	795. Dipteris conjugata Reinw,				1	1
CXX.	GESNERIACEAE					X
CVVI	796. Trichosporum sp.					/
CXXI.	GLEICHENIACEAE 797. Dicranopteris linearis (Burm.) Underw.		1	,	1	7
	797. Dicranopteris linearis (Burm.) Underw. 798. Dicranopteris hirla Blume.	A.	1	1	1	/
	799. Dicranopteris sp. 1		1			
	800. Dicranopteris sp. 2		ſ	1		
	801. Gleichenia hirta Bl.		1	1	1	1
	802. Gleichenia Ioheri (Christ.) Copel.		j	1	1	1
	803. Gleichenia longissima Blume.		100	1	1	- 10
	804. Gleichenia truncata (Willd.) Spreng.			1		1
	805. Gleichenia vulcanica Bl.			1		1
CXXII	GRAMMITIDACEAE				0	10.0
	806. Ctenopteris blechnoides (Grev.) Wagner			1	1	1
	807. Ctenopteris sp.					1
	808. Grammitis dolichosora (Copel.) Copel				1	1
	809. Grammitis Ioheriana (Christ) Copel.			1		1

	810. Grammitis reinwardtii Blume	100	0	1	1	Y .
	811. Prosaptia contigua (Forst.) Presl.			1	1	
	812. Prosaptia pinnatifida Blume.			1	1	100
Same.	813. Scleroglossum minus (Fee) Christen.			1	1	I
CXXIII.	HYMENOPHYLLACEAE					
	814. Cephalomanes atrovirens C. Presl.			/	1	(
	815. Cephalomanes sp. 1			1	60	1
	816. Cephalomanes sp. 2			4	1	1
	817. Hymenophyllum proliferum Holttum			1	/	1
	818. Hymenophyllum sp. 1			,	4	
	819. Hymenophyllum sp. 2 820. Hymenophyllum sp. 3			/	,	
	821. Hymenophyllum sp. 4				1	
	822. Hymenophyllum sp. 5			1	1	
	823. Hymenophyllum sp. 6				V. 1	
	824. Macroglena setacea v.d. Bosch.		1.00	100	7	1
	825. Pochella sp. 1		1	7	120	
	826. Trichomanes digitatum Sw.		171	1	1	
	827. Trichomanes pallidum Linn.			1	1	4
	828. Trichomanes bipunctatum		1	1	1	1
CXXIV.	LINDSAEACEAE				7.6	
	829. Lindsaea adiantoides J. Sm.		1	1	4.4	1
	830. Lindsaea doryphora Kramer		1	1	7	1
	831. Lindsaea gueriniana (Gaud.) Desv.		1		1	1
	832. Lindsaea philippinensis Kramer		7 7 7 1	1		1
	833. Lindsaea scandens Hook.			1		1.
	834, Lindsaea sp. 1			1	- V	0.0
	835. Lindsaea sp. 2			4	1	
	836. Lindsaea sp. 3		1	4	- 5	
	837. Sphenomeris chusana (L.) Copel.	7	1	,	Α.	y
	838. Sphenomeris retusa (Cav.) Maxon 839. Tapeinidium gracile (Bl.) v.A.v.R.	1	1	4	7	5
	840. Tapeinidium biserratum (Blume) Alderw.		1	1	1	/
	841, Tapeinidium sp. 1		1	1		
	842. Teratophyllum sp. 1	1	1	,		
CXXV.	LOMARIOPSIDACEAE		1			
219111	843. Elaphoglossum callifolium (Bl.) Moore	1				1
CXXVI	LOXOGRAMMACEAE		1.00			
	844. Loxogramme avenia	7	1			T
	845. Loxogramme sp.					7
CXXVII.	MARATTIACEAE					
	846. Marattia sylvatica Bl.				1	F
CXXVIII.	OLEANDRACEAE			4.0		
	847. Oleandra nitida (Copel.) Copel.			1		
CXXIX.	OPHIOGLOSSACEAE		4	100		
own:	848. Ophioglossom pendulum L.		1	1		
CXXX.	OSMUNDACEAE		X	7		
CVVVI	849. Osmunda banksiifolia (Presl) Kuhn.		/	1		
CXXXI.	PLAGIOGYRIACEAE		1 , 90	7	9	7
CVVVII	850. Plagiogyria pycnophylla (Kunze) Mett. LYCOPODIACEAE			1	L	/
CXXXII.						
	851. Lycopodiella cernua var. Ingens Tan & Tolentino			7	4	
	852. Lycopodium magnusianum Hert.					
	853. Lycopodium sp. 1			1		
CXXXIII	PSILOTACEAE			1		
- same	854, Psilotum nudum (L.) Beauv.					
	855. Psilotum complanatum Sw		1.	1	7	1:
CXXXIV.	SELAGINELLACEAE			1		1
arms to	856. Selaginella biformis A. Braun					100
	857. Selaginella ciliaris (Retz.) Spring		1	1		5
	858. Selaginella cumingiana Spreng.		1	1	1	1
	859. Selaginella involvens (Sw.) Spreng		1	1		
	860. Selaginella llanosii Beauv.	1	1			
	861. Selaginella repanda Beauv.		1	1		
	862. Selaginella sp. 1		1	100		
	863. Selaginella usterii Hieron		1	1		
	Assert Colonia Colonia Colonia	1	1			

Legend:

AE – Agro-ecosystem
DF – Dipterocarp forest
MF – Montane forest
MoF – Mossy forest
Mo-PF – Mossy-Pygmy forest

Mosses of Mt. Hamiguitan, Davao Oriental. January 2009. (Tabora)

Genus/Scientific Name	Station 1 250-273 masl	Station 2 575-785 masl	800- 1200masl	Station 4 1128-1435 masl
Calymperes dozyanum	CL #0	95	+	+
Campylopus sp.		-	2	+
Ectropothecium dealbatum	4	+	4	+
Fissidens splanchnobryoides	1.4	+	-	120
Fissidens xiphioides	l o ≟ o	+	c ⊆ -o	0+0
Floribundaria floribunda		-	9.1	+
Leucophanes candidum	- 80	3	-	+
Neckeropsis lepineana	1.2	14	-	+
Plagiomnium sp.	To ÷	+	o ⊆ -1	e.
Octoblepharum sp	1.00	-	-	+
Orthorrhynchium sp. 1	4.	-	2	+
Orthorrhynchium sp. 2	1	×4.	4	+
Orthorrhynchium sp. 3	Tro-An	+	-	r é n
Syrrhopodon flammeonervis	10.0	45.0	+	(2)
Syrrhopodon sp	40	+	~	(#)
Vesicularia reticulata	9.5	+	+	+
Vesicularia sp.	+	-	-	
Total	1	7	3	10

Legend: * - endemic; + = presence; - = absence

Liverworts in Mt. Hamiguitan, Davao Oriental. January 2009. (Tabora)

scientific name	Station 1 250-273 masl	Station 2 575-785 masl	Station 3 800-1200masl	Station 4 1128-1435 masl
Lophocolea muricata	- 14	+	,12	+
Lophocolea sp.		-	(8)	+
Caudalejeunea recurvistipula	ž.		2	+
Jungermannia	+		49	0.00
hasskarliana				
Trichocolea tomentella	-2	2.		+
Trichocolea tonkinensis	(4)	ri é en	1/2-	+
Pleurozia gigantean	4	+	-	· .
Plagiochila sp.	-	+	(2-	1000
Riccardia sp.		+	+	T(3)
Riccardia billardierri		7.57	1/21	+
Reboulia hemisphaerica	-		+	-
Riccia fluitans	12	-	+	1
Cyathodium foetidissimum		- 0 € -1	1.5	+
Total	1	4	3	7

Legend: + = presence; - = absence

Lichens of MHRWS (Tabora)

Genus	Phycobiont	Mycobiont
Cladonia	Trebouxia	Aspergillus, Penicillium
Cococarpia	Nostoc	Aspergillus, Penicillium
Graphis	Trebouxia	Aspergillus, Penicillium
Lecanora	Trebouxia	Aspergillus, Penicillium
Lobaria	Nostoc	Aspergillus, Penicillium
Megalosphora	Trebouxia	Aspergillus, Penicillium
Parmotrema	Trebouxia	Aspergillus, Penicillium
Physcia	Nostoc	Aspergillus, Penicillium
Physma	Nostoc, Trebouxia	Aspergillus, Penicillium
Rinodina	Trebouxia	Aspergillus, Penicillium
Seganidiopsis	Trebouxia	Aspergillus, Penicillium

Fungi of MHRWS

Famil	У	Genus	Species
		Cerrena	
		Coriolopsis	
		Crepidotus	
		Daedalea	
		Fomes	
		Fomitopsis	
		Ganoderma	
		Laricifomes	
		Microporus	
		Osteias	
		Phellinus	
		Podofomes	
		Polyporus	
		Polystictus	
		Poria	
		Pyrroderma	
		Rigidoporous	
		Schizophyllum	
		Scinidium	
		Stereum	
		Trametes	
OSPERMS IOSPERMS S	723 27 151		
	101		

ANGIOSPERMS 723
GYMNOSPERMS 27
FERNS 151
FERN ALLIES 13
MOSSES 17
LIVERWORTS 13
LICHENS 13
957

Appendix 3. List and Distribution of MHRWS Fauna. Vertebrate Fauna (2007 et al, PEF 2007)

ORDER	FAMILY	SCIENTIFIC	COMMON NAME	LOCAL NAME	CONSERVATION STATUS	VE	TYPE	
		NAME	COMMON NAME	EOGAL NAME	AND DISTRIBUTION	DF	MF	Mo PF
NON-VOLANT N	MAMMALS		Fig. 1					
Artiodactyla	Suidae	Sus philippensis	Philippine Warty Pig	Baboy ihalas	Philippine Endemic Vulnerable	X	1	1
Artiodactyla	Cervidae	Cervus mariannus	Philippine Brown Deer	Binaw	Philippine Endemic Threatened	1		
Carnivora	Viverridae	Paradoxurus hermaphroditus	Asian Palm Civet	Milo	Southeast Asia Vulnerable	1	1	1
Primates	Tarsiidae	Tarsius syrichta	Philippine Tarsier	Mago	Philippine Endemic Endangered	1		
Primates	Cercopithecidae	Macaca fascicularis	Long-tailed Macaque	Unggoy	Southeast Asia Common	1		
Rodentia	Muridae	Bullimus bagobus	Large Mindanao Forest Rat	Baboy-baboy	Mindanao Endemic Common	1	¥	1
Rodentia	Muridae	Rattus everetti	Philippine Forest Rat	Baboy-baboy	Philippine Endemic Common	1		
Rodentia	Muridae	Rattus exulans	Polynesian rat, small spiny rice- field rat	Baboy-baboy	Widespread; nonendemic	1		
Rodentia	Muridae	Apomys littoralis	Mindanao Forest Mouse	llaga	Mindanao Endemic Uncertain	1		
Rodentia	Muridae	Batomys hamiguitan	Hamiguitan hairy- tailed rat	llaga	Site endemic		1	
Rodentia	Sciuridae	Exilisciurus concinnus	Philippine pygmy squirrel		Mindanao endemic, Common	1	1	
Rodentia	Sciuridae	Sundasciurus philippinensis	Philippine tree squirrel		Philippine Endemic	¥	X	
Rodentia	Erinaceidae	Podogymnura sp.	Mt. Hamiguitan gymnure	llaga	Unknown	1	1	
Soricomorpha	Soricidae	Crocidura beatus	Common mindanao shrew	llaga	Mindanao endemic, Stable	1	1	1
Dermoptera	Cynocephalidae	Cynocephalus volans	Philippine flying lemur	Kagwang	Philippine endemic	1	1	
Sub-total		15				8	3	3
VOLANT MAMM		1 Bios de la company	I a constant to the second	1 92	I AND COLOR OF COLOR	1		
Chiroptera	Pteropodidae	Ptenochirus minor	Lesser Musky Fruit Bat	Kwaknit	Mindanao Endemic Least concern	1		
Chiroptera	Pteropodidae	Ptenochirus jagori	Musky Fruit Bat	Kwaknit	Philippine Endemic Least concern	1		
Chiroptera	Pteropodidae	Macroglossus minimus	Lesser Long- tongued Fruit Bat	Kwaknit	Thailand, Australia and Philippines Widespread	1		'
Chiroptera	Pteropodidae	Haplonycteris	Philippine Pygmy	Kwaknit	Philippine Endemic	1	1	1

		fischeri	Fruit Bat		Vulnerable	71		7.7
Chiroptera	Pteropodidae	Harpyionycteris whiteheadi	Harpy fruit bat	Kwaknit	Philippine endemic		1	
Chiroptera	Vespertilionidae	Kerivoula cf hardwickii	Common woolly bat	Kwakni	Widespread; nonendmic	1	1.	1
Chiroptera	Vespertilionidae	Murina cf cyclotis	Round-eared tube- nosed bat		Widespread; nonendemic	1	1	
Chiroptera	Vespertilionidae	Pipistrellus cf tenuis	Least pipistrelle		Widespread; nonendemic	X	£	
Chiroptera	Rhinolophidae	Rhinolophus cf virgo	Yellow-faced horseshoe bat	Resident	Philippine endemic	1	4	
Chiroptera	Pteropodidae	Cynopteros brachyotis	Common Short- nosed Fruit Bat	Kwaknit	Southeast Asia: Philippines Widespread	X	1	,
Chiroptera	Pteropodidae	Acerodon jubatus	Golden-crowned Flying Fox	Kabog	Philippine Endemic Endangered	Ţ		
Sub-total		11				6	2	3
AVI-FAUNA								
Accipitriformes	Accipitridae	Accipiter soloensis	Chinese goshawk		Migrant, Least concern	1		
Accipitriformes	Accipitridae	Accipiter trivirgatus	Crested goshawk		Resident,	A	1	
Coraciiformes	Bucerotidae	Aceros leucocephalus	Writhed hornbill		Mindanao Endemic Near Threatened	1	1	
Coraciiformes	Alcedinidae	Actenoides hombroni	Blue-capped wood- kingfisher	Tingkarol	Mindanao endemic Vulnerable		1.	1
Coraciiformes	Alcedinidae	Alcedo argentata	Silvery kingfisher	Tingkarol	Philippine endemic Vulnerable	1		
Coraciiformes	Alcedinidae	Halcyon smymensis	White-throated Kingfisher	Tingkarol	Resident, Least concern	X	1	
Coraciiformes	Alcedinidae	Halcyon winchelli	Rufous lored kingfisher	Tingkarol	Philippine endemic Vulnerable	U	1	
Passeriformes	Artamidae	Artamus leucorynchus	White-breasted woodswallow		Resident	¥		
Accipitriformes	Accipitridae	Aviceda jerdoni	Jerdons' baza		Resident, Least concern	7	1	
Caprimulgiforme s	Podargidae	Batrachostomus septimus	Philippine frogmouth		Philippine endemic Least concern	¥	1	1
Passeriformes	Muscicapidae	Brachypteryx montana	White-browed shortwing		Resident, Least concern		1.	
Passeriformes	Megaluridae	Bradypterus caudatus	Long-tailed ground warbler		Philippine endemic Least concern		1	
Psittaciformes	Cacatuidae	Cacatua haematuropygia	Philippine cockatoo		Philippine endemic Critically Endangered	i	1	

Cuculiformes	Cuculidae	<u>Cacomantis</u> <u>merulinus</u>	Plaintive cuckoo		Resident, Least concern	1		
Cuculiformes	Cuculidae	<u>Cacomantis</u> <u>variolosus</u>	Brush cuckoo	Kokok	Resident, Least concern			1
Cuculiformes	Cuculidae	Ceyx melanurus	Philippine dwarf- kingfisher	Tikarol	Philippine endemic Vulnerable	1		
Piciformes	<u>Picidae</u>	<u>Chrysocolaptes</u> <u>lucidus</u>	Greater Flameback		Resident, Least concern	1	1	Ţ
Apodiformes	Apodidae	Collocalia esculenta	Glossy Swiftlet		Resident, Least concern	1	1	ý
Apodiformes	<u>Apodidae</u>	Collocalia mearnsi	Philippine swiftlet		Resident, Least concern		1	1
Apodiformes	Apodidae	Collocalia troglodytes	Pygmy swiftlet		Philippine endemic Least concern	1		
Passeriformes	Campephagidae	Coracina mindanensis	Black-bibbed cuckoo-shrike		Philippine endemic Vulnerable	I	1	
Passeriformes	Campephagidae	Coracina striata	Barbellied cuckoo shrike		Resident, Least concern	1	1	1
Ciconiiformes	Ardeidae	Gorsachius goisagi	Japanese night heron		Migrant/Resident Endangered	7	1	
Passeriformes	Monarchidae	Hypothymis azurea	Black-naped Monarch		Resident Least concern	1	1	
Passeriformes	Pycnonotidae	Ixos everetti	Yellowish Bulbul		Mindanao Endemic Least concern	1		
Passeriformes	Pycnonotidae	Ixos philippinus	Philippine Bulbul		Philippine endemic Least concern	1	1	r
Passeriformes	Laniidae	Lanius cristatus	Brown shrike		Migrant Least concern	I	1	Ü
Psittaciformes	Psittacidae	Loriculus philippensis	Colasisi	Kulasisi	Philippine endemic Least concern	1	J	Ē
Passeriformes	Megaluridae	Megalurus timoriensis	Tawny grassbird		Resident Least concern	X	1	1
Falconiformes	Accipitridae	Haliastur indus	Brahminy Kite	Banog	Resident Least concern	1	1	1
Columbiformes	Columbidae	Phapitreron	White-eared Brown	Alimokon	Common	1	1	
Columbiformes	Columbidae	leucotis Phapitreron	Dove Amethyst Brown Dove	Moro	Philippine Endemic Common	1	1	ý
Columbiformes	Columbidae	amethystina Chalcophaps	Common Emerald	Manatad	Philippine Endemic Common locally	1	1	1
Columbiformes	Columbidae	indica	Dove Reddish-Cuckoo	Manokon	Resident Least Common	7	1	1
Columbironnes	Columbidae	Macropygia phasianella	Dove	Wandkon	Resident	1	1	,
Columbiformes	Columbidae	Phapitreron cinereiceps	Dark-eared Brown	Moro	Common Mindanao Endemic	1		

Columbiformes	Columbidae	Ptilinopus	Yellow-breasted	1	Endangered	1	1	1
Columbiformes	Columbidae	occipitalis Ptilinopus	Fruit-Dove Black-chinned fruit-	Punay	Philippine Endemic Philippine endemic		Ĺ	
Columbiformes	Columbidae	<u>leclancheri</u> Streptopelia	dove Island Collared-	Tokmo	Least concern Common			1
Psittaciformes	Psittacidae	bitorquata Loriculus philippensis	Dove Colasisi	Kosi-Kolansi	Resident Uncommon Philippine Endemic	Ī		1
					Least concern			
Cuculiformes	Cuculidae	Centropus sinensis	Greater Coucal	Kokok	Resident Least concern	-1	1	
Cuculiformes	Cuculidae	Centropus melanops	Black-faced Coucal	Ubon-ubon	Mindanao Endemic Least concern	f		
Cuculiformes	Cuculidae	Centropus viridis	Philippine Coucal	Kokok	Philippine Endemic	1		
Apodiformes	Apodidae	Collocalia	Pygmy Swiftlet	Sayaw/Siyaw/	Least concern Philippine Endemic	1		ŀ
Trogoniformes	Trogonidae	troglodytes Harpactes ardens	Philippine Trogon	Balinsayaw Bakaka	Least concern Philippine Endemic	1	1	1
Piciformes	Picidae	Dendrocopus	Philippine Pygmy	Batok	Common Philippine Endemic	1	,	1
Piciformes	Picidae	maculatus Dryocopus	Woodpecker White-bellied	Batok	Common Resident	1		
	100000	javensis	Woodpecker		Least concern			
Piciformes	Capitonidae	Megalaima haemacephala	Coppersmith Barbet	Pok-pok	Resident Common	1		
Passeriformes	Pynonotidae	Hypsipetes	Philippine Bulbul	Tagmaya/	Philippine Endemic	1	Ĵ	1
Passeriformes	Pynonotidae	philippinus Pycnonotus	Yellow-vented	tagbay Pirok-pirok	Common Resident	1	Î	1
Passeriformes	Pynonotidae	goiavier Pycnonotus	Bulbul Yellow-wattled	Baliwing	Common Philippine Endemic	1	1	j
Passeriformes	Muscicapidae	urostictus Rhipidura javanica	Bulbul Pied Fantail	Balangkiyod	Common Resident-	1		
Passeriformes	Muscicapidae	Rhipidura	Black and	Balangkiyod	Least concern Mindanao Endemic	1		
Passeriformes	Muscicapidae	nigrocinnamomea Culicicapa	Cinnamon Fantail Citrine Canary	Kariing	Least concern Resident	7	Ī	i
Passeriformes	Muscicapidae	helianthea Rhipidura	Flycatcher Blue Fantail	Siloy	Least concern Mindanao Endemic	1		1
		superciliaris	40,000,000	Gilloy	Common Mindanao Endemic			l î
Passeriformes	Muscicapidae	Ficedula crypta	Cryptic Flycatcher		Least concern	L.		
Passeriformes	Muscicapidae	Ficedula basilanica	Little-Slaty Flycatcher		Mindanao Endemic		1	
		A . A.C.			Vulnerable		1,00	11.5
Passeriformes	Muscicapidae	Ficedula hyperythra	Snowy-browed Flycatcher		Resident Least concern		1	1
Passeriformes	Muscicapidae	Ficedula westermanni	Little Pied Flycatcher		Resident Least concern		7	
Columbiformes	Columbidae	Gallicolumba	Mindanao bleeding	Punay	Mindanao Endemic	1		
		criniger	heart		Endangered			
Galliformes	Phasianidae	Gallus gallus	Red Jungle Fowl	Manok ihalas	Resident Least concern	1	1	ŀ
Accipitriformes	Accipitridae	Pernis ptilorhyncus	Oriental honey- buzzard		Resident/Migrant Least concern	1	1	
Passeriformes	Sylviidae	Phylloscopos	Philippine leaf-		Philippine	1		

		olivaceus	warbler		Endemic			
Accipitriformes	Accipitridae	Pithecophaga jefferyi	Philippine eagle	Agila	Least concern Philippine Endemic Critically	Ŀ	i	t
Passeriformes	Pittidae	Pitta sordida	Hooded pitta		Resident, Least concern	1		
<u>Passeriformes</u>	Pittidae	Pitta steerii	Steere's pitta		Mindanao endemic Vulnerable	1		
Passeriformes	Muscicapidae	Terpsiphone cinnamomea	Rufous paradise- Flycatcher	none	Philippine Endemic	7		
Passeriformes	Artamidae	Artamus leucorynchus	White-breasted Wood Swallow	Git-git	Common Resident Least concern	1		
Passeriformes	Nectariniidae	Aethopyga linaraborae	Lina's sunbird	Tamsi	Mindanao endemic Near-threatened		1	ŀ
Passeriformes	Nectariniidae	Aethopyga primigenius	Grey-hooded Sunbird	Tamsi	Mindanao Endemic Near Threatened	£	T	ti
Passeriformes	Nectariniidae	Aethopyga pulcherrima	Metallic-winged sunbird	Tamsi	Philippine endemic Least concern	7	1	
Passeriformes	Nectariniidae	Arachnothera clarae	Naked-faced Spiderhunter	Tamsi	Philippine Endemic Least concern	1		
Passeriformes	Nectariniidae	Aethopyga shelleyi	Lovely Sunbird	Tamsi	Philippine Endemic Least concern	£		
Passeriformes	Nectariniidae	Nectarinia Jugularis	Olive-backed Sunbird	Tamsi	Resident Common	1.		
Passeriformes	Zosteropidae	Zosterops everetti	Everetts' White-eye		Resident Least concern	1	1	
Passeriformes	Zosteropidae	Zosterops montanus	Mountain White- eye	Pipit	Resident Least concern	.1	7	1
Passeriformes	Campephagidae	Pericrocotus flammeus	Scarlet Minivet	Tamsi	Resident Common	1		
Passeriformes	Sylviidae	Cysticola exilis	Bright-capped Cisticola	Pirot	Resident Common	1	1	1.
Passeriformes	Sittidae	Sitta frontalis	Velvet-fronted Nuthatch	Saksak	Resident Least concern	1		
Passeriformes	Dicaeidae	Dicaeum australe	Red-keeled Flowerpecker	Tamsi	Philippine Endemic Least concern	1		
Passeriformes	Dicaeidae	Dicaeum bicolor	Bicolored Flowerpecker	Tamsi	Philippine Endemic Least concern	1		
Passeriformes	Dicaeidae	Dicaeum hypoleucum	Buzzing Flowerpecker	Tamsi	Philippine Endemic Least concern	Ī		1
Passeriformes	Dicaeidae	<u>Dicaeum</u> <u>pygmaeum</u>	Pygmy Flowerpecker	Tamsi	Philippine Endemic Least concern	1		
Passeriformes	Dicaeidae	Dicaeum trigonostigma	Orange-bellied Flowerpecker	Tamsi	Resident Least concern	.1	ı	1-

Passeriformes	Muscicapidae	Eumyias panayensis	Mountain-verditer Flycatcher		Resident Least concern		1	1
Strigiformes	Strigidae	Otus megalotis			Philippine endemic Least concern	1		
Passeriformes	Paridae	Parus elegans	4		Philippine endemic	1	1	ŀ
Passeriformes	Rhabdornithidae	Rhabdomis mystacalis			Least concern Philippine endemic Least concern	1	t	
Passeriformes	Sittidae	Sitta frontalis			Resident Least concern		Î	
Accipitriformes	Accipitridae	Spilomis cheela			Resident Least concern	Ĩ	ĵ	
Accipitriformes	Accipitridae	Spizaetus philippensis			Philippine endemic Vulnerable	1	7	
			Philippine scopsowl Elegant tit Stripe-headed rhabdornis	Kwago				
			Velvet-fronted nuthatch Crested serpent- eagle	Agila				
			Philippine hawk- eagle	Agila				
Passeriformes	Pachycephalidae	Pachycephala philippinensis	Yellow-bellied Whister	Tagkolirit/ Tagkuririt	Philippine Endemic Common	.1		1
Passeriformes	Corvidae	Corvus enca	Slender-billed crow	Uwak	Resident, Least concern	1		
Passeriformes	Corvidae	Corvus macrorhynchus	Large-billed Crow	Uwak	Resident	1	1	
Passeriformes	Timaliidae	Marcronous	Brown tit Babbler	Gaas	Mindanao Endemic	1	1	1
asseriformes	Timallidae	striaticeps Ptilocichla mindanensis	Streaked ground- babbler	none	Common Mindanao Endemic Uncommon		Ì	
,		GAGGGGAG, ICCICIO						
Passeriformes	Estrildidae	Lonchura malacca	Chestnut Munia	Mayang bungol	Resident Common	1		

Passeriformes	Sturnidae	Aplonis minor	Short-tailed Glossy	Kalinsawis	Endemic Least concern Resident	j		
Coraciformes	Bucerotidae	Buceros	Starling Rufous Hornbill	Kalaw	Common Philippine Endemic	1	1	,
Coraciformes	Bucerotidae	hydrocorax Penelopides panini	Tarictic Hornbill	Talusi	Common Philippine Endemic Endangered	1	1	
Caprimulgiforme s	Caprimulgidae	Caprimulgus	Philippine Nightjar	Toktor	Resident			1
Passeriformes	Muscicapidae	Rhinomyias ruficauda	Rufous-tailed Jungle Flycatcher	none	Mindanao Endemic Uncommon	£		
		Orthotomus cuculatus	Mountain Tailorbird	Tamsi	Common Resident	1		
Passeriformes	Sylviidae	Orthotomus nigriceps Orthotomus	Black-headed Tailorbird White-eared	Tamsi	Mindanao Endemic Uncommon Mindanao endemic	1		P
Passeriformes	Turdidaė	cinereiceps	tailorbird	none	Least concern Migrant-			1
Strigiformes	Strigidae	Turdus obscurus Milmizuku gurneyi	Eyebrowed Thrush Giant-scops owl	none	Uncommon Philippine Endemic Vulnerable		X	
Passeriformes	Turdidae	Zoothera andromedae	Sunda ground thrush		Resident Least concern		1	1
Sub-total		108				46	22	26
REPTILES								
Squamata	Viperidae	Trimesesurus flavomaculatus	Philippine Pit Viper	Dupong	Philippine Endemic Widespread	1		
Squamata	Gekkonidae	Gekko monarchus	Variable-backed Narrow-disked Gecko	Tabili	Philippine Endemic Common	£	1	
Squamata	Gekkonidae	Cyrtodactylus annulatus	Small bent-toed gecko	Tabíli	Philippine Endemic Unknown	1	1	
Squamata	Gekkonidae	Cyrtodactylus philippinicus	Philippine bent- toed gekko	Tabili	Philippine Endemic Unknown	1	· t	П
Squamata	Scincidae	Sphenomorphus cf. diwata	Diwata sphenomorphus	Tabili	Mindanao faunal region endemic, Unknown			1
Squamata	<u>Scincidae</u>	Sphenomorphus coxi	Cox's sphenomorphus	Tabili	Philippine Endemic Unknown	1	1	1
Squamata	<u>Scincidae</u>	Sphenomorphus decipiens	Black sided sphenomorphus	Tabili	Philippine Endemic Unknown	1	1	
Squamata	Scincidae	<u>Sphenomorphus</u> <u>fasciatus</u>	Banded sphenomorphus	Tabili	Philippine Endemic Unknown	1	1	
Squamata	<u>Scincidae</u>	<u>Sphenomorphus</u> <u>jagori</u>	Jagor's sphenomorphus	Tabili	Philippine Endemic Unknown	1	1	
Squamata	Scincidae	Sphenomorphous variegatus	Black-spotted Sphenomorphous	Tabili	Philippine Endemic Rare	1		
Squamata Squamata	Scincidae Scincidae	Sphenomorphous steeri Brachymeles	Steeri's Sphenomorphous Common burrowing	Tabili	Philippine Endemic Common Philippine Endemic	1	1	
Squamata	Scincidae	gracilis hilong Brachymeles	skink Southern burrowing	Tabili Tabili	Unknown Philippine Endemic	/	1.	
- Agoniata	Jonesia	schadenbergi orientalis	skink	, 48.00	Unknown	1		
Squamata	Scincidae	Lamprolepis smaragdina	Spotted green tree	Tabili	Non-endemic, Unknown		1	

Squamata	Scincidae	Lipinia pulchellum	Yellow-striped Slender Tree Skink	Tabili	Philippine Endemic Common	1		
Squamata	Scincidae	Lipinia quadrivitatta	Black-striped	Tabili	Non-endemic,			1
Squamata	Scincidae	Lipinia vulcanium	slender tree skink Girard's Tree Skink	Tabili	Unknown Mindanao Endemic			j
Squamata	Scincidae	Tropidophorus	Waterside skink	Tabili	Rare Philippine Endemic	1		
Squamata	Scincidae	davaoensis Mabouya englei	Six-striped	Tabili	Unknown Mindanao Endemic	1		
Squamata	Colubridae	Draco bimaculatus	Mabouya Two-spotted flying lizard	Hangkakaga	Common Philippine Endemic Unknown	. 1	9	
Squamata	Colubridae	Calamaria gervaisi	Gervais's Worm	Bitin	Philippine Endemic	1		£
Squamata	Colubridae	Calamaria virgulata	Southern Worm Snake	Bitin	Philippine Endemic			
Squamata	Elapidae	<u>Calliophis</u> intestinalis	Striped coral snake	Bitin	Non-endemic, Unknown		1	
Squamata	Colubridae	Psammodynastes pulverulentus	Dark-Spotted Mock Viper	Bitin	Philippine Endemic		1	
Squamata	Colubridae	Oligodon maculatus	Barred Short- headed Snake	Bitin	Mindanao Endemic Rare			į.
Squamata	Colubridae	Cyclorus lineatus	Northern Triangle- spotted Snake	Bitin	Philippine Endemic Common			1
Squamata	Acrochordidae	Natrix dendrophiops	Spotted Water Snake	Bitin	Philippine Endemic Common	. I		
Squamata	Agamidae	Rhabdophis auriculata	White-lined water snake	Bitin	Philippine Endemic Unknown	1		
Squamata	Agamidae	Rhabdophis lineate	Zigzag-lined water snake	Bitin	Philippine Endemic Unknown		1	
Squamata	Agamidae	Gonyocephalus semperi	White-spotted Anglehead	Tabili	Philippine Endemic Rare	I		
Squamata	Typhlopidae	Gonyocepahalus sophiae	Dark-spotted Anglehead	Tabili	Mindanao Endemic Rare	1		
Squamata	Typhlopidae	Typhlos longicauda	Long-tailed blind snake	Tabili	Mindanao Endemic Rare			
Squamata	Pythonidae	Phyton reticulatus	Reticulated Phyton	Baksan	Philippine Endemic Common			,
Sub-total		33				8	7	6
FROGS	-1	1 00		1				
Anura	Ranidae	Staurois natator	Rock Frog	Tig-tig	Philippine Endemic Least Concern	1	1	1
Anura	Ranidae	Rana everetti	Everett's frog	Tig-tig	Philippine Endemic Data defficient	\mathcal{I}	1	
Anura	Ranidae	Rana granducola	Big-eyed Frog	Tig-tig	Philippine Endemic	1	1	
Anura	Ranidae	Platymantis sp.	none	Tig-tig	Unknown	1	1	
Anura	Ranidae	Limnonectes cf diautus	Tagibo warty frog	Bak-bak	Mindanao Faunal Region Endemic	1.	1	
Anura	Ranidae	Limnonectes magnus	Philippine Woodland Frog	Bak-bak	Vulnerable Philippine Endemic Vulnerable	1	1	
Anura	Ranidae	Platymantis corrugates	Corrugated Forest Frog	Tig-tig	Philippine Endemic Common	L		

Sub-total		18				10	4	3
Anura	Ranidae	Staurois natator	Rock frog		Non-endemic, Least concern	L	ı	
	G	pleurostigma	Narrow-mouthed Frog		Philippine Endemic			
Anura	Microhylidae	Kalophrynus	Black-spotted	Bak-bak	Vulnerable Resident	Ĺ		1
, mara	Tialitade	guentheri	frog	1.9.19	Rrgion Endemic			^
Anura	Ranidae	Platymantis	Guenther's forest	Tig-tig	Mindanao Faunal	1	1	1
Anura	Ranidae	Platymantis corrugata	Rough-backed forest frog	Tig-tig	Philippine Endemic Least concern	1	1	1
		- Timudido Saraso	tree Frog		Least concern			
Anura	Rhacophoridae	Philautus surdus	Common forest	Tig-tig	Vulnerable Philippine Endemic	1	1	Ι,
Anura	Rhacophoridae	Philautus poecilius	Mottled tree Frog	Tig-tig	Philippine Endemic			/
	W. 111 (17)	acutirostris	Tree Frog	12.00	Vulnerable			
Anura	Rhacophoridae	Philautus	Pointed-Snouted	Tig-tig	Philippine Endemic	1	1	1
Allula	Miacopholidae	leucomystax	Frog	rig-lig	Common	1.0		ш.
Anura	Rhacophoridae	stejgeneri Polypedates	Megophrys Common Tree	TIg-tig	Vulnerable Resident	9		
Anura	Pelobatidae	Megophrys	Stjeneger's	Baki sungayan	Philippine Endemic	1		
		Call Lat		1	Vulnerable			
Anura	Bufonidae	hasseltii Ansonia muelleri	Mueller's Toad	Tig-tig	Least concern Philippine Endemic	1		
Anura	Bufonidae	Leptobrachium cf	Hasselt's toad	Tig-tig	Non-endemic	1	1	

Invertebrate Fauna – Butterflies (Amoroso et al, PEF)

Family	Ecological Status	Conservation Status	Local Status
Hesperiidae	Otatao	Otatao	Ecoul Otatas
Aeriomachus musca Mabille 1876	common		very rare
Ancestroides nigrita fumatus Mabille 1876	common		very rare
Badamia exclamationis Fabricius 1775	common		rare
4. Baoris oceia Hewitson 1868	common		very rare
5. Choaspes plateni adhara Fruhstorfer 1911	rare	endemic in mindanao	rare
6. Coladenia ochracea Fruhstorfer 1911	very rare	Phil. endemic	Very rare
7. Coladenia semperi Edwards & Edwards 1897	very rare	Phil. endemic	very rare
Gangara thrysis philippensis Fruhstorfer 1910	rare		rare
9. Gerosis corona corona Semper 1892	rare	endemic	very rare
10. Halpe luteisquama Mabille 1896	common	endemic	very rare
11, Hasora chromus chromus Cramer 1782	rare	new record in Mindanao	very rare
12. Hasora khoda minsona Swinhoe 1907	rare		very rare
13. Isma feralia ferestrata Elwes & Edwards 1897	rare	endemic	very rare
14. Mooreana princeps Semper 1892	rare	endemic	very rare
15. Notocrypta feisthamalli alinkara Fruhstorfer 1911	common		rare
16. Notocrypata paralysos volux Mabille 1993	common		Very rare
17. Odontoptilum angulatum helisa Semper 1892	rare	endemic	very rare
18. Odontoptilum leptogramma Hewitson 1868	rare	endemic	very rare
19. Oriens californica Scudder 1872	common	endemic	very rare
20. Pothantus mingo mingo Edwards 1866	rare		rare
21. Psolos fuligo fuligo Mabille 1876	common		very rare
22. Suada albina Semper 1892	rare	endemic	very rare
23. Tagiades gana elegans Mabille 1877	common		rare
24. Tagiades sp	common		very rare

25. Tagiades trebellius martinus Plotz 1884	common		common
26. Taractrocera luzonensis luzonensis Staudinger 1889	common		very rare
27. Telicota ohara jania Evans 1949	rare		very rare
Lycaenidae			
28. Allotinus corbeti Eliot 1956	rare	undetermine	very rare
29. Allotinus nivalis Semper 1889	common	undetermine	very rare
30. Allotinus panctatus Semper 1889	common	endemic m Mindanao	very rare
31. Arhopala aedius oenotria Hewitson 1869	rare		very rare
32. Arhopala alitaenius panta Evans 1957	rare	New record in the	very rare
	Tre-	Philippines	very rule
Arhopala eridanus davalma sspn	rare	New to Science	
33. Aehopala arsenius everetti Evans 1957	rare	new in Mindanao	very rare
34. Arhopala corinda corinda Hewitson 1869	common	Phil. endemic	very rare
35. Arhopala matsutaroi Hayashi 1979	rare	endemic in Mindanao	very rare
36. Bindahara phocides origenes Fruhstorfer 1912	common		very rare
37. Caleta angola angola Hewitson 1876	rare		very rare
38. Curetis tagalica tagalica Felder 1862	common		very rare
39. Euchrysops cnejos Fabricius 1798	common		very rare
40. Horaga lefebvrei osma Fruhstofer 1912	rare		very rare
41. Jamides alecto manilana Toxopeus 1930	rare		very rare
42. Jamides bochus pulchrior Grose-Smith 1895	rare	New record in Mindanao	very rare
43. Jamides celeno lydanus FRuhstorfer 1910	rare	New record in Mindanao	very rare
44. Jamides cleodus cleodus Felder-felder 1865	common	10.000.0000.0000.0000	very rare
45. Jamides philatus osias Roeber 1886	rare		rare
46. Monodontides apona Fruhstorfer 1910	rare	endemic	very rare
47. Monodontides hondai Eliot & Kawazoe 1983	common	endemic	very rare
* Paruparo cebuensis sspn.	rare	Phil. endemic	
48. Paruparo cebuensis cebuensis	rare	Phil. endemic	very rare
49. Pithecops corvus corax Fruhstorfer 1919	common	Filit. effdefflic	very rare
50. Poritia philuta phare Druce 1895	common		
51. Prosotas nora semperi Fruhstorfer 1916	common		very rare
52. Rapala varuna nada FRuhstorfer 1912	rare		very rare
The state of the s	Tale		12500 7270
53. Remilana westermanni Felder & Fekder 1865	common		very rare
54. Tjueia jalajala jalajala Felder & Felder 1862	common	endemic in Mindanao new record	rare
55. Zizina otis oriens Butler 1883	common	1.00	common
Nymphalidae			
56. Acrophtalmia leto ochine Semper 1887	rare	endemic in Mindanao	common
57. Acrophtalmia albofasciata Uemura & Yamaguchi 1982	common		common
58. Amathusia phidippus pollicaris Butler 1870	common		rare
59. Athyma maenas semperi Moore 1898	rare		rare
60. Cethosia luzonica magindanica Semper 1888	common		
61. Charaxes antonius antonius Semper 1878	- T-200000000000000000000000000000000000	endemic in Mindanao	very common
62. Cirrochroa tyche tyche C. & R. Felder 1861	rare	endernic in Mindanao	rare
63. Cupha arias dapatana Grose-Smith 1887	common		rare
	common		very common
64. Cyrestis maenalis rizali Tsukada & Nishiyama 1985	common		very common
65. Danaus melanippus edmondii Lesson 1837	common		very common
66. Dischopora philippina Moore 1895	rare	Phil. endemic	very rare
67. Dophla evelina proditrix Fruhstorfer 1913	common		very common
68. Elymnias beza beza Hewitson 1877	common	endemic in Mindanao	very common
and the second section of the second	THE RESERVE AND ADDRESS OF THE PARTY OF THE	The second secon	Annual State of Social Proof Total Co.

70. Euploea tulliolus pollita Erichson 1834	common		very rare
71. Euploa mulciber mindanensis Staudinger 1885	common		rare
72. Euthalia lubentina philippensis Fruhstorfer 1899	fare		very rare
73. Faunis phaon leucis C. & R. Felder 1861	common		very common
74. Hypolimnas anomala anomala Wallace 1869	common		very common
75. Hypolimnas bolina Butler 1874	common		very common
76. Hypolimnas misippus Linnaeus 1769	common		rare
77. Idea leuconoe obscura Staudinger 1889	common		common
78. Ideopsis gaura glaphyra Moore 183	rare	endemic in Mindanao	Very rare
79. Ideopsis juventa manillana Moore 1883	common		very common
80. Junonia hedonia ida Cramer 1775	common		very common
81. Junonia orithya leucasia Fruhstorfer 1912	common		common
82. Lassipa pata semperi Moore1899	rare		very common
83. Lethe chandica byzaccus Fruhstorfer 1911	common		common
84. Lexias panopus miscus Fruhstorfer 1913	common		very common
85. Lexias satrapes trapesa Semper 1888	rare		very common
86. Libythea geoffroy philippina Staudinger 889	common		very common
87. Melanitis atrax lucillus Fruhstorfer 1908	common		common
88. Melanitis leda leda Linnaeus 1758	common		common
89. Moduza thespias Semper 1889	rare	Phil. endemic	rare
90. Mycalesis felderi felderi Butler 1868	1000	Phil. endemic	
THE TO SELECT AND THE PERSON OF THE PERSON O	rare	Filli. endernic	very rare
91. Mycalesis tagala semirasa Fruhstorfer 1908	rare	andomic to Mindone	very rare
92. Mycalesis treadawayi cotabatana Schroder & Treadawayi	common	endemic in Mindanao	very rare
93. Neptis pampanga boholica Moore 1899	common		rare
94. Pantoporia cyrilla athenais C. & R. Felder 1863	common		very common
95. Parthenos Sylvia philippensis Fruhstorfer 1898	common		common
96. Prothoe semperi semperi Honrath1884	rare	Phil. endemic	very rare
97. Ptychrandra loquinii plateni Semper 1891	rare		very rare
98. Ragadia melindena melindena C. & R. Felder	rare	Phil. endemic	common
1863	100	C and accounting	
99. Symbrethia lilaea semperi Moore 1899	common		rare
100. Tacola magindana magindana Semper 1878	rare	Phil. endemic	rare
101. Tanaecia leucotaenia aquamarina Fruhstorfer 1912	common		common
1912 102. Terrinos clarissa lucilla Butler 1870	rare	Phil. endemic	Veny rare
	rare	Filli, endernic	very rare
103 Tirumala hamata orientalis Sempper 1879	common		rare
104. Tirumala ishmoides strymon Fruhstorfer 1911	rare		rare
105. Vagras sinha sinha Kollan 1844	common		rare
106. Vindula dejone dejone Erichson1834	common		rare
107. Ypthima semperi chaboras Fruhstorfer 1911	common	'Phil.endemic	rare
108. Ypthima stellera stellera Eschscholtz 1821	common	Phil. endemic	rare
109. Zethera musa C. & R. Felder 1861	common	Phil. endemic	rare
110. Zeuxidia sibulana sibulana Honrath 1884	rare	endemic in Mindanao	very rare
Papilionidae			
111. Achillides palinurus daedalus Felder & Felder	common		very common
1861			
112. Arisbe euphratoides sspn.	Very rare	Endemic in Mindanao	rare
113. Arisbe eurypilus gordion Felder & Felder 1864	common		common
114. Graphium Agamemnon Agamemnon Linnaeus	common		common
1758			

116. Lamprotera meges decius Felder & Felder 1862	common		very common
117. Menelaides deiphobus rumanzovia ESchscholtz 1821	common		very common
118. Menelaides helinus hystaspes Felder & felder 1862	common	endemic	very common
119. Menelaides polytes ledebouria Eschscholtz 1821	common		very common
120. Papilio demolius libanus Fruhstorfer 1908	common		very common
121. Troides rhadamantus rhadamantus Lucas 1835	common		very rare
Pieridae			
122. Appias nero zamboanga Felder & Felder 1862	common		very common
123. Appias olferna peducea Fruhstorfer 1910	common		rare
124. Catopsilia pomona pomona Fabricius 1775	common		very common
125. Catopsilia pyranthe pyranthe Linnaeus 1758	common		very comon
126. Catopsilia scylla asema Staudinger 1885	common		rare
127. Cepora aspasia orantia FRuhstorfer 1910	common		common
128. Cepora boisduvaliana semperi Staudinger 1890	common		rare
129. Delias baracasa baracasa Semper 1890	rare	Endemic in Mindanao	very rare
130. Delias hyparete mindanensis MITIS 1893	common	Endemic in Mindanao	very common
131. Delias magsadana Yananoto & Takei 1995	Very rare	Endemicin Mindanao	very rare
132. Eurema alitha alitha C. & R. Felder 1862	common	Endemic in Mindanao	very rare
133. Eurema blanda vallivolans Butler 1883	common		very common
134. Eurema brigitta roberto Schroeder, Treadaway & Nuyda 1990	rare	endemic	very rare
135. Eurema hecabe tamiathis Fruhstorfer 1910	common		common
136. Eurema sarilata sarilata Semper 1891	rare	Phil. endemic	common
137. Gandaca harina mindanensis Fruhstorfer 1910	common		common
138. Leptosia nina terentia FRuhstorfer 1920	common		very common
139. Pareronia boebera trinobantes Fruhstorfer 1911	common		common
Riodinidae		- Le-	
140. Abisara mindanensis mindanensis Semper 1892	common	undetermine	very rare

Spiders of Mt. Hamiguitan, Davao Oriental. (Tabora)

#	family	scientific name	statio	statio	statio	stati
			n 1	n 2	n 3	n 4
1.	Araneidae	Argiope sp.	-8-	*	+	+
2.	Araneidae	Argiope sp2.	4	2		+
3.	Araneidae	Argiope sp3.	8	-	-	+
4.	Araneidae	Argiope sp4.	4	4	4	+
5.	Araneidae	Cycolsa sp.	8	-	*	+
6.	Araneidae	Cyclosa sp2.		+	-	-
7.	Araneidae	Cyclosa sp3.	н	+	-	-
8.	Araneidae	Gasterocantha janopol	+	+	- 4	1.4
9.	Araneidae	Gasterocantha parangdiadesma	+	+		+
10.	Araneidae	Gasterocantha sp3	4	+	47	(4)
11.	Araneidae	Larinia sp.	+	1.5	-	+
12.	Araneidae	Larinia sp2.	14	1.2	(X)	+
13.	Araneidae	Larinia sp3.	(2)	4.4	(3)	+
14.	Araneidae	Neoscona sp.	4	-	4	+
15.	Araneidae	Neoscona sp2.		-	-	+
16.	Araneidae	Neoscona sp3.	40	1.0	1	+
17.	Araneidae	Neoscona sp4.		-	(3)	+
18.	Araneidae	Nephila maculata	+	+	4	4
19.	Araneidae	Nephila sp2.	+	4	7	-
20.	Araneidae	Nephila sp3.	X.	+	12	1
21.	Araneidae	Tukaraneus sp.	+	-	+	+
22.	Araneidae	Undetermined +	8	+	-	-
23.	Araneidae	Undetermined 2	+	+	+	
24.	Araneidae	Undetermined 3	+	X	14	-
25.	Araneidae	Undetermined 4	· ·	+		-
26.	Clubionidae	Undetermined +	÷	-	-	+
27.	Lycosidae	Pardosa sp.	-	+	+	+
28.	Oxyopidae	Oxyopes sp.	-	+	-	-
29.	Oxyopidae	Oxyopes sp2.		-		+
30.	Oxyopidae	Oxyopes sp3.	+	-	+	-
31.	Salticidae	Gangus sp.		+	-	-
32.	Salticidae	Harmochirus sp.		- 2	+	-
33.	Salticidae	Undetermined +	+		-	-
34.	Salticidae	Undetermined 2	2	ž.	2	+
35.	Tetragnathidae	Dyschiriognatha sp.	+			-
36.	Tetragnathidae	Opadometa sp.	1.8	+	2	-
37.	Tetragnathidae	Tetragnatha sp.	+	100		-
38.	Tetragnathidae	Tetragnatha sp2.	0	-	+	-
39.	Tetragnathidae	Tetragnatha sp3.	÷		+	-
40.	Tetragnathidae	Tetragnatha sp4.	- 0	_	2	+
41.	Tetragnathidae	Tetragnatha sp5.	ė	8		+

			total	10	19	5	21
46.	Ctenizidae	Undetermined +		-	+	-	100
45.	Thomisidae	Undetermined +		1.4	-	-	+
44.	Thomisidae	Lysitiles sp.		-	+	-	1.5
43.	Thomisidae	Misumenops sp.		-	+	-	-
42.	Tetragnathidae	Tetragnatha sp6.			+	4	-

Legend: * - endemic; + = presence; - = absence

Earthworms of Mt. Hamiguitan, Davao Oriental. January 2009 (Tabora)

#	family	scientific name	station 1	station 2	station 3	station 4
1.	Megascolecidae	Amynthas spp.	2	2	12	+
2.		Pheretima spp.	+	+	+	+
3.		Polypheretima elongata	+	-	-	4
4.	Glossoscolecidae	Pontoscolex corethrurus	-	-	+	+
		total	2	1	2	3

Legend: * - endemic; + = presence; - = absence

Nematodes in Mt. Hamiguitan, Davao Oriental. January 2009. (Tabora)

#		Stations							
	Nematode Families Identified	Agric ultura I area	Rocky Forest	Dipteroc arp area	Mossy Area	Pygm y Forest	Ferner y	Total	Relative Density
1.	Actinolaimidae*	- 4	+	+	+	+		20	3.3
2.	Aporcelaimidae*	+-	+		+	+	+	21	3.5
3.	Belondiridae*	1.91	+	+	-7%	1 -	1911	8	1.3
4.	Cobbonchidae	0	+	-	4-1	+		4	0.7
5,	Diplogasteridae	- 1	74.6	+	+	100	+	15	2.5
6.	Dorylaimidae*	+	+	+	+	+	-4	418	69.7
7.	Ironidae	1.5		+		1 200	De 1	2	0.3
8.	Longidoridae*	+	+	+	+	+	3-1	40	6.7
9.	Mononchidae	121	+	- 12	+	+	+	11	1.8
10	Nygolaimidae*	- 2	4	1.6.	- 2	+	12	2	0.3
-11	Panagrolaimidae	~		-		+		2	0.3
12	Pratylenchidae	- 14		- 46	9	+	14	1	0.2
13	Qudsianematidae*	+	+	+	3	+	+	45	7.5
14	Rhabditidae	+	+		÷	+	*	10	1.7
15	Tylenchidae	14	1.0	245 1	-	+	14	1	0.2

Legend: * - endemic; + = presence; - = absence

Status of Odonata samples from Mt. Hamiguitan Wildlife Sanctuary, Davao Oriental

Family/species Status

	Oriental species	Philippine	Endemic	New record
Euphaedae				
1. Euphaea amphicyana				
Calopterygidae				
Vistalis melania		×		
Amphipterygidae				
Devadatta podolestoides				
Chlorocyphidae				
4. Rhinocypha colorata		×		
5. R. turcanii		×		
Platystictidae				×
6. Drepanostista spn				15.
7. D. lestoides				
Platycnemidae				
8. Resiocnemis appendiculata				
9. R. atripes				
10. R. flammea				
11. R. erythrura				
Platycnemididae				
12. Coeliccia dinocerous				
Coenagrionidae				
13. Amphicnemis sp(dentifer group)				
14. A. sp (lestoides group)				
15. Ceriagrion lieftinckii		×		
16. Teinobasis annamaijae		100		
17. Pseudagrion spn				
18. P. pilidorsum				
Aeshnidae			×	
19. Anax guttatus			-	
Cordullidae	×			
20. Heteronias heterodoxa				
21. Idionyx philippa		×		
Libellulidae		0		
22. Diplacina nana		-		
23. Diplacodes trivialis	×			
24. Lyriothemis latro		×		
25. Orthetrum pruinosum clelia	×	^		
26. O. sabina sabina	×			
27. O. testaceum	x			
28. Pantala flavescens	×			
29. Tramea transmarina euryale	×			
30 .Nannophya pygmea	×			
Protoneuridae	×			
31. Prodasineura integra		×		
31. Frodasineura integra		×		

Total number of species: 423

Appendix 4. List of endangered, endemic and rare species of flora and their habitat that must be given high priority for protection and conservation

	SPECIES	FAMILY	CONSERVATION STATUS	VEGETATION TYPES	ALTITUDE (m asl)	LOCATION
1.	Nepenthes copelandii	Nepenthaceae	Critically endangered, endemic and rare	M, Mo, M-P	1180	San Isidro
2.	Paphiopedilum adductum	Orchidaceae	Critically endangered and endemic	M, M-P	1146	San Isidro
3.	Platycerium coronarium	Polypodiaceae	Critically endangered and endemic	D, M	160 – 480	Mati
4.	Rhododendron kochii	Ericaceae	Critically endangered and endemic	D, M	540 - 980	San Isidro
5.	Shorea astylosa	Dipterocarpaceae	Critically endangered and endemic	A, D, M	120 – 1060	San Isidro, Mati, Gov. Generoso
6.	Shorea polysperma	Dipterocarpaceae	Critically endangered and endemic	D	320 – 620	San Isidro, Mati, Gov. Generoso
7.	Alocasia zebrina	Araceae	Endangered and endemic	D	685	San Isidro
8.	Diospyros philippinensis	Ebenaceae	Endangered and endemic	A, D	240 – 820	San Isidro
9.	Hoya bulusanensis / panchoi	Asclepiadaceae	Endangered and endemic	М	1120	San Isidro
10.	Medinilla magnifica	Melastomataceae	Endangered and endemic	D, M	420 – 980	San Isidro, Mati
11.	Nepenthes micramphora	Nepenthaceae	Endangered, endemic and rare	M, M-P	980 - 1,560	San Isidro
12.	Paphiopedilum ciliolare	Orchidaceae	Endangered and endemic	M, Mo, M-P	905, 965, 1220	San Isidro
13.	Agalmyla persimilis	Gesneriaceae	Vulnerable and endemic	A, D	380 – 860	San Isidro, Mati
14.	Aeschynanthus miniaceous	Gesneriaceae	Vulnerable and endemic	A, D	380 – 740	San Isidro
15.	Cinnamomum mercadoi	Lauraceae	Vulnerable and endemic	M, Mo	920 - 1100	San Isidro
16.	Dendrobium sanderae var. surigaense	Orhidaceae	Vulnerable and endemic	M, Mo, M-P	920 – 1200	San Isidro
17.	Shorea contorta	Dipterocarpaceae	Vulnerable and endemic	A, D	360 – 740	San Isidro, Mati
18.	Shorea guiso	Dipterocarpaceae	Vulnerable and endemic	A, D, M	240 – 820	San Isidro, Mati
19.	Shorea negrosensis	Dipterocarpaceae	Vulnerable and endemic	A, D		San Isidro, Mati

FL	ORAL GROUP/ SPECIES	FAMILY	CONSERVATION STATUS	VEGETATION TYPES	ALTITUDE (m asl)	LOCATION
20.	Agathis philippinensis	Araucariaceae	Vulnerable and endemic	D, M, Mo, M-P	905-1235	San Isidro, Gov. Generoso, Mati
21.	Mangifera altissima	Anacardiaceae	Vulnerable	A, D	120 – 540	San Isidro, Mati
22.	Myristica philippinensis	Myristicaceae	Other threatened and endemic	A, M	320 - 640	San Isidro, Mati
23.	Calamus merrilii	Arecaceae	Rare and endemic	D, M, Mo	140 – 1350	San Isidro, Mati
24.	Calamus ornatus var. philippinensis	Arecaceae	Rare and endemic	D, M, Mo, M-P	170 – 1200	San Isidro, Mati, Gov. Generoso
25.	Nepenthes alata	Nepenthaceae	Rare and endemic	A, D, M, M-P	360 - 1200	San Isidro, Mati, Gov. Generoso
26.	Nepenthes argentii	Nepenthaceae	Rare and endemic	M, M-P	920 – 1145	San Isidro
27.	Nepenthes peltata	Nepenthaceae	Rare and endemic	D, M, M-P	870-1200	San Isidro, Mati, Gov. Generoso
28.	Buchanania nitida	Anacardiaceae	Endemic	A, D, M, Mo, M-P	140 – 1200	San Isidro, Mati, Gov. Generoso
29.	Dillenia philippinensis	Dilleniaceae	Endemic	A, M	120, 1150 -1200	San Isidro, Mati, Gov. Generoso
30.	Medinilla cumingii	Melastomataceae	Endemic	D	540 – 820	San Isidro
31.	Medinilla malindangensi s	Melatomataceae	Endemic	D	380	Mati
32.	Gnetum latifolium	Gnetaceae	Rare	M, M-P	920 – 1145	San Isidro, Mati
33.	Nepenthes maxima	Nepenthaceae	Rare	M, Mo, M-P	1165	San Isidro
34.	Psilotum nudum	Psilotaceae	Rare	D, M, Mo, M-P	905-1200	San Isidro
35.	Psilotum complanatum	Psilotaceae	Rare	M, M-P	840	San Isidro
36.	Schizaea inopinata	Schizaeaceae	Rare	D, M	280	Gov. Generoso
37.	Schizaea malaccana	Schizaeaceae	Rare	D	1095	San Isidro

Legend:

A – Agro-ecosystem Mo- Mossy forest D- Dipterocarp forest

M - Montane forest

M-P – Mossy-Pygmy forest

Appendix 5. List of endangered, endemic and rare species of fauna and their habitat that must be given high priority for protection and conservation

	SPECIES	FAUNAL GROUP	CONSERVATION STATUS	VEGETATION TYPES	ALTITUDE (m asl)	LOCATION
1.	Acerodon jubatus	Volant mammal	Endangered and endemic	D	480	Mati
2.	Phapitreron cinereiceps	Volant mammal	Endangered and endemic	D	685	San Isidro
3.	Pinelopides panini	Aves	Endangered and endemic	D, M	350 – 960	San Isidro, Mati, Gov. Generoso
	Tarsius syrichta	Non-volant mammal	Endangered and endemic	D	240	San Isidro
5.	Aethopyga primigenius	Volant mammal	Near threatened and endemic	D, M, M-P	420 – 1200	San Isidro, Mati, Gov. Generoso
6.	Ansonia muelleri	Amphibian	Vulnerable and endemic	D	540 - 700	San Isidro, Mati
7.	Cervus mariannus	Non-volant mammal	Vulnerable and endemic	D	420 – 540	San Isidro, Mati
3.	Limnonectes magnus	Amphibian	Vulnerable and endemic	D, M	360-980	Mati, San Isidro, Gov. Generoso
9.	Mimizuku gumeyi	Aves	Vulnerable and endemic	D	480	Gov. Generoso
10.	Philautus acutirostris	Amphibian	Vulnerable and endemic	M	240-620	San Isidro, Mati
11.	Sus philippensis	Non-volant mammal	Vulnerable and endemic	D, M, M-P	420 – 1200	San Isidro, Mati, Gov. Generoso
12.	Calamaria virgulata	Reptile	Rare and endemic	D, M-P	480, 1200	Gov. Generoso and San Isidro
13.	Lipinia vulcanium	Reptile	Rare and endemic	M-P	1200	San Isidro
14.	Gonyocephalus sempreri	Reptile	Rare and endemic	M	980	San Isidro
15.	Megophrys stejgeneri	Amphibian	Rare and endemic	M-P	1200	San Isidro
16.	Oligodon maculatus	Reptile	Rare and endemic	М	910	Mati
17.	Sphenomorphous variegatus	Reptile	Rare and endemic	D, M	540 - 980	San Isidro, Mati
18.	Trimeresurus flavomaculatus	Reptile	Endemic	D	420	San Isidro
19.	Phyton reticulatus	Reptile	Endemic	M-P	1040	Mati
20.	Pithecophaga jefferyi	Aves	Endemic Critically endangered	D, M, M-P	420-1200	San Isidro Mati Gov. Genero

Legend:

D- Dipterocarp forest M – Montane forest M-P – Mossy-Pygmy forest

. Habitat endemic and rare species of butterflies that must be given high priority for protection and conservation

SPECIES	FAMILY	STATUS	VEGETATION TYPES
Delias. magsadana	Pieridae	Rare, Site endem	ic Mo-P
Acrophtalmia leto ochine	Nymphalidae	Rare, Mindanao endemic	D, M
Eurema brigitta brigitta	Pieridae	Rare, Philippine endemic	D, M, Mo, Mo-P
Eurema sarilata sarilata	Pieridae	Rare, Philippine endemic	A, D, M
Moduza thespia	Nymphalidae	Rare, Philippine endemic	D, M
Monodontides apona	Lycaenidae	Rare, Philippine endemic	D, M
Mycalesis felderi felderi	Nymphalidae	Rare, Philippine endemic	A, D, M
Potanthus mingo mingo	Hesperidae	Rare, Philippine endemic	A, D, M, Mo, Mo-F
Ragadia melindina melindina	Nymphalidae	Rare, Philippine endemic	D, M
Suada albina	Hesperidae	Rare, Philippine endemic	D, M, Mo
Tacola magindana magindana	Nymphalidae	Rare, Philippine endemic	М
Zeuxidia sibulana sibulana	Nymphalidae	Rare, Philippine endemic	М
Legend: A – Agro-ecosystem	D- Dipterocarp fore	oét M	M – Montane forest
Mo- Mossy forest	Manual Company of the	ssy-Pygmy forest	vi – ivioritarie lutest

MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY

Proposed Inscription to the UNESCO World Heritage List

VOLUME 4

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APPENDIX 1

Republic Act 9303

An Act declaring Mt. Hamiguitan Range and its Vicinities as Protected Area under the Category of Wildlife Sanctuary and Its Peripheral Areas as Buffer Zone and Appropriating Funds Therefore

Republic Act No. 9303

July 30, 2004

AN ACT DECLARING MT. HAMIGUITAN RANGE AND ITS VICINITIES AS PROTECTED AREA UNDER THE CATEGORY OF WILDLIFE SANCTUARY AND ITS PERIPHERAL AREAS AS BUFFER ZONE AND APPROPRIATING FUNDS THEREFOR

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION. 1. Short Title. - This Act shall be known as **Mt. Hamiguitan Range Wildlife Sanctuary Act of 2004.**

SEC. 2. Declaration of Policy. - Cognizant of the profound impact of man's activities on all components of the natural environment particularly the effect of increasing population, resource exploitation and industrial advancement, and recognizing the critical importance of protecting and maintaining the natural biologically unique features to sustain human life and development, as well as plant and animal life, it is hereby declared the policy of the State to provide that the management, protection, sustainable development, and rehabilitation of protected areas shall be undertaken primarily to ensure the conservation of biological diversity and that the use and enjoyment of protected areas must be consistent with that principle.

SEC. 3. Scope. - Certain parcels of land situated in the municipalities of Mati, San Isidro and Governor Generoso, Province of Davao Oriental, Island of Mindanao are hereby established as a protected area under the category of wildlife sanctuary to be known as the Mt. Hamiguitan Range Wildlife Sanctuary and the areas within its peripheral areas as buffer zone. Such protected area and buffer zone shall become part of the National Integrated Protected Areas System (NIPAS) subject to such rights as are provided for in this Act.

The Department of Environment and Natural Resources (DENR) shall mark on the ground the boundaries set forth in this Act which shall not be modified except by an act of Congress. The parcels of land covered herein are more particularly described by the following technical description:

PROTECTED AREA

Bounded by its peripheral area as buffer zone, beginning at a point marked "1" on the map and on the ground being S 48° 49' E from the junction of Dumagooc River and Licub Creek:

```
Thence N 48° 49' W,
                        265.80 meters to corner 2,
Thence N 02° 29' E,
                        575.50 meters to corner 3,
Thence N 05° 26' W,
                        527.40 meters to corner 4.
Thence N 21º 03' E,
                        456.50 meters to corner 5,
Thence N 21° 02' E.
                        348.20 meters to corner 6.
Thence N 48º 01' E,
                        336.30 meters to corner 7,
Thence N 26° 34' E,
                        391.30 meters to corner 8,
Thence N 26° 34' E.
                        469.60 meters to corner 9.
Thence N 36º 26' E,
                        261.00 meters to corner 10,
Thence N 13° 30' W.
                        385.70 meters to corner 11,
Thence N 37° 42' W,
                        278.00 meters to corner 12,
Thence N 37° 43' W,
                        335.00 meters to corner 13,
Thence N 37° 43' W,
                        335.00 meters to corner 14,
Thence N 45° 00' E,
                        459.60 meters to corner 15,
Thence N 28° 04' W.
                        340.00 meters to corner 16.
Thence N 11° 19' E,
                        433.40 meters to corner 17,
Thence N 25° 10' E,
                        552.50 meters to corner 18,
Thence N 24° 23' E.
                        411.70 meters to corner 19.
Thence N 23° 58' W,
                        492.40 meters to corner 20,
Thence N 07° 40′ W,
                        524.70 meters to corner 21.
Thence N 07° 31' W,
                        458.90 meters to corner 22,
Thence N 09° 05' W,
                        506.40 meters to corner 23,
Thence N 02° 23' W,
                        552.40 meters to corner 24.
Thence N 52° 30' E,
                        460.00 meters to corner 25,
Thence N 52° 34' E,
                        510.00 meters to corner 26,
Thence N 52º 26' E,
                        410.00 meters to corner 27,
Thence N 61º 42' E,
                        369.10 meters to corner 28,
Thence N 23° 58' E,
                        246.20 meters to corner 29,
Thence N 31° 24' E,
                        451.10 meters to corner 30,
Thence N 78º 41' E.
                        407.90 meters to corner 31.
Thence N 35° 45' E,
                        308.10 meters to corner 32,
Thence N 35° 00' E,
                        305.20 meters to corner 33,
Thence N 64° 00' E,
                        456.20 meters to corner 34,
Thence N 41° 23' E,
                        279.90 meters to corner 35,
Thence N 42° 31' W.
                        407.00 meters to corner 36.
Thence N 34° 34' E,
                        273.20 meters to corner 37,
Thence N 11° 19' E,
                        458.90 meters to corner 38,
Thence N 46° 55' E,
                        424.50 meters to corner 39.
Thence N 46º 24' E,
                        290.00 meters to corner 40,
Thence N 58° 24' E,
                        305.30 meters to corner 41,
Thence N 00° 00' E,
                        225.00 meters to corner 42,
Thence N 90° 00' E,
                        400.00 meters to corner 43,
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TI	222.40
Thence S 72° 46′ E,	322.10 meters to corner 44,
Thence S 45° 00' W,	226.30 meters to corner 45,
Thence S 45° 00' E,	353.60 meters to corner 46,
Thence N 79° 03' E,	315.80 meters to corner 47,
Thence S 27° 46' E,	429.40 meters to corner 48,
Thence S 82° 53' W,	201.60 meters to corner 49,
Thence S 50° 54' W,	515.40 meters to corner 50,
	·
Thence N 90° 00′ E,	350.00 meters to corner 51,
Thence N 72° 54′ W,	340.00 meters to corner 52,
Thence N 59° 14′ E,	244.40 meters to corner 53,
Thence N 59° 14' E,	244.40 meters to corner 54,
Thence S 39° 48′ E,	273.40 meters to corner 55,
Thence S 25° 01' E,	496.60 meters to corner 56,
Thence S 25° 10' E,	458.50 meters to corner 57,
Thence S 00° 00' E,	310.00 meters to corner 58,
Thence N 90° 00' W,	260.00 meters to corner 59,
Thence S 24° 27' W,	302.10 meters to corner 60,
Thence S 59° 26′ W,	291.60 meters to corner 61,
Thence S 09° 50′ E,	380.60 meters to corner 62,
Thence N 66° 48' E,	
	190.40 meters to corner 63,
Thence N 66° 40′ E,	277.70 meters to corner 64,
Thence S 47° 04' E,	293.60 meters to corner 65,
Thence S 76° 42′ E,	282.60 meters to corner 66,
Thence S 07° 12' E,	478.80 meters to corner 67,
Thence S 24° 27' E,	302.10 meters to corner 68,
Thence N 21° 48' E,	269.30 meters to corner 69,
Thence N 64° 30' W,	360.10 meters to corner 70,
Thence S 38° 40' W,	288.10 meters to corner 71,
Thence N 38º 40' W,	256.10 meters to corner 72,
Thence S 60° 57′ W,	360.40 meters to corner 73,
Thence S 53° 08' E,	250.00 meters to corner 74,
Thence S 18° 58' W,	169.20 meters to corner 75,
Thence S 63° 26′ E,	167.70 meters to corner 76,
Thence S 33° 41′ W,	180.30 meters to corner 77,
Thence S 29° 45′ E,	201.60 meters to corner 78,
Thence S 41° 45' E,	531.60 meters to corner 79,
Thence S 90° 00' E,	280.00 meters to corner 80,
Thence S 23° 12' W,	380.80 meters to corner 81,
Thence S 23° 34' W,	300.00 meters to corner 82,
Thence S 19° 59' E,	468.20 meters to corner 83,
Thence S 19° 30' E,	254.60 meters to corner 84,
Thence N 77° 17' E,	315.80 meters to corner 85,
Thence S 26° 02' E,	478.50 meters to corner 86,
Thence S 26° 34' E,	559.00 meters to corner 87,
·	401.10 meters to corner 88,
Thence S 04° 17′ W,	
Thence S 04° 20′ W,	290.80 meters to corner 89,
Thence S 71° 34' E,	316.20 meters to corner 90,

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Thence S 14° 11' W,
                       469.30 meters to corner 91,
Thence N 86° 41' W,
                       270.40 meters to corner 92,
Thence S 36º 02' E.
                       340.00 meters to corner 93.
Thence S 43° 25' W,
                       509.30 meters to corner 94,
Thence S 43° 09' W.
                       329.00 meters to corner 95,
Thence N 79º 01' W,
                       341.30 meters to corner 96,
Thence S 09° 28' E,
                       456.20 meters to corner 97,
Thence S 42° 12' W,
                       580.50 meters to corner 98.
Thence S 42° 05' W,
                       485.00 meters to corner 99,
Thence S 42° 10' W,
                       342.70 meters to corner 100,
Thence S 11° 13' W,
                       418.70 meters to corner 101,
Thence S 11° 41' W,
                       419.70 meters to corner 102,
Thence N 90° 00' W.
                       500.00 meters to corner 103.
Thence N 90° 00' W,
                       425.00 meters to corner 104,
Thence N 90° 00' W.
                       590.00 meters to corner 105.
Thence N 90° 00' W,
                       680.00 meters to corner 106,
Thence N 90° 00' W,
                       430.00 meters to corner 107,
Thence N 90° 00' W.
                       360.00 meters to corner 108.
Thence N 90º 00' W,
                       320.00 meters to corner 109,
Thence N 39º 48' W.
                       300.50 meters to corner 110.
Thence N 26° 34' W,
                       335.40 meters to corner 111,
Thence N 26° 19' W,
                       507.60 meters to corner 112,
Thence N 46° 51' W.
                       329.00 meters to corner 113.
Thence N 46° 44' W,
                       350.20 meters to corner 114,
Thence N 05° 29' W.
                       627.90 meters to corner 115,
Thence N 03° 15' W,
                       354.32 meters to the point of beginning.
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BUFFER ZONE

Bounded on the northeast to southeast directions from corner 30 to corner 82 by Project No. 9-J, Block-A, Timberland under L.C. Map No. 2660, certified on September 5, 1975; on the South from corner 82 to corner 96 by Project No. 3-E, Block-C, per L.C. Map No. 2660, certified on September 5, 1975; from corner 96 to corner 97 and corner 1 to corner 2 by Project No. 3-F, Block-III, Alienable and Disposable per L.C. Map No. 2660, certified on September 5, 1975; and from corner 30 by Project No. 33 Block-A, Timberland per L.C. Map No. 2667, certified on July 23,1971. Beginning at a point marked "1" on the map and on the ground being identical to corner 2 of the Wildlife Sanctuary:

```
Thence N 48° 49' W.
                        265.80 meters to corner 2,
Thence N 02° 29' E,
                        600.00 meters to corner 3,
Thence N 05° 26' W.
                        530.00 meters to corner 4.
Thence N 21° 03' E,
                        550.00 meters to corner 5,
Thence N 21° 03' E,
                        420.00 meters to corner 6,
Thence N 48° 01' E,
                        390.00 meters to corner 7,
Thence N 26° 34' E,
                        300.00 meters to corner 8,
Thence N 26° 34' E,
                        500.00 meters to corner 9.
Thence N 36° 26' E,
                        250.00 meters to corner 10,
Thence N 13° 30' E,
                        250.00 meters to corner 11,
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The area of NI 279 42/14/	100 00
Thence N 37° 42′ W,	190.00 meters to corner 12,
Thence N 37° 43' W,	300.00 meters to corner 13,
Thence N 37° 43' W,	500.00 meters to corner 14,
Thence N 45° 00' E,	480.00 meters to corner 15,
Thence N 28° 04' W,	300.00 meters to corner 16,
Thence N 11° 19' E,	420.00 meters to corner 17,
Thence N 25° 10′ E,	600.00 meters to corner 18,
	·
Thence N 24° 23′ E,	350.00 meters to corner 19,
Thence N 23° 58' W,	380.00 meters to corner 20,
Thence N 07° 40′ W,	630.00 meters to corner 21,
Thence N 07° 31' W,	420.00 meters to corner 22,
Thence N 09° 05' W,	520.00 meters to corner 23,
Thence N 09° 23' W,	650.00 meters to corner 24,
Thence N 52° 30' E,	610.00 meters to corner 25,
Thence N 02° 34′ E,	460.00 meters to corner 26,
Thence N 52º 26' E,	420.00 meters to corner 27,
Thence N 61° 42′ E,	350.00 meters to corner 28,
Thence N 23° 58' E,	170.00 meters to corner 29,
•	
Thence N 31º 24' E,	610.00 meters to corner 30,
Thence S 78º 41' E,	400.00 meters to corner 31,
Thence N 35° 45′ E,	620.00 meters to corner 32,
Thence N 64° 00' E,	620.00 meters to corner 33,
Thence S 41º 23' E,	490.00 meters to corner 34,
Thence S 42° 31' W,	400.00 meters to corner 35,
Thence S 34° 34′ E,	120.00 meters to corner 36,
Thence S 11° 19' E,	200.00 meters to corner 37,
Thence S 46° 55' E,	500.00 meters to corner 38,
Thence N 58º 24' E,	600.00 meters to corner 39,
Thence S 00° 00' E,	150.00 meters to corner 40,
Thence S 90° 00' E,	330.00 meters to corner 41,
Thence S 27° 46' E,	590.00 meters to corner 42,
Thence S 45° 00' W,	310.00 meters to corner 43,
	•
Thence S 27° 46′ E,	550.00 meters to corner 44,
Thence N 59° 14′ E,	400.00 meters to corner 45,
Thence S 39° 48′ E,	450.00 meters to corner 46,
Thence S 25º 01' E,	550.00 meters to corner 47,
Thence S 25° 10' E,	500.00 meters to corner 48,
Thence S 00° 00' E,	560.00 meters to corner 49,
Thence N 90º 00' W,	300.00 meters to corner 50,
Thence S 24° 27' W,	200.00 meters to corner 51,
Thence S 47° 04' E,	380.00 meters to corner 52,
Thence S 76° 42' E,	400.00 meters to corner 53,
Thence S 07° 12' E,	560.00 meters to corner 54,
Thence S 24º 27' E,	400.00 meters to corner 55,
Thence S 21° 48′ W,	700.00 meters to corner 56,
Thence N 64° 30′ W,	400.00 meters to corner 57,
Thence S 38° 40' W,	300.00 meters to corner 58,

The same C C 20 207 5	100.00
Thence S 63° 26′ E,	100.00 meters to corner 59,
Thence S 33° 41' W,	290.00 meters to corner 60,
Thence S 29° 45′ E,	210.00 meters to corner 61,
Thence S 41° 11' W,	400.00 meters to corner 62,
Thence N 90º 00' E,	110.00 meters to corner 63,
Thence S 23° 12' W,	600.00 meters to corner 64,
Thence S 23° 34' W,	300.00 meters to corner 65,
Thence S 19° 59' E,	410.00 meters to corner 66,
Thence S 19° 30′ E,	300.00 meters to corner 67,
Thence N 77° 17' E,	670.00 meters to corner 68,
Thence S 26° 02' E,	550.00 meters to corner 69,
Thence S 04° 17′ W,	650.00 meters to corner 70,
•	
Thence S 71° 34′ E,	310.00 meters to corner 71,
Thence S 14° 11′ W,	780.00 meters to corner 72,
Thence S 36° 02′ E,	120.00 meters to corner 73,
Thence S 43° 25' W,	700.00 meters to corner 74,
Thence S 43º 09' W,	480.00 meters to corner 75,
Thence N 79° 01' W,	190.00 meters to corner 76,
Thence S 09° 28' E,	300.00 meters to corner 77,
Thence S 42° 12' W,	680.00 meters to corner 78,
Thence S 42° 05' W,	480.00 meters to corner 79,
Thence S 42° 10' W,	230.00 meters to corner 80,
Thence S 11° 13' W,	400.00 meters to corner 81,
Thence S 11° 41′ W,	570.00 meters to corner 82,
Thence N 90° 00' W,	690.00 meters to corner 83,
Thence N 90° 00' W,	425.00 meters to corner 84,
Thence N 90° 00′ W,	590.00 meters to corner 85,
Thence N 90° 00′ W,	
•	680.00 meters to corner 86,
Thence N 90° 00′ W,	430.00 meters to corner 87,
Thence N 90° 00′ W,	360.00 meters to corner 88,
Thence N 90° 00′ W,	320.00 meters to corner 89,
Thence N 39º 48' W,	480.00 meters to corner 90,
Thence N 26° 34' W,	400.00 meters to corner 91,
Thence N 26° 19' W,	470.00 meters to corner 92,
Thence N 46° 51' W,	300.00 meters to corner 93,
Thence N 46° 44' W,	470.00 meters to corner 94,
Thence N 05° 29' W,	730.00 meters to corner 95,
Thence N 79° 01' W,	341.30 meters to corner 96,
Thence S 09° 28' E,	456.20 meters to corner 97,
Thence S 48° 49' E,	265.80 meters to corner 98,
Thence S 03° 15′ E,	354.32 meters to corner 99,
Thence S 05° 29' E,	627.90 meters to corner 100,
Thence S 46° 44' E,	350.20 meters to corner 101,
Thence S 46° 51' E,	329.00 meters to corner 102,
Thence S 26° 19′ E,	507.60 meters to corner 103,
Thence S 26° 34′ E,	335.40 meters to corner 104,
Thence S 39° 48′ E,	390.50 meters to corner 105,

Thence S 90º 00' E,	320.00 meters to corner 106,
Thence S 90° 00' E,	360.00 meters to corner 107,
Thence S 90° 00' E,	430.00 meters to corner 108,
Thence S 90° 00' E,	680.00 meters to corner 109,
Thence S 90° 00' E,	590.00 meters to corner 110,
Thence S 90° 00' E,	.42500 meters to corner 111,
Thence S 90° 00' E,	500.00 meters to corner 112,
Thence N 11° 41′ E,	419.70 meters to corner 113,
Thence N 11° 13′ E,	418.70 meters to corner 114,
Thence N 42° 10′ E,	342.70 meters to corner 115,
Thence N 42° 05′ E,	485.00 meters to corner 116,
Thence N 42° 12′ E,	580.50 meters to corner 117,
Thence N 09° 28′ W,	456.20 meters to corner 118,
Thence S 79º 01' E,	541.30 meters to corner 119,
Thence N 43° 09′ E,	329.00 meters to corner 120,
Thence N 43° 25′ E,	509.30 meters to corner 121,
Thence N 36° 02′ E,	340.00 meters to corner 122,
Thence N 86° 41′ E,	270.40 meters to corner 123,
Thence N 14° 11′ E,	469.30 meters to corner 124,
Thence N 71° 34′ W,	316.20 meters to corner 125,
Thence N 04º 20' E, Thence N 04º 17' E,	290.80 meters to corner 126,
Thence N 26° 34' W,	401.10 meters to corner 127,
Thence N 26° 02' W,	559.00 meters to corner 128, 478.50 meters to corner 129,
Thence S 77° 17' W,	
Thence N 19° 30' W,	315.80 meters to corner 130, 254.60 meters to corner 131,
Thence N 19° 59' W,	468.20 meters to corner 132,
Thence N 23° 34' E,	300.00 meters to corner 133,
Thence N 23° 12′ E,	380.80 meters to corner 134,
Thence S 90° 00′ W,	280.00 meters to corner 135,
Thence N 41° 11' E,	531.60 meters to corner 136,
Thence N 29° 45′ W,	201.60 meters to corner 137,
Thence N 33° 41′ E,	180.30 meters to corner 138,
Thence N 63° 26' W,	167.70 meters to corner 139,
Thence N 18° 58' E,	169.20 meters to corner 140,
Thence N 53° 08' W,	250.00 meters to corner 141,
Thence N 60° 57' W,	360.40 meters to corner 142,
Thence N 38º 40' E,	256.10 meters to corner 143,
Thence N 38° 40′ W,	288.10 meters to corner 144,
Thence N 64° 30' W,	360.10 meters to corner 145,
Thence N 21º 48' E,	269.30 meters to corner 146,
Thence N 24° 27' W,	302.10 meters to corner 147,
Thence N 07° 12' W,	478.80 meters to corner 148,
Thence N 76° 42' W,	282.60 meters to corner 149,
Thence N 47° 04' W,	293.60 meters to corner 150,
Thence S 66° 40' W,	277.70 meters to corner 151,
Thence S 66° 48' W,	190.40 meters to corner 152,
,	- ,

Thence N 09º 50' E,	380.60 meters to corner 153,
Thence N 59° 02' E,	291.60 meters to corner 154,
Thence N 24° 27' E,	302.10 meters to corner 155,
Thence N 90° 00' E,	260.00 meters to corner 156,
Thence N 00° 00' E,	310.00 meters to corner 157,
Thence N 25° 10′ W,	
Thence N 25° 01' W,	458.50 meters to corner 158,
Thence N 39° 48' W,	496.60 meters to corner 159,
•	273.40 meters to corner 160,
Thence S 59° 14′ W,	244.40 meters to corner 161,
Thence S 59° 14′ W,	244.40 meters to corner 162,
Thence S 72° 54' W,	340.00 meters to corner 163,
Thence S 90° 00′ E,	350.00 meters to corner 164,
Thence N 50° 54′ E,	515.40 meters to corner 165,
Thence N 82º 53' E,	201.60 meters to corner 166,
Thence N 27º 46' W,	429.40 meters to corner 167,
Thence S 79° 03' W,	315.80 meters to corner 168,
Thence N 45° 00' E,	353.60 meters to corner 169,
Thence N 45° 00' E,	226.30 meters to corner 170,
Thence N 27° 48' W,	322.10 meters to corner 171,
Thence S 90° 00' W,	400.00 meters to corner 172,
Thence N 00° 00' W,	225.00 meters to corner 173,
Thence N 58° 24' W,	305.30 meters to corner 174,
Thence S 46° 24' W,	290.00 meters to corner 175,
Thence S 46° 55' W,	424.50 meters to corner 176,
Thence N 11° 19' W,	458.90 meters to corner 177,
Thence N 34° 34' W,	273.20 meters to corner 178,
Thence N 42° 31' E,	407.00 meters to corner 179,
Thence N 41° 23' W,	279.90 meters to corner 180,
Thence N 64° 00' W,	456.20 meters to corner 181,
Thence S 35° 00' W,	305.20 meters to corner 182,
Thence S 35° 45′ W,	308.10 meters to corner 183,
Thence N 78° 41' W,	407.90 meters to corner 184,
Thence S 31° 24′ W,	451.10 meters to corner 185,
Thence S 23° 58' W,	246.20 meters to corner 186,
Thence S 61° 42' W,	369.10 meters to corner 187,
Thence S 52° 26' W,	410.00 meters to corner 188,
Thence S 52° 34' W,	510.00 meters to corner 189,
Thence S 52° 30′ W,	460.00 meters to corner 190,
Thence S 09° 23' E,	552.40 meters to corner 191,
Thence S 09° 05' E,	506.40 meters to corner 192,
Thence S 07º 31' E,	•
•	458.90 meters to corner 193, 524.70 meters to corner 194,
Thence S 07° 40′ E,	•
Thence S 23° 58′ E,	492.40 meters to corner 195,
Thence S 24° 23′ W,	411.70 meters to corner 196,
Thence S 25° 10′ W,	552.50 meters to corner 197,
Thence S 11º 19' W,	433.40 meters to corner 198,
Thence S 28° 04' E.	340.00 meters to corner 199,

Thence S 45º 00' W,	459.60 meters to corner 200,	
Thence S 37° 43' E,	335.00 meters to corner 201,	
Thence S 37° 43' E,	335.00 meters to corner 202,	
Thence S 37° 42' E,	278.00 meters to corner 203,	
Thence S 13° 30' W,	385.70 meters to corner 204,	
Thence S 36° 26' W,	261.00 meters to corner 205,	
Thence S 26° 34' W,	469.60 meters to corner 206,	
Thence S 26° 34' W,	391.30 meters to corner 207,	
Thence S 48° 01' W,	336.30 meters to corner 208,	
Thence S 21° 02' W,	348.20 meters to corner 209	
Thence S 03° 00' W,	456.50 meters to corner 210	
Thence S 05° 26' E,	527.40 meters to corner 211	
Thence S 02° 29' W,	572 meters to the point of beginning containing an area of approximately	
six thousand eight hundred thirty-four hectares (6,834 has.) more or less.		

SEC. 4. Definition of Terms. -

- (a) "National Integrated Protected Area System (NIPAS)" refers to the classification and inclusion of all designated protected areas into one system pursuant to Republic Act No. 7586 or the National Integrated Protected Areas System (NIPAS) Act of 1992 to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible.
- (b) "Protected area" refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation.
- (c) "Buffer zone" refers to identified areas outside the boundaries of and immediately adjacent to designated areas that need special development control in order to avoid or minimize harm to the protected area.
- (d) "Wildlife sanctuary" refers to an area which assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for their perpetuation.
- (e) "Indigenous Cultural Community (ICC)" refers to a group of people sharing common bonds of language, customs and tradition and other distinct cultural traits, as further defined under Republic Act No. 8371 or the Indigenous Peoples Rights Act (IPRA) of 1997.
- (f) "Natural park" refers to a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural and scenic uses of national or international significance for scientific, educational and recreational use.
- (g) "Tenured migrants" refer to occupants within the protected area who have actually and continuously occupied such area for five (5) years before the designation of the same as protected area and are solely dependent therein for subsistence.

- (h) "Biodiversity" refers to the variety of life in all its forms found on earth.
- (i) "Protected Area Management Board (PAMB)" refers to a multi-sectoral body tasked in planning for the appropriate management strategy to ensure resource protection and the general administration of the protected area.
- (j) "Private rights" refers to the right of individual persons to own, under existing laws, and in the case of indigenous cultural communities, rights of possession since time immemorial, which possession may include places of abode and worship, burial grounds and well-defined territories.
- **SEC. 5. Management Plan.** A management plan and a management manual consistent with the General Management Planning Strategy (GMPS) pursuant to Republic Act No. 7586 shall be prepared by the DENR in coordination with the PAMB of the Mt. Hamiguitan Range Wildlife Sanctuary, concerned LGUs, and other sectors affected which shall serve as bases for the protection and conservation of the biodiversity of the protected area.

The management plan shall be approved by the PAMB and certified to by the DENR Secretary that it conforms to national laws, this Act, and pertinent DENR rules and regulations on protected areas.

- **SEC. 6. Administration and Management.** The Mt. Hamiguitan Range Wildlife Sanctuary shall be under the administrative jurisdiction of the DENR through the PAMB. Pursuant hereto, the following institutional arrangement is hereby adopted:
- (A) The Department of Environment and Natural Resources (DENR). The Secretary of the DENR shall have supervision over the management of Mt. Hamiguitan Range Wildlife Sanctuary, hereinafter referred to as the Protected Area (PA), and is empowered to perform any and all of the following acts:
 - (a) Cause the boundary demarcation of the PA;
 - (b) Conduct of studies on various characteristics, features and condition of the PA;
 - (c) Adopt and enforce land-use scheme and zoning plan in adjoining areas that may threaten the ecological balance in the PA;
 - (d) Certify that the PA Management Plan conforms to all national rules and regulations on protected area management, and to communicate objections, if any, to the PAMB within sixty (60) days upon receipt thereof, otherwise the PA Management Plan is considered approved;
 - (e) Coordinate with other government agencies, academic institutions, etc., for collaborative programs, projects and activities affecting the PA;
 - (f) Submit to the Office of the President and to Congress the annual report of the PA; and
 - (g) Formulate the implementing rules and regulations necessary to carry out the provisions of this Act.

(B) The Protected Area Management Board (PAMB). - There shall be a Protected Area Management Board which shall serve as the highest policy-making body of the Mt. Hamiguitan Range Wildlife Sanctuary. It shall be composed of the following: the Regional Executive Director (RED) of DENR Region XI who shall act as PAMB Chairman; the Provincial Governor of Davao Oriental or his authorized representative; the Provincial Planning and Development Officer or his authorized representative; the municipality/city mayors of Mati, San Isidro and Governor Generoso or their respective authorized representatives; all barangay captains within the Mt. Hamiguitan Range Wildlife Sanctuary; three (3) representatives from people's organizations and non-government organizations from the municipalities of Mati, San Isidro and Governor Generoso; representatives from other departments or national government agencies operating within the protected area which can potentially contribute to protected area management; and other stakeholders who can potentially contribute in the protection, preservation and conservation of the Mt. Hamiguitan Range Wildlife Sanctuary.

Specifically, the PAMB shall exercise the following powers and functions:

- 1. Review, approve and adopt a management plan for the PA;
- 2. Review the deputation of individuals/groups to augment the PA's protection personnel and thereafter indorse the list to the regional executive director for approval;
- 3. Fix and impose administrative fees for the use of the PA and fines for violations of prohibited acts in the PA;
- 4. Approve contracts and agreements consistent with the purpose of this Act except international contracts and agreements;
- Accept donations and grants in the form of contributions and endowments;
- 6. Review and approve a work and financial plan for the PA;
- 7. Coordinate with other government agencies, academic institutions, etc., involved in the management, development and conservation of the PA;
- 8. Submit an annual report to the DENR Secretary;
- 9. Delegate authority to the PAMB Executive Committee;
- 10. Prepare or cause the inventory of protected flora and fauna;
- 11. Permit, control or regulate the following within the PA:
- a. Infrastructures;
- b. Public utilities:
- c. Occupancy of appropriate management zones;

- d. Dumping of waste;
- e. Use of motorized equipment;
- f. Business enterprise;
- g. Other use of the PA such as mountain climbing, research/study; and
- h. Recreational activities.
- 12. Promulgate rules and policies for the conduct of its business; and
- 13. Initiate and file suits against entities whose existence and/or operations have detrimental effect on the PA.

(C) The DENR Regional Executive Director (RED) for Region XI. -

- a. As chairman of the PAMB, sign/approve contracts and agreements consistent with this Act except international contracts and agreements; and
- b. Approve the deputation of field officers.
- **(D)** The Protected Area Superintendent's Office (PASO). There is hereby created a Protected Area Superintendent's Office which shall be supported by a sufficient number of personnel who shall perform day-to-day management, protection and administration of the PA. The head of the office shall be the chief operation officer of the Mt. Hamiguitan Range Wildlife Sanctuary and shall be accountable to the RED of the DENR-Region XI and the PAMB.
- **SEC. 7. Existing Facilities Within the PA.** Existing facilities within the PA prior to the enactment of this Act shall be subjected to inventory and assessment by the PAMB using its own criteria which shall consider the impact of said facilities on the PA, on biodiversity conservation, resolution of possible conflict between public interest against local interest and national significance of said facilities.

The PAMB, through the PASO, shall monitor the operations of said facilities and shall recommend appropriate actions/measures if said facilities are found not consistent with the purpose of this Act. The PAMB shall also impose royalties or administrative fees or adopt a profit sharing scheme on said facilities subject to negotiations with concerned proponent/s.

- **SEC. 8. Ancestral Lands and Rights Over Them**. Ancestral lands and domain within the PA shall be recognized and managed pursuant to Republic Act No. 8371.
- **SEC. 9. Tenured Migrants.** Tenured migrants shall be eligible to become stewards of portions of land within production zones as may be designated by the DENR and from which they may derive subsistence. The DENR shall develop an appropriate tenurial instrument for these inhabitants within the PA.

Tenured migrants shall be considered and treated individually or per household on the basis of head of families with legitimate dependents.

Tenured migrants occupying portions of ancestral domain shall be treated separately. The PAMB shall develop appropriate mechanisms to resolve any dispute arising therein. Absentee/transient migrants in the PA who do not qualify as tenured migrants shall not be eligible to become stewards of portions of land within multiple-use and sustainable zones.

SEC. 10. Other Activities Within the PA. - Proposals for activities like construction of dams, irrigation, canals, transmission lines, access roads/trails and buildings which are outside the scope of the management plan for the PA shall, upon permission of the PAMB, be subject to an environmental impact assessment as required by law before they are adopted, and the results thereof shall be taken into consideration in the decision-making process. No actual implementation of such activities shall be allowed without the required Environmental Compliance Certificate (ECC) under the Philippine Environment Impact Assessment (EIA) System. In instances where such activities are to be undertaken, the proponent shall plan and carry them out in such manner as will minimize any adverse effects and take preventive and remedial action when appropriate. The proponent shall be liable for damage due to lack of caution or indiscretion.

The PAMB shall determine what activities for the essential use of the communities shall be allowed consistent with the management plan and based on biodiversity criteria and management zoning plan.

Areas under the management of other agencies of the government shall be integrated in the overall management plan of the PA.

SEC. 11. Local Government Units (LGUs). - The local government units (LGUs) within the PA shall be bound to follow the management plan and adopt it once approved. The LGUs shall not pass ordinances to amend the management plan nor shall the management plan be overturned by an ordinance.

Segregation of portions of the PA for LGU use, such as tourism and industrial estate, shall be assessed based on biodiversity criteria and consistent with the management plan of the PA.

Any development/project proposals of the LGU within the PA shall, prior to its implementation, be reviewed, evaluated and approved by the PAMB.

SEC. 12. Integrated Protected Areas Fund (IPAF). - There is hereby established a trust fund to be known as the Integrated Protected Areas Fund (IPAF) for purposes of financing projects of the system. All incomes generated from the operation of the system or management of wild flora and fauna in the PA shall accrue to the fund. These income shall be derived from fees from permitted sale and export of flora and fauna and other resources from the PA, proceeds from lease of multiple-use areas, contributions from industries and facilities directly benefiting from the PA; and such other fees and incomes derived from the operation of the PA.

The fund may be augmented by grants, donations, endowment from various sources, domestic or foreign, for purposes related to their functions: Provided, That the fund shall be deposited as

a special account in the National Treasury and disbursements therefrom shall be made solely for the protection, maintenance, administration and management of the system, and duly approved projects endorsed by the PAMB in accordance with existing accounting and budgeting rules and regulations: Provided, further, That no amount shall be disbursed for the operating expenses of the Department and other concerned agencies.

All donations, grants, endowments shall be exempted from the donor's tax and all other taxes, charges and fees imposed by the government.

SEC. 13. Special Prosecutors. - The Department of Justice (DOJ) shall designate special prosecutors to prosecute violations of laws, rules and regulations in the PA.

SEC. 14. Prohibited Acts. - The following acts are prohibited within the PA:

- 1. Cutting, gathering or collecting timber or other forest products without license. Any person who shall cut, gather, collect, remove timber or other forest products from any forest land within the PA without any authority under a license or permit, or possess timber or other forest products without the legal documents as required under existing forestry laws and regulations, shall be guilty of qualified theft as defined and punishable under Articles 309 and 310 of the Revised Penal Code.
- Squatting. Any person who with the use of force, intimidation or threat, or taking advantage of the absence or tolerance of the landowner/claimant, succeeds in occupying or possessing the property/claim of the latter, against his will for residential, commercial or any other purposes, shall be punished by imprisonment ranging from six (6) months to one (1) year or a fine of not less than One thousand pesos (P1,000.00) nor more than Five thousand pesos (P5,000.00) at the discretion of the court, with subsidiary imprisonment in case of insolvency.
 - If the offender is a corporation or association, the maximum penalty of five (5) years imprisonment and a fine of Five thousand pesos (P5, 000.00) shall be imposed upon the president, director, manager or managing partners thereof.
- 3. Unlawful occupation or destruction of forest lands within the PA. Any person who enters and occupies or possesses or makes kaingin for his own private use or for others any land within the PA without any authority or permit from the PAMB or in any manner destroys such land or part thereof or causes any damage to the timber stand and other forest products and forest growths found therein shall be punishable by the penalties provided for in Section 15 hereof.
- 4. Except as may be allowed by the nature of their categories and pursuant to the rules and regulations governing the same, the following additional acts are prohibited within the PA and shall subject those found guilty by the penalties provided for in Section 15 hereof.
 - a. Hunting, destroying, disturbing, or more possession of any plant or animal or products derived therefrom without a permit from concerned authorities;

b. Dumping of any waste products detrimental to the PA, or to the plants and animals or inhabitants therein;

- c. Using any motorized equipment without a permit from the PAMB;
- d. Mutilating, defacing or destroying objects of natural beauty, or objects of interest to cultural communities;
- e. Damaging and leaving roads and trails in a damaged condition;
- f. Mineral exploration and survey of energy resources;
- g. Constructing or maintaining any kind of structure, fence or enclosures, and conducting any business enterprise without a permit;
- h. Leaving in exposed or unsanitary conditions refuse or debris, or depositing such in the grounds or in bodies of water;
- Altering, removing, destroying or defacing boundary markers, monuments or interpretative signs; and
- j. Entry without a permit of the following:
- 1. Mountain climbers;
- 2. Campers;
- 3. Spelunkers;
- 4. Study/research groups/individuals; and
- 5. Visitors.
 - k. Mining, sand and gravel quarrying/extraction; and
 - I. Buying, selling or transferring of rights over any land within the PA.
- **SEC. 15. Penalties.** Whoever is found guilty of the acts prohibited under this Act or any rules and regulations issued by the Department pursuant to this Act or whoever is found guilty by competent court of justice of any of the offenses in the preceding section shall be penalized with a fine of not less than Five thousand pesos (P5,000.00) nor more than Five hundred thousand pesos (P500,000.00), exclusive of the value of the thing damaged, or imprisonment for not less than one (1) year but not more than six (6) years, or both, as determined by the court: Provided, That the offender shall also be required to restore or compensate for the restoration to the damage: Provided, further, That the court shall order the eviction of the offender from the land and the forfeiture in favor of the government of all minerals, timber, or any species collected or removed including all equipment, devices and firearms used in connection therewith, or any construction

or improvements made thereon by the offender. If the offender is an association or corporation, the president or manager shall be directly responsible for the act of his employees and laborers: Provided, finally, That the DENR shall impose administrative fines and penalties it may deem fit and consistent with this Act.

SEC. 16. Appropriations. - The Secretary of the DENR shall include in its program the implementation of this Act, the funding of which shall be charged against the IPAF constituted under this Act.

SEC. 17. Transitory Provisions. - All regular DENR and other personnel assigned/detailed with the Office of the Mt. Hamiguitan Range Wildlife Sanctuary of the DENR-Region XI prior to the approval of this Act will form part of the PA regular staff.

Portions of the PA which are within the jurisdiction of the Provincial Environment and Natural Resources Office (PENRO) and the Community Environment and Natural Resources Office (CENRO) in Davao Oriental, as the case may be, shall be transferred to the administrative jurisdiction of the PA.

SEC. 18. Separability Clause. - If any part or section of this Act is declared unconstitutional, such declaration shall not affect in any manner the other parts or sections of this Act.

SEC. 19. Repealing Clause. - All laws, presidential decrees, executive orders, rules and regulations inconsistent with any provision of this Act shall be deemed repealed or modified accordingly.

SEC. 20. Effectivity Clause. - This Act shall take effect fifteen (15) days after its publication in two (2) newspapers of general circulation.

Approved.

(Sgd.) FRANKLIN M. DRILON President of the Senate (Spec) JOSE DE VENECIA JR.

Speaker of the House of Representatives

This Act which is a consolidation of House Bill No. 5772 and Senate Bill No. 2501 was finally passed by the House of Representatives and the Senate on October 6, 2003 and September 10, 2003, respectively.

(Sgd.) OSCAR G. YABES Secretary of the Senate Setretary General House of Representatives

Approved February 3, 2004

(Sed.) GLORIA MACAPAGAL ARROYO President of the Philippines

APPENDIX 2

Republic Act 7586

An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining Its Scope and Coverage and for Other Purposes

SECTION 1. Title. — This Act shall be known and referred to as the "National Integrated Protected Areas System Act of 1992."

SECTION 2. Declaration of Policy. — Cognizant of the profound impact of man's activities on all components of the natural environment particularly the effect of increasing population, resource exploitation and industrial advancement and recognizing the critical importance of protecting and maintaining the natural biological and physical diversities of the environment notably on areas with biologically unique features to sustain human life and development as well as plant and animal life, it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution.

It is hereby recognized that these areas, although distinct in features, possess common ecological values that may be incorporated into a holistic plan representative of our natural heritage; that effective administration of these areas is possible only through cooperation among national government, local government and concerned private organizations; that the use and enjoyment of these protected areas must be consistent with the principles of biological diversity and sustainable development.

To this end, there is hereby established a National Integrated Protected Areas System (NIPAS), which shall encompass outstandingly remarkable areas and biologically important public lands that are habitants of rare and endangered species of plants and animals, biogeographic zones and related ecosystems, whether terrestrial, wetland or marine, all of which shall be designated as "protected areas."

SECTION 3. Categories. — The following categories of protected areas are hereby established:

- (a) Strict nature reserve;
- (b) Natural park;
- (c) Natural monument;
- (d) Wildlife sanctuary;
- (e) Protected landscape and seascapes;
- (f) Resource reserve;
- (g) Natural biotic areas; and
- (h) Other categories established by law, conventions or international agreements which the Philippine Government is a signatory.

SECTION 4. Definition of Terms. — For purposes of this Act, the following terms shall be defined as follows:

- (a) "National Integrated Protected Areas Systems (NIPAS)" is the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible;
- (b) "Protected area" refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation;

(c) "Buffer zones" are identified areas outside the boundaries of and immediately adjacent to designated protected areas pursuant to Section 8 that need special development control in order to avoid or minimize harm to the protected area;

- (d) "Indigenous cultural community" refers to a group of people sharing common bonds of language, customs, traditions and other distinctive cultural traits, and who have, since time immemorial, occupied, possessed and utilized a territory;
- (e) "National park" refers to a forest reservation essentially of natural wilderness character which has been withdrawn from settlement, occupancy or any form of exploitation except in conformity with approved management plan and set aside as such exclusively to conserve the area or preserve the scenery, the natural and historic objects, wild animals and plants therein and to provide enjoyment of these features in such areas;
- (f) "Natural monument" is a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics;
- (g) "Natural biotic area" is an area set aside to allow the way of life of societies living in harmony with the environment to adopt to modern technology at their pace;
- (h) "Natural park" is a relatively large area not materially altered by human activity where extractive resources uses are not allowed and maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational use;
- (i) "Protected landscapes/seascapes" are areas of national significance which are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas;
- (j) "Resources reserve" is an extensive and relatively isolated and uninhabited area normally with difficult access designated as such to protect natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning;
- (k) "Strict nature reserve" is an area possessing some outstanding ecosystem, features and/ or species of flora and fauna of national scientific importance maintained to protect nature and maintain processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education, and for the maintenance of genetic resources in a dynamic and evolutionary state;
- (I) "Tenured migrant communities" are communities within protected areas which have actually and continuously occupied such areas for five (5) years before the designation of the same as protected areas in accordance with this Act and are solely dependent therein for subsistence; and
- (m) "Wildlife sanctuary" comprises an area which assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for their perpetuation.

SECTION 5. Establishment and Extent of the System. — The establishment and operationalization of the System shall involve the following:

- (a) All areas or islands in the Philippine proclaimed, designated or set aside, pursuant to a law, presidential decree, presidential proclamation or executive order as national park, game refuge, bird and wildlife sanctuary, wilderness are, strict nature reserve, watershed, mangrove reserve, fish sanctuary, natural and historical landmark, protected and managed landscape/seascapes as well as identified virgin forests before the effectivity of this Act are hereby designated as initial components of the System. The initial components of the System shall be governed by existing laws, rules and regulations, not inconsistent with this Act;
- (b) Within one (1) year from the effectivity of this Act, the DENR shall submit to the Senate and the House of Representatives a map and legal description or natural boundaries of each protected area initially comprising the System. Such maps and legal descriptions shall, by virtue of this Act, constitute the official documentary representation of the entire System, subject to such changes as Congress deems necessary;
- (c) All DENR records pertaining to said protected areas, including maps and legal descriptions or natural boundaries, copies of rules and regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications shall be made available to the public.
 - These legal documents pertaining to protected areas shall also be available to the public in the respective DENR Regional Offices, Provincial Environment and Natural Resources Offices (PENROs) and Community Environment and Natural Resources Offices (CENROs) where NIPAS areas are located;
- (d) Within three (3) years from the effectivity of this Act, the DENR shall study and review each area tentatively composing the System as to its suitability or nonsuitability for preservation as protected area and inclusion in the System according to the categories established in Section 3 hereof and report its findings to the President as soon as each study is completed. The study must include in each area:
 - (1) A forest occupants survey;
 - (2) An ethnographic study;
 - (3) A protected area resource profile;
 - (4) Land use plans done in coordination with the respective Regional Development Councils; and
 - (5) Such other background studies as will be sufficient bases for selection.

The DENR shall:

- (i) Notify the public of the proposed action through publication in a newspaper of general circulation, and such other means as the System deems necessary in the area or areas in the vicinity of the affected land thirty (30) days prior to the public hearing.
- (ii) Conduct public hearing at the locations nearest to the area affected;
- (iii) At the least thirty (30) days prior to the date of hearing advise all local government

units (LGUs) in the affected areas, national agencies concerned, people's organizations and nongovernment organizations and invite such officials to submit their views on the proposed action at the hearing not later than thirty (30) days following the date of the hearing; and

- (iv) Give due consideration to the recommendations at the public hearing; and provide sufficient explanation for his recommendations contrary to the general sentiments expressed in the public hearing;
- (e) Upon receipt of the recommendations of the DENR the President shall issue a presidential proclamation designating the recommended areas as protected areas and providing for measures for their protection until such time when Congress shall have enacted a law finally declaring such recommended areas as part of the integrated protected area system; and
- (f) Thereafter, the President shall send to the Senate and the House of Representatives his recommendations with respect to the designations as protected areas or reclassification of each area on which review has been completed, together with maps and legal description of boundaries. The President, in his recommendation, may propose the alteration of existing boundaries of any or all proclaimed protected areas, additional of any contiguous area of public land of predominant physical and biological value. Nothing contained herein shall limit the President to propose, as part of this recommendation to Congress, additional areas which have not been designated, proclaimed or set aside by law, presidential decree, proclamation or executive order as protected area/s.

SECTION 6. Additional Areas to be Integrated to the System. — Notwithstanding the establishment of the initial component of the System, the Secretary shall propose the inclusion in the System of additional areas with outstanding physical features, anthropological significance and biological diversity in accordance with the provisions of Section 5(d).

SECTION 7. Disestablishment as Protected Area. — When in the opinion of the DENR a certain protected area should be withdrawn or disestablished, or its boundaries modified as warranted by a study and sanctioned by the majority of the members of the respective boards for the protected area as herein established in Section 11, it shall, in turn, advice Congress. Disestablishment of a protected area under the System or modification of its boundary shall take effect pursuant to an act of Congress.

Thereafter, said area shall revert to the category of public forest unless otherwise classified by Congress: Provided, however, That after disestablishment by Congress, the Secretary may recommend the transfer of such disestablished area to other government agencies to serve other priority programs of national interest.

SECTION 8. Buffer Zones. — For each protected area, there shall be established peripheral buffer zones which necessary, in the same manner as Congress establishes the protected area, to protect the same from activities that will directly and indirectly harm it. Such buffer zones shall be included in the individual protected area management plan that shall be prepared for each protected area. That DENR shall exercise its authority over protected areas as provided in this Act on such area designated as buffer zones.

SECTION 9. Management Plans. — There shall be a general management planning strategy to serve as guide in formulating individual plans for each protected area. The management planning strategy shall, at the minimum, promote the adoption and implementation of innovative management techniques including, if necessary, the concept of zoning, buffer zone management for multiple use and protection, habitat conservation and rehabilitation, diversity management, community organizing, socioeconomic and scientific researches, site-specific policy development, pest management, and fire control. The management planning strategy shall also provide guidelines for the protection of indigenous cultural communities, other tenured migrant communities and sites and for close coordination between and among local agencies of the Government as well as the private sector.

Each component area of the System shall be planned and administered to further protect and enhance the permanent preservation of its natural conditions.

A management manual shall be formulated and developed which must contain the following: an individual management plan prepared by three (3) experts, basic background information, field inventory of the resources within the area, an assessment of assets and limitation, regional interrelationships, particular objectives for managing the area, appropriate division of the area into management zones, a review of the boundaries of the area, and a design of the management programs.

SECTION 10. Administration and Management of the System. — The National Integrated Protected Areas System is hereby placed under the control and administration of the Department of Environment and Natural Resources. For this purpose, there is hereby created a division in the regional offices of the Department to be called the Protected Areas and Wildlife Division in regions where protected areas have been established, which shall be under the supervision of a Regional Technical Director, and shall be include subordinate officers, clerks, and employees as may be proposed by the Secretary, duly approved by the Department of Budget and Management, and appropriated for by Congress. The Service thus established shall manage protected areas and promote the permanent preservation, to the greatest extent possible of their natural conditions. To carry out the mandate of this Act, the Secretary of the DENR is empowered to perform any and all of the following acts:

- (a) To conduct studies on various characteristic features and conditions of the different protected areas, using commonalities in their characteristics, classify and define them into categories and prescribe permissible or prohibited human activities in each category in the System;
- (b) To adopt and enforce a land-use scheme and zoning plan in adjoining areas for the preservation and control of activities that may threaten the ecological balance in the protected areas;
- (c) To cause the preparation of and exercise the power to review all plans and proposals for the management of protected areas;
- (d) To promulgate rules and regulations necessary to carry out the provisions of this Act;
- (e) To deputize field officers and delegate any of his powers under this Act and other laws to expedite its implementation and enforcement;
- (f) To fix and prescribe reasonable NIPAS fees to be collected from government agencies or any person, firm or corporation deriving benefits from the protected areas;

(g) To exact administrative fees and fines as authorized in Section 21 for violations of guidelines, rules and regulations of this Act as would endanger the viability of protected areas;

- (h) To enter into contracts and/or agreements with private entities or public agencies as may be necessary to carry out the purposes of this Act;
- To accept in the name of the Philippine Government and in behalf of NIPAS funds, gifts
 or bequests of money for immediate disbursements or other property in the interest of
 the NIPAS, its activities, or its services;
- (j) To call on any agency or instrumentality of the Government as well as academic institutions, nongovernment organizations and the private sector as may be necessary to accomplish the objectives and activities of the System;
- (k) To submit an annual report to the President of the Philippines and to Congress on the status of protected areas in the country;
- (I) To establish a uniform marker for the System, including an appropriate and distinctive symbol for each category in the System, in consultation with appropriate government agencies and public and private organizations;
- (m) To determine the specification of the class, type and style of buildings and other structures to be constructed in protected areas and the materials to be used;
- (n) Control the construction, operation and maintenance of roads, trails, waterworks, sewerage, fire protection, and sanitation systems and other public utilities within the protected area;
- (o) Control occupancy of suitable portions of the protected area and resettle outside of said area forest occupants therein, with the exception of the members of indigenous communities; and
- (p) To perform such other functions as may be directed by the President of the Philippines, and to do such acts as may be necessary or incidental to the accomplishment of the purpose and objectives of the System.

SECTION 11. Protected Area Management Board. — A Protected Area Management Board for each of the establishment protected area shall be created and shall be composed of the following: the Regional Executive Director under whose jurisdiction the protected area is located; one (1) representative from the autonomous regional government, if applicable; the Provincial Development Officer; one (1) representative from the municipal government; one (1) representative from each barangay covering the protected area; one (1) representative from each tribal community, if applicable; and, at least three (3) representatives from nongovernment organizations/local community organizations, and if necessary, one (1) representative from other departments or national government agencies involved in protected area management.

The Board shall, by a majority vote, decide the allocations for budget, approve proposals for funding, decide matters relating to planning, peripheral protection and general administration of the area in accordance with the general management strategy. The members of the Board shall serve for a term of five (5) years without compensation, except for actual and necessary traveling and subsistence expenses incurred in the performance of their duties. They shall be appointed by the Secretary of the DENR as follows:

- (a) A member who shall be appointed to represent each local government down to barangay level whose territory or portion is included in the protected area. Each appointee shall be the person designated by the head of such LGU, except for the Provincial Development Officer who shall serve ex officio;
- (b) A member from nongovernment organizations who shall be endorsed by heads of organizations which are preferably based in the area or which have established and recognized interest in protected areas;
- (c) The RED/s in the region/s where such protected area lies shall sit as ex officio member of the Board and shall serve as adviser/s in matters related to the technical aspect of management of the area; and
- (d) The RED shall act as chairman of the Board. when there are two (2) or more REDs in the Board, the secretary shall designate one (1) of them to be the Chairman. Vacancies shall be filled in the same manner as the original appointment.

SECTION 12. Environmental Impact Assessment. — Proposals for activities which are outside the scope of the management plan for protected areas shall be subject to an environmental impact assessment as required by law before they are adopted, and the results thereof shall be taken into consideration in the decision-making process. No actual implementation of such activities shall be allowed without the required Environmental Compliance Certificate (ECC) under the Philippines Environment Impact Assessment (ELA) system. In instances where such activities are allowed to be undertaken, the proponent shall plan and carry them out in such manner as will minimize any adverse effects and take preventive and remedial action when appropriate. The proponent shall be liable for any damage due to lack of caution or indiscretion.

SECTION 13. Ancestral Lands and Rights Over Them. — Ancestral lands and customary rights and interest arising shall be accorded due recognition. The DENR shall prescribe rules and regulations to govern ancestral lands within protected areas: Provided, That the DENR shall have no power to evict indigenous communities from their present occupancy nor resettle them to another area without their consent: Provided, however, That all rules and regulations, whether adversely affecting said communities or not, shall be subjected to notice and hearing to be participated in by members of concerned indigenous community.

SECTION 14. Survey for Energy Resources. — Consistent with the policies declared in Section 2 hereof, protected areas, except strict nature reserves and natural parks, may be subjected to exploration only for the purpose of gathering information on energy resources and only if such activity is carried out with the least damage to surrounding areas. Surveys shall be conducted only in accordance with a program approved by the DENR, and the result of such surveys shall be made available to the public and submitted to the President for recommendation to Congress. Any exploitation and utilization of energy resources found within NIPAS areas shall be allowed only through a law passed by Congress.

SECTION 15. Areas Under the Management of Other Departments and Government Instrumentalities. — Should there be protected areas, or portions thereof, under the jurisdiction of government instrumentalities other than the DENR, such jurisdiction shall, prior to the passage of this Act, remain in the said department or government instrumentality:

Provided, That the department or government instrumentality exercising administrative jurisdiction over said protected area or a portion thereof shall coordinate with the DENR in the preparation of its management plans, upon the effectivity of this Act.

SECTION 16. Integrated Protected Areas Fund. — There is hereby established a trust fund to be known as Integrated Protected Areas (IPAS) Fund for purposes of financing projects of the System. The IPAS may solicit and receive donations, endowments, and grants in the form of contributions, and such endowments shall be exempted from income or gift taxes and all other taxes, charges or fees imposed by the Government for any political subdivision or instrumentality thereof.

All incomes generated from the operation of the System or management of wild flora and fauna shall accrue to the Fund and may be utilized directly by the DENR for the above purpose. These incomes shall be derived from:

- (a) Taxes from the permitted sale and export of flora and fauna and other resources from protected areas;
- (b) Proceeds from lease of multiple-use areas;
- (c) Contributions from industries and facilities directly benefiting from the protected areas; and
- (d) Such other fees and incomes derived from the operation of the protected area. Disbursements from the Fund shall be made solely for the protection, maintenance, administration, and management of the System, and duly approved projects endorsed by the PAMBs, in the amounts authorized by the DENR.

SECTION 17. Annual Report to Congress. — At the opening of each session of Congress, the DENR shall report to the President, for transmission to Congress, on the status of the System, regulation in force and other pertinent information, together with recommendations.

SECTION 18. Field Officers. — All officials, technical personnel and forest guards employed in the integrated protected area service or all persons deputized by the DENR, upon recommendation of the Management Board shall be considered as field officers and shall have the authority to investigate and search premises and buildings and make arrests in accordance with the rule on criminal procedure for the violation of laws and regulation relating to protected areas. Persons arrested shall be brought to the nearest police precinct for investigation.

Nothing herein mentioned shall be constructed as preventing regular law enforcers and police officers from arresting any person in the act of violating said laws and regulating.

SECTION 19. Special Prosecutor. — The Department of Justice shall designate special prosecutors to prosecute violations of laws rules and regulations in protected areas.

SECTION 20. Prohibited Acts. — Except as may be allowed by the nature of their categories and pursuant to rules and regulations governing the same, the following acts are prohibited within protected areas:

(a) Hunting, destroying, disturbing, or mere possession of any plants or animals or products derived therefrom without a permit from the Management Board;

- (b) Dumping of any waste products detrimental to the protected area, or to the plants and animals or inhabitants therein;
- (c) Use of any motorized equipment without a permit from the Management Board;
- (d) Mutilating, defacing or destroying objects of natural beauty or objects of interest to cultural communities (of scenic value);
- (e) Damaging and leaving roads and trails in a damaged condition;
- (f) Squatting, mineral locating, or otherwise occupying any land;
- (g) Constructing or maintaining any kind of structure, fences or enclosures, conducting any business enterprise without a permit;
- (h) Leaving in exposed or unsanitary conditions refuse or debris, or depositing in ground or in bodies of water; and
- (i) Altering, removing destroying or defacing boundary marks or signs.

SECTION 21. Penalties. — Whoever violates, this Act or any rules and regulations issued by the Department pursuant to this Act or whoever is found guilty by a competent court of justice of any of the offenses in the preceding section shall be fined in the amount of not less than Five thousand pesos (P5,000) nor more than Five hundred thousand pesos (P500,000), exclusive of the value of the thing damaged or imprisonment for not less than one (1) year but not more than six (6) years, or both, as determined by the court:

Provided, That, if the area requires rehabilitation or restoration as determined by the court, the offender shall also be required to restore or compensate for the restoration to the damage: Provided, further, That the court shall order the eviction of the offender from the land and the forfeiture in favor of the Government of all minerals, timber or any species collected or removed including all equipment, devices and firearms used in connection therewith, and any construction or improvement made thereon by the offender. If the offender is an association or corporation, the president or manager shall be directly responsible for the act of his employees and laborers: Provided, finally, That the DENR may impose administrative fines and penalties consistent with this Act.

SECTION 22. Separability Clause. — If any part or section of this Act is declared unconstitutional, such declaration shall not affect the other parts or sections of this Act.

SECTION 23. Repealing Clause. — All laws, presidential decrees, executive orders, rules and regulations inconsistent with any provisions of this Act shall be deemed repealed or modified accordingly.

SECTION 24. Effectivity Clause. — This Act shall take effect fifteen (15) days after its complete publication in two (2) newspapers of general circulation.

Approved;

(SGD) NEPTALI A. GONZALES
President of the Senate

(SGD) RAMON V. MITRA Speaker of the House of Representative

This Act which is a consolidation of House Bill No. 34696 and Senate Bill No. 1914 was finally passed by the House of Representatives and the Senate on February 6, 1992.

(SGD) ANACLETO D. BADOY, JR. Secretary of the Senate

(SGD)CAMILO L. SABIO Secretary General House of Representatives Approved: June 01 1992

(SGD.) CORAZON C. AQUINO President of the Philippines

APPENDIX 2 (A)

DAO 2008-26

Revised Implementing Rules and Regulations of Republic Act No. 7586 or the National Integrated Protected Areas System (NIPAS) Act of 1992



Republic of the Philippines Department of Environment and Natural Resources

Visayas Avenue, Diliman, Quezon City Tel Nos. (632) 929-66-26 to 29 •(632) 929-62-52 929-66-20 to 29 •929-66-33 to 35 929-70-41 to 43

DEC 2 4 2008

DENR ADM	INISTRATI	VE ORDER
No. 2008 -	26	

SUBJECT: REVISED IMPLEMENTING RULES AND REGULATIONS OF REPUBLIC ACT NO. 7586 or THE NATIONAL INTEGRATED PROTECTED AREAS SYSTEM (NIPAS) ACT OF 1992

Pursuant to Section 10(d) of the NIPAS Act and consistent with the Wildlife Resources Conservation and Protection Act (R.A. No. 9147), Caves and Cave Resources Management and Protection Act (R.A. No. 9072), Philippine Mining Act of 1995 (R.A. No. 7942), and other laws establishing the specific components of the NIPAS, DENR Administrative Order No. 25, Series of 1992 which is the Implementing Rules and Regulations of the NIPAS Act, is hereby revised incorporating and integrating all existing regulations relevant thereto.

Rule 1. Title. - This Administrative Order shall be known as the Revised Implementing Rules and Regulations of the NIPAS Act of 1992.

Rule 2. Declaration of Policy. - Cognizant of the profound impact of man's activities on all components of the natural environment particularly the effect of increasing population, resource exploitation and industrial advancement and recognizing the critical importance of protecting and maintaining the natural biological diversities of the environment notably on areas with biologically unique features, it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants, animals and other organisms, through the establishment of a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution.

It is hereby recognized that these areas may be incorporated into a national landsea use planning framework consistent with global trends and standards such as those provided in the Convention on Biological Diversity and other international agreements; that effective administration of these areas is possible only through cooperation among national government, local government, concerned private organizations and local communities; and that the use and enjoyment of these protected areas must be consistent with the principles of biological diversity, sustainable development and protection of cultural heritage.

To this end, there is hereby established a National Integrated Protected Areas System (NIPAS), which shall encompass outstandingly remarkable areas and biologically important public lands and ancestral domains that are habitats of rare and endangered species of plants and animals, bio-geographic zones and related ecosystems, whether terrestrial, wetlands or marine, all of which shall be designated as "protected areas".

- 2.1 The following shall be the specific policies governing the establishment and management of the NIPAS:
 - 2.1.1 There shall be a policy of contiguousness of protected areas and the use of police power and eminent domain to make each protected area whole, if necessary and applicable.
 - 2.1.2 Protected areas should complement each other in terms of taxonomic representation, actual species migration patterns, maintenance of essential ecological processes and life support systems, and efficiency in conservation costs.
 - 2.1.3 The management plan of protected areas shall be integrated with the comprehensive land use plan of the local government units.
 - 2.1.4 The management of the NIPAS shall contribute to achievement of significant reduction in the rate of biodiversity loss in the short-term and help in the development of long-term targets.
- 2.2 In order to achieve the above specific policies of the NIPAS, the following strategies are hereby adopted:
 - 2.2.1 In selecting areas for inclusion in the NIPAS, the conservation priority areas in each of the identified biogeographic zones in both aquatic and terrestrial environments shall be primarily considered.
 - 2.2.2 The NIPAS should complement and be consistent with the establishment, creation or designation of similar conservation areas under other relevant laws.

2.2.3 The sustainability of the NIPAS depends on the collaboration of all stakeholders through a functional, transparent, accountable and participatory governance mechanism; the judicious use of the Integrated Protected Areas Fund; and the development of other mechanisms for maintaining the viability of managing protected areas prescribed under the Act.

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Rule 3. Scope and Coverage. - This Order shall apply to all protected areas established under the NIPAS and all initial components as provided in the NIPAS Act, subject to Congressional enactments governing particular protected areas.

This Order shall likewise set forth in detail the processes by which the DENR and other concerned institutions and agencies will establish, administer, manage and disestablish protected areas.

- Rule 4. Categories and Criteria in the Determination of Appropriate Category of a Protected Area. The categories and criteria herein set forth shall be used in establishing the appropriate category of a protected area.
 - 4.1 Protected areas shall be categorized as follows:
 - 4.1.1 Strict nature reserve;
 - 4.1.2 Natural park;
 - 4.1.3 Natural monument;
 - 4.1.4 Wildlife sanctuary;
 - 4.1.5 Protected landscapes and seascapes;
 - 4.1.6 Resource reserve;
 - 4.1.7 Natural biotic areas; and
 - 4.1.8 Other categories established by law, conventions or international agreements which the Philippine Government is a signatory.
 - 4.2 The following criteria shall be applied to determine the appropriate category for a proposed protected area under the NIPAS:
 - 4.2.1 Natural Features pertain to the representativeness of the various ecosystems, the diversity of biota and

habitats and the ecological processes in the proposed protected area;

- 4.2.2 Management Objectives pertain to the range of possible objectives for managing a proposed protected area that are attuned to the natural features and/or prevailing socio-economic conditions such as, but not limited to: ecosystems, species, and genetic conservation; protection of specific natural and cultural features; conservation education and environmental monitoring; protection of the rights of ICCs/IPs; and integrated conservation and development; and
- 4.2.3 Allowable Human Activities pertain to the degree of possible allowable uses of the various natural resources based on the over-all assessment of the proposed protected area.

The determination of the category of the proposed protected area shall be consistent with the Protected Area Category Matrix attached as Annex A.

4.3 Other criteria used in establishing categories not specifically listed in the NIPAS Act or in this Order but have been established by law, or through convention or international agreements which the Philippine Government is a party, may be considered in the establishment of the area provided it supports biodiversity conservation and sustainable development.

Rule 5. Definition of Terms. - For purposes of this Order, the following terms shall be defined as follows:

- 5.1 Buffer zones are identified areas outside the boundaries of an immediately adjacent to designated protected areas pursuant to Section 8 of the NIPAS Act that need special development control in order to avoid or minimize harm to the protected area;
- 5.2 Central Integrated Protected Area Fund refers to the trust fund directly administered by the DENR through the Protected Areas and Wildlife Bureau (PAWB) representing the twenty-five per cent (25%) of the revenues from different protected areas primarily to sustainably support the operations of the NIPAS;
- 5.3 Delineation refers to the actual ground survey of the boundaries of protected areas and/or its management zones using Global Positioning System (GPS) or other applicable surveying

- instruments/technologies with the intention to come up with a map of the area;
- 5.4 Demarcation refers to the establishment of the boundaries of a protected area and/or management zone using visible markers/monuments, buoys in case of marine areas, and known natural features/landmarks, among others, as a result of the actual ground delineation;
- 5.5 Extractive resource use refers to the removal of any natural resources from the protected area which include, but not limited to all mining activities, commercial logging, harnessing and utilization of non-renewable energy resources, major dams and hydroelectric power projects;
- 5.6 Household refers to an individual or aggregate of persons, generally but not necessarily bound by ties of kinship, who reside in the same dwelling unit and have common arrangements for the preparation and consumption of food. It is necessary that the aggregate of persons should recognize one of them as the head of the household;
- 5.7 Household Head refers to member of the household who is responsible for the care and organization of the household or the one who is regarded as such by the members of the household;
- 5.8 Indigenous Peoples - synonymous with Indigenous Cultural Communities (ICCs) as defined in the NIPAS Act. As defined in RA 8371 or IPRA, it refers to a group of people or homogenous societies identified by self-ascription and ascription by others, who have continuously lived as organized community on communally bounded and defined territory, and who have, under claims of ownership since time immemorial, occupied, possessed and utilized such territories, sharing common bonds of language, customs, traditions and other distinctive cultural traits, or who have, through resistance to political, social and cultural inroads of colonization, non-indigenous religions and cultures, became historically differentiated from the majority of Filipinos. IPs shall likewise include peoples who are regarded as indigenous on account of their descent from the populations which inhabited the country, at the time of conquest or colonization, or at the time of inroads of non-indigenous religions and cultures, or the establishment of present state boundaries, who retain some or all of their own social, economic, cultural and political institutions, but who may have been displaced from their traditional domains or who may have resettled outside their ancestral domains;

- 5.9 Mini-hydroelectric power plant refers to an electric-power generating plant which: (a) utilizes kinetic energy of falling or running water (run-of-river hydro plants) to turn a turbine generator producing electricity; and (b) has an installed capacity of not less than 101 kilowatts (0.1 MW) but not more than 10,000 kilowatts (10 MW);
- 5.10 Multiple Use Zone pertains to the management zone of protected areas where settlement, traditional and/or sustainable land-use including agriculture, agro-forestry, and other income generating or livelihood activities may be allowed consistent with the Management Plan. It also includes, among others, areas of high recreational tourism, educational or environmental awareness values and areas with existing installations of national significance/interest such as facilities/structures for renewable energy, telecommunication and hydro-electric power generation, among others.
- 5.11 National Integrated Protected Areas System is the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible;
- 5.12 National park refers to a forest reservation essentially of natural wilderness character which has been withdrawn from settlement, occupancy or any form of exploitation except in conformity with approved management plan and set aside as such exclusively to conserve the area or preserve the scenery, the natural and historic objects, wild animals and plants therein and to provide enjoyment of these features in such areas. It shall also refer to the land of public domain classified as such in the 1987 Constitution which include all areas under the NIPAS pursuant to R.A. 7586 primarily, designated for the conservation of native plants and animals and their associated habitats and cultural diversity;
- 5.13 Natural biotic area is an area set aside to allow the way of life societies living in harmony with biodiversity to adopt to modern technology at their pace;
- 5.14 Natural monument is a relatively small area focused on the protection and preservation of nationally significant natural features and biodiversity on account of their special interests or unique characteristics;

- 5.15 Natural park is a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural biodiversity and scenic areas of national or international significance for scientific, education and recreational use;
- 5.16 Non-renewable energy resources refer to those natural resources within protected areas which, if used, will be depleted and cannot be replenished in a timescale relevant to human beings such as fossil fuels like coal, oil, petroleum, and natural gas;
- 5.17 Protected area refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation;
- 5.18 Protected Area Occupants refer to persons who are residing, utilizing and/or cultivating areas within the protected area;
- 5.19 Protected Area Sub-Fund refers to a trust fund managed by the Protected Area Management Board (PAMB) representing seventyfive per cent (75%) of the revenues generated by the protected area for its development and operations in accordance with the Initial Protected Area Plan (IPAP) or Management Plan;
- 5.20 Protected landscapes/seascapes are areas of national significance which are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas;
- 5.21 Special Uses include activities and/or developments such as ecotourism, camp sites, communication, transmission, scientific monitoring stations/facilities, irrigation canals or waterways, rights of way, aquaculture, agro-forestry and forest plantations, among others, that may be allowed in the multiple use and buffer zones of the protected areas provided they are consistent with the IPAP or Management Plan;
- 5.22 Stakeholders refer to persons or institutions that are or might be affected in the establishment, and may contribute to the management and development of the protected area. It may include, among others, the local government units, national agencies and institutions, non-government organizations or people's organizations operating in the protected area, or ICCs/IPs

- and local communities living in or adjacent to the existing or proposed protected area;
- 5.23 Strict Protection Zone pertains to the management zones of protected areas consisting of natural areas with high biodiversity value closed to all human activities except for scientific studies and/or ceremonial or religious use by the ICCs/IPs. It may include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection, even if these areas are still in various stages of regeneration;
- 5.24 Survey and Registration of Protected Area Occupants refers to the process of detailed demographic study, assessment of socioeconomic condition, and validation of proofs of occupancy of migrants living, cultivating and dependent on the resources of the protected area for the purpose of coming up with a list of protected area occupants;
- 5.25 Sustainable Use refers to the use of components of biological diversity in a way and rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations;
- 5.26 Strict nature reserve is an area possessing some outstanding ecosystem, features and species of flora and fauna of scientific importance maintained to protect nature and maintain processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education, and for the maintenance of genetic resources in a dynamic and evolutionary state;
- 5.27 Tenured Migrant refers to a protected area occupant who has been actually and continuously occupying portion of the protected area subject to the provisions of Rule 15 hereof.
- 5.28 Resource reserve is an extensive and relatively isolated and uninhabited area normally with difficult access designated as such to protect natural resources and biodiversity of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning;
- 5.29 Tenured migrant communities are communities within protected areas which have actually and continuously occupied such areas for five (5) years before the designation of the same as protected

- areas in accordance with this Act and are solely dependent therein for subsistence; and
- 5.30 Wildlife sanctuary comprises an area which assures the natural conditions necessary to protect endemic, indigenous or migratory species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for their perpetuation;

Rule 6. Establishment and Extent of the System. - The establishment and operationalization of the NIPAS shall involve the following:

- All areas or islands in the Philippines proclaimed, designated or set aside, pursuant to a law, presidential decree, presidential proclamation or executive order as national park, game refuge, bird and wildlife sanctuary, wilderness area, strict nature reserve, watershed, mangrove reserve, fish sanctuary, natural and historical landmark, protected and managed landscape/seascape as well as identified virgin forests before the effectivity of the NIPAS Act are hereby designated as initial components of the System. The initial components of the System shall be governed by existing laws, rules and regulations not inconsistent with the NIPAS Act;
- 6.2 All DENR records pertaining to said protected areas, including maps and legal descriptions or natural boundaries, copies of rules and regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications shall be made available to the public. These legal documents shall also be available to the public in the respective DENR Regional Offices, Provincial Environment and Natural Resources Offices (PENROs) and Community Environment and Natural Resources Offices (CENROs) where the NIPAS areas are located;
- 6.3 The foregoing initial components shall be studied by the DENR for recommendation to the President or Congress for the purpose of establishment under the NIPAS or disestablishment;
- 6.4 Coastal conservation areas which are managed as fish refuges and sanctuaries pursuant to RA 8550 or the Fisheries Code and RA 7160 or the Local Government Code may be established as a protected area under the NIPAS following the requirements and procedures as specified in these Rules.

- 6.5 The unique biodiversity of the area shall be the main consideration in the determination of areas for inclusion in the NIPAS. These areas must be representatives of a particular bio-geographic zone and/or have one or more of the following characteristics:
 - 6.5.1 naturalness of the area to sustain ecological processes and functions and to help in climate change adaptation and mitigation such as flood minimization, among others:
 - 6.5.2 abundance and diversity of species of flora and fauna;
 - 6.5.3 presence of threatened and/or endemic species; and/or
 - 6.5.4 presence of unique or outstanding geological features that support biodiversity.
- 6.6 The following activities shall be undertaken in the establishment of protected areas under the NIPAS (Annex B):
 - 6.6.1 Preparation and Compilation of Maps with Technical Description of Boundaries The Regional Office shall prepare and compile maps with technical descriptions of boundaries of all protected areas, including initial components or proposed additional areas under its administrative jurisdiction. The technical description of boundaries of each protected area including its buffer zone shall be based on actual ground survey and drawn on a map with a scale of 1:50,000 for areas more than five hundred (500) hectares and 1:20,000 for areas less than five hundred (500) hectares.
 - 6.6.2 Public Notification The stakeholders shall be informed and properly notified of the proposed establishment of the protected area within their locality. The Regional Office shall notify the stakeholders either through publication in newspaper of general circulation (once in a national paper) radio, television or such other means as deemed necessary, at least thirty (30) days prior to the public hearing of the proposed establishment of the protected area.
 - 6.6.3 Protected Area Suitability Assessment (PASA) The concerned Regional Office shall evaluate the suitability of each area for inclusion under the NIPAS following

the criteria and objectives under this Order and the existing guidelines and procedures set by the DENR. Initial components found suitable for establishment as protected areas shall be governed by the provisions of the Act. Those found unsuitable shall be recommended by the Secretary for disestablishment following the Rules under Section 7.

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For those areas suitable for establishment under the NIPAS, the concerned Regional Office shall prepare a profile of the protected area which shall contain the results of the PASA and the socio-economic information.

- 6.6.4 Public Consultation Stakeholders shall be regularly consulted during and after the conduct of the PASA, and the gathering of socio-economic information.
- Based on the results of the PASA and plans of the Local Government Units (LGUs) and other stakeholders, the Regional Office shall take the lead in the preparation of the IPAP. The IPAP shall contain the following:
 - rationale for the establishment of the protected area;
 - proposed boundaries including buffer zones, if any;
 - an initial designation of the strict protection and multiple use zones specifying the purposes, strategies and allowable uses for each zone; and
 - map indicating the location of the zones.

The IPAP shall serve as the basis for the planning and budgeting and management of the protected area until established through presidential proclamation or by law and a management plan is approved by the PAMB.

The Regional Development Council (RDC) shall be consulted in the preparation of the IPAP.

6.6.6 Public Hearing – Public hearings shall be conducted to inform the public and to serve as venue for addressing issues, concerns and suggestions to the proposed establishment of each protected area under the NIPAS. It shall be organized by the concerned DENR Field Offices.

Public hearings shall include the following:

- Notice The DENR shall notify the public of a. the proposed establishment of the protected area under the NIPAS through any, or a combination, of the following means: i) publication in newspaper of general circulation (once in a national daily); ii) posting of notices in the municipal or barangay halls, and other conspicuous public places; or iii) such other means deemed necessary in the vicinity, thirty (30) days prior to the public hearing to ensure that all affected local government units, concerned national agencies, indigenous people, organizations, non-government people's organizations, and local communities are notified. The concerned DENR Field Offices shall make available the information and related documents to the public and shall endeavor as much as possible to make interpersonal communications or intensive information with the general public regarding the proposed establishment of the protected area.
- b. Program The program of the public hearing must allocate sufficient time for the presentation, among others, of the following: i) objectives of the specific public hearing; ii) results of the PASA highlighting the rationale for the establishment of protected area; and iii) impacts of the establishment of the protected area on tenure, livelihood and activities of stakeholders, among others.
- c. Documentation The following documents shall be prepared by the concerned DENR Field Office as a result of the public hearing and shall be submitted to the Secretary: i) copy of the notices of public hearing incorporating the

additional comments, if any; ii) minutes of the public hearing; iii) record of attendance; iv) photos or videos taken during the hearing, if available; and v) evidence of public hearing for the establishment, if there be any, through a statement signed by stakeholders.

The proceeding/results of the public hearing including the list of participants shall be made available to the public. The public may submit their written views on the proposed action within thirty (30) days after the date of hearing. The concerned DENR Field Office shall take necessary action on valid concerns as soon as possible.

6.6.7 Regional Review and Recommendation - The Secretary shall create NIPAS Review Committees both at the National and Regional Offices to lead the review of proposed protected areas. The Regional NIPAS Review Committee (NRRC) shall be composed of the Regional Executive Director (RED) as Chairperson with the Regional Technical Directors of the Protected Areas, Wildlife and Coastal Zone Management Service (PAWCZMS), Forest Management Service (FMS) and Land Management Service (LMS), Regional Directors of Environmental Management Service and Mines and Geo-Sciences Service as members. The RNRC in consultation with other concerned government agencies and RDC shall review all documents pertaining to the proposed protected area. documents/recommendations shall be endorsed by the RED to the Office of the Secretary.

The endorsement shall include: i) draft Presidential Proclamation designating the area as protected area; ii) statement summarizing the rationale for its establishment; iii) the basic management approach; iv) map with technical description of the proposed protected area and buffer zone including photographs or videos of the area; v) record of public hearings; vi) certificate of concurrence of other government agencies, and vii) other documents as may be required later during the national review.

6.6.8

National Review and Recommendation – The National NIPAS Review Committee (NNRC) shall be composed of the Undersecretary for Staff Bureaus as Chairperson with members as follows: Directors of the Protected Areas and Wildlife Bureau (PAWB), Forest Management Bureau (FMB), Land Management Bureau (LMB), Environmental Management Bureau (EMB), and Mines and Geo-Sciences Bureau (MGB), Administrator of National Mapping and Resource Information Authority (NAMRIA), Director of Policy and Planning Studies Office (PPSO), and the Assistant Secretary for Legal Service.

The NNRC shall review the recommendations of the Regional NIPAS Review Committee and may request the comments and recommendations of other concerned national agencies and institutions on the proposed protected area, if so warranted. The NNRC shall make a final review of all the documents pertaining to the proposed protected area and shall submit its recommendation to the Office of the Secretary. Thereafter, the DENR shall recommend to the Office of the President the approval of the establishment of the protected area under the System.

- 6.6.9 Presidential Proclamation Upon receipt of the DENR recommendation and supporting documents, the President shall make a decision whether an area will be proclaimed as protected area pursuant to the provisions of the NIPAS Act.
- 6.6.10 Congressional Action All protected areas and buffer zones proclaimed by the President pursuant to the NIPAS Act shall be endorsed to Congress for legislative enactment. Protected areas enacted by Congress shall fall under the classification of National Parks pursuant to the Philippine Constitution.
- 6.7 Upon enactment of the law establishing the protected area, its boundaries shall be delineated and demarcated on the ground with concrete monuments or other prominent physical landmarks or features. Index of station numbers shall be engraved on the monuments or markers to serve as reference. Appropriate markers shall be used where the boundary of the protected area is on water.

6.8 In the establishment of protected areas, the ICCs/IPs shall not be deprived of their recognized claims and rights to the area as ancestral domain or ancestral land as defined under the IPRA.

- 6.9 When a protected area or a proposed additional area is claimed as ancestral domain or ancestral land as defined under the IPRA, the DENR shall coordinate with the National Commission on Indigenous Peoples (NCIP) to ensure that the claimant ICC/IP take a direct and active part in the conduct of the resource profile and preparation of the IPAP.
- Rule 7. Additional Areas to be integrated to the NIPAS. Notwithstanding the establishment of the initial components of the System, the Secretary shall propose the inclusion in the System of additional areas with outstanding physical features, anthropological significance and biological diversity.
 - 7.1 In cases where additional areas have been identified by the DENR and indorsed to the President, the processing of applications for lease/license/permit of any project/activity therein shall be held in abeyance, except for projects that are compatible with the objectives of the NIPAS.
 - 7.2 In the establishment of such additional areas, the procedure for establishment of initial components shall be followed. The identification of such additional areas shall be based on scientific studies and consultation with stakeholders.
 - 7.3 The establishment of additional protected areas shall not impair or prejudice prior and subsisting private rights arising from, or as a consequence of, land use instruments issued by the DENR over portions thereof subject to the exercise of the power of eminent domain to make the protected area whole should it become necessary.
- Rule 8. Disestablishment as Protected Area. When in the opinion of the DENR a certain protected area should be withdrawn or disestablished, or its boundaries modified as warranted by a study and sanctioned by the majority of the members of the Management Board for the protected area as established in Section 11 of the NIPAS Act and these Rules, it shall, in turn, advise Congress. Disestablishment of a protected area under the System or modification of its boundary shall take effect pursuant to an act of Congress. Thereafter, said area shall revert to the category of public forest unless otherwise classified by Congress. Provided, however, that after disestablishment by Congress, the Secretary may recommend the transfer of such disestablished area to other government agencies to serve other priority programs of national interest.

- 8.1 Initial components which will not qualify as a protected area following the Rules hereof shall be disestablished from the NIPAS (Annex C).
- 8.2 Protected areas for disestablishment shall be supported by the results of the suitability assessment, public notification and hearings.
- 8.3 The DENR, with the expressed support of a majority of the members of the PAMB if so organized, or after consultation with the stakeholders if a PAMB has not been organized, shall recommend to the President the disestablishment of a protected area. The DENR Secretary shall then submit the recommendation together with relevant supporting documents to Congress through the Office of the President.
- 8.4 Protected areas disestablished shall revert to the category of forest or timberland unless otherwise classified by Congress.
- Rule 9. Establishment and Management of Buffer Zones. For each protected area, there shall be established peripheral buffer zones when necessary, in the same manner as Congress establishes the protected area, to protect the same from activities that will directly and indirectly harm it. Such buffer zones may include public or private lands. Prescriptions for the management of buffer zones shall be included as component of the individual protected area management plan. The DENR shall exercise the same authority over buffer zones in the same manner as protected areas.
 - 9.1 Buffer zones shall be established whenever the ecological integrity of the protected area (initial component or additional area) based on the PASA and socio-economic studies, is threatened by circumstances such as, but not limited to, the presence of actual and potential sources of pollution; invasive species; or encroachment of adjacent communities. Other considerations may include, among others, the presence of natural and semi-natural corridors for faunal movements and/or interchange of species.
 - 9.2 Any or a combination of the following criteria may be used in the identification and establishment of buffer zone:
 - 9.2.1 Ecological Criteria refer to the capability of the site to serve as an additional layer of protection by providing extension of habitats or corridors for wildlife and other ecological services.

9.2.2 Economic criteria - refer to the capacity of the site to provide gainful employment and sustainable alternative sources of livelihood for local communities, to deflect pressure away from the protected area.

9.2.3 Social criteria - refer to the capacity of the site to provide a social fence against the threat of encroachment by communities residing near or adjacent the protected area.

The establishment of buffer zone as social fence entails interventions such as social preparation, community organizing and empowerment to ensure its effectiveness without prejudice to the exercise of police power if necessary.

- 9.3 The PAMB shall exercise management authority over the buffer zones on behalf of the DENR. It shall initiate and ensure participatory management in the buffer zone together with the LGUs, other government agencies, NGOs, POs and other concerned stakeholders.
- 9.4 The management strategy for the buffer zone shall be an integral part of the management of the protected area. It shall be developed by the PAMB together with the concerned community and other stakeholders following the procedures set hereof. It shall be likewise consistent with the management objectives of the respective protected area and an essential component of the Management Plan.
- 9.5 Rights over private lands within the established buffer zones shall be recognized and respected in a manner consistent with the Management Plan.

Rule 10. Management Plans. - There shall be a general management planning strategy to serve as guide in formulating individual plans for each protected area. The management planning strategy shall, at the minimum, promote the adoption and implementation of innovative management techniques including, if necessary, the concept of zoning, buffer zone management for multiple use and protection, habitat conservation and rehabilitation, biodiversity management, community organizing, socio-economic and scientific researches, site-specific policy development, pest management, and fire control, among others. The management planning strategy shall also provide guidelines for the protection of indigenous cultural communities, other tenured migrant communities and for close coordination between and among local government units, other government agencies as well as the private sector.

Each component area of the System shall be planned and administered to further protect and enhance the permanent preservation of its natural conditions. A management manual shall be formulated and developed which must contain the following: an individual management plan, basic background information, field inventory of the resources within the area, an assessment of assets and limitations, regional interrelationships, particular objectives for managing the area, appropriate division of the area into management zones, a review of the boundaries of the area, and a design of the management programs.

- 10.1 A General Management Planning Strategy (GMPS) shall be prepared by PAWB to serve as guide for the system-wide management of the NIPAS. The GMPS shall standardize the management planning process for protected areas to ensure: i) that management techniques provided in these Rules are adopted; ii) that national as well as international protected area management standards are met; iii) that there is continuity of planning efforts; and iv) that management decisions are made with inter-disciplinary inputs and participation of all stakeholders.
- 10.2 In the preparation of the Management Plan of protected area, the following considerations shall be observed:
 - 10.2.1 Methodologies such as stakeholders' analysis, perception survey, participatory resources assessment, and community mapping, among others, should be incorporated into the planning process not only to generate the optimum community inputs into the Management Plan but also to promote ownership of the plan by the local communities. Prior to the submission to the Secretary, the Management Plan shall be presented to the stakeholders through public consultations. The issues and concerns raised during the public consultations shall be addressed in the Management Plan. The documentary evidence of the public consultations shall be submitted to the Secretary through the PAWB by the Regional Executive Director and shall form part of the annexes of the Management Manual.

The detailed planning process to be followed in the preparation of the management plan for protected areas is shown in Annex D.

10.2.2 The planning process need not be strictly sequential. Simultaneous activities may be undertaken without defeating the objectives of the planning process. The planning process shall be consultative, iterative and interactive particularly in the decision-making.

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- 10.2.3 Each protected area shall have a Management Plan prepared by inter-disciplinary team of experts led by the DENR Regional Office following the procedures as specified under these Rules. The Regional Executive Director shall create and convene a Regional team composed of persons knowledgeable in socio-economic planning, land-sea use planning, ecology and protected area management and/or related fields of discipline that will provide technical assistance in the preparation of the PA management plan and information management system.
- 10.3 Each protected area shall be divided into two management zones: strict protection zone and multiple use zone consistent with its designated category.
 - 10.3.1 Strict Protection Zone (SPZ) shall comprise natural areas with high biodiversity value, closed to all human activities except for scientific studies and/or ceremonial or religious use by the ICCs/IPs. It may include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection, even if these areas are still in various stages of regeneration.
 - 10.3.2 Multiple Use Zone (MUZ) shall comprise areas where the following may be allowed consistent with the protected area management plan: settlement, traditional and/or sustainable land-use, including agriculture, agro-forestry, and other income generating or livelihood activities. It shall also include, among others, areas of high recreational tourism, educational or environmental awareness values and areas consisting of existing installations of national significance/interest such as development of renewable energy sources, telecommunication facilities and electric power lines.
- 10.4 The management zones shall be demarcated using, as much as possible, natural markers such as rivers, creeks, ridges and the like. The geographical points of the natural markers shall be verified and plotted using the Global Positioning System technology.

All designated management zones prior to the effectivity of this Order shall be recognized. Provided, however, that in the subsequent iteration of the Management Plan, the same shall form part of the MUZ as defined in this Order.

10.5 Stakeholders such as tenured migrants, local government units, NGOs, POs, local communities, ICCs/IPs and other government agencies shall be part of the participatory decision making process in the establishment and planning of the management zones. Management objectives and strategies shall be developed for each zone and specific approaches and technologies shall be identified and implemented. Provided, that the zoning of a protected area and management prescriptions within those zones shall not restrict the rights of ICCs/IPs to pursue traditional and sustainable means of livelihood within their ancestral domain/land.

10.6 The Management Plan shall be prepared and approved by the PAMB within three (3) years after the issuance of Presidential Proclamation establishing the protected area.

The Management Plan shall have the following minimum contents:

- 10.6.1 Description of the protected area;
- 10.6.2 Situational analysis including key management issues and concerns;
- 10.6.3 Goals and objectives;
- 10.6.4 Management strategies/interventions;
- 10.6.5 Description of management zones as well as major activities allowed/prohibited therein;
- 10.6.6 5-year work and financial plan for the implementation of the Management Plan; and
- 10.6.7 Monitoring and evaluation
- 10.7 The annual work and financial plan of the protected area shall be prepared upon the direction of the PAMB based on the Management Plan following the annual national government budgetary cycle. Provided, that the RED shall facilitate the preparation of plans and programs in the management of the particular protected area.
- 10.8 The PAMB shall ensure that the Management Plan is integrated into the comprehensive land-sea use plans of the LGUs including the complementation of activities. The PAMB shall likewise ensure the harmonization of the Management Plan and the ancestral domain plans of ICCs/IPs.

10.9 The Management Plan shall be approved by the majority of the PAMB and endorsed to the Secretary through PAWB. The Management Plan is deemed accepted unless formal written disapproval from the Secretary is received by the PAMB on the ground of inconsistency with existing laws and related rules and regulations.

- 10.10 The PAMB shall review and update the Management Plan at least every five (5) years. Any modification or revision of the Management Plan shall follow the requirements set in these Rules. Provided, that the revised Management Plan shall be approved and endorsed in accordance with Rule 10.9.
- Rule 11. Administration and Management of the NIPAS. The NIPAS is hereby placed under the control and administration of the Department of Environment and Natural Resources.
 - 11.1 The DENR Secretary shall have the over-all administration and control over the NIPAS. To carry out the mandate of this Act, the Secretary of the DENR is empowered to perform any and all of the following acts:
 - 11.1.1 In consultation with the concerned LGU, to adopt and enforce an environmental plan in adjoining areas for the preservation and control of activities that may threaten the ecological balance in the protected areas;
 - 11.1.2 To cause the preparation of and exercise the power to review all plans and proposals for the management of protected areas;
 - 11.1.3 To conduct studies in various characteristic features and conditions of the different protected areas, using commonalities in their characteristics, classify and define them into categories and prescribe permissible or prohibited human activities in each category in the System;
 - 11.1.4 To promulgate rules and regulations necessary to carry out the provisions of the NIPAS Act;

- 11.1.5 To deputize field officers and delegate any of his powers under the NIPAS Act and other laws to expedite its implementation and enforcement;
- 11.1.6 To fix and prescribe reasonable NIPAS fees to be collected from government agencies or any person, firm or corporation deriving benefits from the protected areas;
- 11.1.7 To exact administrative fees and fines for violation of Section 21 of the NIPAS Act and other related guidelines, rules and regulations on protected areas and biodiversity conservation;
- 11.1.8 To enter into contracts and/or agreements with private entities or public agencies as may be necessary to carry out the purposes of the NIPAS Act;
- 11.1.9 To accept in the name of the Philippine Government and in behalf of NIPAS funds, gifts or bequests of money for immediate disbursements or other property in the interest of the NIPAS, its activities or its services;
- 11.1.10 To call on any agency or instrumentality of the Government as well as academic institutions, nongovernment organizations and the private sector as may be necessary to accomplish the objectives and activities of the System;
- 11.1.11 To provide updates to Congress and Office of the President on the status of protected areas in the country;
- 11.1.12 To establish a uniform marker for the System, including an appropriate and distinctive symbol for each category in the System, in consultation with appropriate government agencies and public and private organizations;
- 11.1.13 To determine the specification of the class, type and style of buildings and other structures to be constructed in protected areas and the materials to be used;
- 11.1.14 To control the construction, operation and maintenance of roads, trails, water works, sewerage, fire protection

- and sanitation systems and other public utilities within the protected area;
- 11.1.15 To control occupancy of suitable portions of the protected area and resettle outside of said area the occupants therein, with the exception of the members of the indigenous communities area; and
- 11.1.16 To perform such other functions as may be directed by the President of the Philippines, and to do such acts as may be necessary or incidental to the accomplishment of the purpose and objectives of the System.
- 11.2 The respective PAMB shall be responsible for the site specific management of protected areas. The PASu shall execute the plans and programs of the protected area as approved by the PAMB
- 11.3 The PAWB shall serve as the lead bureau of the DENR for the system-wide planning, coordination, policy development, monitoring and evaluation, and technical assistance on protected area programs and projects.
- 11.4 The PAWB in coordination with Public Affairs Office (PAO) shall develop and implement an information, education and communications program within three (3) months upon approval of this Order to inform the general public of the NIPAS, its significance, goals and objectives. Such program shall be utilized as means for the public consultations and hearings to be initiated by the DENR for the establishment and management of the NIPAS as well as soliciting support for the protection of said areas.
- 11.5 The RED and the Regional Technical Director (RTD) for Protected Areas, Wildlife and Coastal Zone Management Service shall provide technical guidance in the management of the protected areas under its administrative jurisdiction. The RED shall ensure that the functional authorities among the PASu, the Community Environment and Natural Resources Officer (CENRO) and the Provincial Environment and Natural Resources Officer (PENRO) are harmonized to effectively carry out the mandate of the NIPAS Act.
- 11.6 The RED, as Chairperson of the PAMB, shall preside during PAMB meetings. In his/her absence during meetings, the members by highest number of votes of those in attendance, shall choose from among themselves a presiding officer. The RED may invite

other DENR officers to attend the meetings of the Management Board as resource persons.

11.7 The Protected Area Superintendent (PASu) shall be designated/appointed by the RED upon PAMB recommendation from among a short list of qualified candidates.

Where the protected area encompasses substantially or whole of the jurisdiction of the CENRO or PENRO, the CENR Officer or PENR Officer may be designated as the concurrent PASu.

In cases where the protected area straddles more than one province, the PENRO of the province covering a larger portion of the protected area may be designated as the PASu. He/she shall coordinate with the other PENROs for the implementation of the management and development programs and activities of the protected area and shall be directly responsible to the RED.

The PASu shall be primarily accountable to the PAMB and the DENR for the implementation of the Management Plan and operations of the protected area. He/she shall have the following specific duties and responsibilities:

11.7.1 Enforce rules and regulations to protect the area from trespassing, damage, vandalism and illegal occupancy. In cases of seizure, he/she shall assume custody of the apprehended items.

The disposition of confiscated items shall be subject to the clearance from the PAMB except those items that are held under *custodia legis*, those that are the subject of donation, those that must be deposited with appropriate government agency, and those that will be utilized for the DENR's own needs in accordance with the existing related rules and regulations;

- 11.7.2 Issue permits for the use of facilities and amenities except for those considered as special uses as defined under this Order;
- 11.7.3 Issue certification whether the proposed activity/project is allowable or not within the management zones;
- 11.7.4 Issue cutting permit for planted trees for a volume of up to five (5) cubic meters per applicant per year for traditional and subsistence uses by ICCs/IPs and

tenured migrants only. Provided, that PACBRMA holders with affirmed Community Resource Management Plan (CRMP) shall no longer be issued cutting permits. Provided further, that the total volume of extraction does not exceed the limit set by the PAMB and the location of extraction is within the appropriate site within the multiple use zone.

- 11.7.5 Issue Certificate of Origin and/or transport permits for natural resources and other products collected/gathered from the protected area in accordance with the resource use instruments/agreements or gratuitous permits issued by the PAMB and/or the DENR;
- 11.7.6 Submit quarterly progress reports to the PAMB;
- 11.7.7 Serve as Head Secretariat to the PAMB and its Executive Committee;
- 11.7.8 Collect and/or receive pertinent fees, charges, donations and other income for the protected area. Provided, that such fees, charges, donations and other income collected/received shall be reported regularly to the PAMB in accordance with the existing guidelines;
- 11.7.9 Prepare and recommend to the PAMB approval of the annual work and financial plans of the protected area based on the IPAP or the Management Plan;
- 11.7.10 Develop management information system to ensure that relevant and updated information are available for planning, monitoring and decision-making; and
- 11.7.11 Perform other relevant functions that the RED or PAMB may delegate.
- 11.8 The PASu shall, whenever practicable, be assisted by technical and support staff to perform the day to day management, protection and administration of the protected area. The PASu may delegate the authority provided herein to his/her staff.

Whenever applicable, the site level staff shall be recruited from residents living within or in the immediate vicinity of the protected area.

Rule 12. Protected Area Management Board. - A PAMB for each of the established protected area under the NIPAS shall be created. For initial components of the NIPAS, the PAMB shall be created once the area has been determined to be suitable for inclusion to the System. For additional sites, the PAMB shall be created after the issuance of Presidential Proclamation establishing the area under the NIPAS.

- 12.1 The functions of the PAMB shall be as follows:
 - 12.1.1 Approve policies, guidelines, plans and programs, proposals, agreements and other related documents including the Manual of Operations for the management of the protected area;
 - 12.1.2 Facilitate the ground delineation and demarcation of the boundaries of the protected area and buffer zone;
 - 12.1.3 Ensure that the Management Plan of protected area and the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP) are harmonized;
 - 12.1.4 Ensure the implementation of programs as prescribed in the Management Plan of protected area;
 - 12.1.5 Monitor and evaluate the progress in the implementation of the Management Plan including the harmonized plans with ADSDPP;
 - 12.1.6 Monitor and assess the performance of the PASu and other protected area personnel and compliance of partners to the terms and conditions of any undertaking, contract or agreement;
 - 12.1.7 Resolve conflicts or disputes among tenured migrant communities, between tenured migrant communities and ICCs/IPs but excluding conflicts or disputes exclusively among ICCs/IPs; and
 - 12.1.8 Recommend fees and other charges to the Secretary for the use of the protected area; and
- 12.2 The composition of the PAMB shall be made final upon the enactment of the law placing the protected area under the NIPAS. The PAMB shall be composed of the following:

12.2.1 The RED as Chairperson and advisor on matters related to the management of the protected area.

In cases where the protected area straddles more than one region, the RED of the region covering the larger portion of the protected area may be designated as the Chairperson of the Management Board. He/she shall coordinate with the other RED(s) for the implementation of the management and development programs and activities of the protected area.

- 12.2.2 One representative of the Autonomous Regional Government, if applicable;
- 12.2.3 The Provincial Planning and Development Coordinator from each province with territory within the protected area;
- 12.2.4 One representative from each of the Municipality covering the protected area;
- 12.2.5 One representative from each of the Barangay covering the protected area;
- 12.2.6 One representative from each tribal community within the protected area as certified and endorsed by the NCIP, if applicable;
- 12.2.7 At least three (3) but not more than five (5) representatives from local NGOs and community organizations, including people's organizations, church or civic organizations and the academe; and
- 12.2.8 One representative each, if necessary, from other departments or national government agencies involved in the protected area.
- 12.3 The Secretary shall appoint the members of the PAMB. The RED and the Provincial Planning and Development Coordinator(s) shall serve ex-officio members of the PAMB.

For PAMB representatives other than the Mayors and Punong Barangays, their appointment as such shall be supported by a Sanggunian Resolution.

ICCs/IPs within the protected area shall nominate its representatives to the PAMB following their customary laws and practices. Such nomination shall be validated and confirmed by the NCIP.

Representatives of NGOs and POs shall be endorsed by their respective heads of the organizations. Should there be NGO/PO consortia in the area, each consortium shall be entitled to one (1) representative to the Management Board. Provided, that the total NGO/PO representation to the Management Board shall not exceed twenty-five per cent (25%) of the total membership of the PAMB. Provided, further, that the qualified NGOs/POs shall choose among themselves the organizations who would sit in the PAMB. Hence, NGO/PO consortium members shall no longer be eligible for representation to the PAMB.

Such NGO, PO and/or consortia must be: i) known to be with interest, integrity and commitment to the conservation of natural resources; and ii)locally-based and legally existing continuously for at least three (3) years prior to the proposed appointment to the PAMB.

12.4 The members of PAMB shall serve for a term of five (5) years without compensation, except for actual and necessary traveling and subsistence expenses incurred in the performance of their duties. Provided, that whenever a vacancy occurs during the term of a member, a new member shall be appointed in the same manner as the original appointment in order to complete the unfinished term of the said vacancy.

In case of elective officials, the term of office as Management Board member shall be co-terminus with his/her position. Provided, that the incoming elective official may opt to allow continuity of representation by the previous elective official through a Sanggunian Resolution which shall be communicated officially to the PAMB.

12.5 The PAMB En-banc may create an Executive Committee and other committees to effectively carry out its functions.

The Executive Committee shall be composed of the following:

- 12.5.1 Regional Executive Director as the Chairperson;
- 12.5.2 One (1) representative from the Autonomous Regional Government, if applicable;

- 12.5.3 At least one (1) representative from the Provincial and Municipal Governments;
- 12,5,4 One (1) representative from NGOs/POs; and
- 12.5.5 At most three (3) representatives from IPs.

The Management Board may call on representatives from other government agencies concerned.

The Management Board shall determine the authorities to be delegated to the Executive Committee.

The PAMB may likewise create other committees as may be necessary to effectively implement the Management Plan and the functions of the PAMB.

- 12. 6 The PAMB en-banc shall meet at least twice a year.
- 12.7 The notices of meetings of the PAMB and Executive Committee as well as the proceedings of such meetings shall be prepared by the PASu as Secretariat of the PAMB.

The PAWB shall be provided with a report of the highlights of the meetings within seven (7) days after each meeting for purposes of monitoring and providing advice and policy directions on protected area management.

- 12.8 A member of the Management Board may be removed for any of the following grounds:
 - 12.8.1 More than three (3) consecutive unexcused absences during regularly scheduled meetings of the Management Board;
 - 12.8.2 Commission of acts prejudicial to the management of protected areas as embodied in Section 20 of the NIPAS Act or other existing rules and regulations governing protected areas;
 - 12.8.3 Disassociation from the office or organization being represented;
 - 12.8.4 Dissolution of the office or organization being represented; and

- 12.8.5 Conviction by final judgment of any criminal act.
- 12.9 The PAMB shall formulate specific policy on disciplinary measures for habitual absentee ex-officio members.
- 12.10 The PAMB shall promulgate internal rules governing the resolution of any dispute or claim filed before them. All decisions of the PAMB may be appealed to the DENR Secretary. Provided, that the Secretary can reverse or modify a decision of the PAMB only on the grounds that the same violates existing laws, rules and regulations or is contrary to the Management Plan.
- Rule 13. Environmental Impact Assessment. Considering that protected areas are Environmentally Critical Areas (ECA), the proponent of development projects and activities with potential environmental damage as determined by Environmental Management Bureau, whether or not included in the Management Plan, shall secure an Environmental Compliance Certificate (ECC) in accordance with the Philippine Environment Impact Statement (EIS) System. Provided, that for development project and activity within the Management Plan, an Initial Environmental Examination (IEE) can be undertaken instead of a full-blown Environmental Impact Assessment (EIA).
 - 13.1 The proponent of development project and activity shall secure prior clearance from the PAMB before undertaking or implementing the activity and before the issuance of an ECC.
 - 13.2 Violations of environmental laws, rules and regulations, including those under the EIA System, shall be penalized accordingly.
- Rule 14. Ancestral Lands and the Rights of ICCs/IPs. The DENR in collaboration with the PAMB shall assist the NCIP in the identification, delineation and recognition of the claims of ICCs/IPs to their ancestral domain/land within protected areas following the provisions of RA 8371 or the IPRA.
 - 14.1 In the establishment of protected areas, the DENR shall ensure the full participation of the concerned ICCs/IPs in accordance with NIPAS Act and the IPRA.

The ancestral domain within a protected area shall be managed in accordance with a plan harmonized with the Protected Area Management Plan. Unless the ICC/IP submits a written notice of its intent to manage the protected area, the DENR and PAMB shall manage the protected area. In any case, the ICC/IP shall enjoy full and effective assistance of the concerned PAMB.

The customary rights and traditional practices of ICCs/IPs shall be recognized and respected.

14.2 Interested ICCs/IPs may participate in the community-based program in protected areas following the procedure in Annex E.

Rule 15. Tenured Migrants. - A survey and registration of occupants of the initial components and proposed additional areas for inclusion to the NIPAS shall be undertaken for management planning and issuance of tenurial instruments to qualified occupants. The survey shall include a detailed demographic study, assessment of socio-economic conditions and validation of proofs of occupancy. The Secretary, by subsequent regulations, shall establish the procedures for the conduct of the survey and registration of occupants of protected areas.

- 15.1 The household head shall be considered a tenured migrant if proven to have actually and continuously occupied a portion of the protected area for five (5) years before its designation as protected area and solely dependent therein for subsistence. Solely dependent for subsistence is when everything indispensable for survival for the household, including food, clothing, shelter and health, comes only from the utilization of resources from the protected area.
- 15.2 A Certificate of Recognition shall be issued to those who qualify as tenured migrants based on the Rules provided hereof. The reckoning period of five (5) years to qualify as tenured migrant shall be:
 - 15.2.1 For initial components of the NIPAS, August 5, 1987 or five (5) years prior to the effectivity date of the NIPAS Act.

In case the initial component is expanded, the reckoning date for recognition of tenured migrants shall be five (5) years prior to the recent proclamation.

15.2.2 For additional areas of the NIPAS, five (5) years prior to the Presidential Proclamation or Congressional enactment establishing the protected area, whichever is earlier.

> In case of expanded additional areas, the reckoning date for recognition of tenured migrants shall be five (5) years prior to the original proclamation.

- 15.3 Physical structures indicating prolonged occupancy or Certification under oath from the Barangay Chairperson or any two (2) respected members of the nearest community attesting to the occupancy and any two or more of the following shall be considered as proofs of occupancy:
 - 15.3.1 Planted trees;
 - 15.3.2 Inventory report of forest occupants of concerned government agencies, if available; and
 - 15.3.3 Other relevant documents to prove occupancy.
- 15.4 The DENR, upon the recommendation of the PAMB shall enter into Protected Area Community-based Resource Management Agreement (PACBRMA) with the tenured migrant communities of protected areas.

The DENR shall endeavor to integrate individual tenured migrants into communities.

Within one (1) year from the issuance of the PACBRMA, tenure holders shall be required to prepare a Community Resource Management Plan (CRMP) based on the procedure herein provided (Annex F). Failure to implement the CRMP shall serve as basis for the cancellation of the agreement.

In the event of cancellation of PACBRMA for cause or by voluntary surrender of rights, the PAMB shall take immediate steps to rehabilitate the area.

For cancellation of PACBRMA for reasons of public interest as determined by the DENR Secretary, the affected tenured migrants shall be accorded just compensation based on the fair market value of the improvements and shall be granted the right to a substitute site.

15.5 Tenured migrants communities located within the Strict Protection Zone shall be resettled to the Multiple Use Zone or Buffer Zone. Protected area occupants who do not qualify as tenured migrants shall be resettled outside the protected area. The PAMB in coordination with the LGU concerned shall implement a definite schedule for resettling them outside the protected area.

Rule 16. Survey for Energy Resources. - Consistent with the policies declared in Section 2 of the NIPAS Act, protected areas, except strict nature reserves and

natural parks, may be subjected to exploration only for the purpose of gathering information on energy resources and only if such activity is carried out with the least damage to surrounding areas. Surveys shall be conducted only in accordance with a program approved by the DENR, and the result of such surveys shall be made available to the public and submitted to the President for recommendation to Congress. Any exploitation and utilization of energy resources found within NIPAS areas shall be allowed only through a law passed by Congress.

- 16.1 Exploration for utilization of energy resources shall not be allowed in Strict Nature Reserve and Natural Park categories. In accordance with the management objectives for strict protection zones as designated in other categories of protected areas, exploration of energy resources shall likewise be prohibited.
- 16.2 Survey of non-renewable energy resources within protected areas shall be allowed only as part of the resource profiling of the protected area as provided under Rule 6.
- 16.3 The exploitation and utilization of non-renewable energy resources found within protected areas except Strict Nature Reserves and Natural Parks shall be allowed only through a law passed by Congress.
- 16.4 The development, utilization and operations of non-extractive renewable energy sources such as wind, solar, or tidal energy, and not more than three (3) megawatts capacity for mini-hydro power, shall be allowed in protected areas other than Strict Nature Reserves and Natural Parks through the issuance of appropriate instruments in accordance with existing laws and regulations. Provided, that these renewable energy projects are outside the strict protection zones, reduced impact technologies shall be adopted and the operation of such shall be in accordance with the EIS System.

Rule 17. Areas Under the Management of Other Departments and Government Instrumentalities. — The DENR shall retain jurisdiction over all protected areas in accordance with Executive Orders No. 192 and 292. The DENR has management and administration over NIPAS except those placed under the management and administration of other agencies pursuant to specific laws or presidential issuances. Provided, That the department or government instrumentality exercising management and administration over said protected area or a portion thereof shall coordinate with the DENR in the preparation of its management plans.

The DENR may enter into an agreement with the concerned government agency for the management of the protected area specifically for activities such as the

creation of a management body, preparation of the management plan, and other related activities.

Rule 18. Integrated Protected Areas Fund. - There is hereby established a trust fund to be known as Integrated Protected Areas (IPAS) Fund for purposes of financing projects of the NIPAS. The DENR may solicit and receive donations, endowments, and grants in the form of contributions, and such endowments shall be exempted from income or gift taxes and all other taxes, charges or fees imposed by the Government or any political subdivision or instrumentality thereof. All incomes generated from the operation of the NIPAS and its component protected areas shall accrue to the Fund and may be utilized directly by the DENR for the above-mentioned purposes.

- 18.1 The income for the IPAF shall be derived from:
 - 18.1.1 Fees from the permitted sale and export of flora and fauna and other resources derived from protected areas;
 - 18.1.2 Proceeds from lease of multiple-use zones;
 - 18.1.3 Contributions from industries and facilities directly benefiting from the protected area; and
 - 18.1.4 Such other fees and incomes derived from the operation of the protected area.
- 18.2 Disbursements from the Fund shall be made solely for the protection, maintenance, administration, and management of the System, and duly approved projects endorsed by the PAMBs, in the amounts authorized by the DENR.
- 18.3 The PAMB in coordination with other government agencies concerned shall recommend to the Secretary reasonable fees to be collected from government agencies or any person, firm or corporation deriving benefits from the protected areas.
- 18.4 All revenues generated by the protected areas shall be deposited as trust account to be maintained by the DENR in any authorized government depository bank. The Fund shall be set up to operate both Central IPAF at the national level and the Protected Area Sub-Fund at the site level.
- 18.5 All contributions, endowments, donations and grants to a specific protected area shall accrue solely to the concerned Protected Area Sub-Fund through the RED.

- 18.6 The PAMB shall monitor the collection, accounting and deposit of income into the Protected Area Sub-Fund.
- 18.7 Upon the recommendation of the PAMB and subject to existing accounting and auditing rules and regulations, the RED shall designate a Special Collecting Officer (SCO) whose main responsibilities are to collect all revenues and donations to the protected area and to submit a monthly accounting report to the PAMB.
- 18.8 The DENR Regional/Provincial Accountant nearest to the concerned protected area shall maintain the book of accounts. Reports of collection and deposit and copy of the deposit slips shall be submitted to PAWB for information and monitoring.
- 18.9 The use and disbursement of the IPAF shall be guided by the following:

18.9.1 Central IPAF

- a. Upon the recommendation of the PAWB Director, the DENR Secretary shall decide on the fund allocation from the Central IPAF in accordance with its allocation criteria.
- b. Request for funding assistance from the Central IPAF shall be supported by the following minimum requirements:
 - Duly approved Work and Financial Plan (WFP) for the proposed project or activity by the PAMB Chairperson;
 - Project Proposal with justification for the request;
 - iii. PAMB Resolution approving the Project Proposal and Work and Financial Plan (WFP); and
 - Accomplishment Report of those with previous request.

The above-mentioned requirements shall be submitted by the PAMB through proper channels to

- 18.6 The PAMB shall monitor the collection, accounting and deposit of income into the Protected Area Sub-Fund.
- 18.7 Upon the recommendation of the PAMB and subject to existing accounting and auditing rules and regulations, the RED shall designate a Special Collecting Officer (SCO) whose main responsibilities are to collect all revenues and donations to the protected area and to submit a monthly accounting report to the PAMB.
- 18.8 The DENR Regional/Provincial Accountant nearest to the concerned protected area shall maintain the book of accounts. Reports of collection and deposit and copy of the deposit slips shall be submitted to PAWB for information and monitoring.
- 18.9 The use and disbursement of the IPAF shall be guided by the following:

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- a. Upon the recommendation of the PAWB Director, the DENR Secretary shall decide on the fund allocation from the Central IPAF in accordance with its allocation criteria.
- b. Request for funding assistance from the Central IPAF shall be supported by the following minimum requirements:
 - Duly approved Work and Financial Plan (WFP) for the proposed project or activity by the PAMB Chairperson;
 - Project Proposal with justification for the request;
 - iii. PAMB Resolution approving the Project Proposal and Work and Financial Plan (WFP); and
 - Accomplishment Report of those with previous request.

The above-mentioned requirements shall be submitted by the PAMB through proper channels to

the RED who shall endorse the same to PAWB for evaluation and appropriate action.

The detailed process for the utilization of the Central IPAF is in Annex G.

18.9.2 Protected Area Sub-Fund

- a. The Protected Area Sub-Fund can be availed by the concerned protected area upon submission of the following to the RED:
 - Duly approved WFP;
 - Project Proposal including the detailed breakdown of expenditures;
 - PAMB Resolution approving the project proposal and WFP; and
 - Accomplishment Report of those with previous request.
- All documents mentioned above shall be forwarded to the concerned PENRO.
- c. The concerned Accountant shall prepare an updated trial balance of the agency supported by copies of the bank deposits from the authorized government depository bank and submit the documents to the RED for approval through endorsement of the PENRO.
- No disbursement shall be processed without submission of all the required documents.
- A copy of the approved WFP with the abovementioned requirements shall be forwarded to PAWB for information, review and monitoring.
- Reports of actual disbursement of funds shall be submitted to PAWB on monthly basis for information, consolidation and monitoring purposes.

the RED who shall endorse the same to PAWB for evaluation and appropriate action.

The detailed process for the utilization of the Central IPAF is in Annex G.

18.9.2 Protected Area Sub-Fund

- a. The Protected Area Sub-Fund can be availed by the concerned protected area upon submission of the following to the RED:
 - i. Duly approved WFP;
 - Project Proposal including the detailed breakdown of expenditures;
 - PAMB Resolution approving the project proposal and WFP; and
 - Accomplishment Report of those with previous request.
- All documents mentioned above shall be forwarded to the concerned PENRO.
- c. The concerned Accountant shall prepare an updated trial balance of the agency supported by copies of the bank deposits from the authorized government depository bank and submit the documents to the RED for approval through endorsement of the PENRO.
- No disbursement shall be processed without submission of all the required documents.
- A copy of the approved WFP with the abovementioned requirements shall be forwarded to PAWB for information, review and monitoring.
- Reports of actual disbursement of funds shall be submitted to PAWB on monthly basis for information, consolidation and monitoring purposes.

The detailed process for the utilization of Protected Area Sub-Fund is shown in Annex H.

- 18.10 Pursuant to COA Circular Letter No. 2003-005 dated 21 November 2003, the following shall be the procedure for the collection, deposit and utilization of contributions, endowments, donations and grants for protected areas:
 - 18.10.1 The DENR Secretary or the PAWB Director or the RED as Chairperson of the PAMB may receive donations, endowments, contributions and grants for specific purpose/intent of the protected area. Provided, that such contributions, endowments, donations and grants shall be deposited in a trust account in the name of the protected area with authorized government depository bank.
 - 18.10.2 All contributions, grants and donations shall be properly covered by Deeds of Donation.
 - 18.10.3 For contributions, endowments, donations and grants for the NIPAS, a WFP shall be prepared in accordance with the Deeds of Donation. For contributions, endowments, donations, and grants for specific protected area, a WFP shall be prepared in accordance with the Deeds of Donation for the approval of the PAMB. The WFP shall be the basis for the disbursement of such funds.
- Rule 19. Field Officers. All officials, technical personnel and forest guards or park rangers employed in the protected areas or all persons deputized by the DENR, upon recommendation of the Management Board shall be considered as field officers. Such field officers shall have the authority to investigate and search premises and buildings and make arrests in accordance with the rules on criminal procedure for the violation of laws and regulations relating to protected areas. Persons arrested shall be brought to the nearest police precinct for investigation and filing of appropriate charges.

Nothing herein mentioned shall be construed as preventing regular law enforcers and police officers from arresting any persons in the act of violating the laws and regulations related to protected areas and biodiversity conservation.

Rule 20. Special Prosecutors. - The Department of Justice shall designate special prosecutors to prosecute violation of laws, rules and regulations in protected areas.

Rule 21. Prohibited Acts. - Except as may be allowed by the nature of their categories and pursuant to rules and regulations governing the same, the following acts are prohibited within protected areas:

- 21.1 Hunting, destroying, disturbing, or mere possession of any plants or animals or products derived from the protected areas without a permit from the Management Board;
- 21.2 Dumping of any waste products detrimental to the protected area, or to the plants and animals or inhabitants therein;
- 21.3 Use of any motorized equipment without as permit from the Management Board;
- 21.4 Mutilating, defacing or destroying objects of natural beauty, or objects of interest to cultural communities (of scenic value);
- 21.5 Damaging and leaving roads and trails in a damaged condition;
- 21.6 Squatting or otherwise occupying any land;
- 21.7 Mineral locating within protected areas;
- 21.8 Constructing and maintaining any kind of structure, fence or enclosures, conducting any business enterprise without permit;
- 21.9 Leaving in an exposed or unsanitary conditions refuse or debris, or depositing in ground or in bodies of water; and
- 21.10 Altering, removing, destroying or defacing boundary mark or signs.
- Rule 22. Penalties. Whoever violates the NIPAS Act or any rules and regulations issued by the Department pursuant to the NIPAS Act or whoever is found guilty by a competent court of justice of any of the offenses provided in the NIPAS Act and this Order shall be fined in the amount of not less than Five thousand pesos (P5,000) nor more than Five hundred thousand pesos (P500,000), exclusive of the value of the thing damaged or imprisonment for not less than one (1) year but not more than six (6) years, or both, as determined by the court: Provided, That, if the area requires rehabilitation or restoration as determined by the court, the offender shall also be required to restore or compensate for the restoration of the damaged areas. Provided, further, that the court shall order the eviction of the offender from the land and the forfeiture in favor of the Government of all minerals, timber or any species collected or removed including all equipment, devices and firearms used in connection therewith, and any construction or improvement made thereon by the offender. If the offender is an

association or a corporation, the president or manager shall be directly responsible for the act of his employees and laborers. Provided, finally, that administrative fines and penalties may be imposed upon the recommendation of the PAWB in consultation with the concerned PAMBs and the DENR Regional Offices.

The above penalties shall be imposed without prejudice to the application of other existing laws, rules and regulations.

Rule 23. Separability Clause. - If any part of this Order is inconsistent with any provisions of other laws, its implementation shall be deferred until such time that such laws are amended.

Rule 24. Repealing Clause. - All issuances inconsistent with this Order are hereby deemed repealed.

Rule 25. Effectivity Clause. — These Revised Implementing Rules and Regulations shall take effect fifteen (15) days upon filing with the Office of the National Administrative Register and/or publication in a national newspaper of general circulation.



Revised IRR NIPAS Act 10 November 2008

Publication: Malaya

January 16, 2009
Registration: ONAR, U.P. Law Center

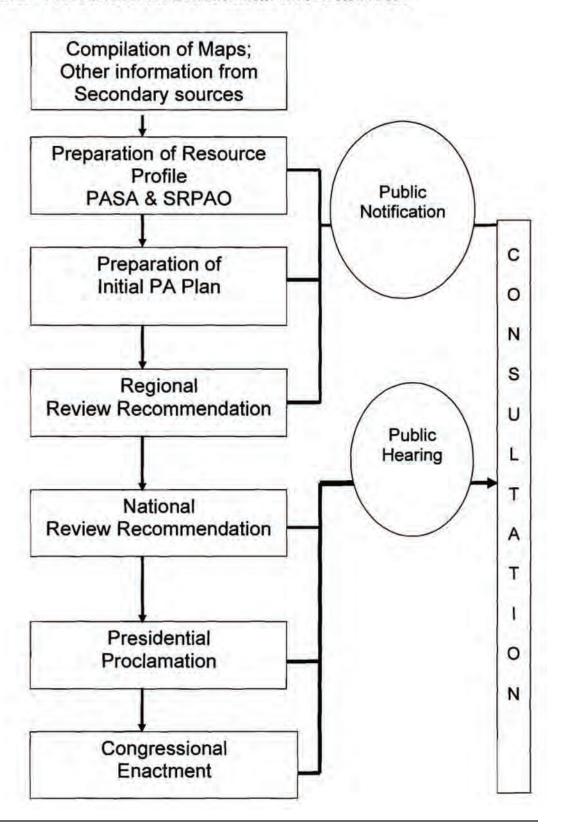
January 16, 2009

Annex A. Protected Area Categories

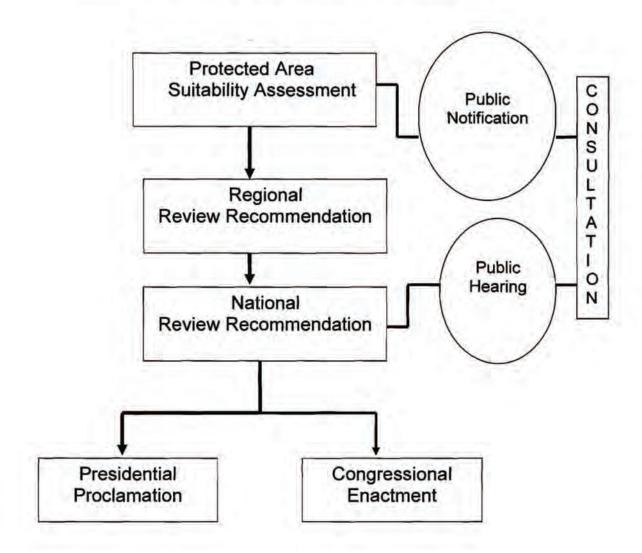
Protected Area Category	Natural Biotic Area (NBA)	Areas of extrasive cultural subfigures and subfigures peoples and other local communities living in harmony with their environment precitions their culture and traditions.	Protection and conservation of culture/customs and traditions of Indigatous Peoples (IPs) and other local communities and their environment, including tracources	Trachtional and sustainable resource use
	Resource Reserve (RR)	Extrasive and relatively uninhabited isolated and isospecesible resource base	Conservation and protection of natural resources for future use	Research and scientific studies Biodiversity monitoring
	Protected Landscapes Seascapes (PL/S)	Areas of national significance which are characterized by the harmonious internation of human and nature	Protection of natural features and providing opportunities for sustainable resource use	Sustainable socio-economic activities and traditional practices Regulared resource use EXCEPT cutting of naturally growing trees. However, cutting of naturally growing trees for personal and non commercial use of featured migranis may be allowed, subject to allocation criteria prescribed by PAMB
	Wildlife Sanctuary (WS)	Habites of a species or a group opecies of priority management concern. Habites of important wildlife species (endemis and threatmet) as indicated by species assemblage (e.g. Endemis. Bird Area, Important Bird Area, Important Bird Area, Important Plant Area, Important Plant Area,	Protection and conservation of wildlife and their habitat	Scientific research with regulated collection of specimens Nature recreation Regulated resource use EXCEPT those that are essential to conservation of the species being managed and caring of naturally growing trees naturally growing trees.
	Natural Monument (NM)	Nationally significant matural featural or geologic value	Conservation and protection of specific natural features.	Ecotourism Scientific research with regulated collection of specimens
	Natural Park (NP)	Relatively large biodiversity costs of costs statistically assets of sustaining/maintaining ecological processes/functions	Biodiversity conservation and maintenance of natural ecological processes. Nature recreation, Research & scientific. Studies Environmental monitoring	Nature recreation Regulated resource use, consistent with management plan EXCEPT cutting of naturally growing trees subject to PAMB clearance
	Strict Nature Reserve (SNR)	Area with biodiversity rich natural coopystems in an indisturbed state.	Research and scientific studies environmental monitoring conservation education maintenance of genetic resources and natural ecological processes	Limited scientific research i.e. counts, observations, and measurements at the site and non-extractive research and educational. activities
	CRITERIA	J. Natural Feature	2. Management Objective (s)	3. Allowable Human Activities*

* In all categories, the customary rights and traditional practices of Indigenous Peoples shall be recognized, respected and allowed subject to the Wildlife Resources Conservation & Protection Act (RA 9147) and other applicable laws, rules and regulations.
Mining is prohibited in all protected areas regardless of categories pursuant to the Mining Act of 1995 (RA 7942)

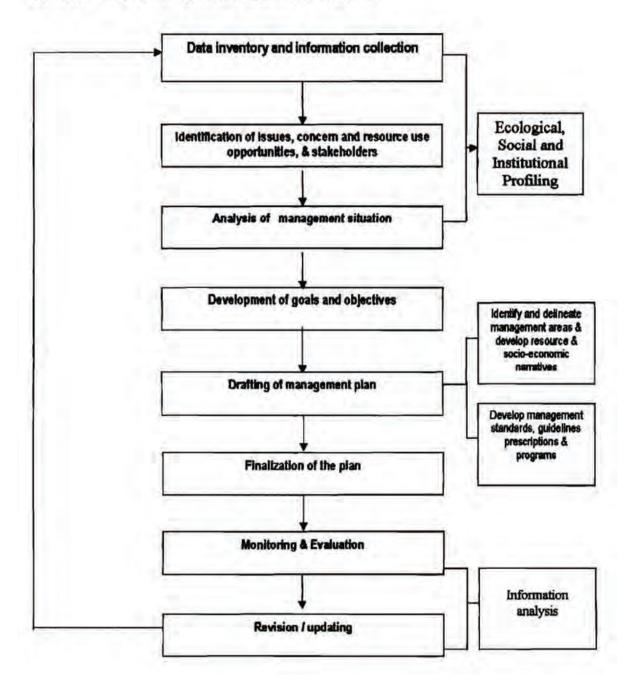
Annex B - Procedure for the Establishment of Protected Areas

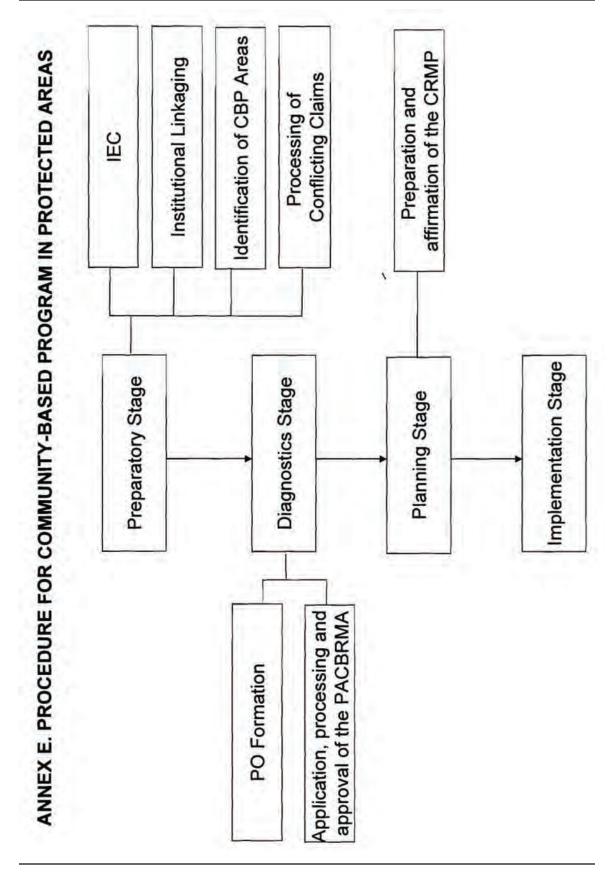


Annex C - Procedure for Protected Area Dis-establishment

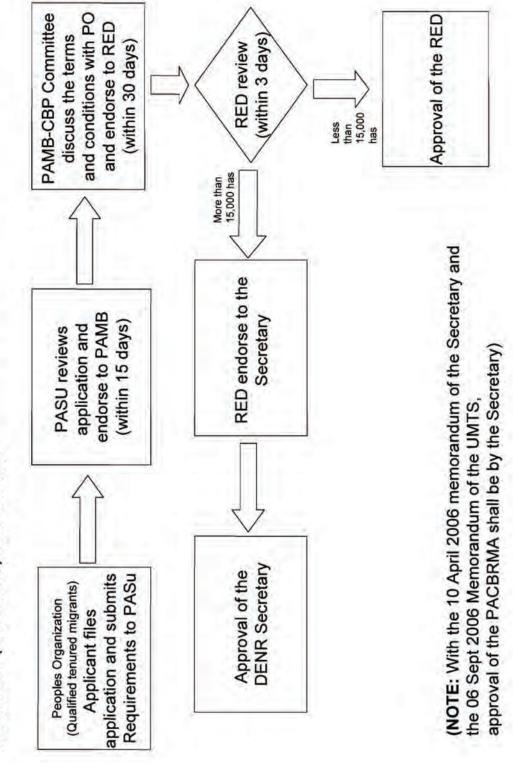


Annex D - PA Management Planning Process

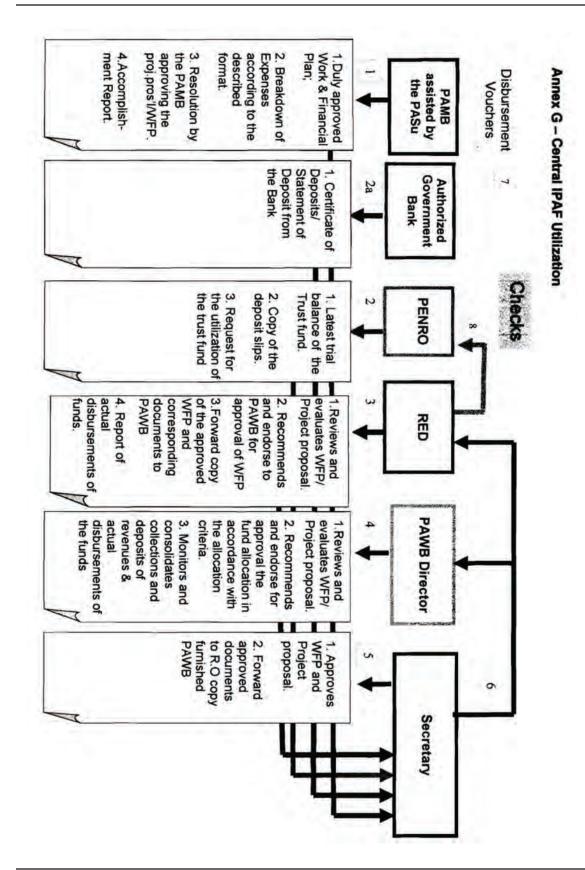


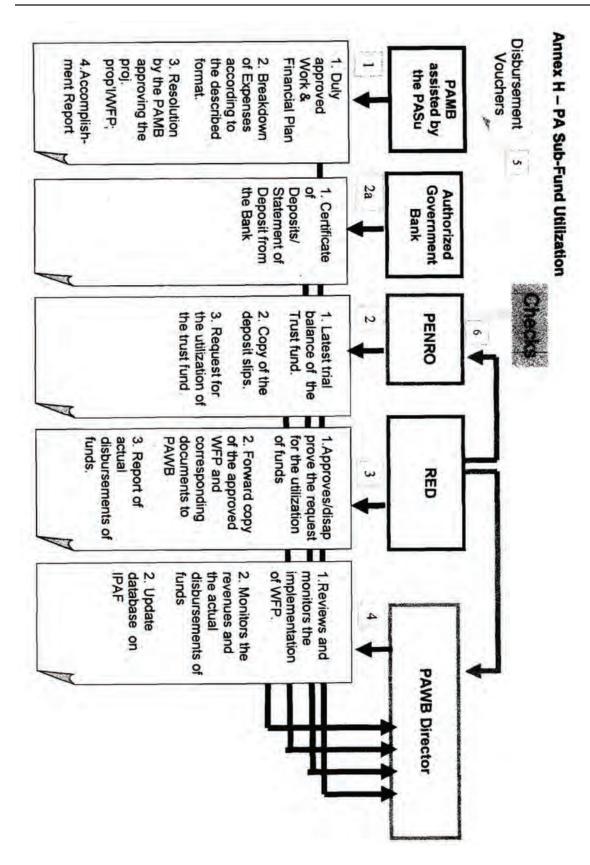


PROTECTED AREA COMMUNITY-BASED RESOURCE MANAGEMENT AGREEMENT SSUANCE (PACBRMA) DAO 2004-32



Final Validation Map Integration ANNEX F. COMMUNITY RESOURCE MANAGEMENT PLAN PREPARATION PAMB Endorsement Plan Preparation Community Mapping Affirmation by the RED





APPENDIX 3

Detailed description of Nepenthes *peltata*, a new species endemic only to MHRWS

Nepenthes peltata Sh. Kurata

Original description; Kurata, S. 2008. Journal of the Insectivorous Plant Society (Japan) 59 (1): 12-17

The specific epithet refers to the peltate leaves of this species. Nepenthes peltata does not have any synonyms or infraspecific taxa.

Nepenthes peltata is presently known only from the upper slopes of Mount Hamiguitan in Mindanao (Figure 401). The species may have a wider distribution than is currently appreciated, but the highlands of southern Mindanao remain poorly researched due continuing separatist conflict. On Mount Hamiguitan, N. peltata occurs from approximately 865 m to the summit of the mountain, which stands at 1635 m. It grows terrestrially in mossy, upper montane forest, amongst degraded or recovering secondary vegetation, on exposed cliffsides and landslide areas, and alongside stunted scrub on ridge tops (Figure 402). Nepenthes peltata forms a short, rigid, upright stem to 1 m high that grows above or through surrounding vegetation. It is tolerant of shaded conditions, but grows most vigorously in strong or direct sunlight. Occasionally, scrambling stems up to 3 m long may be produced, but no climbing stems or upper pitchers have been observed. Nepenthes peltata naturally hybridises with N. micramphora, and hybrids are very common on Mount Hamiguitan, particularly above 1400 m.

The lamina in oblong, up to 50 cm long and 9 cm wide. The leaf apex is rounded and the leaf base is abruptly contracted and petiolate. The leaf tip is strongly peltate, the tendril emerging up to 27 mm from the apex of the leaf. The petiole is up to 7 cm long, and is canaliculated. The petiole is reduced or absent in seedlings and juvenile plants. The leaves are generally flat, but the margins may be variably upturned. They are also very distinctive because the upper surface of the leaf is dark green, and the lower surface is usually, though not always, dark red (Figure 403). The midrib is yellow or light green, and the stem, petioles and tendrils, and lower surface of the leaves are lined with coarse, long, brown hairs. These hairs may be absent or sparsely scattered over the upper surface of the leaves and pitchers.

The lower pitchers are variable in size and shape (Figure 404). They are up to 28 cm tall and 16 cm wide, and may be wholly ovate, ellipsoidal, or urceolate. Wings up to 10 mm wide, fringed with filaments up to 9 mm long, run down the front of the lower pitchers. The peristome is loosely cylindrical, up to 2 cm wide, and expanded towards the sides and back of the pitcher opening. The peristome is lined with ribs up to 1.5 mm high, spaced up to 2 mm apart. Sometimes the ribs are elongated on the inner edge of the peristome to form teeth up to 1 mm long, but such teeth are often lacking. The peristome is slightly raised at the back of the pitcher opening, immediately below lid. The outer margin of the peristome extends into the pitcher opening for several millimeters, particularly below the lid. The lid is elliptic or ovate, up to 8 cm long and 6 cm wide. A well-formed appendage is generally lacking, but a pronounced keel, somewhat triangular in shape, may sometimes be present; if so, this keel is apparent close to the base of the lid and may extend downwards for a few millimeters. Many large, conspicuous nectar glands up to 3 mm wide are distributed across the underside of the lid. The spur is narrow, unbranched, up to 12 mm long and is often hairy.

The colouration of the lower pitchers s exceptionally variable (Figures 405 and 406). The exterior may be yellow, orange, pink, red or purple, mottled with dark purple or black blotches. The interior of the trap is light yellow or green, often faintly flecked with dark red or purple. The peristome may be bright yellow, orange, red, or purple, often striped with variable bands of yellow, orange or red. The lid may be yellow, orange, red or dark reddish purple, and is often decorated with dark red, purple or black blotches and flecks.

The inflorescence is a raceme, to 75 cm long by 3.5 cm at the widest point, but up to 6.5 cm wide in the female. The peduncle is up to 46 cm long and up to 9 mm in diameter at the base, the rachis to 20 cm long. Flowers are borne on predominantly 2-flowered partial peduncles up to 3 mm long, with a narrow bract 4-7 mm long towards the base, on pedicles to 14 mm long. Tepals are ovate with an acute apex and up to 4 mm long. The anther head is borne on a column up to 4 mm long. Fruits are 20 mm long and seeds approximately 4 mm long.

During my observations of this species on Mount Hamiguitan, no climbing stems or upper pitchers were located. The holotype also lacks upper pitchers, and it seems that upper pitchers are produced rarely or not at all. Consequently, a description cannot be presented here. It is possible that this species does produce climbing stems and upper pitchers when growing amidst tall vegetation or in dense shade, much like its close relatives, N. deaniana and N. mira, but this can only be confirmed through further investigation.

Nepenthes peltata is closely related to the Palawan species, N. attenboroughii, N. deaniana, N. mantalingajanensis and N. mira, but is easily distinguished from all of these by its strongly peltate leaves, distinctive leaf colouration, and very hirsute foliage. As with most of these species, N. peltata occurs on ultramafic soils and shares some common features with N. rajah, of Borneo, including its markedly peltate leaves. The recent discoveries of these taxa on Palawan and Mindanao, coupled with prehistoric topographical data for this region, provide convincing evidence that these predominantly ultramafic species share a common, Bornean ancestor (Robinson et al., 2009).

Although Mount Hamiguitan is relatively easy to access and frequently visited as a result, N. peltata is not currently threatened. Populations of this species are extensive and widespread, and admission to the mountain is only permitted in the company of a trained, conservation aware guide. Due to the commendable efforts of the local government of San Isidro, an application has been submitted to the UNESCO in 2008 in order to protect Mount Hamiguitan as a World Heritage site. At the time of writing, Mount Hamiguitan is listed on the tentative list of World Heritage sites; see http://whc.unesco.org/en/tentativelists/5387/. If World Heritage status is successfully obtained, it will help to further secure the future of this species in the wild. Source:

Pitcher Plants of the Old World – Volume Two Stewart McPherson, 2009

APPENDIX 4

Detailed description of Nepenthes *micramphora*, a new species endemic only to MHRWS

Nepenthes micramphora V.Heinrich, S.McPherson, Gronemeyer & Amoroso

Original description; Heinrich et al., 2009, in Pitcher Plants of the Old World Volume Two, by S. McPherson: 1314.

The specific epithet is derived from the Greek micros (small) and Latin amphora (pitcher or urn) and refers to the diminutive size of the traps of this plant (Figure 387).

Nepenthes micramphora does not have any synonyms or infraspecific taxa. The description of this species is presented in the appendix of this work.

Nepenthes micramphora is presently known only from the upper slopes of Mount Hamiguitan in southern Mindanao. It may have a wider distribution than is presently recognized, as the southern Mindanao highlands remain poorly explored due to continuing separatist conflict. On Mount Hamiguitan, N. micramphora occurs from approximately 1100 m to the summit of the mountain, which stands at 1635 m. It grows terrestrially amidst spare, open canopied, mossy, upper montane trees, amongst degraded or recovering secondary vegetation, on exposed cliffsides and landslide areas, and on stunted scrub on ridge tops (Figure 388). Nepenthes micramphora is generally absent from tall, closed canopy montane forest. It readily produces a branched stem up to 2 m long, that climbs and scrambles through surrounding vegetation or trails across the ground. Nepenthes micramphora is tolerant of shaded conditions, but grows most vigorously in strong or direct sunlight. It naturally hybridises with N. peltata and possibly with N. mindanaoensis. Hybrids are very common on Mount Hamiguitan, particularly above 1400 m.

The lamina is linear or slightly spathulate, up to 80 mm long and 10 mm wide. The apex of the leaf is acute, and the base is attenuate and sessile to slightly amplexicaul. The lamina is green. The stem is often bright red, orange, yellow or green. The midrib is typically yellow, but may be reddish towards the stem, and the tendril may be yellow, orange or red. All parts of the foliage of mature plants are glabrous.

Lower pitchers are produced only very briefly by young plants prior to the production of a climbing stem (Figure 389). The lower traps are up to 41 mm tall 16 mm wide. The bottom third to half of the pitcher is narrowly ovate, and variably swollen. Above this part, the width narrows slightly, before becoming cylindrical or very slightly infundibular towards the pitcher opening. Wings up to 4 mm wide, fringed with filaments up to 3 mm long, run down the front of the trap. The wings are often reduced to ridges or are only partly expressed. The peristome is up to 0.8 mm in width, and lined with inconspicuous ribs to 0.1 mm high, spaced 0.1 mm apart. These ribs are often so fine that they may not be apparent at all. The lid is elliptic, ovate or orbicular, often with a cordate base, up to 20 mm long and 18 mm wide. The lid lacks an appendage. The spur is up to 3 mm long and is branched or occasionally divided.

The exterior of the lower pitcher may be orange, red or reddish-brown, often with dark red or black wings. The interior of the trap is light yellowish green or creamy white. The peristome is yellowish green or flushed red, and the lid is orange or red, often with a lighter underside.

Despite their small size, the upper pitchers are produced in abundance, particularly on mature, climbing plants. The upper pitchers are up to 67 mm tall and 20 mm wide, but usually much

smaller, more typically attaining a size of 40 mm tall and 17mm wide (Figures 390 and 391). The bottom third to half of the pitcher is narrowly infundibular. Above this part, the pitcher narrows, sometimes forming a faint hip, and becomes cylindrical or infundibular towards the pitcher opening. The wings are entirely reduced to ridges. All other parts are similar to the lower pitchers.

The colouration of the upper pitchers is diverse, but usually colourful and attractive. The exterior of the upper pitchers is bright yellow, orange, red or reddishbrown, often with dark red wing ridges. The interior of the trap is light, yellowish green or creamy white. The peristome is yellowish green or red, and the lid may be bright yellow, orange, red or reddish-brown, often with a lighter underside.

The inflorescence is a raceme, to 35 cm long. The peduncle is up to 8 cm long and 1 mm in diameter at the base. Flowers are borne singly on bractless pedicels, up to 40 flowers per inflorescence. Tepals are ovate, to 2.5 mm long by 1.2 mm wide. Fruits are up to 20 mm long and the seed is unknown.

The diminutive pitchers of N. micramphora distinguish it from most other Nepenthes; only *N. bellii* and *N. gracilis* produce foliage that is superficially similar in size and appearance. Nepenthes bellii is distinguished by the shape of its lower pitchers, which are wholly cylindrical, ellipsoidal or occasionally urceolate, with a broad, peristome lined with defined ribs and teeth; the lower pitchers of N. micramphora are comparatively slender, with a narrowly ovate base and very narrow peristome. *Nepenthes gracilis* is not sympatric with N. micramphora and therefore unlikely to be confused with that species. However, the leaves of N. gracilis are narrower and strongly decurrent, with lower pitchers produced in abundance and stems that are triangular in cross section.

Although *N. micramphora* is known only from the upper slopes of one mountain, the species is not currently threatened. Although Mount Hamiguitan is relatively easy to access and frequently visited as a result, populations of N. micramphora are extensive and widespread, and admission to the mountain is only permitted in the company of a trained, conservation aware guide. Due to the commendable efforts of the local government of San Isidro, an application has been submitted to the UNESCO in 2008 in order to protect Mount Hamiguitan as a World Heritage site. At the time of writing, Mount Hamiguitan is listed on the tentative list of World Heritage sites; see http://whc. unesco.org/en/tentativelists/5387/. If World Heritage status is successfully obtained, it will help to further secure the future of this species in the wild. Source:

Pitcher Plants of the Old World – Volume Two Stewart McPherson, 2009

APPENDIX 5

Photo documentation on some endemic, threatened, rare and economically important floral species in MHRWS

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT TREES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Weinmania urdanetensis Elm. CUNONIACEAE Endemic; In Pygmy forest; 1146 m asl; San Isidro, Davao Oriental



Rhododendron kochii Stein. ERICACEAE Endemic; In Dipterocarp forest – 790 m asl; Montane forest – 1120 m asl; San Isidro, Davao Oriental



(Bl.) Mig. (Bl.) Amig. MORACEAE Endemic; In Agro-ecosystem; 135 & 185 m asl; San Isidro, Davao Oriental



Buchanania arborescens (Bl.) Bl. ANACARDIACEAE Widespread; In Agro-ecosystem; 40 m asl; Mati, Davao Oriental



Agathis philippinensis Warb. ARAUCARIACEAE Endemic, vulnerable and source of lumber; In Primary Montane forest; 960 m asl-1200 masl; San Isidro & Mati, Davao Oriental



Gnetum gnemon Linn. GNETACEAE Rare, food and medicinal; In Dipterocarp and Montane forests; 815 m asl; San Isidro Davao Oriental



Podocarpus neriifolius D. Don ex Lamb. PODOCARPACEAE Widespread; In Montane forest; 1095 m asl – San Isidro; 600 m asl – Mati, Davao Oriental



Calophyllum inophyllum L. CLUSIACEAE Endemic; In Montane forest; 905 m asl; Mati, Davao Oriental



Timonius hirsutus (Elm.) Merr. RUBIACEAE Endemic; In Dipterocarp and Montane forest; 905-1146 m asl; San Isidro, Davao Oriental



Wendlandia nervosa Merr. RUBIACEAE Endemic and new record in Mindanao; In Dipterocarp forest; 807 m asl – San Isidro, Davao Oriental; 140 m asl – Mati, Davao Oriental



Gordonia sp.
THEACEAE
Rare; In Pygmy forest; 1146 m
asl – San Isidro, Davao Oriental; In
Agro-ecosystem 400 m asl – Mati,
Davao Oriental



Dillenia philippinensis Rolfe DILLENIACEAE Endemic, rare and source of lumber; In Agro-ecosystem; 70 m as; San Isidro, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT TREES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Shorea astylosa Foxw.
DIPTEROCARPACEAE
Endemic and critically endangered; In agro-ecosystem to
montane forest, Mati and San
Isidro, Davao Oriental



Shorea polysperma Merr.
DIPTEROCARPACEAE
Endemic and vulnerable; In agroecosystem to montane forest, Mati
and San Isidro, Davao Oriental



Shorea contorta Vid.
DIPTEROCARPACEAE
Endemic and vulnerable; In agroecosystem to mossy forest, Mati
and San Isidro, Davao Oriental



Rhododendron quadrasianum Vid. ERICACEAE Endemic; In Pygmy forest – 1146 m asl – San Isidro, Davao Oriental; Pygmy forest – 1146 m asl – Mati, Davao Oriental



Pittosporum pentandrum (Blco.)
Merr.
PITTOSPORACEAE Endemic;
In Montane forest – 835 m asl
– San Isidro, Davao Oriental; Agroecosystem – 400 m asl – Mati,
Davao Oriental



Lithocarpus soleriana (Vid.) Rhed FAGACEAE Endemic; In Pygmy forest; 1146 m asl; San Isidro, Davao Oriental



Ascarina philippinensis C.B.Rob. CHLORANTHACEAE Endemic; In Montane forest; 1065 m asl; San Isidro, Davao Oriental



Ceuthostoma sp.
CASUARINACEAE
In Dipterocarp forest; 880 m asl;
San Isidro, Davao Oriental



Canarium asperum Benth. BURSERACEAE In Agro-ecosystem – 100 m asl; Montane forest – 980 m asl; Mati, Davao Oriental



Pometia pinnata J.R. & G. Forst SAPINDACEAE Widespread; In Agro –ecosystem; 40 m asl; Mati, Davao Oriental



Teijsmanniodendron sp.
VERBENACEAE
In Montane forest; 965 m asl; San Isidro. Davao Oriental



Cynometra copelandii (Elm) Elm. FABACEAE Endemic; In Agro –ecosystem; 300 m asl; San Isidro, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT PALMS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Calamus sp. Hemi-epiphyte; In Montane forest; 1035 m asl; San Isidro, Davao Oriental



Calamus sp. Hemi-epiphyte; In Montane forest; 1035 m asl; San Isidro, Davao Oriental



Calamus sp.
Hemi-epiphyte; In Montane forest; 1215 m asl;
San Isidro, Davao Oriental



Calamus merrillii "Gataran" Endemic; Hemi-epiphyte; In Montane forest; 370 m asl Mati, Davao Oriental



Calamus viridissimus Endemic; Hemi-epiphyte; In Montane forest; 1035 m asl; San Isidro, Davao Oriental



Heterospathe intermedia Endemic; Terrestrial; In Pygmy forest; 1045 m asl; San Isidro, Davao Oriental



Pinanga sp. Terrestrial; In Montane forest; 1005 m asl; San Isidro, Davao Oriental



Pinanga sp. Terrestrial; In Montane forest; 1005 m asl, San Isidro, Davao Oriental



Pinanga rigida "Palmera" Endemic; Terrestrial; In Montane forest; 1080 m asl; Governor Gen-

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT PANDANS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Freycinetia arborea Common; Hemi-epiphyte; In Montane forest; 1020 masl; San Isidro, Davao Oriental



Freycinetia arborea Common; Hemi-epiphyte; In Montane forest; 1020 masl; San Isidro, Davao Oriental



Freycinetia ensifolia Merr. Endemic; Hemi-epiphyte; In Agroecosystem; 115 m asl, San Isidro, Davao Oriental



Freycinetia sp. Hemi-epiphyte; In Agro-ecosystem; 140 m asl; Mati, Davao Oriental



Freycinetia sp.
Hemi-epiphyte; In Montane forest;
1125 m asl; San Isidro, Davao
Oriental



Pandanus copelandii Merr. Endemic; Terrestrial; In Montane forest; 1005 m asl; San Isidro, Davao Oriental



Pandanus copelandii Merr. Endemic; Terrestrial; In Dipterocarp forest; 175 m asl; Governor Generoso, Davao Oriental



Pandanus cubicus St. John Terrestrial; In Agro-ecosystem; 175 m asl; Governor Generoso, Davao Oriental



Pandanus depauperatus Merr. Terrestrial; In Pygmy forest; 1150 m asl; San Isidro, Davao Oriental



Pandanus glauciphyllus C.B. Rob Endemic; Terrestrial; In Montane forest; 980 m asl-Governor Generoso; 810 m asl-San Isidro, Davao Oriental



Pandanus sp.
Terrestrial; In Montane forest;
1060 m asl; San Isidro, Davao



Pandanus sp. Terrestrial; In Montane forest; 1134 m asl; Mati, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT PITCHER PLANTS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL

V.B. Amoroso et al



Nepenthes alata Blanco Endemic, rare, ornamental; Usually in montane forest, rarely in ultramafic soils; 400-1146 m asl; Entire Hamiguitan Range



Nepenthes alata Blanco Endemic, rare, ornamental; Usually in montane forest, rarely in ultramafic soils; 400-1146 m asl; Entire Hamiguitan Range



Nepenthes argentii Jebb & Cheek Endemic, critically endangered, new record in Mindanao, rare and ornamental; In a ridge of ultramafic rock; 1145 m asl; San Isidro, Davao Oriental



Nepenthes micramphora Endemic, endangered, rare and ornamental; In ultramafic substrate; 1145 m asl-San Isidro; 1095 m asl-Governor Generoso, Davao Oriental



Nepenthes cope landii Merr. ex Macfarl Endemic, critically endangered, and ornamental; In ultramafic substrate; 1170 m asl; San Isidro, Davao Oriental



Nepenthes maxima Reinw. ex Nees New record in the Philippines, rare and ornamental; Present in metalliferous ultramafic soils; 1165 m asl; San Isidro, Davao Oriental



Nepenthes peltata Site Endemic, new species record for MHRWS rare and ornamental; Submontane forest in ultramafic soils; 885-1145 m asl-San Isidro; 160-Governor Generoso



Nepenthes hamiguitanensis Site Endemic, new species record for MHRWS rare, ornamental and possibly a new species; In mossy forest; 1355 m asl; San Isidro, Davao Oriental



Nepenthes micramphora Site Endemic, new species record for MHRWS rare, ornamental and possibly a new species; In Pygmy forest; 200 m asi; Mati, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT VINES AND EPIPHYTES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL

V.B. Amoroso et al



Goniothalamus sp. ANNONACEAE Hemi-epiphyte; In Dipterocarp forest; 125 m asl; Mati, Davao Oriental



Goniothalamus sp. ANNONACEAE Hemi-epiphyte; In Dipterocarp forest; 120 m asl; Mati, Davao Oriental



Alyxia rosmarinifolia APOCYN-ACEAE Rare; Hemi-epiphyte; In Montane forest; 1065 m asl; San Isidro, Davao Oriental



Apostasia wallichii APOSTASIACEAE Hemi-epiphyte; In Dipterocarp forest; 885 m asl; San Isidro, Davao Oriental



Dischidia diphylla ASCLEPIADACEAE Endemic; Epiphyte; In Dipterocarp forest; 215 m asl- Gov. Generoso; 815 m asl- San Isidro, Davao Oriental



Dischidia elmeri Schltr. ASCLEPIADACEAE Endemic; Epiphyte; In Pygmy forest; 1150 m asl, San Isidro, Davao Oriental



Hoya meliflua (Blco.) Merr. ASCLEPIADACEAE Endemic; Epiphyte; In Montane forest; 1150, 1170 m asl; San Isidro, Davao Oriental



Hoya incrassata Warb. ASCLEPIADACEAE Endemic; Epiphyte; In Dipterocarp forest; 530, 815 m asl; San Isidro, Davao Oriental



Hoya mindorensis Schltr. ASCLEPIADACEAE Endemic; Epiphyte; In Agroecosystem; 270 m asl, Governor Generoso, Davao Oriental



Dioscorea loheri Prain & Burkill DIOSCOREACEAE Endemic and rare; Hemi-epiphyte; In Dipterocarp forest; 922 m asl; San Isidro, Davao Oriental



Aeschynathus miniaceaus BL Burtt & PJB Woods GESNERIACEAE Endemic, vulnerable and ornametal; Hemi-epiphyte; In Montane forest; 1250, 1084 m asl; San Isidro, Davao Oriental



Agalmyla persimilis Hilliard & BL Burtt GESNERIACEAE Endemic, vulnerable and ornamental; Hemi-epiphyte; In Montane forest; 955 m asl; San Isidro, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT VINES AND EPIPHYTES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL

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Agalmyla sp. GESNERIACEAE Hemi-epiphyte; In Montane forest; 955 m asl; San Isidro, Davao Oriental



Gnetum latifolium var. latifolium GNETACEAE Hemi-epiphyte; In Montane forest; 1150 m asl; San Isidro, Davao Oriental



Amyema halconense LORANTHACEAE Endemic, Epiphytic; In Pygmy forest; 1185 m asl; San Isidro, Davao Oriental



Phrygilanthus obtusifolius LORANTHACEAE Hemi-epiphyte; In Dipterocarp forest; 840 m asl; San Isidro, Davao Oriental



Parabaena echinocarpa Diels. MENISPERMACEAE Endemic, Hemi-epiphyte; In Dipterocarp forest; 835 m asi; San Isidro, Davao Oriental



Hydnophytum formicarum RUBIACEAE Epiphyte; In Pygmy forest; 1150 m asl; San Isidro, Davao Oriental



Ixora chartacea Elm. RUBIACEAE Endemic;Hemi-epiphyte; In Dipterocarp forest; 630 m asl; San Isidro, Davao Oriental



Myrmecodia tuberosa RUBIACEAE Epiphyte; In Dipterocarp forest; 815 m asl; San Isidro, Davao Oriental



Schradera elmeri RUBIACEAE Endemic; Hemi-epiphyte; In Montane forest; 1140 m asl; San Isidro, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT ORCHIDS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Appendicula sp. Terrestrial; In Pygmy forest; 1145 masl; San Isidro, Davao Oriental



Bulbophylum sp. Epiphyte; In Montane forest; 970 masl; San Isidro, Davao Oriental



Bulbophyllum cumingii (Lindl.) Reichb.; Endemic; Terrestrial; In Dipterocarp forest; 165 masl; Mati, Davao Oriental



Ceratostylis retisquama Rchnb. f.; Endemic; Epiphyte; In Pygmy forest; 1145 masl; San Isidro, Davao Oriental



Dendrobium sanderae Rolfe var. surigaense Quisumb.; Endemic; Epiphyte; In Pygmy forest; 1145 masl; San Isidro, Davao Oriental



Dendrobium uniflorum Griffith; Endemic; Epiphyte; In Dipterocarp forest; 735 masl; San Isidro, Davao Oriental



Dendrochilum sp.
Terrestrial; In Dipterocarp forest; 770 masl; San Isidro, Davao



Dendrochilum sp. Terrestrial; In Montane forest; 995 masl; San Isidro, Davao Oriental



Dendrochilum quadrilobum Ames; Endemic; Epiphyte; In Pygmy forest; 1300 masl; San Isidro, Davao Oriental



Dilochia elmeri Elm Endemic; Epiphyte; In Pygmy forest; 1146 masl; San Isidro, Davao Oriental



Diplocaulobium clemensii (Ames) A.D. Hawkes; Epiphyte; In Pygmy forest; 1290 masl; San Isidro, Davao Oriental



Dipodium paludosum (Griff.) Rchnb. f.; Common; Epiphyte; In Dipterocarp forest; 799 masl; Gov. Generoso, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT FERNS AND FERNALLIES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Epigeneium stellasilvae (Loher & Kraenzl.) Summeth; Epiphyte; In Montane forest; 970 masl; San Isidro, Davao Oriental



Eria sp.
Epiphyte; In Montane forest; 1025
masl; San Isidro, Davao Oriental



Flickengeria bancana (J.J. Sm.) A.D. Hawkes Epiphyte; In Pygmy forest; 1146 masl; San Isidro, Davao Oriental



Lepidogyne longifolia Blume New Record in Mindanao; Terrestrial; In Montane forest; 970 masl; San Isidro, Davao Oriental



Liparis viridiflora (Blume) Lindl.; Common; Lithophyte; In Agroecosystem; 140 masl; San Isidro, Davao Oriental



Liparis sp. Epiphyte; In Dipterocarp forest; 740 masl; San Isidro, Davao Oriental



Paphiopedilum adductum Asher; Endemic, critically endangered, rare and ornamental; Terrestrial; In Grassland; 1135 masl; San Isidro, Davao Oriental



Paphiopedilum ciliolare (Reichenbach f.) Stein Endemic, endangered, rare and ornamental;Terrestrial; In Montane forest; 922 masl; San Isidro,



Plocoglottis acuminata Blume Terrestrial; Common; In Agro-ecosystem; 316 masl; San Isidro, Davao Oriental



Tainia maingayi Hook. f. New Record in the Philippines; Terrestrial; In Pygmy forest; 1220 masl; San Isidro, Davao Oriental



Spathoglottis sp.
Terrestrial; In Montane forest;
1100 masl; Governor Generoso,
Davao Oriental



Trichoglottis tamesisii Quisumb. & C. Schweinf.; Terrestrial; In Montane forest; 720 masl; Mati, Davao Oriental

SOME ENDEMIC, THREATENED, RARE AND ECONOMICALLY IMPORTANT FERNS AND FERNALLIES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Blechnum egregium Copel. BLECHNACEAE Endemic; Terrestrial; In dipterocarp forest, 540 m asl; San Isidro, Davao Oriental



Cephalomanes atrovirens Presl. HYMENOPHYLLACEAE Rare; Terrrestrial; In montane to mossy-pygmy forest, 920-1200 m asl; San Isidro, Davao Oriental



Cyathea contaminans Copel.
CYATHEACAE
Vulnerable and ornamental; Terrestrial; In dipterocarp to mossy forest, 540-1350 m asl; San Isidro, Davao Oriental



Sphenomeris retusa (Cav.) Maxon. LINDSAEACAE Ornamental; Terrestrial In dipterocarp to montane forest, 480-980 m asl; San Isidro and Gov. Generoso, Davao Oriental



Lecanopteris pumila (Bl.)
POLYPODIACEAE
Rare and ornamental; Epiphytic; In
montane to mossy-pygmy forest,
980-1200 m asl; San Isidro, Davao
Oriental



Lecanopteris sinousa POLYPODIACEAE Rare and ornamental; Epiphytic; In dipterocarp forest, 520 m asl; San Isidro, Davao Oriental



Psilotum nudum (L.) Beauv.
PSILOTACEAE
Vulnerable and ornamental; Terestrial; In dipterocarp to mossypygmy forest; 540-1150 m asl; San Isidro and Mati, Davao Oriental



SCHIZAEACEAE Rare; Terrestrial; In dipterocarp to mossy-pygmy forest, 540 to 1200 m asl; San Isidro and Mati, Davao Oriental



Ophioglossum pendulum L. OPHIOGLOSSACEAE; Endangered; Terrestrial; In dipterocarp forest, 740 m asl, San Isidro, Davao Oriental



Platycerium coronarium (Muell.) Desv. POLYPODIACEAE; Critically endangered ands ornamental; Epiphytic; In dipterocarp forest, 210 m asl, Mati, Davao Oriental



Schizaea inopinata Selling SCHIZAEACEAE; Rare; Terrestrial; In dipterocarp-montane forest, 920 m asl, San Isidro, Davao Oriental



Schizaea dichotoma (Linn.) Smith. SCHIZAEACEAE Rare; Terrestrial; In dipterocarp to mossy-pygmy forest, 540 to 1200 m asl; San Isidro and Mati, Davao Oriental

APPENDIX 6

Photo documentation on some threatened and and endemic faunal species in MHRWS

THREATENED AND ENDEMIC NON-VOLANT MAMMALS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Asian Palm Civet (Milo) Paradoxurus hermaphroditus (Southeast Asia - Vulnerable) trapped in Camp 1, san Isidro



Philippine Forest Rat (Ilaga), Rattus everetti trapped in Camp 1, san Isidro



Large Mindanao Forest Rat (Baboy-baboy), Bullimus bagobus (Mindanao Endemic - Common) trapped in Cawa-cawa, Camp 1 and Camp 3



Mindanao Forest Mouse (Ilaga), Apomys littoralis (Mindanao Endemic - Uncertain) trapped in Cawa-cawa, Camp 1, San Isidro



THREATENED AND ENDEMIC BIRDS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Philippine Bulbul (Tagbay/Tagmaya, Hypsipetes philippinus (Philippine Endemic - Common) captured in Cawa - Cawa, Magum, Mansadok and Cmp 3



Yellow-Wattled Bulbul (Baliwing), Pycnonotus urostictus (Philippine Endemic - Common) captured in Cawa-Cawa and Gov. Generoso



Blue Fantail (Siloy), Rhipidura superciliaris (Mindanao Endemic - Common) captured in Cawa-Cawa and Magum



Black - heade tailorbird (Tamsi), Orthotomus nigriceps (Mindanao Endemic - Uncommon) captured in Camp 3



Philippine Trogon (Bakaka), Harpactes ardens (Philippine Endemic - Common) captured in Camp 3



Yellow - bellied Whistler (Tagkolirit), Pachycephala philippensis (Philippine Endemic - common) captured in Camp 3

RARE AND ENDEMIC REPTILES IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Black - Spotted SphenomorphousSphenemorphous variegatus (Philippine Endemic - Rare) collected in Artocarpus Camp, Camp 1 and Msagum



Yellow-Striped Slender Tree Skink, Lipinia pulchellum (Philippine Endemic - Common) collected in Magum, Mati



Philippine Pit Viper (Dupong), Trimeresurus flavomaculatus (Philippine Endemic - Widespread) collected in Puting Bato, San Isidro



Dark-spotted Mock Viper, Psammodynastes pulverulentus (Philippine Endemic - Common) collected in Camp 3



White - Spotted Anglehead, Gonyocephalus semperi (Philippine Endemic - Rare) collected in Camp 1, San Isidro



Variable-backed Narrow-disked Gecko, Gekko monarchus (Philippine Endemic - Common) collected in Camp 1 and Artocarpus Camp



Six Striped Mabouya, Mabouya englei (Philippine Endemic - common) collected in Camp 3

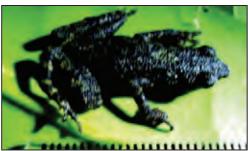


Gervanis's Worm Snake, Calamaria gervaisi (Philippine Endemic -Common) collected in Artocarpus Camp. Cawa-Cawa, Camp 1 and Magum

RARE AND ENDEMIC ANURANS IN MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY, DAVAO ORIENTAL



Philippine Wood land Frog (Bak-bak), Limnonectes magnus (Philippine Endemic-Vulnerable) collected in Puting bato, Cawa-cawa, Magum, Gov. Generoso and Camp 1



Mueller's Toad, Ansonia muelleri (Philippine/Endemic-Vulnerable) collected in Putting bato and Magum



Pointed-snouted Tree Frog, Philautus acutirostris (Philippine Endemic-Vulnerable) collected in Cawa-cawa, Artocarpus camp, Magum and Camp 1



Stjnegeri Megopghrys (Baki-sungayan), Megophrys stejnegeri (Philippine Endemic-Vulnerable) collected in Puting bato, Cawa-Cawa and Gov. Generoso



Big-eyed Frog (Tig-tig), Rana granducola (Philippine Endemic-Unknown) collected in Puting bato, Cawa-cawa, Magum and Camp 1



Corrugated Forest Frog, Philautus corrugatus (Philippine Endemic-Common) collected in Magum



Rock Frog, Staurois natator (Philippine Endemic-Least Concern) collected in Puting bato, Cawa-cawa, Magum, Gov. Generoso, Mansadok and Camp 3



Platymantis sp. (Philippine Endemic) collected in Puting bato, San Isidro

APPENDIX 7

Photo documentation on some endemic, endangered and rare butterflies in in MHRWS

SOME ENDEMIC, ENDANGERED AND RARE BUTTERFLIES IN MHRWS, **DAVAO ORIENTAL**

V.B. Amoroso et al











HESPERIDAE



LYCAENIDAE











Bindahara phocides origenes Caleta angola angola LYCAENIDAE LYCAENIDAE









Hypolycaena amasa masaje LYCAENIDAE

Horaga lefebvrei osma LYCAENIDAE

Jamides electo manilana LYCAENIDAE

Jamides c. cleodus LYCAENIDAE







Menelaides polytes ledebouria Appias nephele elis PAPILIONIDAE PIERIDAE

Papilio demolius libarius PAPILIONIDAE Appies ollema peducaea PIERIDAE



Catopsilia p. pomona PIERIDAE



Catopsilia p. pyranthe PIERIDAE



Catopsilia scylla asema PlERIDAE



Cepore espesie orantie PIERIDAE



Delias magsadana PIERIDAE



Delias hyparete mindanaensis PIERIDAE



Eurema alitha alitha PERIDAE



Eurema brigitta roberto PIERIDAE



Eurema hecabe tamiathis PIERIDAE



Eurema s. sarilata PIERIDAE



Pareronia boebera trinobantes kleopsis juventa manillana PIERIDAE PIERIDAE



APPENDIX 8

MHRWS PAMB Resolution 2010-02 dated 25 March 2010: A Resolution approving the indefinite closure of Mt. Hamiguitan Range Wildlife Sanctuary to visitors/mountaineers/trekkers effective 03 April 2010 except for duly approved research studies and activities in line with its 7-Point Agenda

MHRWS-PAMB RESOLUTION NO. 2010-02 25 MARCH 2010

A RESOLUTION APPROVING THE INDEFINITE CLOSURE OF MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY TO VISITORS/MOUNTAINEERS/TREKKERS EFFECTIVE 03 APRIL 2010 EXCEPT FOR DULY APPROVED SCIENTIFIC RESEARCH STUDIES AND ACTIVITIES IN LINE WITH ITS 7-POINT AGENDA

WHEREAS, Republic Act No. 9303 entitled "An Act Declaring Mt. Hamiguitan Range and its vicinities as Protected Area under the Category of Wildlife Sanctuary and its peripheral areas as Buffer Zone and Appropriating Funds Therefore" was duly enacted and signed into a law by Congress on July 30, 2004;

WHEREAS, Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) has been set aside and proclaimed as Protected Area by reason of its unique biological and physical significance and as such, the protection and conservation of its biological diversity is of primary concern,

WHEREAS, the Protected Area (PA) is placed under the administrative jurisdiction of the DENR while site specific management and policy-making functions are vested upon the Protected Area Management Board (PAMB) pursuant to DENR Adm. Order 2008-26 (Revised IRR of RA 7586) and RA 9303;

WHEREAS, as of 21 December 2009, MHRWS has been officially registered in the Tentative List for World Heritage Inscription under the United Nations Educational, Scientific and Cultural Organization (UNESCO):

WHEREAS, there is an urgent and overwhelming need (i) to protect MHRWS from the effect of ongoing El Niño Phenomenon that hit most places of the country, (ii) to protect MHRWS from any form of destruction while its bid to be inscribed in the UNESCO World Heritage List is ongoing, and (iii) to put in place a realistic and responsive Visitor Management Program or system for MHRWS before reopening it to visitors/ mountaineers/trekkers;

NOW WHEREFORE, on motion of Ms. Grace Abadiz of MPDO-Governor Generoso and duly seconded by Mr. Modesto Buenviaje of Kalumonan Development Center, Inc., resolved, as it is hereby resolved to approve the indefinite closure of Mt. Hamiguitan Range Wildlife Sanctuary to visitors/mountaineers/trekkers except for duly approved scientific research studies and activities in line with its 7-Point Agenda.

RESOLVED FINALLY, to furnish copies of this resolution to all concerned

I HEREBY CERTIFY to the correctness of the above resolution.

RUEL D. COLONG, M.Sc.

Protected Area Superintendent

& Head Secretariat

Attested:

HON. JUSTINA MB YU

me th

Presiding Officer (BM, SP-Davao Oriental)

Approved:

DIR. JIMO SAMPUENA) PAMB Chairman (RED DENR-RXI)

APPENDIX 9

MHRWS PAMB Resolution 2010-03 dated 25
March 2010: A Resolution approving and
adopting the 7-Point Agenda as major
requirement in re-opening the Mt. Hamiguitan
Range Wildlife Sanctuary for nature recreation
particularly to visitors/mountaineers/trekkers to
be co-managed by LGU/s concerned.

MHRWS-PAMB RESOLUTION NO. 2010-03 25 MARCH 2010

A RESOLUTION APPROVING AND ADOPTING THE 7-POINT AGENDA AS MAJOR REQUIREMENT IN RE-OPENING THE MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY FOR NATURE RECREATION PARTICULARTY TO VISITORS/MOUNTAINEERS/
TREKKERS, TO BE CO-MANAGED BY LGU/s CONCERNED

WHEREAS, Republic Act No. 9303 entitled "An Act Declaring Mt. Hamiguitan Range and its vicinities as Protected Area under the Category of Wildlife Sanctuary and its peripheral areas as Buffer Zone and Appropriating Funds Therefore" was duly enacted and signed into a law by Congress on July 30, 2004;

WHEREAS, Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) has been set aside and proclaimed as Protected Area by reason of its unique biological and physical significance and as such, the protection and conservation of its biological diversity is of primary concern;

WHEREAS, the Protected Area (PA) is placed under the administrative jurisdiction of the DENR while site specific management and policy-making functions are vested upon the Protected Area Management Board (PAMB) pursuant to DENR Adm. Order 2008-26 (Revised IRR of RA 7586) and RA 9303;

WHEREAS, one of the allowable human activities in Protected Areas, particularly in a Wildlife Sanctuary, is nature recreation;

WHEREAS, there is a paramount need to put in place a realistic, responsive and effective Visitor Management Program or system for MHRWS to protect it from expected social, physical and environmental impacts resulting from nature recreation activities such as mountaineering, trekking, and other visitors' activities inside the Protected Area;

WHEREAS, MHRWS is a common area of interest of the surrounding Local Government Units (Municipalities of San Isidro & Governor Generoso & Mati City) in Davao Oriental having territorial/political jurisdiction over their respective trails and areas of responsibility, the PAMB finds it necessary and imperative to set a system or program for the allowable recreation activities in the Protected Area as major requirement in re-opening MHRWS for purposes of nature recreation or ecotourism activities to be co-managed by the concerned Municipal or City LGUs.

NOW WHEREFORE, on motion of Ms. Hadassah Carig of Philippine Eagle Foundation and duly seconded by Ms. Grace Abadiz of MPDO-Governor Generoso, be it resolved, as it is hereby resolved to approve and adopt the 7-Point Agenda as major requirement in re-opening MHRWS for nature recreation particularly to visitors/mountaineers/trekkers, to be co-managed by LGU/s concerned.

RESOLVED FINALLY, to furnish copies of this resolution to all concerned.

I HEREBY CERTIFY to the correctness of the above resolution:

RUEL D. COLONG, M.Sc. Protected Area Superintendent

& Head Secretariat

Attested:

HON. JUSTINA MB YU

Presiding Officer (BM, SP-Davao Oriental)

Approved:

AMPULNA

Behairman (RED, DENR-RXI)

7-POINT AGENDA MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY (MHRWS-PAMB RESOLUTION. 2010-03

OBJECTIVES

- To come up with responsive visitor management program.
- Strict adherence to NIPAS and Wildlife Laws (R.A. 7586 & R.A. 9147).

AGENDA

1. Clean-up Drive

- Clean-up activity shall cover from Mt. Hamiguitan summit (Mansadok Peak) down to jump-off sites.
- Target locations include trails, camp sites and convergence areas inside and adjacent the protected area.

2. Carrying Capacity Assessment

 Determine the capacity and tolerable limits of trails, camp sites and convergence areas inside the protected area to contain or hold a maximum number of visitors/trekkers without damaging the physical and environmental condition of such trails and areas.

3. Trail Assessment, Development and/or Rehabilitation

- Trails from Mt. Hamiguitan summit (Mansadok Peak) down to jump-off sites will be assessed as to its stability and capacity.
- Risky trails be developed or rehabilitated for the safety of visitors/climbers/trekkers.

4. Development of Campsites Facilities/Amenities and Recreation Areas Within PA

- Camping Ground
- Comfort Rooms or Toilets
- Water System
- Area for cooking, washing and bathing
- Waste Management, Garbage Bins and Disposal Sites
- Recreation Area
- Other facilities/amenities if necessary

5. Identification and Development of Alternative Tourist Attractions/Destinations Within Protected Area or Adjacent Area

- Waterfalls
- River Pools
- Rapelling Area
- Canopy Walk or Board Walk
- And others as maybe found necessary

6. Capability Building

- Orientation-seminar or trainings should be conducted involving but not limited to the following groups:
- Protected area staff
- Porter's association
- Local Bantay Gubat
- Other partners in the protection and conservation of the protected area.

7. Mountaineering/Trekking Ordinance with Detailed Guidelines

• A realistic and responsive LGU Ordinance and corresponding guidelines on mountaineering/trekking to the protected area are required to authorize the concerned LGU/s to manage the PA Visitors Mgt. Program and ensure adherence to regulations and mitigate the expected environmental and social impacts it may bring about.

EVALUATION/VALIDATION OF LGU/S' COMPLIANCE AND ISSUANCE OF PAMB RESOLUTION ADOPTING THE SUPPOSED ORDINANCE

- A documented compliance report with supporting data and pictorials together with the draft Mountaineering/Trekking Ordinance and Guidelines shall be submitted to PAMB/ PASO.
- Upon evaluation/validation of LGUs' compliance, a Resolution shall be passed by the PAMB to authorize/legitimize co-management by LGU/s on the Visitor Management Program in MHRWS particularly on mountaineering/trekking activity.

APPENDIX 10

An Act Providing for the conservation and protection of wildlife resources and their habitats, appropriating funds therefore and for other purposes

REPUBLIC ACT NO. 9147

July 30, 2001

AN ACT PROVIDING FOR THE CONSERVATION AND PROTECTION OF WILDLIFE RESOURCES AND THEIR HABITATS, APPROPRIATING FUNDS THEREFOR AND FOR OTHER PURPOSES

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

CHAPTER I

GENERAL PROVISIONS

Section 1. Title. This act shall be known as the "Wildlife Resources Conservation and Protection Act."

Section 2. Declaration of Policy. It shall be the policy of the State to conserve the country's wildlife resources and their habitats for sustainability. In the pursuit of this policy, this Act shall have the following objectives:

- a. to conserve and protect wildlife species and their habitats to promote ecological balance and enhance biological diversity;
- b. to regulate the collection and trade of wildlife;
- c. to pursue, with due regard to the national interest, the Philippine commitment to international conventions, protection of wildlife and their habitats; and
- d. to initiate or support scientific studies on the conservation of biological diversity.

Section 3. Scope of Application. The provisions of this Act shall be enforceable for all wildlife species found in all areas of the country, including protected areas under Republic Act No. 7586, otherwise known as the National Integrated Protected Areas System (NIPAS) Act, and critical habitats. This Act shall also apply to exotic species which are subject to trade, are cultured, maintained and/or bred in captivity or propagated in the country.

Section 4. Jurisdiction of the Department of Environment and Natural Resources and the Department of Agriculture. The Department of Environment and Natural Resources (DENR) shall have jurisdiction over all terrestrial plant and animal species, all turtles and tortoises and wetland species, including but not limited to crocodiles, waterbirds and all amphibians and dugong. The Department of Agriculture (DA) shall have jurisdiction over all declared aquatic critical habitats, all aquatic resources including but not limited to all fishes, aquatic plants, invertebrates and all marine mammals, except dugong. The secretaries of the DENR and the DA shall review, and by joint administrative order, revise and regularly update the list of species under their respective jurisdiction. In the Province of Palawan, jurisdiction herein conferred is vested to the Palawan Council for Sustainable Development pursuant to Republic Act No. 7611.

CHAPTER II

DEFINITION OF TERMS

Section 5. Definition of Terms. As used in the Act, the term:

"Bioprospecting" means the research, collection and utilization of biological and genetic resources for purposes of applying the knowledge derived there from solely for commercial purposes; "By-product or derivatives" means any part taken or substance extracted from wildlife, in raw or in processed form. This includes stuffed animals and herbarium specimens;

"Captive-breeding/culture or propagation" means the process of producing individuals under controlled conditions or with human interventions;

"Collection or collecting" means the act of gathering or harvesting wildlife, its by-products or derivatives:

"Conservation" means preservation and sustainable utilization of wildlife, and/or maintenance, restoration and enhancement of the habitat;

"Critically endangered species" refers to a species or subspecies that is facing extremely high risk of extinction in the wild in the immediate future;

"Economically important species" quot; means species or subspecies which have actual or potential value in trade or utilization for commercial purpose;

"Endangered species" refers to species or subspecies that is not critically endangered but whose survival in the wild is unlikely if the causal factors continue operating:

"Endemic species" Means species or subspecies which is naturally occurring and found only within specific areas in the country;

"Exotic species" means species or subspecies which do not naturally occur in the country;

"Export permit" refers to a permit authorizing an individual to bring out wildlife from the Philippines to any other country;

"Gratuitous permit" means permit issued to any individual or entity engaged in noncommercial scientific, or educational undertaking to collect wildlife;

"Habitat" means place or environment where species or subspecies naturally occur or has naturally established its population;

"Import permit" refers to a permit authorizing an individual to bring in wildlife from another country;

"Indigenous wildlife" means species or subspecies of wildlife naturally occurring or has naturally established population in the country;

"Introduction" means bringing species into the wild that is outside its natural habitat;

"Re-export permit" refers to a permit authorizing an individual to bring out of the country a previous imported wildlife;

"Secretary" means either or both the Secretary of the Department of Environment and Natural Resources and the Secretary of the Department of Agriculture;

"Threatened species" a general term to denote species or subspecies considered as critically endangered, endangered, vulnerable or other accepted categories of wildlife whose population is at risk of extinction;

"**Trade**" means the act of engaging in the exchange, exportation or importation, purchase or sale of wildlife, their derivatives or by-products, locally or internationally;

"Traditional use" means utilization of wildlife by indigenous people in accordance with written or unwritten rules, usage, customs and practices traditionally observed, accepted and recognized by them;

"Transport permit" means a permit issued authorizing an individual to bring wildlife from one place to another within the territorial jurisdiction of the Philippines;

"Vulnerable species" refers to species or subspecies that is not critically endangered nor endangered but is under threat from adverse factors throughout their range and is likely to move to the endangered category in the near future;

"Wildlife" means wild forms and varieties of flora and fauna, in all developmental stages, including those which are in captivity or are being bred or propagated;

"Wildlife collector's permit" means a permit to take or collect from the wild certain species and quantities of wildlife for commercial purposes; and

"Wildlife farm/culture permit" means a permit to develop, operate and maintain a wildlife breeding farm for conservation, trade and/or scientific purposes.

CHAPTER III

CONSERVATION AND PROTECTION OF WILDLIFE

RESOURCES

ARTICLE ONE

General Provision

Section 6. Wildlife Information. All activities, as subsequently manifested under this Chapter, shall be authorized by the Secretary upon proper evaluation of best available information or scientific data showing that the activity is, or for a purpose, not detrimental to the survival of the species

or subspecies involved and/or their habitat. For this purpose, the Secretary shall regularly update wildlife information through research.

Section 7. Collection of Wildlife. Collection of wildlife may be allowed in accordance with Section 6 of this Act: Provided, That in the collection of wildlife, appropriate and acceptable wildlife collection techniques with least or no detrimental effects to the existing wildlife populations and their habitats shall, likewise, be required: Provided, further, That collection of wildlife by indigenous people may be allowed for traditional use and not primarily for trade:

Provided, furthermore, That collection and utilization for said purpose shall not cover threatened species: Provided, finally, That Section 23 of this Act shall govern the collection of threatened species.

Section 8. Possession of Wildlife. No person or entity shall be allowed possession of wildlife unless such person or entity can prove financial and technical capability and facility to maintain said wildlife: Provided, That the source was not obtained in violation of this Act.

Section 9. Collection and/or Possession of By-Products and Derivatives. By-products and derivatives may be collected and/or possessed: Provided, That the source was not obtained in violation of this Act.

Section 10. Local Transport of Wildlife, By- Products and Derivatives. Local transport of wildlife, by-products and derivatives collected or possessed through any other means shall be authorized unless the same is prejudicial to the wildlife and public health.

Section 11. Exportation and/or Importation of Wildlife. Wildlife species may be exported to or imported from another country as may be authorized by the Secretary or the designated representative, subject to strict compliance with the provisions of this Act and rules and regulations promulgated pursuant thereto: Provided, That the recipient of the wildlife is technically and financially capable to maintain it.

Section 12. Introduction, Reintroduction or Restocking of Endemic or Indigenous Wildlife. The introduction, reintroduction or restocking of endemic and indigenous wildlife shall be allowed only for population enhancement of recovery purposes subject to prior clearance from the Secretary of the authorized representative pursuant to Section 6 of this Act.

Any proposed introduction shall be subject to a scientific study which shall focus on the bioecology. The proponent shall also conduct public consultations with concerned individuals or entities.

Section 13. Introduction of Exotic Wildlife. - No exotic species shall be introduced into the country, unless a clearance from the Secretary or the authorized representative is first obtained. In no case shall exotic species be introduced into protected areas covered by Republic Act No. 7586 and to critical habitats under Section 25 hereof.

In cases where introduction is allowed, it shall be subject to environmental impact study which shall focus on the bioecology, socioeconomic and related aspects of the area where the species will be introduced. The proponent shall also be required to secure the prior informed consent from the local stakeholders.

Additional Information: Mt. Hamiguitan Range Wildlife Sanctuary

Management and Protection

Preparations to update the current Management Plan of the nominated property are currently underway. A stakeholders' Strengths, Weaknesses, Opportunities, and Threats (SWOT) assessment is being proposed prior to the said review and updating of the Plan. The local state college will be tapped to conduct the SWOT analysis. It is anticipated that the results of the SWOT analysis will help the stakeholders in updating and improving on their current management plan. A workshop will be held which will bring together stakeholders as well as researchers, environmental lawyers, tourism proponents, and other concerned sectors of society whose varying perspectives are expected to further enrich the Management Plan.

The improved Management Plan is also expected to help identify the various research and tourism activities that could be allowed within the nominated property. It is foreseen that a major ecotourism activity will be hiking/trekking within MHRWS. Among others, the Plan will help to ensure that designated trails are strictly adhered to in order to mitigate the negative impacts of visitors entering the area. Furthermore, the stakeholders along with the researchers will be able to determine the appropriate time and duration for declaring a regular close season to help the nominated area recover from the regular tourism activities.

In addition to the conservation efforts directly focused on the Mt. Hamiguitan Range Wildlife Sanctuary, the local government units surrounding the nominated property have, of their own initiatives, taken measures to help stabilize the nominated property by establishing environmental protection measures outside of MHRWS. The Local Government Unit (LGU) of San Isidro had already established a fish sanctuary within their municipal waters as early as 1996 (Municipal Ordinance 117: Annex 1) in line with their vision of a healthy environment for their community to live in. To further ensure a healthy environment on land as well, the LGU of San Isidro passed an ordinance in 2003 disallowing mining activities within their municipality (Municipal Resolution No. 75-2003; Annex 2). It further sent communications to the Department of Environment and Natural Resources (DENR) urging the latter to expand the buffer zone of the nominated property (Annex 3) earlier this year and is currently finalizing their Forest Land Use Plan (FLUP) which delineates the forested area adjacent to the buffer zone as protected. The LGU of Governor Generoso is, likewise, finalizing their FLUP which is anticipated to augment the buffer zone on their side of the nominated property.

On the other hand, the city of Mati has already declared 7,000 hectares of its area (previously part of the mining claim of the Asiaticus Mining Corporation or AmCor) a Philippine Eagle Sanctuary (PES) through City Resolution No. 365, series of 2005 (Annex 4). Although not physically adjacent to the MHRWS (Figure 1), the connectivity of PES is nonetheless concrete as it is the known nesting habitat of the Philippine eagles that forage in the nominated property. Legal steps have been taken by the city to endorse this protected area to the DENR for the enactment of a national law declaring it as a critical habitat (City Resolution No. 219, series of 2008; Annex 5).

Furthermore, the city of Mati, in partnership with the local DENR office, the Philippine Eagle Foundation (PEF) and other concerned sectors of society, has already drafted and endorsed the management plan for the PES which is currently being implemented by the managers of the PES and their partners (City Resolution No. 218, series of 2008; Annex 6). PEF has already tagged a few birds and are currently tracking their movements around the Mt. Hamiguitan range.

In view of these separate efforts to fortify the buffer zone of the MHRWS, the provincial government of Davao Oriental has recently created a council (Provincial Executive Order No. 6-A, series of 2012; Annex 7) that will oversee the management of all protected landscapes as well as seascapes in the province (Figure 1). Recognizing the need to protect the MHRWS while assuring its citizens of a healthy and thriving livelihood, the council aims to ensure that activities allowed within and immediately adjacent to the nominated property and other protected areas in the province are environment-conscious while endeavoring for economic growth.

The provincial government will be sitting down and planning with the rest of the council members to finalize the vision, mission, goals as well as its overall plan which will be immediately implement. The council will also strive to set standards for the management of all protected areas and coordinate between the managers of the various protected areas so that lessons learned can be shared and mistakes avoid repeating. It is anticipated that conservation concerns will be mainstreamed into the economic development of the province.

The fragility of the nominated property gives urgency to this endeavor in view of the existing mining claims and other livelihood activities presently conducted in the province that could impact MHRWS and other protected areas (Figures 2 and 3), notwithstanding climate change impacts. While the council recognizes and respects the communities' need for livelihood and economic growth, it likewise foresees the need to focus this growth towards a more environment-friendly direction before the balance of its fragile habitat gives out. In this manner, the social buffer that supplements the existing buffer zone is further strengthened even outside of the nominated property.

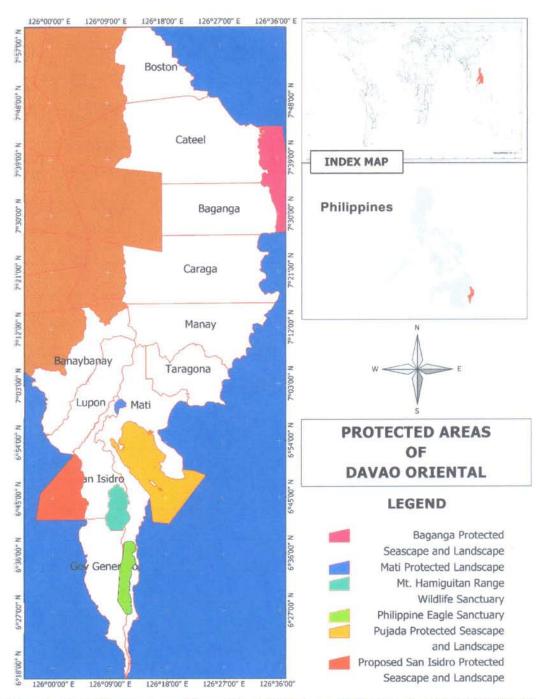


Figure 1. Map of the Province of Davao Oriental, Mindanao, Philippines showing the location of the Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) in relation to other protected land and seascapes of the province.

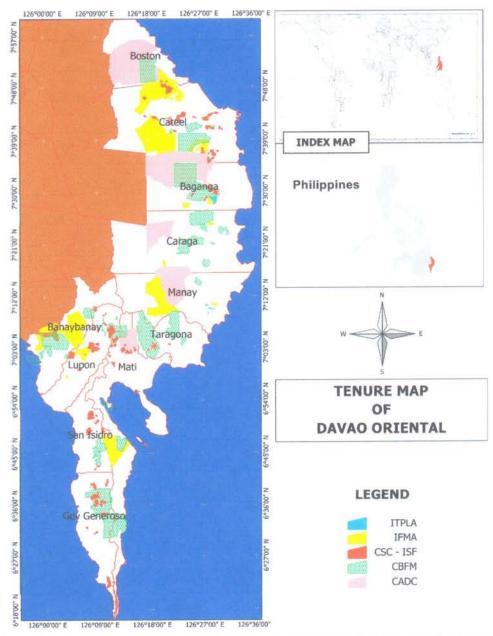


Figure 2. Map showing the location of tenurial instruments implemented in Davao Oriental, Mindanao, Philippines.

Legend:

ITPLA - Industrial Tree Plantation Lease Agreement

IFMA - Industrial Forest Management Agreement

CSC-ISF - Certificate of Stewardship Contract; Integrated Social Forestry

CBFM - Community-Based Forestry Management

CADC - Certificate of Ancestral Domain Claim

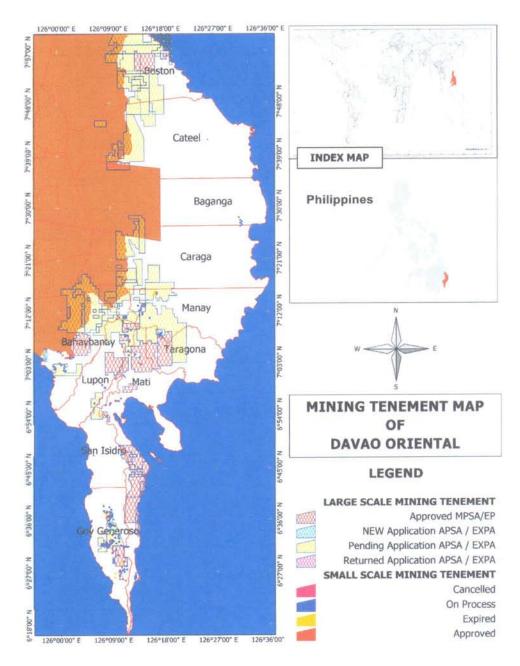


Figure 3. Map illustrating the locations of past and current mining claims in the Province of Davao Oriental, Mindanao, Philippines.

New Developments

The IUCN Red List for plants was recently updated. Several red listing of plants were raised and included in these were several species of Shorea. In effect, what was previously recorded in the dossier (Shorea contorta, S. guiso and S. negrosensis) as Vulnerable (VU) are now categorized as Critically Endangered (CR).

As further testimony to the rich and unique biodiversity of MHRWS, researchers continue to add to the list of species to be found within the nominated property. Karger et al. (2012) recently identified a new species of fern from the nominated Previously unknown to property. science and the rest of the world, the study determined that the fern, Lindsaea hamiquitanensis Karger and Amoroso (Figures 4 and 5), differed genetically, as well as in morphology and behavior, from other known members of the genus. The findings of the study further fueled speculations of researchers and managers of the nominated area that there are more yet undescribed species to be discovered in MHRWS.

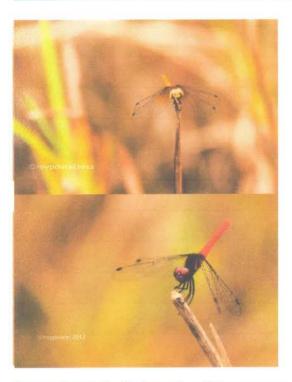
Another study on plants, this time on the ginger family Zingiberaceae, was also conducted, in part, at the



Figures 4 and 5. Photographs of the new fern species *Lindsaea hamiguitanensis* Karger and Amoroso (2012). Photo credits: Roy Ponce.

Mt. Hamiguitan range. The study observed that the genus *Amomum* can survive well in clay, sandly clay, sandly loam, and loamy sand types of soil in various altitudes. Although Mt. Hamiguitan recorded the lowest percentage of organic matter among the study sites, it showed that *Amomum* can thrive in both acidic and neutral soils (Acma 2010).

A more recent study on the insect group (Mohagan et al. 2012) documented the presence of the smallest dragonfly in the world Nannophya pygmea in the



Figures 6 and 7. Photographs of the pygmy dragonfly Nannophya pygmea female (above) and male (below) taken in Tinagong Dagat within the boundaries of the nominated property. Photo credits: Roy Ponce

nominated property (Figures 6 and 7). Results of the study also showed MHRWS rating high in endemicity (42%) compared to the other study sites (Mt. Kitanglad and Mt. Musuan) and underlined the habitat specificity of this faunal group. Furthermore, it recorded two possibly new species one from the family Platystictidae and another from the Coenagrionidae.

The researchers involved in MHRWS have also initiated discussions, albeit informally, on identifying bioindicator species that could help assess and monitor the condition of the nominated property in the years to come. Some of the researchers have already collected enough data to establish baseline abundance estimates as well as habitat range for a few species of both fauna and flora.

In the meantime, the local state college of Davao Oriental initiated an Information, Communications and

Education (ICE) campaign in two communities - Sitios Tumalite and Magum (Figures 8-11) - in order to (1) gauge the level of awareness and attitude of communities regarding the nominated property, (2) disseminate information on MHRWS and (3) identify points of contention or misinformation that need to be addressed. While the data still has yet to be fully processed, rough results from two communities suggested that a majority of the survey respondents were aware that the nominated property was a designated protected area and the reasons why it needed protection. In viewing the significance of the nominated property to their livelihood, although both communities thought that tourism will be impacted greatly by MHRWS, one community rated research just as high while the other considered the mining industry would also be greatly affected. community of Tumalite exhibited a favorable attitude towards MHRWS as a whole, some of the people in Magum expressed their apprehensions in relation to the possibility of losing their jobs at the mining company in their area. In this aspect, it is expected that the council created by the provincial government can assist through the development of a capacity-building program that can increase and diversify the skills available to the communities. The council could also study the possible alternative/supplemental livelihood programs that may be appropriate for the communities surrounding the nominated property.



Figures 8-11. Photodocumentation of the Information, Communications and Education (ICE) campaign and perception survey initiated by the Davao Oriental State College of Science and Technology (DOSCST) which is a member of the Mt. Hamiguitan Protected Area Management Board (MHPAMB). Photo credits: Roy Ponce.

Several discussions have occurred between representatives of the nominated property and the Community Relations Officer of AmCor, the mining company with which the Magum community is engaged. The AmCor representative stated that the company welcomes the possibility of the inscription of MHRWS into the World Heritage List. He further explained that the company looks forward to such a development since it could provide them with an opportunity to highlight their company's operations and possibly give recognition to their best practices, making it a benchmark for mining companies everywhere. He further added that an expansion of the boundaries on their side of the nominated area was possible but would require the approval of their own council and only in accordance with the law. Despite this ambiguity, the managers of the nominated property remain hopeful that they will be a way to expand the buffer zone on the eastern side in the future. For one thing, the managers believe an inscription into the World Heritage List will be a powerfully convincing tool to use in succeeding discussions regarding the expansion of the buffer zone.

Bibliography

Acma, FM. 2010. Biosystematics of the Genus *Amomum* Roxb. (Family Zingiberaceae) in the Philippines. (Dissertation paper)

Karger, DN, S Lehtonen, VB Amoroso, and M Kessler. 2012. A new species of *Lindsaea* (Lindsaeaceae, Polypodiopsida) from Mt. Hamiguitan, Mindanao, Philippines. *Phytotaxa* 56: 15-20.

Mohagan, AB, GL Galan, CG Batbatan, and LJB Baguhin. 2012. Diversity of Insect group Neuroptera, Auchenorrhyncha, Lepidoptera, and Odonata in Three Selected Key Biodiversity Areas of Mindanao. (abstract)

ANNEXES

Annex 1. Municipal Ordinance No. 117 establishing a fish sanctuary in the Municipality of San Isidro, Davao Oriental, Philippines (page 1).

MUNICIPAL ORDINANCE 117

AN ORDINANCE DECLARING SAN ISIDRO FISH SANCTUARIES IN BURLAS AND TINAYTAY REEFS AREA AND PROVIDING PENALTY FOR VIOLATION THEREOF

Be it Ordained by the Sangguniang Boyan of San Isidro, Davao Oriental in session assembled, that

Section 1. Definition of Terms.

Fish Sanctuary -Designated protected area for marine animals to live and grow.

Compressed Air -An air that is forced to occupy small space with an air pressure inside it more than the normal air pressure at sea level.

Fishing -To catch or try to catch fish.

Section 2 Technical Description of the Fish Sanctuaries.

The first fish sanctuary is located in Burias Reef and bounded by the following corners

Corner	Latitude	Longitude	Distance
1	6 42 37"	126 01 38"	1-2 370m
2	5 42 48"	126 01 33"	2.3 140m
3	642 37	126 01 35"	4 700m
3 4	6.43 08"	126 01 51"	4.5 350tn
3	04237	126 01 33"	5-1 770m

The second fish sonctuary is located in Tinaytay Reef and bounded by the following corners

Corner	Latitude	Longitude	Distance
1	5.15.03"	126 01 38"	1-2 740m
3 4 5	6/15 27	126 01 39	2-3 760m
3	6 45 50	126 01 48	5-4 120m
4	645 50"	126 01 44"	4-5 680m
5	645 31	176 01 33"	5-6 350m
5	5.45 '0"	126 01 30"	5.7550m
1	645 03"	126 01 35	/11 90m

Section 3. Prohibition in the Fish Sanctuaries

The following activities are provided to be undertaken within twenty meters (20) away the Fish Sanctuaries

- 3.1. All forms of fishing, collection of marine organism,
- 3.2. Anchoring and securing boats unto coral reefs.
- 3.3 Taking destroying and transferring of marker body.

Section 4. Allowable activities in Fish Sanctuaries

- 4.1 Passage into the Sanctuaries for scientific research and environmental monitoring, scuba diving, photography, under water video, snorkeling, swimming, bird watching and nature observation will be allowed after obtaining a pass from the municipal mayor through the Sangguniang Bayan and paid a fees set up for operation purpose.
- 4.2. Gathering of seaweeds canlerpa racemosa (green alga) locally known as lato is hereby after securing periori from the office of the Mayor

Annex 1 (continuation). Municipal Ordinance No. 117 establishing a fish sanctuary in the Municipality of San Isidro, Davao Oriental, Philippines (page 2).

Section 5. Permit, Fees, and other Charges on Eco-Tourism

1. For Adults above 18 years old head

Section 6. Administration and Control. The above described marine reserved area shall be under the administration of the Municipal Agricultural Officer (MAO) and Office of the Mayor who shall prepare the miplementing rules and regulations necessary to carry into effect the purposes of this Ordinance.

Section 1 Penalties. Any person who violates this Ordinance shall be punished by a fine of not less than Five Hundred Pesos (P500.00) or imprisonment of not less than Thirty (30) days but not exceeding Six (6) months or both such fine and unprisonment at the descretion of the court or in lieu thereof, an administrative fine.

Section 10 EFFECTIVITY This Ordinance shall take effect upon its approval

ENACTED AND APPROVED November 28, 1996
AUTHORED & SPONSORED BY How Relands M. Genzago SECONDED BY How Cacles M. Jao

Certified Correct:

Attenter

(Sgd) SERLINO M MARCOJOS Vice Mayor Presiding Officer

(Sgd) RICARDOD'S TINACO SB Secretary

approved December 6, 1997

(5gd) JUSTINA MB. VU Municipal Mayor

Annex 2. Municipal Ordinance No. 75-2003 disallowing mining activities in the Municipality of San Isidro, Davao Oriental, Philippines (page 1).

Annex 2 (continuation). Municipal Ordinance No. 75-2003 disallowing mining activities in the Municipality of San Isidro, Davao Oriental, Philippines (page 2).

Annex 3. Communication sent to the DENR Regional Office to strongly urge the expansion of the buffer zone of the nominated property.



Republic of the Philippines Province of Davas Oriental MUNICIPALITY OF SAN ISIDRO

OFFICE OF THE MAYOR

April 10, 2012

Dir. JIM O. SAMPULNA Regional Executive Director (RED) DENR Regional Office, Davio City

Sir

Greetings of peace and solidarity)

This pertains to our Mt. Hamiguitan that is under your concern and jurisdiction. We all know that this famous mountain is known not only here but also abroad because of its uniqueness and brodiversity. Indeed, it is now in the threshold of recognition from UNESCO as we applied it to this worldwide organization in the category of Wildlife Sanctuary. However, there are continuous threats not in the Protected Area itself but in its surroundings due to the presence of human activities that may ruin our Natural Resources and affect the mountain as a whole

In this context, I may respectfully request your level to extend the area of Buffer Zone in Mt. Hamiguitan for the following reasons, to wit

- The presence of endemic and endangered Flora & Fauna is not only in the Protected Area and Buffer Zone but also outside
- 2 Human activities outside will affect the Protected and Buffer Zone
- Areas not covered by Protected Area and Buffer Zone are still part of the whole ranges of Mt. Hamiguitan

The LGU San Isidro is not totally opposed with human activities outside Mt. Hamiguitan because this can add income revenue to the government However, our aim is to save those endemic and endangered Flora & Fauna that may be affected by human activities in the area. This can only happen by extending the Buffer Zone.

Hoping for your consideration and approval to this humble request.

In public squice,

EDGAR FLOR V. SAULON Municipal Mayor

Cc File

14

Annex 4. City Resolution No. 365, series of 2005 establishing the Philippine Eagle Sanctuary in the City of Mati, Davao Oriental, Philippines (page 1).

Province of Davao Oriental Municipality of Mati

TANGGAPAN NG SANGGUNIANG BAYAN

EXCERPT FROM THE MINUTES TAKEN DURING THE REGULAR SESSION OF THE SANGGUNIANG BAYAN HELD AT THE SANGGUNIANG BAYAN SESSION HALL ON OCTOBER 19, 2005.

PRESENT:

Hon, Cesar R. de Erlo Vice Mayor/Presiding Officer Hon. Niño Solero L. Uy, Jr. Municipal Councilor Hon. Juvy L. Mabini -do-Hon, Alan E. Andrada -do-Hon. Panilleo T. Cambing -do-Hon, Joel D. Valles, Sr. -do-Hon. Rosendo B. Linsag -do-Hon, Benjamin C. Rodriguez, Sr. -do-Hon. Mahmod T. Bernardino, Sr. ABC President Hon. Homer Kurt I. Morales SKMF Vice President

ABSENT:

Hon, Elizabeth C. Peña

Municipal Councilor

RESOLUTION NO. 365, S. 2005

A RESOLUTION DECLARING THE ESTABLISHMENT OF A PHILIPPINE EAGLE SANCTUARY IN MATI, DAVAO ORIENTAL.

WHEREAS, researchers from the Philippine Eagle Foundation and local people from Cabuaya, Mati discovered a Philippine Eagle nest with a 6-8 week old chick on March 2005;

WHEREAS, the presence of the Philippine Eagle in the Municipality of Mati has been met with favorable response from various sectors and the entire region because it indicates the suitability of the forests of Mati as a habital for this rare and majestic emblem of our country;

WHEREAS, the presence of the Philippine Eagle in Mati has symbolized the potentials of the municipality being cataputted to national and even global prominence as what has been experienced by Davao City, who has been popularly known as the country's "Home of the Philippine Eagles;

WHEREAS, the discovery of the Philippine Eagle, its protection and the conservation of its habitat fall well within the municipality's visions and plans for eco-tourism and environment and forest protection;

WHERAS, the Philippine Eagle has become a unifying force bring the Philippine Eagle Foundation, the Department of Environment and Natural Resources and LGU-Mati to jointly invest in pursuing the long term welfare of the eagles within Cabuaya;

Annex 4 (continuation). City Resolution No. 365, series of 2005 establishing the Philippine Eagle Sanctuary in the City of Mati, Davao Oriental, Philippines (page 2).

WHEREAS, the Philippine Eagle Foundation and the Department of Environment and Natural Resources Region XI by using the best scientific information available, the delineation and marking of the boundaries of this Philippine Eagle Sanctuary shall be fast tracked, subject to the approval of the stakeholders within the sanctuary.

WHEREFORE authored by Hon Casar R de Erlo, sponsored by Hon Juvy L Mabini and Hon Alan E Andrada, on motion of Hon Juvy L Mabini, duly seconded by all members present, it was:

RESOLVED, as it is inereby resolved to declare the establishment of a Philippine Eagle Sanctuary in Matt, Davao Oriental.

RESOLVED, FINALLY, that copy of this resolution be furnished. All offices and agencies concerned for their information and guidance.

CARRIED.

I HEREBY CERTIFY to the correctness of the foregoing resolution which was duly adopted by the Sangguniang Bayan during its Piegular Session on October 19, 2005

Vice Mayor Presiding Officer

Municipal Mayor

ATTESTED

HOMEH KUHT I. MOHALES
SKMF Vice-President
Acting Secretary to the Sanggurlang Bayan

APPROVED

Annex 5. City Resolution No. 219, series of 2008 requesting the DENR Secretary to recognize the Philippine Eagle Sanctuary in the City of Mati, Davao Oriental, Philippines as a critical habitat (page 1).



Republic of the Philippines
Province of Davao Oriental
CITY OF MATI

Series of 2000

- Davao City

OFFICE OF THE SANGGUNIANG PANLUNGSOD

EXCERPT FROM THE MINUTES OF THE 25" REGULAR SESSION OF THE SANGGUNIANG PANLUNGSOD OF THE CITY OF MATI PROVINCE OF DAVAO ORIENTAL HELD AT THE SANGGUNIANG PANLUNGSOD SESSION HALL ON JULY 21, 2008

PRESENT

Hon Cesar D de Erio
Hon Niño Sotero L Uy Jr
Hon Glenda Monette R Gayta
Hon Elizabeth C Peña
Hon Rey P Oliveros
Hon Rosendo B Linsag
Hon Orlando F Rodriguez Jr
Hon Alan R Acera, Sr

-do--do--do--do-SKCF - President

City Councilor ABC President

-do-

City Councilor

City Vice Mayor/Presiding Officer

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ON OFFICIAL TRAVEL

Hon Alan E Andrada Hon Dennis T Tolentino

Hon Carlos D Basas Jr

RESOLUTION NO. 219 Series of 2008

A RESOLUTION REQUESTING THE HON. JOSE LIVIOKO ATIENZA, JR., SECRETARY OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO DECLARE THE 7000-HECTARE PHILIPPINE EAGLE SANCTUARY IN BARANGAYS CABUAYA AND LUBAN IN MATI, DAVAO ORIENTAL AS A CRITICAL HABITAT UNDER RA 9147.

WHEREAS, the City Government of Mati has declared a 7000 hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban in Mati, Davao Oriental to protect the Philippine Eagle breeding pair together with the rest of wildlife thriving within the sanctuary.

WHEREAS, upon the initiative of the LGU-Mati in cooperation with the Philippine Eagle Foundation, the suitability of the Philippine Eagle Sanctuary as a Critical Habitat under RA 9147 otherwise known as the Wildlife Conservation and Protection Act, has been carefully evaluated.

WHEREAS, the creation of the Philippine Eagle Sanctuary as a Critical Habitat has been met with favorable response from various sectors and the entire region because it indicates the suitability of the forests of Mati as a habitat for this endangered species.

WHEREAS, the declaration of the Philippine Eagle Sanctuary as a Critical Habitat symbolized the potentials of the City being cataputted to national prominence being the first critical habitat established for an endangered species, in case, the Philippine Eagle.

CAD 16:M

Annex 5 (continuation). City Resolution No. 219, series of 2008 requesting the DENR Secretary to recognize the Philippine Eagle Sanctuary in the City of Mati, Davao Oriental, Philippines as a critical habitat (page 2).

Oriental, Philippines as a critical habitat (page 2). Page 2 of 2 Resolution No. 219; s. 2008 WHEREFORE, authored by Hon. Cesar D. De Erio, sponsored by Hon. Alan E Andrada on motion of Hon Niño Sotero L. Uy Jr., duly seconded by Hon. Elizabeth C Peña and Hon Carlos D Basas Jr. it was RESOLVED, as it is hereby resolved to request the Hon. Jose Livioko. Atienza Jr Secretary of the Department of Environment and Natural Resources to declare the 7000-hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban in Mati. Davao Oriental as a Critical Habital under RA 9147 RESOLVED, FINALLY, that copies of this resolution be furnished All offices concerned for their information and guidance CARRIED. I HEREBY CERTIFY to the correctness of the foregoing resolution which was duly adopted by the Sangguniang Panlungsod during its 25th Regular Session on July 21, 2008 CERTIFIED CORRECT CARLOS D. BASAS, JR.

SKOF - President

Acting Secretary to the Sangguniang Panlungsod ATTESTED BY CHSAR D. DE ERIO City Vice Mayor Presiding Officer APPROVED

Annex 5 (continuation). DENR response regarding City Resolution No. 219, series of 2008.



Republic of the Philippines
Department of Frivironment and Natural Resources
Visayas Avenue, Diliman, Quezon City
Tel Nos. 929-6626 to 29. 929-6633 to 35.
926-7041 to 43. 929-6252, 929-1669
Website: http://www.deni.gov.ph/E-mail.web@denigov.ph

AUG 2 0 2008

PATION YOUR

HON, CESAR D. DE ERIO Vice Mayor and Presiding Officer, Office of the Sangguniang Panlungsod Mati, Davao Oriental

Dear Vice Mayor de Erio:

We acknowledge receipt of the copy of Resolution No. 219, Series of 2008 of the Sangguniang Panlungsod of Mati, Davao Oriental, requesting the DENR to declare the 7,000-hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban, Mati, Davao Oriental, as a Critical Habitat under R.A. 9147. The same was forwarded to the DENR-Central Office by Mr. Pepito V. Soliven, Administrative Officer I, Office of the Sangguniang Panlungsod, in his letter dated July 24, 2008.

Please be informed that we referred the said Resolution to the Director of the Protected Areas and Wildlife Bureau (PAWB), DENR, for appropriate action, in accordance with existing laws, rules and regulations, in a Memorandum of even date. Said office is located at PAWB Compound, North Avenue, Diliman, Quezon City, with telephone no. (02) 924-6031. The Document Number is RMDD-115771.

Rest assured that your office shall be informed of the action taken thereon

Thank you and best regards

Very truly yours

MANUEL D GEROCHI, CESO I

Undersecretary for Staff Bureaus

CCC PC

Let's Go Green

Annex 5 (continuation). Action taken by DENR regarding City Resolution No. 219, series of 2008.



Republic of the Philippines Department of Environment and Natural Resources PROTECTED AREAS AND WILDLIFE BUREAU

Quezon Avenue, Diliman, Quezon City Telephones 924-60-31 to 35 / Fax # 924-01-09 Website http://www.pawb.gov.ph E-mail: planning@pawb.gov.ph

SEP 0 8 2008 MEMORANDUM

FOR

The Regional Executive Director

DENR-Region XI, Davao City

FROM

The Director

SUBJECT

Resolution No. 219, series of 2008 of the Sangguniang

Panlungsod, City of Mati, Province of Davão Oriental

This pertains to Resolution No. 219, Series of 2008 of the Sangguniang Panlungsod of Mati, Davao Oriental requesting the DENR Secretary to declare the 7000- hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban in the City of Mati, Davao Oriental as Critical Habitat pursuant to RA 9147.

We would highly appreciate if the Regional Office can undertake the process and submit to this Office the complete documentary requirements for the establishment of the said proposed area as a Critical Habitat for the Philippine Eagle in accordance with DENR Memorandum Circular No. 2007-02 dated February 28, 2007.

Kindly inform the City Government of Mati and this Office on developments regarding this matter.

For information and consideration.

THERESA MUNDITA S. LIM, DVM

cc: USEC for Staff Bureaus DENR Fax No : 926-2567

USEC for Field Operations

Fax No.: 925-8277,

Office of the Sanggunlang Panlungsod City of Mall, Davao Oriental c/o Mr. Pepito V. Soliven Administrative Officer I

Protect & conserve our forest to save our wildlife

Annex 6. City Resolution No. 218, series of 2008 adopting the Philippine Eagle Sanctuary Management Plan (PESMP) in the City of Mati, Davao Oriental Philippines.



Republic of the Philippines Province of Davao Oriental 200 Council
25° Regular Session
Serves of 2000

CITY OF MATI

OFFICE OF THE SANGGUNIANG PANLUNGSOD

EXCERPT FROM THE MINUTES OF THE 25" REGULAR SESSION OF THE SANGGUNIANG PANLUNGSOD OF THE CITY OF MATI, PROVINCE OF DAVAO ORIENTAL HELD AT THE SANGGUNIANG PANLUNGSOD SESSION HALL ON JULY 21 2008

PRESENT

Hon Cesar D de Erio Hon Niño Sotero L Uy, Jr Hon Glenda Monette R Gayta Hon Elizabeth C Peña Hon Rey P Oliveros Hon Rosendo B Linsag Hon Orlando F Rodriguez Jr Hon Alan R. Acera, Sr Hon Carlos D Basas, Jr City Vice Mayor/Presiding Officer City Councilor

-do--do--do--do--do-

SKCF - President

Challen 8:15 Am

ON OFFICIAL TRAVEL

Hon Alan E Andrada Hon Dennis T Tolentino City Councilor - Davao City ABC President - Digos City

RESOLUTION NO. 218 Series of 2008

A RESOLUTION ADOPTING THE PHILIPPINE EAGLE SANCTUARY MANAGEMENT PLAN (PESMP) THIS CITY.

WHEREAS, the Philippine Eagle Sanctuary Management Plan based on the best scientific information available, was created to serve as a preliminary framework for the conservation of the Philippine Eagle Sanctuary in the City of Mati.

WHEREAS, the discovery of the Philippine Eagle, its protection and conservation of its habitat, fall well within the city's vision and plans for Eco Tourism and environment forest protection.

WHEREAS, the presence of the Philippine Eagle in the City of Mati has been met with favorable response from various sectors and the entire region because it indicates the suitability of the forests of Mati as a habitat for this rare and majestic emblem of our country.

WHEREFORE, after thorough deliberation, sponsored by Hon. Alan E. Andrada, on motion of Hon. Niño Sotero L. Uy, Jr. duly seconded by Hon. Elizabeth C. Peña and Hon. Carlos D. Basas, Jr., it was.

RESOLVED, as it is hereby resolved, to adopt the Philippine Eagle Sanctuary Management Plan (PESMP), this City

RESOLVED, FINALLY, that copies of this resolution be furnished. All offices concerned for their information and guidance

CARRIED.

ENTEN A

Annex 6 (continuation). City Resolution No. 218, series of 2008 adopting the Philippine Eagle Sanctuary Management Plan (PESMP) in the City of Mati, Davao Oriental Philippines (page 2).

Page 2 of 2 Resolution No. 218, s. 2008 I HEREBY CERTIFY to the correctness of the foregoing resolution which was duly adopted by the Sangguniang Panlungsod during its 25th Regular Session on July 21, 2008 CERTIFIED CORRECT CARLOS O BASAS, JR SKCF President
Acting Secretary to the Sangguniang Panlungsod ATTESTED BY CIESAR D. DE ERIO City Vice Mayor Presiding Officer APPROVED ISE N. RABAT MICHELLE

Annex 6 (continuation). Communications to partners as part of the action described in City Resolution No. 218, series of 2008.

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	Secretary Department of Environment and N.	atural Resources	HITE SP ac
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	Sir		
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of	RESOLVED, FINALLY, that fices concerned for their information	copies of this resolution be furnished. All and guidance.	
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Annex 6 (continuation). Communications to partners as part of the action described in City Resolution No. 218, series of 2008.



Republic of the Philippines Province of David Chentar CITY OF MATI

OFFICE OF THE SANGGUNIANG PANLUNGSOD

July 24 2008

Mr DENNIS I. SALVADOR Executive Director Ruby St VAL Learning Village Marfori Heights Davao City

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Sir:

Our warm greetings!

Attached are copies of Resolution Nos. 218 and 219, series of 2008 of the Sangguniang Panlungsod, City of Mati, Province of Davao Oriental, contents of which are self-explanatory for your information and guidance

Thank you and more power

Very truly yours,

PEPITO V. SOLIVEN Administrative Officer I Officer-in-Charge

RESOLVED, FINALLY, that copies of this resolution be furnished All offices concerned for their information and guidance

CARRIED.

Annex 7. Executive Order No. 6-A, series of 2012 creating and operationalizing the Mt. Hamiguitan Heritage Development and Management Council.



Republic of the Philippines Province of Davao Oriental



OFFICE OF THE GOVERNOR

Capitol Hill, City of Mati Contact Nos.(087)811-5030 - Fax No. (087) 811-4332

EXECUTIVE ORDER NO. 6-A Series of 2012

CREATION AND OPERATIONALIZATION OF THE MT. HAMIGUITAN HERITAGE DEVELOPMENT AND MANAGEMENT COUNCIL

WHEREAS, through R.A. 9303, the national leadership has proclaimed Mt. Hamiguitan Range and Wildlife Sanctuary (MHRWS) and environs as a Protected Area under the Protected Area Management Board (PAMB) duly organized by the Department of Environment and Natural Resources (DENR);

WHEREAS, through the initiative of the Provincial Governor of Davao Oriental, the MHRWS and environs has already been considered for final inscription in the World Heritage Sites of the United Nation Educational, Scientific and Cultural Council (UNESCO) in its criterion X which is an area containing the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of putstanding universal value from the point of view of science or conservation;

WHEREAS, the Provincial Government of Davao Oriental operationalizing the purpose and intent of R.A. 9303 and the inscription as World Heritage Site of the MHRWS, taking into consideration that biological diversity requires ample space for genetic flow and movement within the strict protection zone, its perimeters and adjacent biological space, would like to rationalize, develop and manage the Mt. Hamiguitan Heritage area even beyond the declared perimeter of the MHRWS for ecological and biodiversity conservation, education, eco-tourism, general welfare and for the well-being of its constituency;

WHEREAS, a concrete action that the province can do to pursue the foregoing objective is to create and organize a Council that can develop and manage the numerous specific initiatives for the area;

NOW THEREFORE, I, CORAZON N. MALANYAON, Provincial Governor of Davao Oriental, by virtue of the power vested in me by existing laws, do hereby order the creation of the MT. HAMIGUITAN HERITAGE DEVELOPMENT AND MANAGEMENT COUNCIL under the Office of the Governor, to be composed of the following, likewise to perform functions and activities consonant with pertinent policies and directives as well as enactments for the preservation and conservation of protected areas and its perimeters, to wit:

Annex 7 (continuation). Page 2 of Executive Order No. 6-A, series of 2012 creating and operationalizing the Mt. Hamiguitan Heritage Development and Management Council.

Head	- MHRW5 Protected Area Supervising Office (DENR)
Head	- Environment and Natural Resources Office (ENRO-DO)
Hisari	- Provincial Planning and Development Office
Head	- Provincial Tourism Office
Head	- Provincial Engineering Office
Head	- Provincial Agriculture Office
Head	- Provincial Veterinary Office
Head	- Davao Oriental State College of Science and Technology (DOSCST)
Head	- Department of Trade and Industry (DTI) - Provincial Office
Head	- Department of Education (DepEd) - Davao Oriental Division
Head	- Philippine National Police - Provincial Office
Head	- Armed Forces of the Philippines Contingent assigned in Davao Oriental
Head	- Department of Public Works and Highways - District 2
Head	- IMPEDE, an accredited Non-Governmental Organization

Section 2. FUNCTIONS

Consistent with the existing applicable laws, rules, regulations, enactments and assuances, the Council shall be responsible for the following:

- 2.1 Coordinate with the DENR through the PAMB, the assessment, evaluation and defining of boundaries of the MHRWS in relation to adjacent biological areas and ecological processes for an integrated protection and management of the whole mountain range and its periphery with local conservation initiatives;
- 2.2 Unify, integrate and consolidate the Hamiguitan Range environmental management plans of the three component LGUs: the City of Mati, the Municipalities of San Isidro and Governor Generoso, and formulate the master development and management plan of the Mt. Hamiguitan Heritage and effect the project and feasibility studies that are beneficial to the area and to the communities in its periphery based on sound environmental economics valuation.
- 2.3 Take charge in the management, implementation, monitoring and evaluation of programs and projects that have been identified and developed within the defined area of the Mt. Hamiguitan Range and its periphery, such as the development of eco-tourism, science and education, forestry, environmental, ecological, economic, socio-cultural, transportation and communication and other related initiatives, and for these purposes, enter into Memorandum of Agreement with the DENR for co-management of the covered area.
- 2.4 Generate funds and resources for the development and management of the Mt. Hamiguitan Heritage, especially for the projects that are appropriate, feasible and responsive to the intent and purpose of the protection area and this Executive Order.
- 25 Undertake all tasks necessary to attain the rationale and objectives of the Council.

Annex 7 (continuation). Page 3 of Executive Order No. 6-A, series of 2012 creating and operationalizing the Mt. Hamiguitan Heritage Development and Management Council.

- 3.2 The Council shall coordinate closury with all related national line departments operating in the province for pertinent advice and assistance and shall collaborate with the affected communities.
- The Council may call upon the business sectors, civil society organizations, peoples' organizations and the citizenry at large for cooperation and support.

Section 4. EXECUTIVE COMMITTEE AND SUPPORT GROUP

To take charge on urgent concerns and other related matters, the Council shall have an Executive Committee composed of the following:

Chairman

- Provincial Governor

Vice Chairman - Regional Executive Director of DENR-XI

Members:

- Mayor, City of Mati

- Mayor, Municipality of San Isidro

- Mayor, Municipality of Governor Generoso

- Protected Area Supervisor of MHRWS

- Environment and Natural Resources Officer of the Provincial Government of Davao Oriental (ENRO-DO)

- President/Head, DOSCST

- Head, IMPEDE

A Support Group that will act as the Task Group in technical and administrative matter shall be organized by the Chairperson, the Provincial Governor.

Section 5, INITIAL FUNDING

The Council may draw from any available local government funds to jump start the priority operational activities like organizational meetings, planning, studies and others.

Section 6. EFFECTIVITY

The Council commences organization and operation immediately.

Issued this 3rd day of April, 2012 in the City of Mati, Davao Oriental.

CORAZON N. MALANYAGA

Copy furnished:

All Concerned

APPENDICES FOR MHRWS PAGE 120

Section 14. Bioprospecting. - Bioprospecting shall be allowed upon execution of an undertaking by any proponent, stipulating therein its compliance with and commitment(s) to reasonable terms and conditions that may be imposed by the Secretary which are necessary to protect biological diversity. The Secretary or the authorized representative, in consultation with the concerned agencies, before granting the necessary permit, shall require that prior informed consent be obtained by the applicant from the concerned indigenous cultural communities, local communities, management board under Republic Act No. 7586 or private individual or entity. The applicant shall disclose fully the intent and scope of the bioprospecting activity in a language and process understandable to the community. The prior informed consent from the indigenous peoples shall be obtained in accordance with existing laws. The action on the bioprospecting proposal by concerned bodies shall be made within a reasonable period.

Upon submission of the complete requirements, the Secretary shall act on the research proposal within a reasonable period.

If the applicant is a foreign entity or individual, a local institution should be actively involved in the research, collection and, whenever applicable and appropriate in the technological development of the products derived from the biological and genetic resources.

Section 15. Scientific Researches on Wildlife. Collection and utilization of biological resources for scientific research and not for commercial purposes shall be allowed upon execution of an undertaking/agreement with and issuance of a gratuitous permit by the Secretary or the authorized representative: Provided, That prior clearance from concerned bodies shall be secured before the issuance of the gratuitous permit: Provided, further, That the last paragraph of Section 14 shall likewise apply.

Section 16. Biosafety. All activities dealing on genetic engineering and pathogenic organisms in the Philippines, as well as activities requiring the importation, introduction, field release and breeding of organisms that are potentially harmful to man and the environment shall be reviewed in accordance with the biosafety guidelines ensuring public welfare and the protection and conservation of wildlife and their habitats.

Section 17. Commercial Breeding or Propagation of Wildlife Resources. Breeding or propagation of wildlife for commercial purposes shall be allowed by the Secretary or the authorized representative pursuant to Section 6 through the issuance of wildlife farm culture permit: Provided, That only progenies of wildlife raised, as well as unproductive parent stock shall be utilized for trade: Provided, further: That commercial breeding operations for wildlife, whenever appropriate, shall be subject to an environmental impact study.

Section 18. Economically Important Species. The Secretary, within one (1) year after the effectivity of this Act, shall establish a list of economically important species. A population assessment of such species shall be conducted within a reasonable period and shall be regularly reviewed and updated by the Secretary.

The Collection of certain species shall only be allowed when the results of the assessment show that, despite certain extent of collection, the population of such species can still remain viable and capable of recovering its numbers. For this purpose, the Secretary shall establish a schedule and

volume of allowable harvests.

Whenever an economically important species become threatened, any form of collection shall be prohibited except for scientific, educational or breeding/propagation purposes, pursuant to the provisions of this Act.

Section 19. Designation of Management and Scientific Authorities for International Trade in Endangered Species of Wild Fauna and Flora. For the implementation of International agreement on international trade in endangered species of wild fauna and fora, the management authorities for terrestrial and aquatic resources shall be the Protected Areas and Wildlife Bureau (PAWB) of the DENR and the Bureau of Fisheries and Aquatic Resources (BFAR) of the DA, respectively and that in the Province of Palawan the implementation hereof is vested to the Palawan Council for Sustainable Development pursuant to Republic Act No. 7611.

To provide advice to the management authorities, there shall be designated scientific authorities for terrestrial and aquatic/marine species. For the terrestrial species, the scientific authorities shall be the Ecosystems Research and Development Bureau (ERDB) of the DENR, the U.P. Institute of Biological Sciences and the National Museum and other agencies as may be designated by the Secretary. For the marine and aquatic species, the scientific authorities shall be the BFAR, the U.P. Marine Science Institute, U.P. Visayas, Siliman University and the National Museum and other agencies as may be designated by the Secretary:

Provided, That in the case of terrestrial species, the ERDB shall chair the scientific authorities, and in the case of marine and aquatic species, the U.P. Marine Science Institute shall chair the scientific authorities.

Section 20. Authority of the Secretary to Issue Permits. - The Secretary or the duly authorized representative, in order to effectively implement this Act, shall issue permits/certifications/ clearances with corresponding period of validity, whenever appropriate, which shall include but not limited to the following:

- a. Wildlife farm or culture permit 3 to 5 years;
- b. Wildlife collector's permit 1 to 3 years;
- c. Gratuitous permit 1 year;
- d. Local transport permit 1 to 3 months; and
- e. Export/Import/Re-export permit 1 to 6 months.

These permits may be renewed subject to the guidelines issued by the appropriate agency and upon consultation with concerned groups.

Section 21. Fees and Charges. - Reasonable fees and charges as may be determined upon consultation with the concerned groups, and in the amount fixed by the Secretary shall be imposed for the issuances of permits enumerated in the preceding section.

For the export of wildlife species, an export permit fee of not greater than three percentum (3%) of the export value, excluding transport costs, shall be charged: Provided, however, That in the determination of aforesaid fee, the production costs shall be given due consideration. Cutflowers, leaves and the like, produced from farms shall be exempted from the said export fee: Provided, further, That fees and charges shall be reviewed by the Secretary every two (2) years or as the need arises and revise the same accordingly, subject to consultation with concerned sectors.

APPENDICES FOR MHRWS PAGE 122

ARTICLE TWO

Protection of Threatened Species

Section 22. Determination of Threatened Species. - The Secretary shall determine whether any wildlife species or subspecies is threatened, and classify the same as critically endangered, endangered, vulnerable or other accepted categories based on the best scientific data and with due regard to internationally accepted criteria, including but not limited to the following: present or threatened destruction, modification or curtailment of its habitat or range;

- a. over-utilization for commercial, recreational, scientific or educational purposes;
- b. inadequacy of existing regulatory mechanisms; and
- c. other natural or man-made factors affecting the existence of wildlife.

The Secretary shall review, revise and publish the list of categorized threatened wildlife within one (1) year after effectivity of this Act. Thereafter, the list shall be updated regularly or as the need arises: Provided, That a species listed as threatened shall not be removed there from within three (3) years following its initial listing.

Upon filing of a petition based on substantial scientific information of any person seeking for the addition or deletion of a species from the list, the Secretary shall evaluate in accordance with the relevant factors stated in the first paragraph of this section, the status of the species concerned and act on said petition within a reasonable period.

The Secretary shall also prepare and publish a list of wildlife which resembles so closely in appearance with listed threatened wildlife, which species shall likewise be categorized as threatened.

Section 23. Collection of Threatened Wildlife, Byproducts and Derivatives. The collection of threatened wildlife, as determined and listed pursuant to this Act, including its by-products and derivatives, shall be allowed only for scientific, or breeding or propagation purposes in accordance with Section 6 of this Act: Provided, That only the accredited individuals, business, research, educational or scientific entities shall be allowed to collect for conservation breeding or propagation purposes.

Section 24. Conservation Breeding or Propagation of Threatened Species. Conservation breeding or propagation of threatened species shall be encouraged in order to enhance its population in its natural habitat. It shall be done simultaneously with the rehabilitation and/or protection of the habitat where the captive-bred or propagated species shall be released, reintroduced or restocked.

Commercial breeding or propagation of threatened species may be allowed provided that the following minimum requirements are met by the applicant, to wit:

- a) Proven effective breeding and captive management techniques of the species; and
- b) Commitment to undertake commercial breeding in accordance with Section 17 of this Act, simultaneous with conservation breeding.

The Secretary shall prepare a list of threatened species for commercial breeding and shall regularly revise or update such list or as the need arises.

APPENDICES FOR MHRWS PAGE 123

Section 25. Establishment of Critical Habitats. - Within two (2) years following the effectivity of this Act, The Secretary shall designate critical habitats outside protected areas under Republic Act No. 7586, where threatened species are found. Such designation shall be made on the basis of the best scientific data taking into consideration species endemicity and/or richness, presence of man-made pressures/threats to the survival of wildlife living in the area, among others.

All designated, critical habitats shall be protected, in coordination with the local government units and other concerned groups, from any form of exploitation or destruction which may be detrimental to the survival of the threatened species dependent therein. For such purpose, the Secretary may acquire, by purchase, donation or expropriation, lands, or interests therein, including the acquisition of usufruct, establishment of easements or other undertakings appropriate in protecting the critical habitat.

ARTICLE THREE

Registration of Threatened and Exotic Species

Section 26. Registration of Threatened and Exotic Wildlife in the Possession of Private Persons. - No person or entity shall be allowed possession of wildlife unless such person or entity can prove financial and technical capability and facility to maintain said wildlife. Twelve (12) months after the effectivity of this Act, the Secretary shall set a period, within which persons/entities shall register all threatened species collected and exotic species imported prior to the effectivity of this Act.

However, when the threatened species is needed for breeding/propagation or research purposes, the State may acquire the wildlife through a mutually acceptable arrangement.

After the period set has elapsed, threatened wildlife possessed without certificate of registration shall be confiscated in favor of the government, subject to the penalties herein provided.

All Philippine wildlife which are not listed as threatened prior to the effectivity of this Act but which may later become so, shall likewise be registered during the period set after the publication of the updated list of threatened species.

CHAPTER IV ILLEGAL ACTS

Section 27. Illegal Acts. - Unless otherwise allowed in accordance with this Act, it shall be unlawful for any person to willfully and knowingly exploit wildlife resources and their habitats, or undertake the following acts;

- a) killing and destroying wildlife species, except in the following instances;
 - i. when it is done as part of the religious rituals of established tribal groups or indigenous cultural communities;
 - ii. when the wildlife is afflicted with an incurable communicable disease;
 - iii. when it is deemed necessary to put an end to the misery suffered by the wildlife;
 - iv. when it is done to prevent an imminent danger to the life or limb of a human being; and
 - v. when the wildlife is killed or destroyed after it has been used in authorized research or experiments

- b) inflicting injury which cripples and/or impairs the reproductive system of wildlife species;
- c) effecting any of the following acts in critical habitat(s)
 - i. dumping of waste products detrimental to wildlife;
 - ii. squatting or otherwise occupying any portion of the critical habitat;
 - iii. mineral exploration and/or extraction;
 - iv. burning;
 - v. logging; and
 - vi. quarrying
 - d) introduction, reintroduction or restocking of wildlife resources;
 - e) trading of wildlife;
 - f) collecting, hunting or possessing wildlife, their by-products and derivatives;
 - g) gathering or destroying of active nests, nest trees, host plants and the like;
 - h) maltreating and/or inflicting other injuries not covered by the preceding paragraph; and
 - i) transporting of wildlife.

CHAPTER V

FINES AND PENALTIES

Section 28. Penalties for Violations of this Act. For any person who undertakes illegal acts under paragraph (a) of the immediately preceding section to any species as may be categorized pursuant to this Act, the following penalties and/or fines shall be imposed;

- a. imprisonment of a minimum of six (6) years and one (1) day to twelve (12) years and/or a fine of One hundred thousand pesos (P100,000.00) to One million pesos (P1,000,000.00), if inflicted or undertaken against species listed as critical;
- b. imprisonment of four (4) and one (1) day to six (6) years and/or a fine of Fifty thousand pesos (P50,000.00) to Five hundred thousand pesos (P500,000.00) if inflicted or undertaken against endangered species;
- c. imprisonment of two (2) years and one (1) day to four (4) years and/or a fine of Thirty thousand pesos (P30,000.00) to Three hundred thousand pesos (P300,000.00), if inflicted or undertaken against vulnerable species;
- d. imprisonment of one (1) year and one (1) day to two (2) years and/or a fine of Twenty thousand pesos (P20,000.00) to Two hundred thousand pesos (P200,000.00) if inflicted or undertaken against other threatened species; and
- e. imprisonment of six (6) months and one (1) day to one (1) year and/or a fine of Ten thousand pesos (P10,000.00) to One hundred thousand pesos (P100,000.00), if inflicted or undertaken against other wildlife species.

For illegal acts under paragraph (b) of the immediately preceding section, the following penalties and/or fines shall be imposed;

a. imprisonment of minimum of four (4) years and one (1) day to six (6) years and/or a fine of Fifty thousand pesos (P50,000.00) to Five hundred thousand pesos (P500,000.00), if inflicted or undertaken against species listed as critical;

b. imprisonment of two (2) years and one (1) day to four (4) years and/or a fine of Thirty thousand pesos (P30,000.00) to Two hundred thousand pesos (P200,000.00), if inflicted or undertaken against endangered species;

- c. imprisonment of one (1) year and one (1) day to two (2) years and/or a fine of Twenty thousand pesos (P20,000.00) to Two hundred thousand pesos (P200,000.00), if inflicted or undertaken against vulnerable species;
- d. imprisonment of six (6) months and one (1) day to one (1) year and/or fine of Ten thousand pesos (P10,000.00) to Fifty thousand pesos (P50,000.00), if inflicted or undertaken against other threatened species; and
- e. imprisonment of one (1) month to six (6) months and/or a fine of Five thousand pesos (P5,000.00) to Twenty thousand pesos (P20,000.00), if inflicted or undertaken against other wildlife species.

For illegal acts under paragraphs (c) and (d) of the immediately preceding section, an imprisonment of one (1) month to eight (8) years and/or a fine of Five thousand pesos (P5,000.00) to Five million pesos (P5,000,000.00) shall be imposed.

For illegal acts under paragraph (e), the following penalties and/or fines shall be imposed:

- a. imprisonment of two (2) years and one (1) day to four (4) years and/or a fine of Five thousand pesos (P5,000.00) to Three hundred thousand pesos (P300,000.00), if inflicted or undertaken against species listed as critical;
- b. imprisonment of one (1) year and one (1) day to two (2) years and/or a fine of Two thousand pesos (P2,000.00) to Two hundred thousand pesos (P200,000.00), if inflicted or undertaken against endangered species;
- c. imprisonment of six (6) months and one (1) day to one (1) year and/or a fine of One thousand pesos (P1,000.00) to One hundred thousand pesos (P100,000.00), if inflicted or undertaken against vulnerable species;
- d. imprisonment of one (1) month and one (1) day to six (6) months and/or a fine of Five hundred pesos (P500.00) to Fifty thousand pesos (P50,000.00), if inflicted or undertaken against species listed as threatened species; and
- e. imprisonment of ten (10) days to one (1) month and/or a fine of Two hundred pesos (P200.00) to Twenty thousand pesos (P20,000.00), if inflicted or undertaken against other wildlife species.

For illegal acts under paragraphs (f) and (g) of the immediately preceding section, the following penalties and/or fines shall be imposed:

- a. imprisonment of two (2) years and one (1) day to four (4) years and a fine of Thirty thousand pesos (P30,000.00) to Three hundred thousand pesos (P300,000.00), if inflicted or undertaken against species listed as critical;
- b. imprisonment of one (1) year and one (1) day to two (2) years and a fine of Twenty thousand pesos (P20,000.00) to Two hundred thousand pesos (P200,000.00), if inflicted or undertaken against endangered species;
- c. imprisonment of six (6) months and one (1) day to one (1) year and a fine of Ten thousand pesos (P10,000.00) to One hundred thousand pesos (P100,000.00), if inflicted or undertaken against vulnerable species;
- d. imprisonment of one (1) month and one (1) day to six (6) months and a fine of Five thousand pesos (P5,000.00) to Fifty thousand pesos (P50,000.00), if inflicted or undertaken against species as other threatened species; and

APPENDICES FOR MHRWS PAGE 126

e. imprisonment of ten (10) days to one (1) month and a fine of One thousand pesos (P1,000.00) to Five thousand pesos (P5,000.00), if inflicted or undertaken against other wildlife species: Provided, That in case of paragraph (f), where the acts were perpetuated through the means of inappropriate techniques and devices, the maximum penalty herein provided shall be imposed.

For illegal acts under paragraph (h) and (i) of the immediately preceding section, the following penalties and/or fines shall be imposed:

- a. imprisonment of six (6) months and one (1) day to one (1) year and a fine of Fifty thousand pesos (P50,000.00) to One hundred thousand pesos (P100,000.00) if inflicted or undertaken against species listed as critical species;
- b. imprisonment of three (3) months and one (1) day to six (6) months and a fine of Twenty thousand pesos (P20,000.00) to Fifty thousand pesos (P50,000.00), if inflicted or undertaken against endangered species;
- imprisonment of one (1) month and one (1) day to three (3) months and a fine of Five thousand pesos (P5,000.00) to Twenty thousand pesos (P20,000.00), if inflicted or undertaken against vulnerable species;
- d. imprisonment of ten (10) days to one (1) month and a fine of One thousand pesos (P1,000.00) to Five thousand pesos (P5,000.00), if inflicted or undertaken against species listed as other threatened species;
- e. imprisonment of five (5) days to ten (10) days and a fine of Two hundred pesos (P200.00) to One thousand pesos (P1,000.00), if inflicted or undertaken against other wildlife species.

All wildlife, its derivatives or by-products, and all paraphernalia, tools and conveyances used in connection with violations of this Act, shall be ipso facto forfeited in favor of the government; Provided, That where the ownership of the aforesaid conveyances belong to third persons who has no participation in or knowledge of the illegal acts, the same may be released to said owner. The apprehending agency shall immediately cause the transfer of all wildlife that have been seized or recovered to the nearest Wildlife Rescue Center of the Department in the area.

If the offender is an alien, he shall be deported after service and payment of fines, without any further proceedings.

The fines herein prescribed shall be increased by at least ten percent (10%) every three (3) years to compensate for inflation and to maintain the deterrent function of such fines.

CHAPTER VI

MISCELLANEOUS PROVISIONS

Section 29. Wildlife Management Fund. There is

hereby established a Wildlife Management Fund to be administered by the Department as a special account in the National Treasury which shall finance rehabilitation or restoration of habitats affected by acts committed in violation of this Act and support scientific research, enforcement and monitoring activities, as well as enhancement of capabilities of relevant agencies.

The Fund shall derive from fines imposed and damages awarded, fees, charges, donations,

endowments, administrative fees or grants in the form of contributions. Contributions to the Fund shall be exempted from donor taxes and all other tax charges or fees imposed by the government.

Section 30. Deputation of Wildlife Enforcement Officers. The Secretary shall deputize wildlife enforcement officers from non-government organizations, citizens groups, community organizations and other volunteers who have undergone necessary training for this purpose.

The Philippine National Police (PNP), the Armed Forces of the Philippines (AFP), the National Bureau of Investigation (NBI) and other law enforcement agencies shall designate wildlife enforcement officers. As such, the wild enforcement officers shall have the full authority to seize illegally traded wildlife and to arrest violators of this Act subject to existing laws, rules and regulations on arrest and detention.

Section 31. Establishment of National Wildlife Research Centers. The Secretary shall establish national wildlife research centers for terrestrial and aquatic species to lead in the conduct of scientific researches on the proper strategies for the conservation and protection of wildlife, including captive breeding or propagation. In this regard, the Secretary shall encourage the participation of experts from academic/research institutions and wildlife industry.

Section 32. Wildlife Rescue Center. The Secretary shall establish or designate wildlife rescue centers to take temporary custody and care of all confiscated, abandoned and/or donated wildlife to ensure their welfare and well-being. The Secretary shall formulate guidelines for the disposition of wildlife from the rescue centers.

Section 33. Creation of Wildlife Traffic Monitoring Units. - The Secretary shall create wildlife traffic monitoring units in strategic air and seaports all over the country to ensure the strict compliance and effective implementation of all existing wildlife laws, rules and regulations, including pertinent international agreements.

Customs officers and/or other authorized government representatives assigned at air or seaports who may have intercepted wildlife commodities in the discharge of their official functions shall, prior to further disposition thereof, secure a clearance from the wildlife traffic monitoring unit assigned in the area.

Section 34. Exemption from taxes - Any donation, contribution, bequest, subsidy or financial aid which may be made to the Department of Environment and Natural Resources or to the Department of Agriculture and to NGOs engaged in wildlife conservation duly registered with the Securities and Exchange Commission as certified by the local government unit, the Department of Environment and Natural Resources or the Department of Agriculture, for the conservation and protection of wildlife resources and their habitats shall constitute as an allowable deduction from the taxable income of the donor and shall be exempt from donor's tax.

Section 35. Flagship Species. Local government units shall initiate conservation measures for endemic species in their areas. For this purpose, they may adopt flagship species such as the Cebu black shama (copsychus cebuensis), tamaraw (bubalus mindorensis), Philippine tarsier (tarsius syrichta), Philippine teak (tectona philippinensis), which shall serve as emblems of conservation for the local government concerned.

APPENDICES FOR MHRWS PAGE 128

Section 36. Botanical Gardens, Zoological Parks and Other Similar Establishments. The Secretary shall regulate the establishment, operation and maintenance of botanical gardens, zoological parks and other similar establishments for recreation, education and conservation.

Section 37. Implementing Rules and Regulations. Within twelve (12) months following the effectivity of this Act, secretaries of the Department of Environment and Natural Resources and the Department of Agriculture, in coordination with the Committees on Environment and Ecology of the Senate and the House of Representatives, respectively, shall promulgate respective rules and regulations for the effective implementation of this Act.

Whenever appropriate, coordination in the preparation and implementation of rules and regulations on joint and inseparable issues shall be done by both Departments. The commitments of the State to international agreements and protocols shall likewise be a consideration in the implementation of this Act.

Section 38. Appropriations. The amount necessary to implement the provisions of this Act shall be charged against the appropriations of the Department of Environment and Natural Resources in the current General Appropriations Act. Therefore, such sums as may be necessary to fully implement the provisions of this Act shall be included in the annual General Appropriations Act.

Section 39. Separability Clause. - Should any provision of this Act be subsequently declared as unconstitutional, the same shall not affect the validity or the legality of the other provisions.

Section 40. Repealing Clause. - Act Nos. 2590 and 3983, Commonwealth Act No. 63, as amended, Presidential Decree No. 1219, as amended, Republic Act No. 6147, and other laws, orders and regulations inconsistent herewith are hereby repealed or amended accordingly. Section 41. Effectivity. - This Act shall take effect fifteen (15) days after publication in the Official Gazette or two (2) newspapers of general circulation.

Approved,

(Sgd) AQUILINO Q. PIMENTEL JR.

FELICIANO BELMONTE JR.

President of the Senate

Speaker of the House of Representatives

This Act which is a consolidation of House Bill No. 10622 and Senate Bill No. 2128 was finally passed by the House of Representatives and the Senate on February 8, 2001 and March 20, 2001, respectively.

(Sgd) LUTGARDO B. BARBO

(Sgd) ROBERTO P. NAZARENO

Secretary of the Senate

Secretary General House of Representatives

Approved: July 30, 2001

(Sgd) GLORIA MACAPAGAL-ARROYO

President of the Philippines To come up with responsive visitor management



PHILIPPINE PERMANENT DELEGATION TO UNESCO



PARIS, 26 February 2013
Maison de l'UNESCO
1, rue Miollis
75015 Paris, France
dl.philippines@unesco-delegations.org
Telephone (00.33.1) 45.68.30.12
Fax 45.67.07.97

Re: Supplementary Information on the Nomination of the Mt. Hamiguitan Range Wildlife Sanctuary to the World Heritage List

Excellency,

I have the honor to endorse additional information in connection with the Nomination Dossier of Mount Hamiguitan Range Wildlife Sanctuary for inscription to the World Heritage List.

It was an honor for the Philippines to facilitate the evaluation mission of IUCN last 07-15 October 2012 in the said site. It was indeed an opportunity for Filipino scientists, researchers, heritage workers, and government representatives to share their knowledge and experience on the conservation of Mount Hamiguitan.

To date, scientists and researchers continue to observe newly discovered species in the property, which may be found only in the Philippines, in Mindanao, and in Mount Hamiguitan itself. Moreover, in the face of changes in climate patterns and typhoon intensity, the commitment to conserve the integrity of the mountain is ever more pressing.

Enclosed are three (3) hardbound copies of the supplementary information and three (3) CD-ROMs containing the digital format of the document.

Please accept, Excellency, the assurances of my highest consideration.

Very truly yours,

Cristina G. ORTEGA

Ambassador and Permanent Delegate

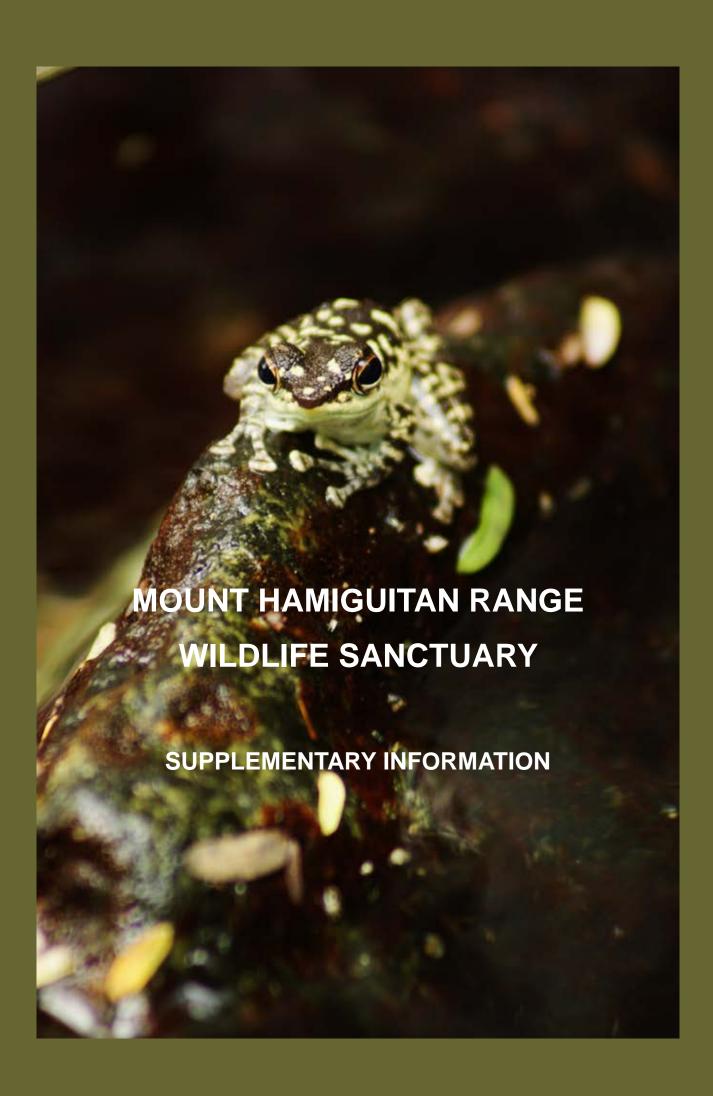
H.E. Mme. Irina BOKOVA
Director-General
UNESCO House

Attention: Mr. Kishore RAO

Director World Heritage Centre UNESCO House

Enclosure: As stated.

Pec d 27.62.13 43 PST 62.00



Cover Photo: Staurois natator, Mount Hamiguitan Range Wildlife Sanctuary

Photographer: Roy Ponce

MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY

SUPPLEMENTARY INFORMATION

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LIST OF ACRONYMS

Acronyms

AMCOR Asiaticus Management Corporation
BPP Biodiversity Partnership Program

DENR Department of Environment and Natural Resources
EPEP Environment Protection and Enhancement Program

GEF Global Environment Facility

KBA Key Biodiversity Area
LGU Local Government Unit

MHRWS Mount Hamiguitan Range Wildlife Sanctuary

MMT Multi-partite Monitoring Team

MRFC Mine Rehabilitation Fund Committee

NCIP National Commission on Indigenous Peoples

PAMB Protected Area Management Board

UNDP United Nations Development Program

UNESCO United Nations Educational, Scientific, and Cultural

Organization

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- B Boundary map with proposed Buffer Zone expansion and proposed Wildlife Sanctuary/ Key Biodiversity Area Expansion (Philippine Eagle Critical Habitat)
- C Indicative map of NCIP Claims



SUPPLEMENTARY ITEM 1

Indication of commitment to extend the buffer zone to enhance protection of the protected area, specifically the habitat of the Philippine eagle

Indication of commitment to extend the buffer zone to enhance the protection of the protected area, specifically the habitat of the Philippine eagle

By virtue of Republic Act 9303, Mt. Hamiguitan has a protected core zone area of 6,348.99 hectares and a buffer zone of 783.77 or a total of 7, 132., 76 hectares. In addition to the 7,132.76 hectares of protected area of the mountain, a legislative action by the *Sangguniang Bayan* (Municipal Legislative Council) in 2005 declared a 7,000-hectare area in Barangays Cabuaya and Luban, Mati as the Philippine Eagle (*Pithecophaga jeffeyi*) Sanctuary. Another legislative action followed suit through a *Sangguniang Panlunsod* (City Legislative Council) resolution in 2008, declaring the habitats of Cabuaya and Luban as Critical Habitat for the Philippine Eagle (*Pithecophaga jeffeyi*) The City of Mati likewise adopted the legislation and created the *Philippine Eagle Sanctuary Management Plan*, thus, ascertain the protection of the area.

Further on, the commitment to supplement safeguards to the protected area commenced in year 2012 through the implementation of the Biodiversity Partnership Program (BPP) of the Department of Environment and Natural resources (DENR) (See Text Box 1 on page 6). The project is assisted financially by the United Nations Development Program (UNDP) and the Global Environment Facility (GEF), which aims to mainstream biodiversity conservation into the local land use plan.

The project will expand the buffer zone and the wildlife sanctuary of the nominated property (protected area), defined as the Key Biodiversity Area (KBA) of the Mount Hamiguitan Range, through the inclusion of the critical habitat of the Philippine Eagle (*Pithecophaga jeffeyi*).

The expansion will be implemented using several approaches, namely the following: (1) a local legislative resolution from the concerned Local Government Units (LGUs); (2) forging of conservation agreement with the stakeholders after the subsequent delineation and demarcation survey of the property; and (3) application for an expanded buffer zone paving a legislative action.

With the proposed area expansion, the new Base Map and the Boundary Map of the property with its components has the following summary information:

- MHRWS Core Zone (UNESCO-nominated property): 6,348.99 hectares
- MHRWS Buffer Zone: 783.77 hectares
- Proposed Wildlife Sanctuary/Key Biodiversity Area (KBA) expansion that includes the Philippine Eagle Habitat: 6,950.65 hectares (Figure 1.
 Base Map)
- Proposed buffer Zone expansion: 9,758.66 hectares (Figure 2. Boundary Map with Proposed Buffer Zone Expansion and Proposed Wildlife Sanctuary/KBA Expansion (Philippine Eagle Critical Habitat)

At the eastern side of the protected area, no buffer zone expansion was proposed as there are already mining tenements that cover the adjoining area. However, the mining tenement holders in the areas assured they will endeavor to support the protection of KBAs including that of Mt. Hamiguitan protected area.

With the proposed expansion, the property will have a new total area of 13, 825.94 hectares for the wildlife sanctuary/KBA and 10,026.13 for the combined buffer zone area or a total component area of 23,842.07 hectares.

The project expansion as included in the BPP project of DENR then will be the founding basis for the Government of the Province of Davao Oriental to pursue actions for the eventuality of attaining local municipal and city Legislative Ordinances and the promulgation of a National Law (through a Republic Act) thereby, ultimately expanding the protected area of MHWRS to another 13, 825.94 hectares.

Endnotes:

- 1. Resolution No. 365, series of 2005, the City of Mati, then a municipality, declared a *Philippine Eagle Sanctuary* in Cabuaya, Mati.
- 2. Sangguniang Panlunsod Resolution No. 219, series of 2008 requested DENR to declare 7,000-hectare-area in Barangays Cabuaya and Luban, Mati as a *Critical Habitat* under R.A. 9147 (Wildlife Conservation and Protection Act) for the Philippine Eagle (*Pithecophaga iefferyi*).

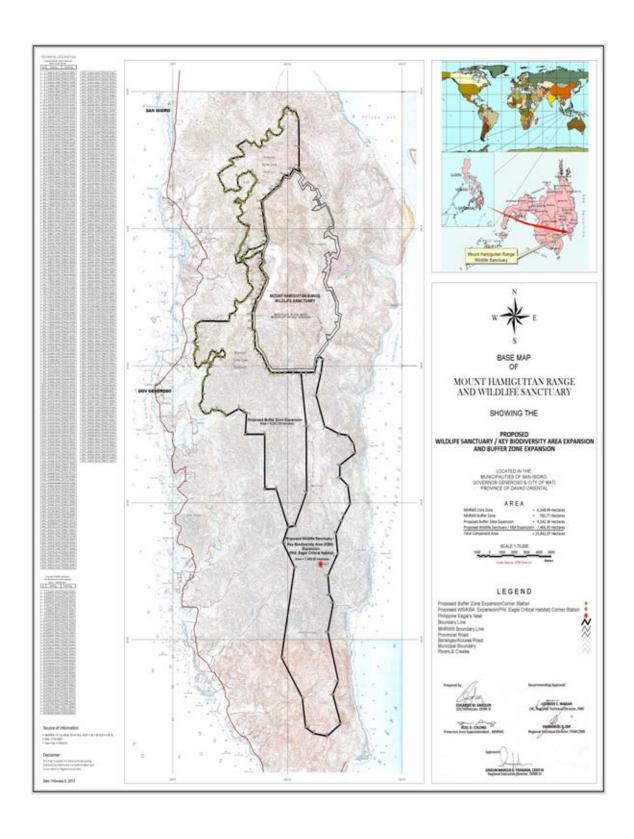


Figure 1. Base Map

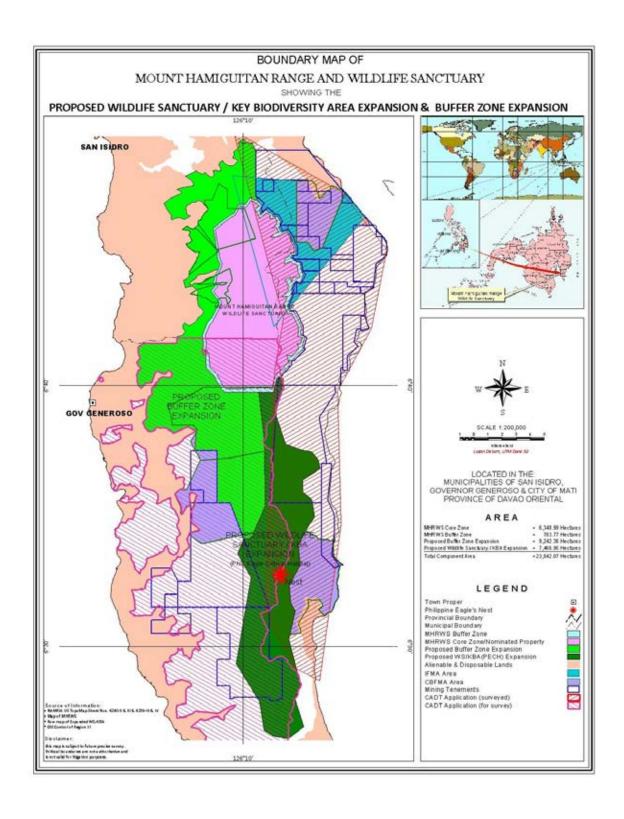


Figure 2. Boundary Map with proposed Buffer zone expansion and propose Wildlife Sanctuary/KBA expansion (Philippine Eagle Critical Habitat)

TEXT BOX 1

A BRIEFER ON BIODIVERSITY PARTNERSHIPS PROJECT (BPP) OF THE DENR IN PARTNERSHIP WITH THE NATIONAL GOVERNMENT AGENCIES, CONSERVATION NGOS AND LOCAL GOVERNMENT UNITS

To arrest fragmentation and ensure that activities in the surrounding landscape conserve species assemblages and maintain ecosystem functions, the Protected Areas and Wildlife Bureau of the Department of Environment and Natural Resources with financial assistance from the Global Environment Facility (GEF) through UNDP, has initiated a project entitled "Partnership for Biodiversity Conservation: Mainstreaming Local Agricultural Landscape" otherwise referred to as the Biodiversity Partnership Project (BPP). The project adopts an *integrated approach* aimed at (i) strengthening enabling policies at the national level, (ii) enhancing the capacities of LGUs, and (iii) demonstration in selected pilot sites. These will be achieved through *partnerships* with key national government agencies, LGUs and national and local conservation NGOs to muster their resources and expertise.

Among the three major outcomes envisaged from this approach is the Outcome 3, where "Systems, policies, tools and capacities for landscape level biodiversity conservation and sustainable development are applied at eight pilot sites (including Mt. Hamiguitan Protected Area/Key Biodiversity Area) covering 700,000 hectares across five critical bio-geographic regions (Luzon, Palawan, Negros-Panay, Mindoro and Mindanao)", with the following target Outputs:

- Biodiversity-friendly projects, programmes and policies achieved via impact assessments incorporated into LGU planning process (all sites)
- Trans-boundary integrated planning achieved via the implementation of toolkits (QPL, CPM, NNNP, Lake Mainit, Mt. Hamiguitan)
- Biodiversity-friendly agricultural practices (e.g. use of indigenous crop varieties), achieved via enhanced and extended standards and associated certification processes. (all sites)
- Improved regulations and enforcement of wild animals and plant gathering and trade achieved via strengthening of permitting system and implementation of trade regulation. (CPM, Malampaya, Mt. Hamiguitan)
- Biodiversity-friendly investments programs promoted in selected sites (Siburan, NNNP, CPM, Mt. Hamiguitan)
- Incentive systems and innovative financing programs to reduce destructive activities by PA/KBA dependent communities (PES in QPL and NNNP, pilot CCAs in PPLS, QPL, CPM, NNNP and Mt. Hamiguitan)

Data and knowledge management to underpin preceding themes (awareness, support to inter LGU knowledge sharing, biodiversity monitoring, biological assessments).

Flowchart of Activities and the Comprehensive Work Plan (2012-2016) are grouped into Thematic Areas as follows:

- > Thematic Area 1- DENR-PAWB, DA, DILG, Site Partners
- > Thematic Area 2- DA, Site Partners
- > Thematic Area 3- DENR-PAWB-WRD, Site Partners
- > Thematic Area 4- DTI, DOT, UP ISSI, DA, Site Partners
- > Thematic Area 5 -DENR-PAWB, HLURB, DILG, NCIP, Site Partners, LGUs
- > Thematic Area 6-DENR-PAWB, Site Partners

All activities under <u>Outcome 3</u> will be implemented by the <u>Site Partners at their respective pilot sites</u>.

For Regional XI, the pilot site is the Mt. Hamiguitan Protected Area/Key Biodiversity Area located at the Municipalities of San Isidro and Gov. Generoso and the City of Mati, Province of Davao Oriental.

Resource Person: PASu Ruel D. Colong, M.Sc.

CITY OF MATI RESOLUTION NO. 218 SERIES 2008 (PAGE 1) A RESOLUTION ADOPTING THE PHILIPPINE EAGLE SANCTUARY MANAGEMENT PLAN (PESMP)



2ndCity Council 25th Regular Session Series of 2008

Republic of the Philippines Province of Davao Oriental

CITY OF MATI

OFFICE OF THE SANGGUNIANG PANLUNGSOD

EXCERPT FROM THE MINUTES OF THE 25th REGULAR SESSION OF THE SANGGUNIANG PANLUNGSOD OF THE CITY OF MATI, PROVINCE OF DAVAO ORIENTAL HELD AT THE SANGGUNIANG PANLUNGSOD SESSION HALL ON JULY 21, 2008.

PRESENT:

Hon. Cesar D. de Erio	City Vice Mayor/Pres	iding Officer
Hon. Niño Sotero L. Uy, Jr.	City Councilor	
Hon. Glenda Monette R. Gayta	-do-	
Hon. Elizabeth C. Peña	-do-	
Hon. Rey P. Oliveros	-do-	
Hon. Rosendo B. Linsag	-do-	
Hon. Orlando F. Rodriguez, Jr.	-do-	9 61
Hon, Alan R. Acera, Sr.	-do-	1 9-23-08
Hon. Carlos D. Basas, Jr.	SKCF - President	· Chimicad 8: 15 AM

ON OFFICIAL TRAVEL:

Hon, Alan E, Andrada City Councilor - Davao City Hon, Dennis T, Tolentino ABC President - Digos City

RESOLUTION NO. 218 Series of 2008

A RESOLUTION ADOPTING THE PHILIPPINE EAGLE SANCTUARY MANAGEMENT PLAN (PESMP) THIS CITY.

WHEREAS, the Philippine Eagle Sanctuary Management Plan based on the best scientific information available, was created to serve as a preliminary framework for the conservation of the Philippine Eagle Sanctuary in the City of Mati;

WHEREAS, the discovery of the Philippine Eagle, its protection and conservation of its habitat, fall well within the city's vision and plans for Eco Tourism and environment forest protection;

WHEREAS, the presence of the Philippine Eagle in the City of Mati has been met with favorable response from various sectors and the entire region because it indicates the suitability of the forests of Mati as a habitat for this rare and majestic emblem of our country;

WHEREFORE, after thorough deliberation, sponsored by Hon. Alan E. Andrada, on motion of Hon. Niño Sotero L. Uy, Jr., duly seconded by Hon. Elizabeth C. Peña and Hon. Carlos D. Basas, Jr., it was;

RESOLVED, as it is hereby resolved, to adopt the Philippine Eagle Sanctuary Management Plan (PESMP), this City.

RESOLVED, FINALLY, that copies of this resolution be furnished: All offices concerned for their information and guidance.

CARRIED.

THE SANGGUNIANG PARELLE TO

TEXT BOX 2 (CONTINUATION)

CITY OF MATI RESOLUTION NO. 218 SERIES 2008 (PAGE 2) A RESOLUTION ADOPTING THE PHILIPPINE EAGLE SANCTUARY MANAGEMENT PLAN (PESMP)

Page 2 of 2 Resolution No. 218, s. 2008

I HEREBY CERTIFY to the correctness of the foregoing resolution which was duly adopted by the Sangguniang Panlungsod during its 25th Regular Session on July 21, 2008.

CERTIFIED CORRECT:

CARLOS D. BASAS, JR. SKCF President

Acting Secretary to the Sangguniang Panlungsod

ATTESTED BY:

SANGGUNIANG - 1

CESAR D. DE ERIO City Vice Mayor Presiding Officer

APPROVED:

MICHELLE MARIE DENISE N. RABAT

CITY OF MATI RESOLUTION NO. 219 SERIES 2008 A RESOLUTION REQUESTING THE HON. JOSE LIVIOKO ATIENZA, JR. SECRETARY OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO DECLARE THE 7,000 HECTARE PHILIPPINE EAGLE SANCTUARY IN BARANGAYS CABUAYA AND LUBAN IN MATI, DAVAO ORIENTAL AS CRITICAL HABITAT UNDER RA9147



25th Regular Session Series of 2008

Republic of the Philippines Province of Davao Oriental

CITY OF MATI

OFFICE OF THE SANGGUNIANG PANLUNGSOD

EXCERPT FROM THE MINUTES OF THE 25th REGULAR SESSION OF THE SANGGUNIANG PANLUNGSOD OF THE CITY OF MATI, PROVINCE OF DAVAO ORIENTAL HELD AT THE SANGGUNIANG PANLUNGSOD SESSION HALL ON JULY 21, 2008

PRESENT:

Hon. Cesar D. de Erio City Vice Mayor/Presiding Officer Hon. Niño Sotero L. Uy, Jr. Hon. Glenda Monette R. Gayta City Councilor -do-Hon. Elizabeth C. Peña -do-Hon. Rey P. Oliveros -do-Hon. Rosendo B. Linsag -do-Hon. Orlando F. Rodriguez, Jr. -do-Hon. Alan R. Acera, Sr. -do-Hon. Carlos D. Basas, Jr. SKCF - President

dubino 8: 15 AM

ON OFFICIAL TRAVEL:

Hon. Alan E. Andrada City Councilor - Davao City Hon. Dennis T. Tolentino ABC President - Digos City

RESOLUTION NO. 219

Series of 2008

A RESOLUTION REQUESTING THE HON. JOSE LIVIOKO ATIENZA, JR., SECRETARY OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO DECLARE THE 7000-HECTARE PHILIPPINE EAGLE SANCTUARY IN BARANGAYS CABUAYA AND LUBAN IN MATI, DAVAO ORIENTAL AS A CRITICAL HABITAT UNDER RA 9147.

WHEREAS, the City Government of Mati has declared a 7000 hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban in Mati, Davao Oriental to protect the Philippine Eagle breeding pair together with the rest of wildlife thriving within the sanctuary;

WHEREAS, upon the initiative of the LGU-Mati in cooperation with the Philippine Eagle Foundation, the suitability of the Philippine Eagle Sanctuary as a Critical Habitat under RA 9147, otherwise known as the Wildlife Conservation and Protection Act, has been carefully evaluated;

WHEREAS, the creation of the Philippine Eagle Sanctuary as a Critical Habitat has been met with favorable response from various sectors and the entire region because it indicates the suitability of the forests of Mati as a habitat for this endangered species;

WHEREAS, the declaration of the Philippine Eagle Sanctuary as a Critical Habitat symbolized the potentials of the City being catapulted to national prominence being the first critical habitat established for an endangered species, in case, the Philippine Eagle;

THE SANGGUIN CONT.

TEXT BOX 3 (CONTINUATION)

CITY OF MATI RESOLUTION NO. 219 SERIES 2008 (PAGE 2)
A RESOLUTION REQUESTING THE HON. JOSE LIVIOKO ATIENZA, JR.
SECRETARY OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
TO DECLARE THE 7,000 HECTARE PHILIPPINE EAGLE SANCTUARY
IN BARANGAYS CABUAYA AND LUBAN IN MATI, DAVAO ORIENTAL
AS CRITICAL HABITAT UNDER RA9147

Page 2 of 2 Resolution No. 219, s. 2008

WHEREFORE, authored by Hon. Cesar D. De Erio, sponsored by Hon. Alan E. Andrada, on motion of Hon. Niño Sotero L. Uy, Jr., duly seconded by Hon. Elizabeth C. Peña and Hon. Carlos D. Basas, Jr., it was,

RESOLVED, as it is hereby resolved, to request the Hon. Jose Livioko Atienza, Jr., Secretary of the Department of Environment and Natural Resources to declare the 7000-hectare Philippine Eagle Sanctuary in Barangays Cabuaya and Luban in Mati, Davao Oriental as a Critical Habitat under RA 9147.

RESOLVED, FINALLY, that copies of this resolution be furnished: All offices concerned for their information and guidance.

CARRIED.

I HEREBY CERTIFY to the correctness of the foregoing resolution which was duly adopted by the Sangguniang Panlungsod during its 25th Regular Session on July 21, 2008.

CERTIFIED CORRECT:

CARLOS D. BASAS, JR SKOF - President

Acting Secretary to the Sangguniang Panlungsod

ATTESTED BY

CESAR D. DE ERIO City Vice Mayor Presiding Officer

APPROVED:

MICHELLE MARIE DENISE N. RABAT

City Mayor



SUPPLEMENTARY ITEM 2

Assessment of threats to the property emanating from adjoining mining areas and how such threats can be managed and reduced

Assessment of threats to the property emanating from adjoining mining areas and how such threats can be managed and reduced.

Present condition of mining near the MHRWS

Mount Hamiguitan straddles across three local political boundaries: the municipality of Governor Generoso in the south, City of Mati in the east and San Isidro in the north-western side. The mining tenements adjoining MHRWS are those of Mati and Governor Generoso. The mining area in Mount Hamiguitan's Mati side is a conglomerate of several mining tenements. They were consolidated under the management of Asiaticus Management Corporation (AMCOR) to operate as a single large scale mining company. The mining tenements in Governor Generoso are eleven (11) small scale mining companies, only two (2) of which have applied renewal permit for 2013. Permits to operate were issued locally by the provincial government (Table 1).

These mining agencies are at various stages of operations, for example, AMCOR has recently completed its social preparation stage (like signing of memorandum of agreements between the local communities and those of the indigenous peoples) and is now in the final stages of their exploration activities. The AMCOR gears to start its full extraction operation in 2013 and intends to operate using open cut mining methods required by Laterite mining.

It is important to note that AMCOR has collaborated with the Department of Environment and Natural Resources (DENR) in Davao Region in the delineation of the buffer zone boundaries around the circumference of the protected area, providing funds for the delineation project, and thus defined completely the buffer zones. It has also waived 7,000 hectares of its mining claim area to be a protected habitat for the Philippine Eagle. This means that AMCOR is more than aware of the presence of the protected area adjacent to their mining area; the company has shown collaborative gestures towards the government in support to the protected area. The AMCOR shall operate in 25 years within the prospective area of about 19,000 hectares in barangays Macambol and Cabuaya, practically covering the entire Mati side of Mount Hamiguitan. The mining act limits the operation to 10 hectares per year with immediate rehabilitation prior to opening a new extraction site.

The small scale miners of Governor Generoso employ underground mining method using tunnels mostly for chromite extraction. Prior to 2013, there were 11 small-scale mining

operators issued with permits to mine, however, this year, only two (2) companies applied for the 20-hectare per 2-year permit renewal. These are the Reynaldo Nazareth Mines in Barangay Tandang Sora and the Aguinaldo Tan Mines in Barangay Upper Tibanban.

There is no mining activity in Mount Hamiguitan's San Isidro side. The local government of San Isidro issued a resolution to prohibit mining operations in the municipality (San Isidro Municipal Resolution, 2003). It was local government of San Isidro that first documented the significance of Mount Hamiguitan's flora and fauna and passed local legislations for its protection and conservation. The people of San Isidro were the first to adopt an annual festival for Mount Hamiguitan to promote eco-tourism and its campaign for protection and conservation.

Table 1 Current mining activities near MHRWS

Location	Mining Company	Type	Period	Activities
Mati City • Macambol • Cabuaya	Asiaticus Management Corporation: a conglomerate of several mining tenements ¹	Large Scale; Nationally issued permit	25 years renewable	Completed social preparation stage About to finish exploration stage Soon to start the 'open pit' mining method (Laterite mining) at 10 hectares per year
Governor Generoso	 Aguinaldo Tan mines² Reynaldo Nazareth mines² 	Small Scale; Provincial issued permit	2 years	Tunnel mining method On-going extraction at 20 hectares for 2 years Chromite ores
San Isidro ³ Note: Issued local resolution of no mining for 25 years or until revoked	None	NA	NA	• NA

Source: (1) Interview with AMCOR representative; (2) Provincial Government Documents Files; (3) San Isidro Municipal Resolution No. 75-2003, 24 July 2003

Threats of mining activities near MHRWS

This report presents the threats of mining activities to MHRWS. The threats are identified from theoretical/conceptual frameworks gathered from literature that refers to impact of mining towards the extraction sites and its immediate surrounds, as well as the threats identified in the context of MHRWS using community opinions through rapid participatory appraisal focus groups.

Table 2 presents a summary matrix of the effects of mining activities to mine sites and their possible impact to MHRWS which is adjacent to the mine areas. It is to be noted that studies on mining impacts usually refer to the actual mine sites and its immediate surrounds. In the context of the MHRWS, the mine sites are found in the lower areas of the mountain range while MHRWS is located in the upper regions of the mountain. This situation lends to the claim of AMCOR and some community members that the mining activities located in the lower areas of the mountain pose only some 'indirect' threats to the protected area above. This is in contrast with the 'direct' threats that are imminent to affect Pujada Bay Seascapes below, another protected area adjacent to the mining site. In a correspondence of AMCOR to DENR, the company made note that 'the protected area is way way [sic] above' their mining area. This view is subscribed by some community members:

'I agree that the trees of the forest of Mount Hamiguitan need to be protected. About mining threats, I don't see any effect because the protected area is in the upland and the mining activities are in the lowland.' (Macambol, Female Participant)

'The threat is not going up to the protected area but down towards Pujada Bay that will catch all the mining effect. But threats are always there, with or without mining, for example the people are threat to the protected area because of livelihood problems.' (Macambol, Male Participant)

'The protected area is very far from us and it is in the upper areas. We know where the markers are because we are members of the CBFM. The boundary markers are very far from where we operate. Our mining will have no impact to the upper areas of the mountain but down below, there should be mitigating measures. If we talk about mining, it is expected that there is environmental destruction, but for small scales miners like us, they can be managed. We are closely monitored that we are not allowed to go beyond the area allocated to us.' (Governor Generoso, Male Participant)

The most easily identified threats are those associated with geo-morphological changes of landscapes due to mining activities. These are landslides and erosions, impact to visual aesthetics that poses trade-off for eco-tourism potentials, and most likely the siltation and reduced water quality that would most likely impact the protected seascapes of Pujada Bay and Tinaytay Reefs in the coastal and marine areas.

Additionally, there are threats that could only be identified using the theoretical frameworks of scientific studies in which without thorough and long term technical studies these threats could not be identified or observed easily (Clode, 2006; Kumar, 2010). For example, the effect of changes in humidity levels to the mossy forest because deforestation in the lower Dipterocarp forests needs to be technically established, the same could be said in the case of micro-climate changes and impact on local rainfall patterns on which MHRWS is critically dependent.

Some members of the community expressed apprehension to these 'unknown' impacts, and notably female participants:

'For now, we haven't seen any threat yet. It's a good idea to set up a monitoring team to watch for the threats that may happen.' (Macambol, Female Participant)

'We are worried because we do not know anything about mining effects, if that is really responsible mining that they are claiming.' (Macambol, Female Participant)

'We cannot see the full effect until the operation starts. We have the power to stop any activity. In the MOA, there is an 'addendum' section that we can add conditions. The mining company signed.' (Macambol, Female Participant)

Threats of mining activities near MHRWS

Table 2

+

Point Source and Context	Changes d	lue to	Changes due to Mining Activities	Ш	Impact to MHRWS	Mitigation Plans
	Type		Identified Threats			
Large Scale mining: AMCOR, Mati	Geo- morphologic		Landslide/erosion Contour change	• a E	Landslide, erosion and contour change	Local Communities: Community vioilance
Operates in two (2) barangays. Macambol and Cabilaya	Changes	•	Loss of aesthetic	8 5	could affect the	on the signed Memorandimof
AMCOR participated in the		•	Reduced air and water	a .	above if extraction is	Agreement on
delineation of the property's buffer zone			quality	e G	not properly engineered	Responsible Mining between Macambol
AMCOR waived 7,000 hectares, Add of their mining tendency for the				• E 2	Pristine visual quality	andCabuaya
Philippine Eagle habitat as locally				5 e	replaced with mine	AMCOR
declared protected area Aware of the protected area				<u>a</u> 5	pit scars means loss of ecotourism values	Government:
boundaries				•	Dust may affect	 Implementation of
 Adjacent to buffer zones 				Ve	vegetation health	the Provincial
Mining activities at lower slopes of				e d	and siltation may	Government
Open pit Interite mining				0	lower areas and	Close coordination of
Mine sites at Dioterocaro forests				2 6	Pujada Bay	the Provincial
						MHRWS Team with DENR-PAMB, local
Small Scale Mining: Nazareth and Tan	Sec.					communities and
Governor Generoso	Changes in	•	Hydrological Cycle	•	Desertification may	mining companies
	Ecological	•	Nument Cycle	5	occui que lo	DENK.
Nazareth mining operates in Barangay I page Tibanhan and Tan	Balance	•	Deforestation and Habitat loss	5 5	changes on micro- climate and rainfall	Implementation of BPP to KBA
mining operates in Barangay		٠	Biodiversity loss	pa	patterns	 Monitoring and
Tandang Sora				•	May lower humidity	managementof
Unaware of the location of				ਠੂੰ ਕੁ	and moisture levels of the forests in the	MHRWS through the PAMB

	boundaries Tunnol mining					protected and could	AMCOR:	8
• •	Eleven small scale mining existed in					mossy and pygmy-	between AMCOR	2
	the area prior to 2013, only 2 applied for renewal				•	mossyforest Wildlife migration	and DENR, AMCOR	<u> </u>
•	Small scale miners are not required					that may cause	following:	
	by law to rehabilitate the mine area					habitat competition	 Conserve areas with 	M H
	afteroperations					andspecies		
						presence imbalance	2. Progressive mining	ē
					•		and progressive	
		Introduced	•	Noise	•	Wildlife migration		
		Sound/Energy	•	Vibration	•	Disturbance to	Propagation of	
						breeding and life	endemicplant	
						cycles	species and control	<u> </u>
		Non-	•	Encroachment	•	Timber poaching	of exotic species	
		environment	•	Indifference to	•	Wildlife poaching	4. Provide runds for	
		Friendly Human		conservation status of			environmental	
		Activities		flora and fauna			protection and	
			•	Introduction of exotic			expand multi-partite	iie
				flora and fauna				
							5. Establishmentor	
							Environmental	
		Olimpto Observe		Hab considerate due to		Doding of constitute	to continue to	S
		Cilliate Cilaliye	•	climate change	•	withstand longer	identify threats and	P
				cilliate cilange		droughts	proactively address	SS
						1	those threats	
							Small Scale Miners:	
							Comply with the	
							Provincial	
							Environmental Code	ode
\Box		1	_			VI. 3		
	 Identified threats using review of literature, rapid participatory assessment, and document reviews of EIA 	terature, rapid parti		atory assessment, and do	9	nent reviews of EIA.		

Threats to wildlife because of human presence and activities are also highly likely. Examples are noise and vibration pollutions that may significantly disturb wild animals, and hence negatively impact their breeding, feeding and survival abilities. Human activities also threaten the protected area when human mismanagement occurs. For example, timber poaching is possible in areas of tunnel mining that requires significant number of timber for tunnel frames. Wildlife poaching could also happen as well as loss of rare and unrecorded species due to indifference or low knowledge of species conservation status.

Finally, there is the possibility that even small and seemingly safe levels of changes in the sensitive balance of land formation, ecology and life patterns of wildlife may reduce significantly the capacity to withstand and survive when conditions posed by climate change are considered. The erratic conditions resulting from climate change like longer droughts, changing weather patterns and unusual atmospheric conditions like freak typhoons are overarching threats that could overwhelm the protected area.

Mitigation to reduce and manage mining activity threats to MHRWS

The different stakeholders of MHRWS, at several levels from local to national, express support for the protection and conservation of the protected area. The mitigation strategies to proactively address the threats because of mining activities near MHRWS are more pronounced among the local communities and AMCOR itself.

Local Communities

The local communities, particularly the *barangay* residents, women's organization and some indigenous peoples' representatives, express a strong sense of empowerment in relation to their decision to allow mining in *barangays* Macambol and Cabuaya in Mati. They claim that they have the power to stop mining operations if they see threats coming from the mining activities.

'We are vigilant, we can stop the mining anytime if we sense things are not happening as agreed. We have the power to stop. It is written in the MOA.' (Macambol, Male Participant)

'We cannot see the full effect until the operation starts. We have the power to stop any activity. In the MOA, there is an 'addendum' section that we can add conditions. The mining company signed.' (Macambol, Female Participant)

'Before we have decided to let the mining in, we are already vigilant. Most of what we observed in the history of mining, the results were bad. We know about that.

AMCOR

In a correspondence between AMCOR and DENR (Text Box 4, page 22), AMCOR commits specific measures to help manage and reduce the potential threats of mining operations to MHRWS:

- Less mineralized areas near the Hamiguitan Protected Area shall be adopted under the Adopt-A-Mining Forest and Adopt-A-Mountain Project and shall form part of the Environmental Protection and Enhancement Program (EPEP) of the mining company in accordance with the Mining Act and Executive Order 79. These projects could help expand the buffer zone, further between the protected area and the mining areas.
- Progressive mining and progressive rehabilitation to limit open areas to only 10 –
 20 hectares per year shall be observed to minimize environmental footprints.
- Collection of wildlings from endemic plant species to areas that will be mined shall be undertaken prior to area clearing to propagate seedlings in nurseries that will be planted during the rehabilitation to limit introduction of exotic species.
- Use of large and mature seedlings as one of the best practices in mining rehabilitation like in Rio Tulba shall be replicated on site to reduce the log time of rehabilitation and put back the forest in shorter or 3-years period.
- Expanded membership to the Mine Rehabilitation Fund Committee (MRFC) and Multi-Partite Monitoring Team (MMT) shall be endeavoured to include the Hamiguitan Protected Area authorities as mandated special bodies to enable the Environmental Protection and Enhancement Program (EPEP) including monitoring on environmental compliance more sensitive to Hamiguitan.

The EPEP and FMRDP shall include projects and substantial fund allocation that could help manage, protect and enhance the protected area and its buffer zones.

The company shall establish environmental monitoring system and facilities including environmental weather stations to continue to identify threats and proactively address those threats.

These commitments from AMCOR, if properly carried out, could address most, if not all, of the threats identified in Table 2 matrix. It is essential that these statements be incorporated in the monitoring and evaluation framework of the MHRWS management system.

The Local Provincial Government and the Department of Environment and Natural Resources

The Local Provincial Government of Davao Oriental, in collaboration with the DENR and other stakeholders, being the proponent of MHRWS to be inscribed in the World Heritage List as an approach to conservation addresses to manage and reduce the threats posed by mining activities in Mount Hamiguitan through the implementation of the Provincial Government Environmental Code. This macro-management ensures close coordination of the Provincial MHRWS Team with DENR-PAMB, local communities and mining companies in the management, monitoring and developing MHRWS protection and conservation program. Along with DENR's implementation of the Biodiversity Partnership Program to Key Biodiversity Areas as well as the management of MHRWS through the Protected Area Management Board, the mitigation plans for the threats to MHRWS due to mining activities is most likely collaboratively and successfully implemented.

Reference

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San Isidro Municipal Resolution. (2003). A resolution interposing strong opposition to large scale mining activity within the territorial jurisdiction of San Isidro. Municipal Resolution No. 75-2003: San Isidro, Davao Oriental.

DENR CORRESPONDENCE WITH AMCOR (PAGE 1)



January 25, 2013

EMMANUEL E. ISIP Regional Technical Director PAWCZMS



Day Jest Man

Sir.

This has reference to email dated January 22, 2013, requesting us information on the "Assessment of the threats to the property emanating from adjoining mining areas and how much threats can be managed and reduced."

Before citing the requested information, please allow us to note that ever since our mining company has been very supportive to the protection of Key Biodiversity Areas including the Hamiguitan Protected Areas as base on record we voluntarily relinquished major part of our mining area claims to favor the declaration of the said protected area and has even extended financial assistance and survey teams to help in the delineation survey.

It has been the thrust of our mining company to conduct its operation responsibly thus; we shall do everything possible to be compliant to laws, regulations, international standards and the best practices of responsible and sustainable mining.

Further, we would like to emphasize that base on our own study, we had in fact voluntarily gave up 5,759.45 hectares which is more than enough Buffer Zone to show our support for the project so as to prevent any environmental or social impact therein.

Furthermore, we would like to let it be known that the protected area is way way above our mining area.

For your information, we have as well adopted the following measures to further enhance your objectives:

- Less mineralized areas near the Hamiguitan Protected Area shall be adopted under the Adopt-A-Mining Forest and Adopt-A-Mountain Project and shall form part of the Environmental Protection and Enhancement Program (EPEP) of the mining company in accordance with the Mining Act and EO 79. These projects could help expand the buffer zone, further between the protected area and the mining areas.
- Progressive mining and progressive rehabilitation to limit open areas to only 10-20 hectares per year shall be observed to minimize environmental footprints.

2255 Chino Roces Avenue, Makati City, Metro Manila, Philippines Tel. Nos. 892-6611 to 17 * 892-9401 to 08 * 812-9784 * 815-1505 IDD - (2) 815-3522 FAX No. - 63 (2) 816-1346

MINERAL ACQUISITION, EXPLORATION AND DEVELOPMENT

DENR CORRESPONDENCE WITH AMCOR (PAGE 2)



- Collection of wildlings from endemic plant species to areas that will be mined shall be undertaken prior to area clearing to propagate seedlings in nurseries that will be planted during the rehabilitation to limit introduction of exotic species.
- Use of large and mature seedlings as one of the best practices in mining rehabilitation like in Rio Tuba shall be replicated on site to reduce the log time of rehabilitation and put back the forest in shorter in shorter or 3-years period.
- Expanded membership to the Mine Rehabilitation Fund Committee (MRFC) and Multi-Partie Monitoring Team (MMT) shall be endeavored to include Hamiguitan Protected Area Officials as mandated special bodies to enable the Environmental Protection and Enhancement Program (FMRDP) including monitoring on environmental compliance more sensitive to Hamiguitan.
- The EPEP and FMRDP shall include projects and substantial fund allocation that could help manage, protect and enhance he protected area and its buffer zones.
- The company shall establish environmental monitoring system and facilities including environmental weather stations to continue to identify threats and pro-actively address those threats.

We hope for more meaningful and sustained engagement and partnership with stakeholders like you in the protection and management of Key Biodiversity Areas like Hamiguitan.

Very Truly Yours,

ENGR. ORIANDO S. CRUZ VP-Operation and CSR

Ce: ENGR. EDILBERTO L. ARREZA RD, MGB-Region XI

> 2255 Chino Roces Avenue, Makati City, Metro Manila, Philippines Tel. Nos. 892-6611 to 17 * 892-9401 to 08 * 812-9784 * 815-1505 IDD - (2) 815-3522 FAX No. - 63 (2) 816-1346

MINERAL ACQUISITION, EXPLORATION AND DEVELOPMENT



SUPPLEMENTARY ITEM 3

State Party's willingness to consider inclusion of other nature reserve areas in Mindanao as an eventual serial site to better represent the remaining biodiversity values of this area

State Party's willingness to consider inclusion of other nature reserve areas on Mindanao as an eventual serial site to better represent the remaining biodiversity values of this area

In 2009, the Philippines nominated Mount Apo and Mount Hamiguitan as a serial property "Mount Apo-Mount Hamiguitan: Sanctuaries of Endemism." However, the World Heritage Centre considered the nomination as incomplete since no overall management system for both properties was proposed then.

The State Party then proceeded with registering both properties separately in the Tentative List. Given the readiness of the local authorities to establish a more responsive management for Mount Hamiguitan, the latter was nominated as a sole property. On the other hand, local authorities of Mount Apo have expressed their strong interest in pursuing the nomination. The State Party is of the view to pursue nomination of Mount Apo and will be updating its Tentative List to ascertain viability of nominating other nature reserves in Mindanao, as well as the other properties listed. The State Party will consider nominating the said mountains as a serial site, "Mountain Ranges of Mindanao" once feasibility of establishing an overall management system is proven. As in the case of most serial sites, however, day-to-day operations, ground-level management, and policy implementation shall remain within the ambit of local authorities while a comprehensive management system shall provide for a general monitoring of management practices of the areas.¹

¹Response prepared by UNESCO National Commission of the Philippines.



SUPPLEMENTARY ITEM 4

State Party's commitment to provide increased and longer term financing to the property including a budget plan for the next five years

State Party's commitment to provide increased and longer term financing to the property including a budget plan for the next five years

The Provincial Government of Davao Oriental with the partner LGUS and Government Line Agency (DENR) commit to appropriate the total amount of **Php 13,159,000.00** for the conservation of MHRWS over the period of five (5) years starting 2013-2018. The statement of commitments is shown below in a matrix.

Institutions	Contribu-	Contribu-	Contribu-	Others	TOTALS
Province of Davao Ori- ental	P 85,000 x 5 years= P 425,000	P 30,000 x 5= P 150,000	P 1,500,000 x 5= P 7,500,000.0 0 (includes repair of roads, agri projects, documenta- tion, capa- bility build- ing, IEC, livelihood and tourism projects	P 100,000 x 5= P 500,000 (Research and Valida- tion)	P 8,575,000
Mati City	Committed				
Governor	P 100,000 x				P 500,000
San Isidro	P 300,000 x	P 16,800 x 5			P 1,584,000
DENR		P 500,000 x			P 2,500,000

GRAND TOTAL OF FUNDS FOR FIVE (5) YEARS

P 13, 159,000.00

There are several other sources of funds to ensure an increased and sustained financing to MHRWS among which are the following:

Mt. Hamiguitan Protected Area/Biodiversity Area of DENR is one of the pilot sites in the Philippines being included in the Biodiversity Partnerships Project (BPP) of the DENR with funding assistance through grant form from the United Nations Development Program (UNDP and the Global Environment Facility (GEF). The project has started in 2012 for Mt. Hamiguitan site with funding assistance secured until 2016 with an average annual budget of Php 3.5Million.

To ensure increased and sustained financing to the property, its adjoining KBAs and the buffer zone, the DENR has prepared and approved a 5 year Work and Financial Plan with a total budgetary requirement of Php 33.29Million for possible funding from the House of Representatives.

MHRWS 5-Year Indicative Work and Financial Plan (2014—2018)

Goal 1: Preserve and protect the ecosystems and unique features of MHRWS and the rehabilitation of degraded habitats therein

ОВ	JECTIVES	ACTIVITIES		ENCIES CERNED	20)14	20	015	20	116	20	117	2	018
	M.		LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINANC AL ('000)
1.1	To design appropriate protection measures	1.1.1 Monitoring, protection and law enforcement 1.1.2 Rehabilitation of degraded Ecosystems	PA MB & PA SO	DENR & LGUs		950 600 240		950 600 240		950 600 240		950 600 240		950 600 240
1.2	To determine Futher the other	1.1.3. Conduct Information, Education and Communication (IEC) Campaign				100								
	features	1.2.1. Biological & ecosystems Researches				300		300		300		300	55 - 38	300

Goal 2: Strengthen the capabilities and capacities of MHRWS Protect	ed Area Management Board (PAMB) and the Protected	
as Cuperintendent's Office (DACO)		

OBJECTIVES 2.1. To heighten the knowledge of PAMB membes, personnel and local states outs and responsibilities and responsibilities	ACTIVITIES		CERNED	20	114	20	115	20	116	20	017	2	018
		LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINANC AL (1000)
mountedge of PAMB members, PA50 personnel and local makeholds on their	2.1.1. Conduct refresher seminar to PAMB members on the authorities, duties and responsibilities of PAMB members	PA MB & PA SO	DENR / LGUs		100								
	based on RAs 9303 and 7586	55			100								
	2.1.2. Paralegal seminars for PASO staff and Bantay				200		200		200		200		200
	Gubat members on their police powers (RA 7586)												
	2.1.3. Training and Deputization of Bantay Gubat Members as				900		400		900		400		400
	Environmental and Natural Resources Officers (DENRO)												
	2.1.4. PAMB operationalization (meetings, workshops, seminars and cross												

Goal 3. Transform those residents who are engaged in illegal activities into partners in the protection of MHRWS

OBJECTIVES	ACTIVITIES	AGENCIES CONCERNED		2014		2015		2016		2017		2018	
		LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINANCI AL ('000)
3.1. To identify and implement alternative livelihood activities 8 dinancing scheme of the selected livelihood activities	3.1.1. conduct community tenure assessment and survey/registation of PA/KBA occupants 3.1.2. implement community alternative livelihood activities	PA MB & PA SO	DENR/ LGUs		2000		875		875		875		875

Goal 4, Survey of the expansion of MHRWS Buffer Zone and Key Biodiversity Areas as local conservation areas

OBJECTIVES	ACTIVITIES	AGENCIES CONCERNED		2014		2015		2016		2017		2018	
		LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI	FINANC AL ('000)
I. To delineate and lemartate on the pround the expansion of MHRNS Buffer cone and Key indivestly Area as ocal conservation weas	4.1.1. Ground delineation and demarcation survey 4.1.2. Sub-zoold.cation. GIS analyses processing and thematic mapping	PAM B & PAS O	DENR/ LGUs		2,000								

 $\underline{Goal5}, Establish\ permanent\ PAMB/\underline{PASu}\ Office\ for\ sustainable\ and\ effective\ administration,\ management\ and\ protection\ of\ the\ MHRWS\ Protected\ Area\ and\ Key\ Biodiversity\ Areas$

OBJECTIVES	ACTIVITIES	AGENCIES CONCERNED		2014		2015		2016		2017		2018	
		LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINANC AL ('000)
5.1. Establishment of PAMB / PASU Office building	5.1.1. Lot Acquisition 5.1.2. Building Construction	PAM B & PAS O	LGUs/ DENR		1,000		6,000						

 $\underline{\textbf{Goal. 6}}. \ \textbf{Equipment support for the administration and management of the MHRWS Protected Area and Key Biodiversity Area$

OBJECTIVES	ACTIVITIES	AGENCIES CONCERNED		2014		2015		2016		2017		2018	
			LEA D	SUPPO RT	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL	FINAN CIAL ('000)	PHYSI CAL
6.1. Effective mobility for field coordination, protection of the mough parted were investigated with the control of the coordination of the coord	Procurement of the following: 8.1.1. daz Pick-up vehicle(1) 8.1.2. dax Light suck vehicle (1) 8.1.2. Max Light suck vehicle (1) 8.1.3. Motorcycle (3) 6.2.1. Desktop computer (3) 6.2.2. Laptop computer (3) 6.2.3. DSLR Camera (2)	PAM B & PAS O	LGUs/ DENR		1,430 255 150 210 160		935						

FINANCIAL SUPPORT COMMITMENT FROM THE LOCAL GOVERNMENT OF GOVERNOR GENEROSO



Republic of the Philippines Province of Davao Oriental Municipality of Governor Generoso

OFFICE OF THE MAYOR

February 5, 2013

Mr. JOSELIN MARCUS E. FRAGADA, CESO III

Regional Executive Director
Department of Environment and Natural Resources

Sir:

This is in reference to the correspondence received from your good office dated January 24, 2013 re: Commitment to provide increased and longer term financing to the property (MHRWS protected area), including a budget plan for the next five (5) years.

The undersigned is pleased to inform your good end that frequent meeting and planning had been conducted particularly on the Work and Financial Plan on the administration, management and protection of the Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) and it had been concluded that a budget in the amount of Five Hundred Thousand Pesos (Php 500,000.00) will be allotted for the said purpose.

With firm belief and regard to our natural heritage site, my support and commitment will remain steadfast.

Thank you.

Very truly yours,

email Address: any generous a gen yen, gov. p

nunicipal Mayor

Poblacion, Governor Generoso, 8210 Davao Oriental Official Website:www.yorgon.gov.ph

FINANCIAL SUPPORT COMMITMENT FROM THE LOCAL GOVERNMENT OF SAN ISIDRO



Republic of the Philippines Province of Davao Oriental MUNICIPALITY OF SAN ISIDRO OFFICE OF THE MAYOR

MANIFESTO OF SUPPORT

TO WHOM IT MAY CONCERN:

BE IT KNOWN THAT the Municipality of San Isidro in the Province of Davao Oriental has been firmly and steadfastly supporting for the inclusion of Mt. Hamiguitan to UNESCO World Heritage Site in the Category of Wildlife Sanctuary. Thus, this support is manifested in various ways like the continuous promotion; incessant Information & Education Campaign; unwavering protection, preservation; and the following financial assistance for its operation, to wit:

PAMB MOOE

	Total	P1,584,000.00
	х	P316,800 5 years operation
1. 8 Bantay Gubat- 2. 1 Tourism Officer- 3. 1 Clerk / Admin Aide	P1,500 / mo. x 8 Personnel x 12 P9,000 / month x 12 months -P4,000 / month x 12 months	2 mos. = P144,000 = P108,000 = P 48,000
2. Water Bill -	P 300 / month x 12 months	= P 3,600
Electric Bill -	P1.100 / month x 12 months	= P13,200

This MANIFESTO OF SUPPORT is being issued to apprise the authorities and officials concerned of the same.

Given this 6th day of February 2013 at San Isidro, Davao Oriental

Municipal Mayor



SUPPLEMENTARY ITEM 5

Definitive map indicating overlap of indigenous land claim/s with the property and its buffer zone

Definitive map indicating overlap of indigenous land claim/s with the property and its buffer zone.

At the time of the nomination, records from the Department of Natural Resources (DENR) did not indicate any potential overlapping of the Protected Area property with ancestral domain claims from the indigenous groups. However, upon consultation with the National Commission for Indigenous Peoples (NCIP), information confirms overlaps between the Philippine Eagle Sanctuary, AMCOR mining Company, and the Protected Area itself.

The overlapping claims are demonstrated in the map shown in Figure 3.

To verify the information of the overlapping of claims, consultative meetings with the OIC of the NCIP office were held twice in Mati in February 6 and 8, 2013. In the said consultation, the OIC Provincial Officer cited the integral objective of the land claims running in parallel to the efforts of the stakeholders to protect the MHRWS. Her statement bears founding basis vis-à-vis the stipulation in RA 8371 SEC. 58 of the Indigenous People's Law, stating among others that "protected areas shall be maintained, managed, developed and protected with the full and effective assistance of government agencies. Speaking in behalf of the members of the indigenous groups she represents in Davao Oriental, she further said that "indigenous groups are in consonance with the intent of preserving and conserving the natural resources of Davao Oriental and of Mt. Hamiguitan specifically, as mandated upon them by RA 8371.

Status of the NCIP Claim

The current status of the NCIP claim is estimated to be about 30,000 hectares in the municipalities of Mati and Governor Generoso as applied for by Mr. Guillermo Tan for both Mati and Governor Generoso. The records of the updates and status is shown in Text Box 7.

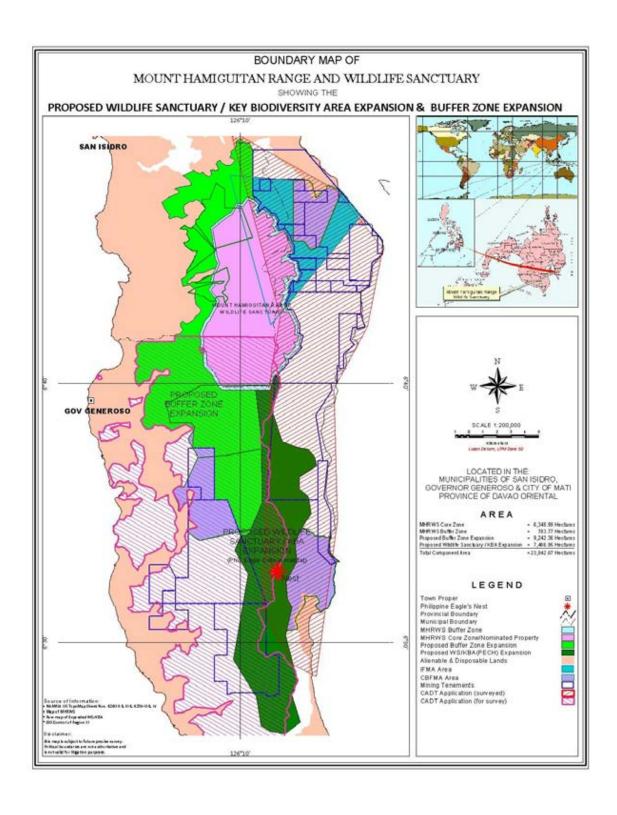


Figure 3. Indicative map showing overlap of NCIP claims

STATUS OF THE CERTIFICATE OF ANCESTRAL DOMAIN TITLE APPLICATION IN DAVAO ORIENTAL

No.	Barangay	Municipal ity	Estimated Area (Has)	Updates and Status	CADT/CADC Holder	Contact Number
1.	Nabunga, Simulao,Carmen, Caatihan,San Jose,Cauwayanan and Cabansagan	Boston	19,151.44	CADT Aprroved-April 3, 2003. With CADT Title No. R11-BOS-04-03-0005	Elauterio Manaytay	09391800604
2.	Sangab and Pichon	Caraga	14,540.32	CADT was approved. CADT Title is on process by the Central Office. With technical description and subject for registration to ROD.	Copertino Banugan	09287060108
3.	Macambol and Cabuaya	Mati City	19,860.87	Delineated, with technical description and survey plan approved by the CO. Subject for projection to the DENR, LRA and DAR. Segregation of Titled Properties.	Rufino Mapinogod Rogello Lemente	09303549538
4.	Causwagan, Mahayag,Panikian ,Pintatagan, Puntalinao, Maputi	Banayban ay	15,948.15	Delineated, with technical description and survey Plan approved by the CO. Subject for projection to the DENR, LRA and DAR. Segregation of Titled Properties.	Leonilo Pacay Sr.	09063397206
5.	Taocanga, Rizal, Lambog, Old Macopa, San Ignacio and Holy Cross	Manay	Estimated Area 30,000	On going delineation process	Julio B. Batunan	09219605251
6.	Aliwagwag, Maglahus, Malibago, Taytayan, San Alfonso, Aragon, Abejod, San Miguel, Alegria and Mainit	Cateel	Estimated Area 35,000	Waiting for fund Allocation	Charlie Ambasan	09468819406
No.	Barangay	Municipal ity	Estimated Area (Has)	Updates and Status	CADT/CADC Holder	Contact Number
7.	Anitap, Tandang Sora, Taga bebe, Magdug, Oregon, Upper Tibanban, Poblacion, Crispin de la Cruz, Monserat, Brgy. Luban	Govenor Generoso and City of Mati	Estimated Area 30,000	Waiting for fund Allocation	Guillermo Tan	09495065509
8.	Calapagan, Don Mariano Marcos and Marayag	Lupon	15,150	Waiting for fund Allocation	Contact person Robert Simbahon	09283491211
9.	Mahan- ob,Tigbawan, Campawan	Baganga	40,000	Waiting for fund Allocation	Santiago Morales	09183062926
10.	Tagbinonga and Don Salvador Lopez	City of Mati	15,000	Waiting for fund Allocation	Minda Miones	
11.	Pantuyan	Caraga	20,000	Waiting for fund Allocation	Agosto Diano	

The said update however, holds accurate only in the Municipality of Mati; for it is on the Mati side that an estimated 19,860,865 hectares were actually surveyed and executed by the NCIP Engineers on July 3-28, 2009 and July 28-to August 2, 2010. The 19,860,865 is currently with monument bearing "PRS"-GRID. The claim was published on December 4 and 11 2012 in a local newspaper the Pujada Broadcast.

Given therefore of the current status of the NCIP claims in the Municipality of Mati, the essence of harmonizing the conservation management of MHRWS further points to the importance of incorporating in the plans the provision of the alternative livelihood needs of the stakeholders; and for this to be continually explored, to ensure among others, that communities will not be displaced.

The NCIP claimants are themselves stakeholders of Mt. Hamiguitan. An integral process of synchronizing all purposes for the end objective of preserving Mt. Hamiguitan is and will be continually pursued through the IECs and sustainable economic programs in the communities.

While the NCIP continue working on the finality of their claims, the proponent of the MHRWS project, the Provincial Government of Davao Oriental and its partner agencies will incessantly endeavor to arrive at a Memorandum of Agreement among all the Stakeholders for the conservation, protection and management of MHRWS. And for all parties to make effectual and doable efforts to assist the communities to find sustainable means to use the resources of the surrounding areas of MHWRS for their livelihood, while equally ensuring the state of protection of the biodiversity Mt. Hamiguitan.

NOTICE OF PUBLICATION FOR CERTIFICATE OF ANCESTRAL DOMAIN TITLE APPLICATION IN MACAMBOL AND CABUAYA MATI CITY

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Republic of the Philippine OFFICE OF THE PRESIDENT
NATIONAL COMMISSION ON INDIGENOUS PEOPLES
Davao Oriental Provincial Office

NOTICE OF PUBLICATION

PAPASAYOD SANG PUBLIKO NG APLIKASYON PARA PAGPATITULO MG YUTANG KABILIN

Aplikasyon para paghatag ng Certificate of Ancestral Domain Title o pagpatitulo ng yutang kabilin na gipadangat ngadto sa National Commission on Indigenous Peoples ng katawhan kulturanong lumad na sakop ng Tribong Manadaya ng Barangay Macambol ng Cabuaya, sakop sa syudad sa Mati, probinsya sa Davao Oriental, Isla ng Mindanao. Pilipinas na awon Technical Description na:

TECHNICAL DESCRIPTION

MANDAYA TRIBE

ADs-1105-0022-Gni

An ancestral Domain situated in Barangay Macambol and Cabuaya, all of Mati City,
Province of Davao Oriental, Island of Mindanao, Philippines.
Bounded on the Northeast, along lines 2-3, by Pujada Bay and lines 3-4-5 by Philippines.
Sea; On the Southeast, along lines 5-6-7 by Philippines Sea; On the Southeast, along lines 7-8 by
Brgy, Luban, Mati, Davao Oriental and line 8-9-10 by Municipality of Governor Generoso, Davao
Oriental: On the Northwest, along lines 10-11 by Municipality of San Isldro and lines 1-2 by
portion of Brgy, Macambol end Pujada Bay

Beginning at a point marked "1" on the plan, being S. 20 deg. 34"W., 4.481.470m.
From DVE-03, (NAMRIA), Mati, Davao Oriental, thence;

S 60 deg 12 E, S 38 deg 10 E, S 11 deg 28 W, S 28 deg 30 W, S 01 deg 11 E, S 08 deg 08 W, N. 63 deb. 16'W N 29 deg 25'W, N 02 deg 22'E, N 10 deg 12'E, N 14 deg 40'W, 8,771.48 m. to point 2; 5,191.58 m. to point 3; 5,699.39 m. to point 4; 5,029.64 m. to point 5; 9,409,69 m. to point 6; 11,124.37 m. to point 7; 1,845.28 m. to point 8; 4,383,95 m. to point 9; 17,263,15 m. to point 10; 3,737,07 m. to point 11; 13,739,31 m. to point of beginning.

ada Broadcast c. 4 & 11, 2012

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Containing an area of NINETEEN THOUSAND EIGHT HUNDRED SIXTY AND 8735/
10000 (19,860.8735) hectares more or less. All corners area marked on the ground by the "NCIP
ADBM" rectangular parallelepiped (25 cm. x 25cm x 100 cm) concrete boundary monument.
Bearing is "PRS" - GRID. The said survey was executed by the NCIP Engineers. Ricky O.
Padrique, Rey B. Ventura, Arvin C. Sargario and Crosby Balaneg on July 3-28, 2009 and July 28 to August 2, 2010. Yang pamaagi ng paghatag ng Certificate of Ancestral Domain Title o Titulo sa Yutang Kabilin yosubay sang mga probisyon ubos sang section 51-52 ng R.A. 8371, aw ikonsidera isab yang section 55, o "yang katungod sa propridad na sulod sa yutang kabilin na iyan da bago mahimogso ning balaoda pagarecognisaran ug pagarespetohan."

Yang pagpatigam gayod sang tanan tagtungod para kung awon man protesta/pag-oposar/reklamo, sang aplikasyon ipadangat sud sang kinse diyas (15 days) subay sang kataposan na petsa ng pagpatigam. Yang tanang protesta/pag-oposar/reklamo ipadangat sini na address sa dawon.

National Commission on Indigenous F 2nd Floor, Franco Building, Rizal St, Mati City, Davao Oriental, Philippines

Pujada Broadcast *Dec. 4 & 11, 2012

(Pirmado) MARILYN S. YU MON

Acknowledgements

Provincial Government of Davao Oriental

Department of Environment and Natural Resources

Local Government of Governor Generoso

Local Government of San Isidro

Local Government of the City of Mati

National Commission on Indigenous Peoples

UNESCO National Commission of the Philippines

Photo Credits

Gorjel Llanita Roy Ponce

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY



RESPONSE TO 37 WHCOM 8B.12 (Referral)

Explanatory Note

Referral of the Nomination of Mount Hamiguitan Range Wildlife Sanctuary to the UNESCO World Heritage List

With reference to Decision 37 COM 8B.12 adopted by the 37th Session of the World Heritage Committee (Phnom Penh, 2013), the State Party wishes to provide the following updates on the measures it has taken to comply with the recommendations of the Committee:

1. Continue the work with the National Commission for Indigenous Peoples (NCIP) to resolve any outstanding land claims to ensure there is a broad based support for the nomination of the site and that any future use of the area does not compromise the Outstanding Universal Value of the site;

The Province of Davao Oriental continues its work to engage actively the communities of indigenous peoples in villages located in Mati City and the Municipality of Governor Generoso. Numerous consultation meetings with the indigenous communities have been and continue to be carried out by the government offices of Davao Oriental in collaboration with the National Commission for Indigenous Peoples (NCIP) where community organizers discuss the UNESCO World Heritage Program and the nomination of Mount Hamiguitan Range Wildlife Sanctuary to the UNESCO World Heritage List.

The indigenous communities have expressed their support to the nomination of the site as they recognize that the inscription to the UNESCO World Heritage List will contribute to the protection of the mountain.

The State Party submits herewith the following documents:

- a) Written expression of support for the nomination from the indigenous peoples of Macambol and Cabuaya (Mati City), and Governor Generoso; and
- b) Memorandum of Agreement between the Provincial Government of Davao Oriental and the above-mentioned indigenous peoples groups stipulating the relinquishment of the latter of their application for ancestral domain title covering areas overlapping with the nominated property, and their commitment for the protection and conservation of the nominated property and its buffer zone.
- 2. Implement the envisaged expansion of the site to include important nesting habitats for endangered species such as the Philippine Eagle and implement the envisaged expansion of the buffer zone in order to enhance the integrity of the site:

The government units of Davao Oriental Province and concerned localities – Mati City, San Isidro Municipality, and Governor Generoso – together with the Regional and Provincial Offices of the Department of Environment and Natural Resources, undertook the necessary measures to formally and legally expand the core zone of the nominated property, to include the nesting habitat of the Philippine Eagle and other endangered species, and its buffer zone, to further enhance the integrity of the site.

The State Party is pleased to submit herewith the following documents:

- a. Small-Scale Boundary Map of the Expanded Nominated Property and Provincial Legislation Adopting the Map of the Expanded Nominated Property;
- b. Large-Scale Boundary Map of the Expanded Nominated Property; and
- c. Large-Scale Base Map of the Expanded Nominated Property.
- 3. Prepare a detailed Visitor and Tourism Management Plan as a sub-plan to the Management Plan in recognition of the potential for increasing pressure for access and higher numbers of park visitors.

The Protected Area Management Board (PAMB) of the property maintains a strict access control regime for the site, only allowing scientists access to the site, accompanied by forest rangers, for research purposes. Until a trail management plan is formulated and approved by the PAMB, this strict access control regime will be maintained.

The State Party submits herewith the following document:

a. Mount Hamiguitan Range Wildlife Sanctuary Visitor and Tourism Development and Management Plan

A Five-Year Visitor and Tourism Management Plan has been developed to define the necessary research and operational measures that have to be undertaken to establish a responsible and sustainable tourism for the nominated property. The Plan includes the development of alternative modeling sites, which could serve as interpretation site for Mount Hamiguitan in order to relieve the tourism pressure on the nominated site. It also sets forth plans for trail management and tourism services training in order to ensure that access of visitors to the park do not negatively impact its heritage values.

4. Develop and implement a research and monitoring programme to assess and adapt to the impacts of climate change on the site.

The State Party submits herewith the following document:

a. Mount Hamiguitan Range Wildlife Sanctuary Monitoring and Assessment Program for Climate Change Adaption

The Monitoring and Assessment Program is being carried out by the Technical Group for the continued socio-cultural, economic, and ecological study in Mount Hamiguitan Range, led by the Davao Oriental State College of Science and Technology. The information derived from the program is used for the maintenance of biodiversity and safeguard ecosystems. It likewise examines the trends in the ecological status of the existing ecosystems and species in the area.



United Nations Educational, Scientific and Cultural Organization

> Organisation des Nations Unies pour l'éducation, la science et la culture

World Heritage

37 COM

WHC-13/37.COM/20

Paris, 5 July 2013

Original: English / French

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE

World Heritage Committee

Thirty-seventh session Phnom Penh, Cambodia 16 - 27 June 2013

DECISIONS ADOPTED
BY THE WORLD HERITAGE COMMITTEE
AT ITS 37TH SESSION (PHNOM PENH, 2013)

e) Continue longer term plans to progressively increase the size of the nominated property with the addition of other surrounding protected areas to form an aggregated property that potentially includes the Rupi Bhabha Wildlife Sanctuary, Pin Valley National Park, Khirganga National Park and the Kanawar Wildlife Sanctuary.

Decision: 37 COM 8B.12

The World Heritage Committee,

- 1. Having examined Documents WHC-13/37.COM/8B and WHC-13/37.COM/INF.8B2;
- 2. <u>Refers</u> the nomination of **Mount Hamiguitan Range Wildlife Sanctuary**, **Philippines** back to the State Party taking note of the potential for this site to meet criteria (x), in order to allow the State Party to:
 - a) Continue the work with the National Commission for Indigenous Peoples (NCIP) to resolve any outstanding land claims to ensure there is broad based support for the nomination of the site and that any future use of the area does not compromise the Outstanding Universal Value of the site;
 - b) Implement the envisaged expansion of the site to include important nesting habitats for endangered species such as the Philippine Eagle and implement the envisaged expansion of the buffer zone in order to enhance the integrity of the site:
 - c) Prepare a detailed Visitor and Tourism Management Plan as a sub-plan to the Management Plan in recognition of the potential for increasing pressure for access and higher numbers of park visitors. Such a plan should be prepared in consultation with local communities to anticipate and plan for the impact of opening the site to increased visitation and to ensure that local people share in the benefits of future tourism use of the site;
 - d) Develop and implement a research and monitoring programme to assess and adapt to the impacts of climate change on the site;
- 3. <u>Commends</u> the State Party for having finalized the Memorandum of Understanding with the stakeholders to secure their cooperation in the management and protection of the site and <u>requests</u> the State Party to submit it to the World Heritage Centre as soon as possible.

Decision: 37 COM 8B.13

The nomination of **Cat Tien National Park**, **Viet Nam**, was withdrawn at the request of the State Party.

1.a Written expression of support for the nomination from the indigenous peoples of Macambol and Cabuaya (Mati City), and Governor Generoso

CONSENT OF THE INDIGENOUS PEOPLE'S COMMUNITY IN BARANGAY CABUAYA, CITY OF MATI

DEKLARASYON SANG PAG-UYON
DECLARATION OF CONSENT
KAMI yang mga lumad na yanaghuya ngani sang WE, the indigenous peoples residing here in
Barangay Cabuaya, Syudad ng Mati, Probinsya ng Dabaw Orpertal, Barangay Cabuaya, City of mari, Province of Davas Oriental
pyapasabot Kami bahin sang kaimportante sang programa na we were explained and made to understand the importance of the program
of having Mt. Hamiguitan renlisted as
UNESCO World Heritage Site o Banua na Panulondum sang Kalibutan.
KAMI aghatag na pag-uyon na Paglista aw Pagdeklava
Sang Bukid na Hamiguitan isip sagrads aw magpabilin na Protektado of Mt. Hamiguitan and also the Philippine Eagle Sanctuary as sacred
Sang Pukid na Hamiguitan, isip sagrads aw magpabilin na Protektado. of KH. Hamiguitan and also the Philippine Eagle Sanctuary as sacred and thus be remained protected as world Heritage Site. Ilmaan na kami na mga lideres ng Tribong Mandaya aw As Proof that we, leaders of the Mandayan and Manobo
Manobo ngani sa Cabuaya Kami yagpirma sa ubos advon Tribes of Cabuaya, agreefel the social purpose, we affix our signatures below
na al-law, Mayo 16,2013, ngani sang Barangay Cabuaya. His day, May 16, 2013, here in Barangay Cabuaya.
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EV pamaso Meca Jubiato Lynais Enel Widal Payly manuel Virgileo Victal Fectita to Feruja Castillo Janell Damaso Vienney Daway Baltagar subo . Kermelno sub SALITO MALINDOG Hermilina Sako NELJON & DAWAY Klaz nena Donato / anuman ACTENCE. CINABIA R.M Julie Onting Kyron Malmfa R an Dissold Anting MiGued Redicu RUBGNICIO Paitan Rosalino Mona Ageino P BENYINDO Victoriano MACINTAD Misuel Bagnio ERWIN Jamesto Estamelos Redun RM Maynolog Jamaima A Vidal Emalyn lacabo anabelle mosquero Bayin Roseleta R.B. noch mosquerd angelie Domaso michelle LEMVEL OLAGER Ratchel Tomme Plumet Stephony Danilar Delvis Emente ANTING

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CONSENT OF THE INDIGENOUS PEOPLE'S COMMUNITY IN BARANGAY MACAMBOL, CITY OF MATI, PROVINCE OF DAVAO ORIENTAL

PAG-UYON/DEKLARASYON PASTUGOT DECLARATION OF CONSENT KAMI yang mga lumad na yanag-huxa ngari
We, the indigenous peoples belonging to mandage tribe residing sang Barangay Macambol, Cindad ng Mati, Davas in Barangay Macambol, Mati City, Davas Oriental, pyapasabot kami bahin sang ka-importante oriental, we were explained during a consultation the importance Sang programa na paglailala sang Bukid ng of the program for the Mt. Homiguitan Harrishifan regani sang Barangay Macambal na para located here in Barangay Macambal to be ideklava na World Heritage Site o Banux na Makasaysayanan. inscribed as World Heritage Site. KAMI gahottag nang pag-uyon na Pagdeklava sang We agreed that the Said noble puripose that Bulcid ng Hamiguitan isip Sogrado o Malcasaysayanan Not. Hamiguitan ke inscribed as world Heritage Site. na Banua. TIMAAN na Kami na mga lideres ng Tribung As a proof, that we agreed the said purpose, We Mandaya rgani sa Macambol, Kami mo-pirma sa utos: leaders of Mandaya Tribe of Balangay Macambo, we affixed our. adoon is al-law, Mayo &, 2013, reganison Poursey Macande, signature below, this day, May 8, 2013 in Macandal, Noti City. MK& SIMPCICIO MENDOZA, Jr. Watroladon Litol HERACUED M. PELIZHRITA TSIDATO INTAPINOSOS ACTING TRIBAL CHEFTAIN NORMAN & MAPINOCOS TRIBAL COUNCIL MIGMBER

TRIBAL CONNCIL MACAMBOL

BRAULI OS CHENCE Tribal Council KILL A-ROLAS Marias M. custon Aurilia J. marales Cilizen Jeniou napoleon Valuté NAPOLEON VALENTIN TRIBAL MEMBER SALILED V. TOPINOSA, JR. Angelin H. Galan TSF Teibal Member Herrina za Campilar Tribas Councis A. S. 181. Gloria f. Magingor veroman menteg EDGARDO L. TANUTAN ST.
PUNONG BRGY. Go daele HONOTETTO CHEMENT

CONSENT OF THE INDIGENOUS PEOPLES' COMMUNITIES IN THE MUNICIPALITY OF GOVERNOR GENEROSO, PROVINCE OF DAVVAO ORIENTAL

PAG-UYON AW DEKLARASYON SANG PAG-UYON DECLARATION OF CONSENT KAMI yang mga lumad na yanag-huya We, the indigenous people residing ngani sa lungsod sa Governor Generoso sang here in the municipality of Governor Generoso, Probinsya sang Davao Griental, pyasabot kami Province of Davao Criental, were applied during bahin sang ka-importante sang programa na a consultation on the importance of the program of having pagkilala sang Bukid ng Hamiguitan na para Mount Hamiguitan to be malista na UNESCO World Heritage Site o Banua enscribed as UNESCO World Heritage Site. na Panulondon sang Kalibutan. Fami gahatag ng pag-uyon na Paglista aw we agreed and give our consent for the enlistment and Pagdek lara sang Bukid ng Hamiguitan isip Sagrado declaration of Mt. Hamiguitan as sacred sacred and aw magpabilin na Profektado. to remain profected as world Heritage site. TIMAAN na Kami na mga lideres ng Tribo ng As proof that we, leaders of the Mandayan and Mandaya and Manobo na ani sang lungsod na Governor Manobo tribes who are living here in Governor Generoso, Kami mopio ma sa utos adura na al'law Mayo Ceneroso, we affix our signatures below this day of May 13, 2013, haani sang Session Hall sang Sangguniang Paran 13, 2013, here in the Session Hall of the Sungguniang Bayon NG Gonernor Geneuso. GUILLERMO CI TAN

SAYLANI G. UTO-ALIM ESTIFANIA L. ARABEJO BLGY. THIBAL CHIEFTAIN BRGY. TRIBAL CHIEFTAIN BRGY MAGBUG BGRGY. C. DELA CRUZ - Che 74 CARLOS L. LAGUNA PURIFICASION P. PULY BGY. CHIEFTAIN BGY. TANDANG SOFA PSGY. CHIEFTAIN BGY. SERGIO OSMENA pond Waint New S. Nevay Brogy chieftain Brogy manuel Rosae Visitarion B. Quint Bray chreftain Bray. Poblacion Rocalina M. Pesay Bigy, chieffai Carlos I. Laguna Bigy. Tiborker BRBY Churchton - Comme Lehors L. Cenon Leliosa L. Cenon Rolando amad brgy chiestain Bray chieftain Bryx Upper Thanban pm. A-chicole Servillano T. Limbadan
Cal Bryg ChiefTaia
Bryg Tambou VILLALUZA FLORCICEIDSV Bray. Cheoflaid Bray. TIBLAWALL Teonety F. Zajanta s. Bryy Chieftain nangan

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Brayy. Hondseppaf

WHEREPO O'M MAYARO
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1.b Memorandum of Agreement between the Provincial Government of Davao Oriental, Tribal Group of Macambol (Mati City); Tribal Group of Cabuaya (Mati City), and Tribal Group of Governor Generoso (Municipality of Governor Generoso)

MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

This Agreement is made and entered into this 10th day of June 2013 at the New Capitol Building of the Provincial Capitol, by and among:

THE TRIBAL GROUP OF MACAMBOL, with address at Barangay Macambol, City of Mati, represented herein by Mangkatadung Rufino Mapinugos, the Indigenous People's Mandatory Representative (IPMR) to the Sangguniang Barangay of Macambol, known herein as the First Party,

THE TRIBAL GROUP OF CABUAYA, with address at Barangay Cabuaya, City of Mati, represented herein by Mangkatadung Rogelio Lemente, the Indigenous People's Mandatory Representative (IPMR) to the Sangguniang Panlunsod of Mati, known herein as the Second Party,

THE TRIBAL GROUP OF GOVERNOR GENEROSO, with address at Barangay Anitap, City of Mati, represented herein by Mangkatadung Guillermo Tan, the Indigenous People's Mandatory Representative (IPMR) to the Sanguniang Bayan of Governor Generoso, known herein as the Third Party,

AND

The PROVINCIAL GOVERNMENT OF DAVAO ORIENTAL, a government entity, with office address at Capitol Hill, City of Mati, represented by Provincial Governor Corazon N. Malanyaon, herein referred to as the Fourth Party;

- WITNESSETH -

WHEREAS, the First Party and the Second Party, whose members are residing outside the timberlands of the Mount Hamiguitan Range, had applied for a Certificate of Ancestral Domain Title (CADT) for an area in the Mount Hamiguitan Range, in which a total of One Thousand Nine Hundred Ninety-Six (1,996) hectares had inadvertently overlapped with the Mount Hamiguitan Range Wildlife Sanctuary (MHRWS), a protected area declared under the National Integrated Protection Area System (NIPAS), and a total of Five Thousand and Four (5,004) hectares had encroached the Philippine Eagle Sanctuary, a locally declared protected area and at the same time, an identified buffer and expansion area of the Mount Hamiguitan Range Wildlife Sanctuary (MHRWS), as can be seen in the herein attached map;

WHEREAS, the **Third Party**, whose members are generally distributed throughout the Governor Generoso Peninsula, had also applied for a Certificate

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of Ancestral Domain Title (CADT) for an area in the Mount Hamiguitan Range, in which a total of Two Thousand Four Hundred Eleven (2,411) hectares had overlapped with the Philippine Eagle Sanctuary, a locally declared protected area mentioned above, as shown in the herein attached map;

WHEREAS, being under the NIPAS, MHRWS has a Protected Area Management Plan with defined spatial utilization approved by the Protected Area Management Board (PAMB) and to consider the space for the mobility of wildlife and the necessity to maintain connectivity of habitats, the protected area's buffer zone is extended to its periphery to include the site of the declared Philippine Eagle Sanctuary;

WHEREAS, the intentions of the First Party, Second Party and the Third Party in applying for CADT in the above areas are more on the protection and conservation of Mount Hamiguitan Range in general for the tribal groups' cultural and spiritual practice and not for the extensive and commercial utilization or extraction of its natural resources, thus making their planned activity in harmony with the Protected Area Management Plan, and since nobody among their members are residing within the protected areas, the tribal groups are not threatened to be dislocated but would only be benefited in the sustainable management of the MHRWS and of the Philippine Eagle Sanctuary;

WHEREAS, during a consultation with the First Party, the Second Party, the Third Party and the Fourth Party, which was attended by the Provincial Officer of the National Commission on Indigenous People (NCIP), it was unanimously agreed that the whole MHRWS, its peripheral buffer zones including the declared Philippine Eagle Sanctuary area together with its buffer zone shall be made free of any other claims and encroachment other than the purpose of the MHRWS protection.

NOW THEREFORE, for and in consideration of the foregoing premises, the mutual covenant herein set forth, the **Parties** hereby agree and declare as follows:

1. Defined Terms

For the purpose of this Agreement, the following terms have the meaning set forth below:

- a. **Buffer Zone** shall mean the MHRWS buffer zone including the declared Philippine Eagle Sanctuary and its buffer zone.
- b. Culturally significant areas shall mean areas that are important to the history and practice of culture of the people who use or have used the place or to the descendants of such people.
- c. Ecologically/Environmentally significant areas shall mean areas whose ecological or environmental function contributes considerably to the healthy maintenance of a natural ecosystem or environmental setting within and beyond its boundaries, such as serving as a wildlife habitat of rich biodiversity, or of rare or endemic or endangered flora or fauna, as a migratory stopover or concentration point, or serving as a water storage or recharge area.

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- d. Mount Hamiguitan Range shall mean the whole mountain range of Mt. Hamiguitan, from its coastal base with its agricultural areas to the tip of the mountain and its timberland area, which include the protected area under the National Integrated Protected Area System or the Mount Hamiguitan Range Wildlife Sanctuary, the locally-declared Philippine Eagle Sanctuary, and all other areas located within the subject mountain range.
- e. **Mount Hamiguitan Range Wildlife Sanctuary** (MHRWS) means the subject NIPAS-covered protected area declared through R.A. 9303, the Mt. Hamiguitan Range Wildlife Sanctuary Act of 2004.
- f. **National Integrated Protection Areas System** (NIPAS) means the NIPAS Law of 1992, the Republic Act 7586, which is about the classification and administration of all protected areas in the country, including the buffer zones.
- g. Protected Area Management Board (PAMB) means the PAMB of MHRWS organized through the NIPAS Law.
- h. **Protected Area(s)** shall mean the MHRWS and the Philippine Eagle Sanctuary as well as all other protected areas within Mount Hamiguitan Range that might be declared in the future.
- i. *Tribal group(s)* shall mean the tribes of the First Party, the Second Party and the Third Party.

General Obligations of the Parties

- a. The Parties shall collaborate in the protection of MHRWS and in the conservation of its resources as well as in the preservation of the cultural heritage of the tribal groups.
- b. The Parties hereby agree to meet regularly at the PAMB meetings and occasionally when the need arises or as may be called by the Provincial Governor.
- 3. Obligation of the Tribal Groups (The First, the Second and the Third Party)
 - a. The Tribal Groups hereby waive, relinquish and abandon their claim over the areas that are now covered by the Buffer Zone of MHRWS, and thus exclude the said areas in their application for CADT;
 - b. The Tribal Groups shall support the protection and conservation of the MHRWS and its buffer zone by monitoring the area and making sure that there shall be no encroachment in the protected areas and no hunting of wildlife or gathering of rare and endangered flora or fauna from the said area.
 - c. The Tribal Groups who are residing in the periphery of the Protected Area shall practice livelihood activities that are compatible with and supportive to the protection and conservation of the said area;

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- d. In case of declaration of other areas as protected areas within the claimed area for CADT of the Tribal Groups in the future, the same shall be relinquished in favor of the said protected area(s).
- e. The Tribal Groups, as regular members of the PAMB through their representatives, shall report to the PAMB or to the Provincial Governor, updates of their activities in the Mt. Hamiguitan Range.
- f. In the eventual approval of the CADT application of the Tribal Groups for the areas that are outside of the Protected Areas, the succeeding Ancestral Domain Sustainable Development and Protection Plan (ADSDPP) that they shall formulate shall also consider the protection and conservation of the said protected areas.

4. Obligation of the Provincial Government

- a. Provide technical assistance and support to the Tribal Groups in the preservation of their culture and in the pursuit of sustainable livelihood in the periphery of the MHRWS.
- b. Provide guidance and technical support in the eventual preparation of the Tribal Groups ADSDPP, especially in aligning such plan to the Provincial Development and Physical Framework Plan as well as in the Protected Area Management Plan.
- c. Through the Indigenous People's representative(s) to the Sanggunians, provide other pertinent support for the Tribal Groups activities that would enhance conservation and protection of local areas that are ecologically, environmentally or culturally significant.

5. Right of Entry or Inspection

The First Party, Second Party and the Third Party hereby grant the Fourth Party or its duly authorized representative(s) the right to enter their respective CADT-applied areas in any given time, to determine that the developments introduced to those areas are compatible with the protection and conservation purposes of the adjacent protected areas.

6. Amendment

This Agreement may be amended only by a written amendment signed by the **Fourth Party** and the **Third Party**, the **Second party** as well as by the **First Party**.

7. Effectivity

This Agreement shall take effect upon the signing hereof and shall remain in full force and effect for the entire duration of the existence of the Mount Hamiguitan Range Willife Sanctuary unless sooner amended as provided above or through written agreement of all the Parties.



IN WITNESS WHEREOF, the Parties have hereto affixed their signatures on the date at the place first above written.

By:

MANGKATADUNG RUFINO MAPINUGOS
Indigenous People Mandatory Representative
Barangay Macambol, Mati City
(First Party)

By:

MANGKATADUNG ROGELIO LEMENTE
Indigenous People Mandatory Representative
City of Mati
(Second Party)

By:

MANGKATADUNG GUILLERMO TAN
Indigenous People Mandatory Representative
Municipality of Governor Generoso
(Third Party)

By:

CORAZON N. MALANYAON

Provincial Governor Province of Davao Oriental (Fourth Party)

Signed in the Presence of:

MARILYN YU MON
Provincial Officer
National Commission on
Indigenous People
Davao Oriental

Provincial Planning and
Development Coordinator
Provincial Government
Davao Oriental

ACKNOWLEDGEMENT

REPUBL	IC OF	THEF	PHILIPPINE	S)
MATI	CITY.	DAVAD	OKIENTAL	_) S.S

BEFORE ME, a Notary Pub this <u>/vt</u> day of June 2013 at appeared:		D BRIEN PM	personally
Name	CTC No.	Issued On	Issued At
1. RUFINO MAPINUGOS	72082941	2/14/2013	City of Mati
2. ROGELIO LEMENTE	32060580	1/16/2013	city of Mati
3. GUILLERMO TAN	32126776	04/12/13	GOV. GENERUS
4. HON CORAZON N. MALANYA	ON 31313907	01/07/13	CATEEL

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledged to me that the same is their free and voluntary act ad deed and of the offices they represent.

This instrument consisting of six (6) pages, including this page, refers to the Memorandum of Agreement among the Tribal Group Represented by Rufino Mapinugos, the Tribal Group Represented by Rogelio Lemente, the Tribal Group Represented by Guillermo Tan, and the Provincial Government of Davao Oriental Represented by Hon. Governor Corazon N. Malanyaon, and has been signed by the parties and their witnesses on each and every page thereof.

IN WITNESS WHEREOF, I hereby affix my signature and notarial seal on the date and at the place above written.

EDILBERTO M. MACAYRA
NOTARY PUBLIC
UNTIL DEG/31, 2013
ROA NO. 26717
IBP LM NO. 07742
PTR NO. 4772048 JAN. 8, 2013
FAGANGA, DAVAD OR

NOTARY PUBLIC

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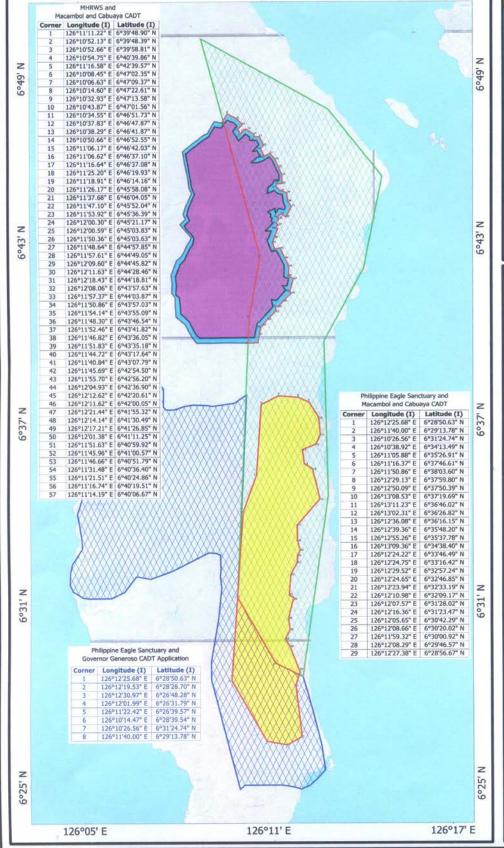
BOUNDARY MAP OF

MOUNT HAMIGUITAN RANGE AND WILDLIFE SANCTUARY

SHOWING THE

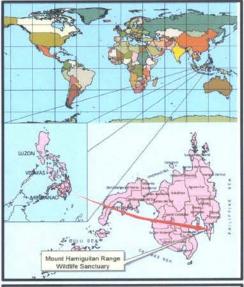
PROPOSED WILDLIFE SANCTUARY / KEY BIODIVERSITY AREA AND OVERLAPPING CADC APPLICATION AND APPROVED CADT

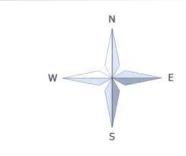
126°17' E



126°11' E

126°05' E





LOCATED IN THE :
MUNICIPALITIES OF SAN ISIDRO,
GOVERNOR GENEROSO & CITY OF MATI
PROVINCE OF DAVAO ORIENTAL

OVERLAPPING AREA

Macambol and Cabuaya CADT		
MHRWS		1,996 Hectares
Philippine Eagle Sanctuary	=	5,004 Hectares
Total area covered	=	7,000 Hectares
Governor Generoso CADT Application		

Philippine Eagle Sanctuary = 2,411 Hectares

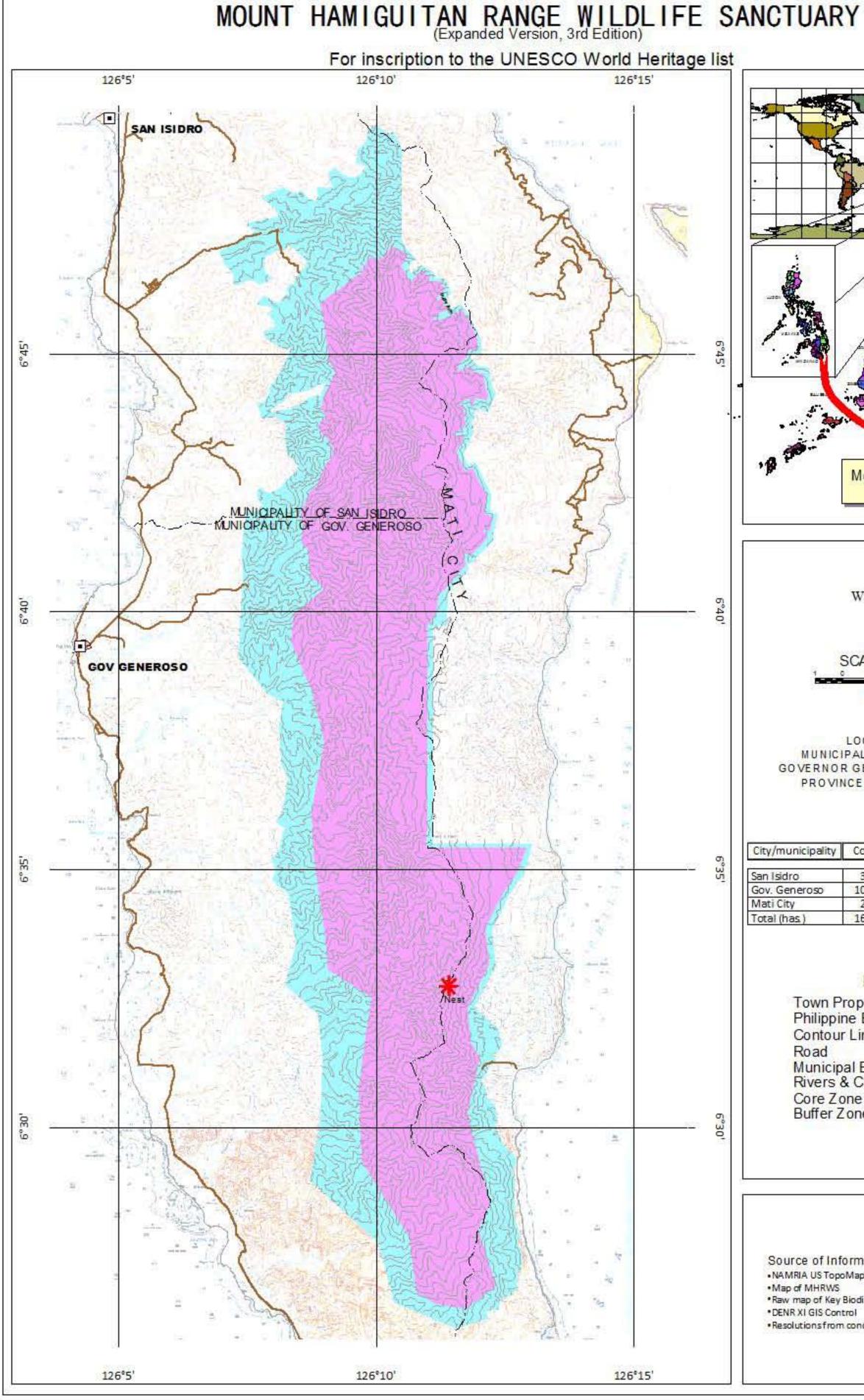
TOTAL = 9,411 Hectares

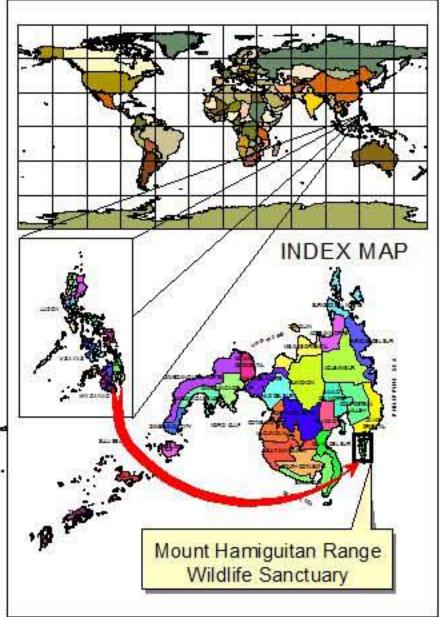
LEGEND

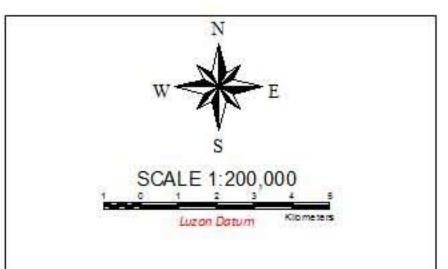
MHRWS Core Zone / Nominated Property
MHRWS Buffer Zone
Philippine Eagle Sanctuary
Governor Generoso Application for CADT
Macambol and Cabuaya CADT
Boundary of Overlapping Area

2.a	Small-Scale Boundary Map of the Expanded Nominated Property and Provincial Legislation Adopting the Map of the Expanded Nominated Property

BOUNDARY MAP







LOCATED IN THE: MUNICIPALITIES OF SAN ISIDRO, GOVERNOR GENEROSO & CITY OF MATI PROVINCE OF DAVAO ORIENTAL

AREA

City/municipality	Corezone	Burrer zone	Total(nas.
San Isidro	3,782.94	3,331.24	7,114.18
Gov. Generoso	10,407.11	4,795.13	15,202.24
Mati City	2,733.02	1,603.10	4,336.12
Total (has.)	16,923.07	9,729.47	26,652.54

LEGEND

Town Proper Philippine Eagle's Nest Contour Line Road Municipal Boundary Rivers & Creeks Core Zone (Nominated Area) Buffer Zone



Source of Information:

- •NAMRIA US TopoMap Sheet Nos. 4240-II & III & 4239-III & IV
- ·Map of MHRWS
- *Raw map of Key Biodiversity Area/Critical Habitat
- *DENR XI GIS Control
- Resolutions from concerned SB & SP Local Government Units



Republic of the Philippines Province of Davao Oriental

OFFICE OF THE SANGGUNIANG PANLALAWIGAN





EXCERPTS FROM THE MINUTES OF THE 13TH REGULAR SESSION OF THE 14TH SANGGUNIANG PANLALAWIGAN OF DAVAO ORIENTAL, HELD ON TUESDAY, SEPTEMBER 24, 2013 AT MATI CITY, THIS PROVINCE.

PRESENT:

Hon. Niño Sotero L. Uy, Jr.

Acting Vice Governor - Acting Presiding Officer

Regular Sangguniang Panlalawigan Members:

District I

District II

Hon. Mario Jose T. Palma Gil

Hon. Anna Louise R. Tambilawan

Hon. Joselito B. Villademosa

Hon. Dante M. Caubang

Hon. Dennis V. Roflo, Jr.

Hon. Daud V. Linsag

Hon. Anacleto P. Macatabog

Hon. Louis N. Rabat

Ex-Officio Members:

Hon. Laureano B. Taya

President, Liga ng mga Barangay Davao Oriental Chapter

Hon. Vai Shakeena T. Tambuang

Sangguniang Kabataan Federation President

Davao Oriental Chapter

Hon. Charlie S. Ambasan Indigenous Peoples (IPs) Representative

ON OFFICIAL BUSINESS:

Hon. Joel Mayo Z. Almario

Hon. Ronald V. Lara

Hon. Andresito S. Burgos

Vice Governor

SP Member - District I

President, Prov'l. Councilors' League

Davao Oriental Chapter

ABSENT: None.

RESOLUTION NO. 14-241-2013

Authored by: Hon. Mario Jose T. Palma Gil Sponsored by: Hon. Mario Jose T. Palma Gil

A RESOLUTION ADOPTING THE EXTENDED CORE ZONE OF MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY (MHRWS) TO INCLUDE THE SITE OF THE DECLARED PHILIPPINE EAGLE SANCTUARY IN BARANGAYS CABUAYA AND LUBAN OF THE CITY OF MATI, AND THE EXTENDED BUFFER ZONE TOWARDS THE MUNICIPALITIES OF GOVERNOR GENEROSO AND SAN ISIDRO, ALL IN THE PROVINCE OF DAVAO ORIENTAL FOR THE INSCRIPTION AS UNESCO WORLD HERITAGE SITE.

WHEREAS, Resolution No. 13-16-2013 of this Sangguniang Panlalawigan requests the Department of Environment and Natural Resources, Region XI (DENR-XI) to conduct an assessment for the possible extension of the buffer zone of MHRWS to include the Philippine Eagle habitat in the same mountain range;

WHEREAS, Regional Executive Director Joselin Marcus F. Fragada of DENR-XI approved a map of proposed buffer zone expansion of 9,242.36 hectares located in the municipalities of San Isidro and Governor Generoso, respectively; and a proposed Wildlife Sanctuary/Key Biodiversity Area expansion of 7,466.95 hectares which covers the declared Philippine Eagle Sanctuary in Barangays Luban and Cabuaya of Mati City, together with a connectivity area between the two sanctuaries-the MRHWS and the Philippine eagle;

WHEREAS, considering that MHRWS as declared through R.A. 9303 is a protected area being a wildlife sanctuary, and that the proposed expansion area for key biodiversity in the above-mentioned map is also as wildlife sanctuary specifically for Philippine Eagle, a globally recognized iconic endangered species of wildlife endemic to the Philippines, in line with the integrated protection of wildlife and biodiversity through clustering and networking of protected areas and in line with the recommendation of the World Heritage Committee in Phnom Penh 2013, it is but prudent to combine the two wildlife sanctuaries as one core zone of Mt. Hamiguitan Range Wildlife Sanctuary in order to enhance the integrity and protection of the site, which is being nominated as UNESCO World Heritage Site;

WHEREFORE, on motion of SP Member Mario Jose T. Palma Gil, duly and jointly seconded by SP Members Laureano B. Taya, Dennis V. Roflo, Jr., Daud V. Linsag and Dante M. Caubang, it was

RESOLVED, as it is hereby resolved, adopting the extended core of zone Mount Hamiguitan Range Wildlife Sanctuary (MHRWS) to include the site of the declared Philippine Eagle Sanctuary in Barangays Cabuaya and Luban of the City of Mati, and the extended buffer zone towards the Municipalities of Governor Generoso and San Isidro, all in the Province of Davao Oriental for the inscription as UNESCO World Heritage Site;

RESOLVED FINALLY, That copies of this resolution be furnished: The Provincial Environment and Natural Resources Officer (DENR-PENRO); and the National Commission of the Republic of the Philippines for UNESCO, for their information and guidance;

CARRIED, Unanimously.

I hereby certify to the correctness of the foregoing resolution.

NIÑO SOTERO L. UY, JR.
Acting Vice Governor
Acting Presiding Officer

ATTESTED:

DR. ADRIATICO P. MANLAPAZ, JR. Provincial Government Department Head Secretary to the Sanggunian

APPROVED:

CORAZON N. MALAN Governor

Approved and signed by the Provincial Governor on SEPTEMBER 25, 2013


Large-Scale Boundary Map of the Expanded Nominated Property

2.b

BOUNDARY MAP MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY (Expanded Version, 3rd Edition) For inscription to the UNESCO World Heritage list Mount Hamiguitan Range Wildlife Sanctuary MUNICIPALITY OF SAN ISIDRO MUNICIPALITY OF GOV. GENEROSO Core Zone SCALE 1:50,000 A&D MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY LOCATED IN THE: MUNICIPALITIES OF SAN ISIDRO, GOVERNOR GENEROSO & CITY OF MATI PROVINCE OF DAVAO ORIENTAL Lilisan Point AREA Total(has.) City/municipality **Buffer zone** Core zone Tambalan Poin San Isidro 3,782.94 3,331.24 7,114.18 10,407.11 15,202.24 4,795.13 Gov. Generoso Mati City 4,336.12 1,603.10 2,733.02 Total (has.) 26,652.54 16,923.07 9,729.47 oo<mark>₩</mark> NEST LEGEND Town Proper Barangay Proper Philippine Eagle's Nest Contour Line Road Municipal Boundary Rivers & Creeks Core Zone (Nominated Area) Buffer Zone A&D Core Zone Buffer Zone 70 corel and rocky coral and rocky A&D Source of Information: • NAMRIA US TopoMap Sheet Nos. 4240-II & III & 4239-III & IV A&D Map of MHRWS • Raw map of Key Biodiversity Area/Critical Habitat DENR XI GIS Control • Resolutions from concerned SB & SP of Local Government Units 126°10' 126°5' 126°15'

Large-Scale Base Map of the Expanded Nominated Property

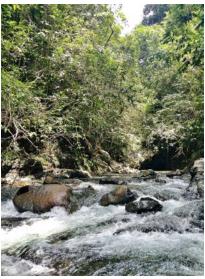
2.c



Mount Hamiguitan Range Wildlife Sanctuary Visitor and Tourism Development and Management Plan 3.a

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY VISITOR AND TOURISM DEVELOPMENT AND MANAGEMENT PLAN





PROVINCE OF DAVAO ORIENTAL
2013

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I. TOURISM ANALYSIS

Tourism analysis involves the study of the current tourism situation of the site, the province, the region, and the country. This is done to see more clearly the relationships of attractions (in this case, within and in the vicinity of Mt. Hamiguitan), the tourism service areas, and the regional and national gateways. By identifying these, appropriate development and management prescriptions may be formulated to properly address the need to for guidance in developing and managing tourism with Mt. Hamiguitan as a major component, either as a directly utilized tourism destination or a catalyst for tourism in the province of Davao Oriental and the region.

Like the UNESCO World Heritage site, Tubbataha Reefs Natural Park which harbors high marine biodiversity, Mt. Hamiguitan Range Wildlife Sanctuary's biodiversity is also worthy of the level of attention and protection, and consequently, tourism interest. It is in this regard that an appropriate tourism development plan centered on protection would have to be formulated and properly address the effective management of the site for tourism.

The Tourism Analysis identifies various components of the tourism industry, particularly the travel market and the tourism products within and outside of the protected area.

A. Tourism Products Study

1. Mt. Hamiguitan

As an area with outstanding universal value, Mt. Hamiguitan possesses numerous natural features that can easily qualify it as a high-value nature tourism destination. These include the following:

Tourism Product	Description
Pygmy Forest	It is a 1,234-hectare century-old natural pygmy forest situated at around 1,200 ft. above sea level. The mossy-pygmy forest is one of the most revered features of Mt. Hamiguitan.
Tinagong Dagat	Tinagong Dagat is the only lake found inside Mt. Hamiguitan. The dried upper shelf of the lake serves as a campsite for climbers.

Endemic Plant Species	171 plant species found in Mt. Hamiguitan are endemic to the Philippines. 3 of which are nepenthes species only found in the site. Several species that are still unstudied and unnamed are still found in the mountain.	
Endemic Animal Species	124 animal species are found in Mt. Hamiguitan are endemic to the Philippines. Included in the list are the critically endangered Philippine Eagle and Philippine Cockatoo. 5 species are endemic only to Mt. Hamiguitan which includes 4 butterfly and 1 rodent species.	
Philippine Eagle	The Philippine eagle is one of the most endangered species and a flagship icon for conservation. They were found to have been breeding in the dipterocarp forest of Mt. Hamiguitan.	
Waterfalls	Twin falls and Dimagook Falls are two of the waterfalls that are already being utilized as ecotourism sites for visitors.	
High biodiversity	Mt. Hamiguitan is home to 1,380 plant and animal species, 8 of which are endemic only to the site.	
Ecosystems	 5 ecosystems were identified in Mt. Hamiguitan, each housing different endemic species at each level. 1. Agro-Ecosystem formation A remnant of a dipterocarp forest, floral species still abound the area with 246 plant species, 44 of which are endemic to the Philippines. 2. Dipterocarp forest With 146 identified species in the area, all animal groups found in Mt. Hamiguitan are represented in the dipterocarp forest. Somewhere in this area was where the Philippine eagle was spotted nesting. 3. Montane forest All animal groups are represented in this area, but of a lower number than that in the dipterocarp forest. A total of 462 plant species were 	

recorded in this area. The montane forest has the most number of endemic species among the five ecosystems.
Mossy forest
 Part of the Mt. Hamiguitan with the least number of animals.
Mossy-pygmy forest
 At the topmost of the mountain
range, it has a total of 338 plant
species

Table 1 Tourism products in Mt. Hamiguitan

As such, various nature tourism activities can be developed in the area. These include:

Activity	Remarks	
Trekking and Camping	Mt. Hamiguitan was closed to the public in 2004 upon the declaration of the site as a protected area. However, a number of researchers and permitted climbers were allowed for research and documentation purposes.	
	There are three established trails: 1. Brgy. Osmena, Governor Generoso 2. La Union, San Isidro 3. Magum, Mati City	
	There are also seven established campsites in Mt. Hamiguitan: 1. Camp Jabbar 2. TinagongDagat 3. Helipad 4. Camp 3 5. Balongga 6. Tamama 7. Camp 4	
Nature Tour	Mt. Hamiguitan is regarded as one of the areas in the world with the highest biodiversity, with species that are some of the highest conservation status. According to initial studies, the number of endemic species increases as the elevation increases.	

Birdwatching	108 species of birds are identified in Mt. Hamiguitan which includes the critically endangered Philippine eagle and the Philippine cockatoo.
Butterfly watching	There are a total of 142 identified species of butterflies. 44 species are endemic to the Philippines, 4 of which are endemic to Mt. Hamiguitan. The rarest of them, Deliasmagsadana, can only be found in the moss-pygmy forest.

Table 2 Tourism activities in Mt. Hamiguitan

2. Periphery of Mt. Hamiguitan

Natural attractions abound within the periphery of Mt. Hamiguitan that can cater to different types of tourists interested in adventure and culture. (Table 3)

Tourist Attraction	Description
1. Beaches/Islands	Dahican Beach in Mati City is best known to be a surfing and skimboarding destination. Nearby Waniban, Ivy, Tibanban and Pujada islands are white sand beaches good for swimming and snorkeling. Governor Generoso offers white sand beaches as well like Sigaboy Island, Bakbak and Tulob beaches. Parola Beach is known for its pink sand.
2. Viewing Decks - Sleeping Dinosaur Deck - Pujada Bay - Monserrat Scenic View - Cape San Agustin	The Sleeping Dinosaur in Mati City greets the tourists as they enter Mati City border. It is a peninsula in the shape of an Apatosaurus (or Brontosaurus, as interpreted by others). Pujada Bay in Mati City is where one can watch the sun rises first, 3 minutes ahead of time anywhere else in the Philippines. The seascape is also a protected area. There were reported sightings of dolphins, sharks, rays and dugongs in the bay as well. The Monserrat Scenic View in Governor Generoso offers a majestic view of the Davao Gulf.
	Cape San Agustin is located at the

	southernmost tip between Mati City and Governor Generoso offers scenic views of Davao Gulf and Celebes Sea. There stand 3 lighthouses, and stunning rock formations also abound the area. One, which locals call The Altar, is believed to be where St. Francis Xavier celebrated his first mass in the Philippines. It is also the jump off point to Parola Beach.
3. Dive Sites - Sigaboy Reef Caves - San Agustin Reef - Tagabebe Wall	These 3 dive sites are among those listed with high marine biodiversity. There are reported sightings of dugongs as well. Scuba dive centers should be established to allow full-blown diving tourism in the region.
4. Philippine Eagle Sanctuary	The Philippine Eagle Santuary in Mati City is the first in the Philippines. It covers 7,000 hectares of lush tropical forest.
5. Waterfalls - Putting Bato Falls - Cagamisan Falls - Dimagook Falls - Sugnoyan Falls - Cawa-Cawa Falls	Putting Bato is located in Mati; Cagamisan, Dimagook and Sugnoyan in Governor Generoso; Cawa-Cawa in San Isidro. Can be utilized for trekking and educational tours.
6. Menzi Citrus Plantation	Rented by DOLE Philippines, they produce fresh, quality fruits such as mangoes, banana and pomelo. Currently being utilized for agritourism.
7. Buso Hot Spring	Located 30 minutes away from MatiPoblacion. There exists cottages and tourists can dip to relax.
8. Natural Science Museum	Located in Mati City. With the huge skeleton of a Sperm Whale (7 th largest in the world) as the centerpiece of the museum, this could attract large numbers of visitors and increase the total nature tourism value of the province.

Table 3 Tourist attractions surrounding Mt. Hamiguitan

B. Market Study

1. Demand Analysis

a. National Tourism Market Trends

Visitor arrivals to the Philippines in 2012 reached around 4.3 million, a 9% increase from the previous year, but failed to achieve the 4.6 million target set by the Department of Tourism. Despite missing its target for 2012, the industry has a positive outlook since the last three years have posed an increasing trend in visitor arrivals as shown in Figure 1. With the increasing trend and the continuing development of the tourism industry, it has become of vital importance to the economy contributing 5% of GDP and 12% of the total employment in the country in 2012.

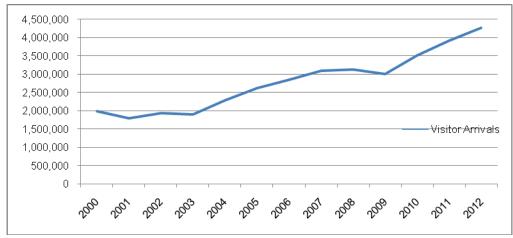


Figure 1. International arrivals in the Philippines 2000-2012 Source: Department of Tourism

Leading the source markets are Korea, followed by US, Japan and China. Largest leap in growth in the top segments was the Malaysian market. The table below shows the top 10 source markets for 2011 and 2012.

Top 10 Source Markets in 2011 and 2012				
Rank	Country	2011	2012	Growth Rate
1	Korea	925,204	1,031,155	11%
2	USA	624,527	652,626	4%
3	Japan	375,496	412,474	10%
4	China	243,137	250,883	3%
5	Taiwan	181,738	216,511	19%
6	Australia	170,736	191,150	12%
7	Singapore	137,802	148,215	8%
8	Canada	117,423	123,699	5%
9	Hong Kong	112,106	118,666	6%
10	Malaysia	91,752	114,513	25%

Table 4. Top 10 source markets in 2011 and 2012 Source: Department of Tourism

Most of the visitors (56%) came to the Philippines for a holiday. 10% were in the country for business purposes, and 3% said they were in the country to visit friends and relatives. (Table 5)

Purpose of Travel		
Holiday	55.79%	
Business	10.22%	
Visit Friends / Relatives	3.47%	
Convention	1.08%	
Health / Medical Reason	0.20%	
Official Mission	0.06%	
Incentives	0.00%	
Others	4.01%	
Not Stated	24.82%	

Table5. Purpose of travel of international visitors Source: Department of Tourism

The average daily expenditure is rebounding since 2009 from its decline from \$102.90 in 2000 to \$74.49 in 2008. From 2008 to 2012, the average daily expenditure has grown 4% from \$74.49 to \$92.99. (Figure 2)

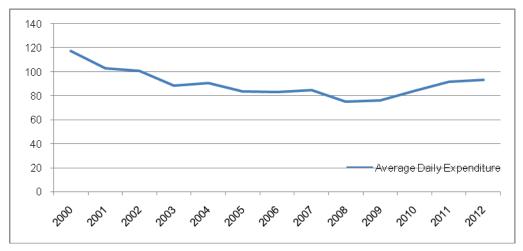


Figure 2. Foreign tourists' average daily expenditure Source: Department of Tourism

Average length of stay peaked in 2007 at 16.7 days, and dropped to 8.01 days in 2010. There was a minute increase in 2011 to 8.04 days and leapt to 9.61 days in 2012. (Figure 3)

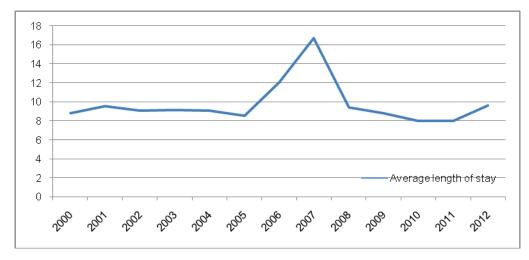


Figure 3. Foreign tourists' average length of stay Source: Department of Tourism

Most regions exemplified growth in terms of visitor arrivals. Slight decrease in arrivals from 2006 to 2011 was observed in Regions IV, IX, and Cordillera Administrative Region. Despite a slight decrease in arrivals, Region IV was still the most visited region in the country. Except for the National Capital Region, biggest growth was observed in Region V with a CAGR at 39.89% followed by Region III with a CAGR at 33.29%. Table 6 shows visitor arrivals per region while figure 4 shows the distribution of regional travellers.

Arrivals per Region	2006	2011	CAGR
NCR	359,453	2,727,457	49.98%
CAR	992,920	955,133	-0.77%
Region I	336,161	510,023	8.69%
Region II	635,168	719,425	2.52%
Region III	408,236	1,717,327	33.29%
Region IV	6,294,411	6,280,995	-0.04%
Region V	637,127	3,413,610	39.89%
Region VI	1,610,677	2,453,691	8.78%
Region VII	1,631,445	2,610,757	9.86%
Region VIII	203,569	365,469	12.42%
Region IX	507,359	453,711	-2.21%
Region X	893,082	1,709,752	13.87%
Region XI	761,183	956,864	4.68%
Region XII	627,126	682,466	1.71%
Region XIII	362,836	676,337	13.26%
Total	16,260,753	26,233,017	10.04%

Table 6. Visitor arrivals per region (includes foreign and domestic travelers)
Source: Department of Tourism

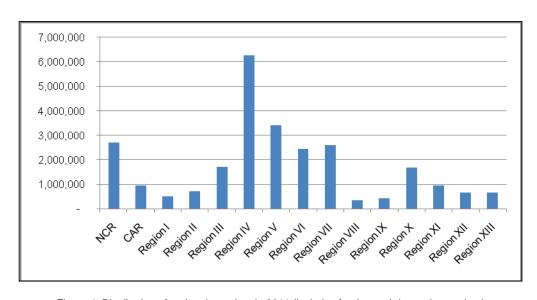


Figure 4. Distribution of regional travelers in 2011 (includes foreign and domestic travelers)

Source: Department of Tourism

The domestic market is an important segment of the Philippine tourism industry. There were more than 21 million domestic tourists in 2011 with total expenditures amounting to almost P10 B. From 2000 to 2011, there was an 8.98% growth in domestic tourists and a 14.03% growth for total expenditure. Figure 5 shows the growth of domestic tourism in the country.

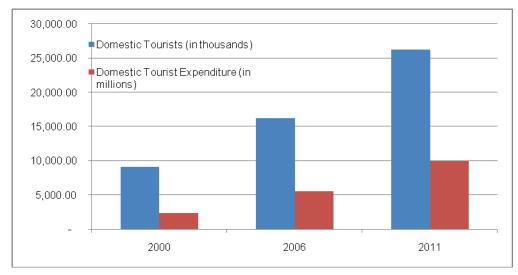


Figure 5. Domestic tourist numbers and expenditure 2000, 2006, 2011 Source: National Statistical Coordination Board

A Household Survey on Domestic Visitors was conducted by the Department of Tourism and the National Statistics Office in 2010 to measure domestic tourist volume, identify their travel characteristics and patterns, and estimate their contribution to the economy. For the period of April to September 2010, there were about 23.1 million Filipinos who travelled within the country, a 36.6% of the estimated population of 15 years old and over. 53% of the domestic travellers were ages 15-24. On average, domestic travellers have 2 trips, with 2 places being visited. 98.6% of the domestic travellers arrange their own trips.

Source markets of domestic travellers were Metro Manila, Cebu, Davao, and other major regional cities. The list of top destinations for domestic travellers whose purpose of trip is for pleasure or vacation is presented below:

Top Destinations	Total Domestic Travelers (in thousands)	Travelers whose main purpose of trip is for pleasure or vacation (in thousands)	%
NCR	7,124	3,401	48%
Cavite	1,680	914	54%
Negros Occidental	1,711	855	50%
Laguna	1,523	737	48%
Pangasinan	1,393	712	51%
Cebu	1,493	672	45%
Batangas	1,427	641	45%
_T Nueva Ecija	1,331	639	48%
^a Bulacan b	1,416	623	44%
Pampanga	1,096	584	53%
e Iliolo	1,011	504	50%
⁷ Quezon	1,091	497	46%
Lanao del Norte	745	457	61%
o Leyte	1,024	443	43%
p Benguet	695	390	56%
^d Rizal	834	374	45%
^S Misamis oriental	806	335	42%
t i Albay	810	288	36%
n a Davao del Sur	730	282	39%
t Camarines Sur	690	232	34%

ons of travelers whose main purpose of trip is for pleasure or vacation Source: 2010 Household Survey on Domestic Visitors, NSO and DOT

More than half of the domestic travelers traveled for pleasure or vacation. Table 5 shows the detailed summary of main purpose of travel of domestic travellers.

Main Purpose of Travel	%
Visit friends or relatives/ Attend Family gatherings	36.90%
Pleasure/Vacation	53.30%
Business/Profession	6.20%
MICE	2.20%
Study/Training/Exchange Program	1.70%
Official Government Mission	0.50%
Medical/Health Reason	4.40%
Religion/Pilgrimage	6.00%
Others	14.70%

Table 8 Survey participants were allowed to choose more than one Source: 2010 Household Survey on Domestic Visitors, DOT and NSO

b. Regional and Provincial Tourism Market Trends (Davao Region and Davao Oriental)

From 2004 to 2011, Region XI maintained stable but moderate growth in tourist arrivals. 2012 saw a sharp 65% increase in visitor arrivals from 956,864 in 2011 to some 1.6 million¹ in 2012. (Figure 6) The sharp increase in arrivals was attributed to the increase of airline services and new hotels in the region. On average, 93% of the tourists in the region are domestic travelers. Davao City remains to be the most frequently visited in the region. (Figure 7)

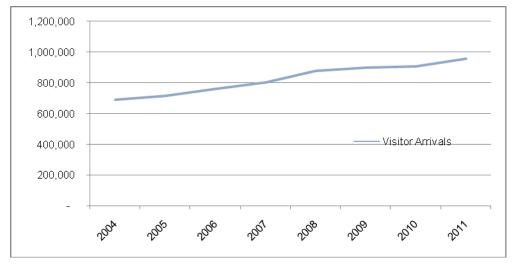


Figure 6. Visitor arrivals of Region XI from 2004-2011 Source: Department of Tourism

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¹Interaksyon, August 22, 2013.

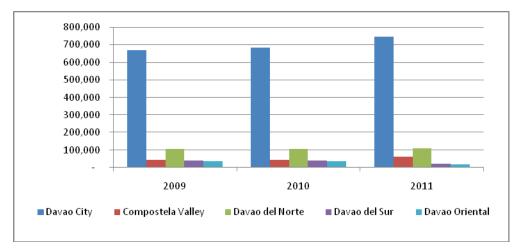


Figure 7. Distribution of travelers by province (2009-2012) Source: Department of Tourism Region

Despite a slight decrease in arrivals from 2010 to 2011, USA remains to be the top foreign market of the region. An 8.6% and 6.44% increase was observed for the Australian and Chinese arrivals respectively, and the biggest decrease in arrivals were from Germany and Hong Kong at -22.66% and -10.07% respectively. (Table 9)

	Country of Residence	2010	2011	Growth Rate
	USA	14,274	14,228	-0.32%
	Japan	11,550	11,584	0.29%
	Korea	5,841	5,321	-8.90%
Т	China	3,091	3,219	4.14%
a b	Australia	2,582	2,804	8.60%
Ĭ	Canada	1,491	1,587	6.44%
е	Hong Kong	1,469	1,321	-10.07%
8	Singapore	1,142	1,088	-4.73%
•	Germany	1,068	826	-22.66%
R	United Kingdom	864	912	5.56%
e g	Others	6,198	5,746	-7.29%
ĭ	Total	49,570	48,636	-7.29%

n XI visitor arrivals by country of residence 2010 and 2011 Source: Department of Tourism On average, Davao Oriental receives around 3% of the tourist volumes in the region. Contrary to the increasing trend of foreign and domestic trends in the country, Davao Oriental's tourist arrivals have been declining. There was a 55% decrease of tourist arrivals from 2010 to 2011 (Table 10). The inactivity of the reporting system during the period due to the appointment of new Tourism Officers in the Province and Municipalities had caused the dip in the statistical reporting for the year 2011.

	Foreign			Domestic	;		Total	
	Arrival	Growth Rate		Arrival	Growth Rate		Arrival	Growth Rate
2009	763		2009	36,966		2009	37,729	
2010	741	-3%	2010	36,843	-0.33%	2010	37,584	-0.38%
2011	305	-59%	2011	16,775	-54.47%	2011	17,080	-55%

Table 9. Davao Oriental visitor arrivals 2009-2011 Source: Department of Tourism

A survey was conducted in 2009 to evaluate the tourist profile of Davao Oriental. A total of 505 participants from 25 accommodation facilities answered the survey. 94% of the respondents were domestic tourists, and 6% were foreigners. Travel characteristics are summarized in Table 11:

	Average Length of	f Stay	
	Male	Female	
1-2 days	61%	58%	
3-6 days	22%	17%	
> 1 week	17%	25%	
	Purpose of Trav	vel	
Business		36%	
Vacation		30%	
Visit F/R	19%		
Seminar	11%		
2nd home	2%		
Festival	2%		
	Attraction Liked I	Most	
Beaches		45%	
Natural Beau	eauty 32%		
Adventure	re 15%		
Food Expense	enses 5%		
Shopping Ma	lls	3%	

Travelers' Companion				
	Male	Female		
Alone	32%	26%		
1 Adult/Child	12%	12%		
2 or more Adults	45%	40%		
Family	11%	22%		
	Average Spending by	/ Gender		
	Male	Female		
< P 1000	18%	16%		
P 1000 - P 3000	42%	38%		
P 4000 - P 6000	14%	23%		
P 7000 - P 10000	6%	8%		
> P 10000	20%	15%		
	Source of Informa	ation		
Friends		49%		
Business		34%		
Internet		5%		
Ads		4%		
Magazines		3%		
Brochures		2%		
Media	Media			
Exhibits		1%		

Table 11. Travel characteristics of tourists in Davao Oriental in 2009 Source: Department of Tourism

c. National Tourism Development Plan Forecast

The National Tourism Development Plan for 2011-2016 envisioned the Philippines "to become the must experience destination in Asia." It aims to have 10 million visitor arrivals and 35.5 million domestic travelers by 2016. (Figure 8).

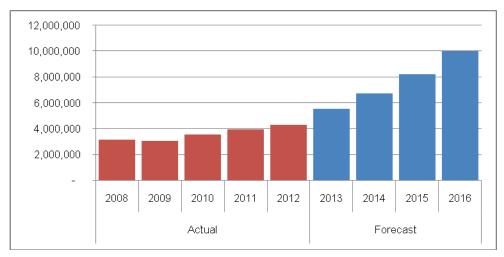


Figure 8 International arrivals 2008-2016 Source: Department of Tourism

To achieve the 10 million international arrivals, the Department of Tourism has identified three market segments on which the marketing efforts shall be placed on. The market segments are:

Key markets (large existing market share) – South Korea, USA, and Japan; Strategic markets (moderate existing market share) – Singapore, Malaysia, Australia, Canada, Taiwan and Hong Kong; Opportunity or niche markets (small existing market share) – India, Scandinavia, Russia, Germany and UK.

The department also identified priority cluster destinations for tourism development. They were: 1. Central Visayas, 2. Metro manila and CALABARZON, 3. Central Luzon, 4. Palawan, 5. Western Visayas, 6. Davao Gulf and Coast, 7. Northern Mindanao, 8. Bicol, and 9. Laoag-Vigan. According to the NTDP for 2011-2016, the Davao cluster would have reached 401,381 foreign tourist arrivals, a 4.01% share of the 10,000,000 target.

In addition to being part of the Davao Gulf and Coast cluster, Davao Oriental has been declared a tourism development area through RA 10560, signed by President Benigno S. Aquino III on May 17, 2013. Backed by strong support through national tourism and environmental policies, tourism in Davao Oriental is expected to prosper.

2. Tourism Service Analysis

The only operational airport in the region is the Francisco Bangoy International Airport in Davao City which serves as the main gateway for tourists outside Mindanao. It caters flights to and from Manila, Cebu, Butuan, Cagayan de Oro, Dipolog, Ililo, Kalibo, Puerto Princesa and Zamboanga. The Sasa Port is the main sea port that accommodates passengers via shipping lines and roll on roll off services. In 2009, more than half of the tourists entered and exited Region XI by land transportation, while 23% of the tourists entered and exited the region via air. (Table 11)

	Entry Point	Exit Point
Airport	23%	23%
Sasa Port	11%	12%
Bus Terminal	62%	63%
Personal	3%	3%

Table 11. Visitor arrivals by their entry and exit points Source: Department of Tourism

Davao Oriental is a three-hour long drive from Davao City with regular bus trips scheduled from Davao City to Mati City. There is a defunct airport in Mati City with a 5,344-foot runway. The local government has been in talks with the Civil Aviation Authority of the Philippines for plans of revival, however, no final plans have been agreed upon.

Most hotels and resorts are located in Mati City, while San Isidro houses the most homestay programs of the three locations covered by Mt. Hamiguitan. Governor Generoso on the other hand has the least number of accommodation facilities. Table 13shows the LGU-accredited accommodation facilities.

	Gov. Generoso	Mati	San Isidro	Total
Hotel/Inns/Loding Houses	3	17	2	22
Homestay	-	1	38	39
Resort	1	8	-	9
Total	4	26	40	70

Table 12. Accommodation facilities in Gov. Generoso, Mati City and San Isidro Source: Provincial Office of Davao Oriental

II. SWOT ANALYSIS

Davao Oriental has a good number of natural tourism sites that can easily stand on their own as compelling products (e.g. Dahican Beach) and attract their own travel markets. MHRWS can easily be made into a tourism icon and effectively supported by other tourism products in the province.

The realities of low tourism awareness and visitation, plus other challenges with focus on the length of time required to travel from the regional gateway, Davao City to Davao Oriental is expected to be a weakness of the province. However, the continuously growing and diversifying tourism market can pose an opportunity to effectively tap the tourism products for the province and develop a good and increasing amount of tourists to Davao Oriental. The usual environmental threats such as climate change and resource use conflict with mining shall continue to be a threat for optimal tourism development in the area. Peace and order plus personal security may also decide to form a larger tourism impacts to the site and the three municipalities.

Strengths

- Underdeveloped tourism resources and pristine natural places
- Diverse ecotourism products

Weaknesses

- Low investment in tourism facilities
- Long travel time from major tourism service area and regional gateway (Davao City)
- Inadequate sea connectivity
- Absence of air connectivity

Opportunities

- Growing domestic and foreign market
- Strong support of national tourism policies
- Priority funds for tourism development

Threats

- Possible resource conflict with mining (need to come up with a resolution to avert said conflict)
- Continuing perception on safety and security on Mindanao as a whole
- Impacts of climate change (i.e. extreme weather conditions)

III. TOURISM FRAMEWORK

Environmental and ecosystem services protection shall be the primary objectives in the development of the tourism development and management plan for Mt. Hamiguitan Range Wildlife Sanctuary. Tourism shall be considered as a tool to create an effective visitor flow management and highly-controlled development programs both within, but largely outside of the core zone of the protected area.

Aside from controlling tourism and the potential impacts it can bring, it also has to be highly regarded as a possible contributor to the socio-economic development of the province, as well as improving environmental awareness to both visitors and communities in the area.

As the flagship provincial icon for tourism and with proper management prescriptions followed by the site managers and stakeholders, Figure 1 below shows that no matter how large the visitors go to Davao Oriental, impacts can be prevented or easily mitigated and at the same time, the socio-economic contribution as well as increased environmental awareness can be achieved by redirecting visitor traffic to other sites within the province

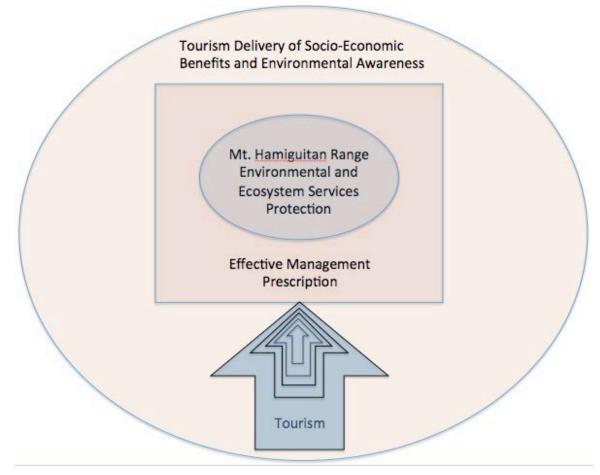


Figure 9. MHRWS Tourism Framework

IV. STRATEGIC TOURISM DEVELOPMENT AND PLANNING

Based on the Tourism Framework developed it shall be used as a guide in identifying existing and potential tourism products within the MHRWS, its perimeter, and the province of Davao Oriental.

Mt. Hamiguitan Range shall serve as the iconic landmark, but not necessarily as the target destination within Davao Oriental.

To achieve this, an off-site tourism development model shall be implemented in the province, particularly the three municipalities that the MHRWS straddles. The primary strategy would be the implementation of tourism modelling and off-site mainstream tourism development. On-site management programs shall also be implemented to address the potential impacts of visitors, no matter how few, who will go to the site for scientific, monitoring, documentation, and even recreation activities.

A. Modelling and Perimeter Development

To prevent unwanted development and visitor impacts to the core zone of Mt. Hamiguitan Range Wildlife Sanctuary, a modeling strategy shall be done in the area. Modeling is the development of an off-site representation of an area which should show to the visitors the look and feel of the actual site, thereby preventing large numbers of visitors from going to the actual zone and thus minimizing human impacts. Modeling will become very necessary if Mt. Hamiguitan Range is listed as a UNESCO World Heritage Site as curious masses of visitors would congregate to Mt. Hamiguitan to see for themselves the reasons why it was included in the prestigious list. It becomes very crucial that majority of the visitors are made to stay only in the modelling sites, and gain a deep sense of awareness through the things they already see and experience without having to go to the most sensitive areas of Mt. Hamiguitan.

Although access to Mt. Hamiguitan has been restricted to scientific and monitoring purposes thereby preventing casual recreation visitors to the core zone, there will be constant demand for people to see for themselves the mountain's features and may cause uncontrolled, unmonitored and illegal entry which could potentially set back the conservation gains of the site. Coming up with an appropriate management strategy would not only prevent these scenarios from occurring, but also ensure that gains from tourism can be properly tapped and channeled to the recipient stakeholders (e.g. local communities).

Modelling Sites

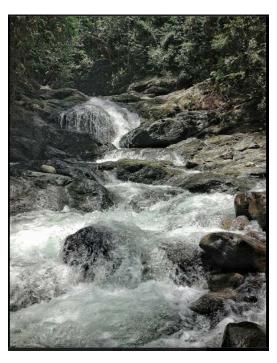
San Vicente

Cawacawa Falls – This area already has enough representation of the ecosystem and wildlife in Mt. Hamiguitan which include a waterfall, a forest ecosystem and several species of pitcher plants. Defined trails and appropriate visitor facilities will be established in this area.

La Union Jump-off Point – La Union has been the traditional jump-off point for people who go to the peak of Mt.

Hamiguitan. A road is currently under construction which would potentially increase the visitor pressure to the area.

This should be identified as a priority modeling site where majority of visitors would only have to stay in the identified



modeling site and already see and experience representations of Mt. Hamiguitan through trails and identification of interest points and features such as pitcher plants and wildlife species (e.g. birds)

Governor Generoso

Brgy. Sergio Osmena – This village was also the traditional jump-off point for people using the Mt. Hamiguitan trail thru Gov. Generoso. Local villagers had a good amount of training and experience for guiding, much will have to be done in order to create this as a modelling site. Trails and facilities for casual visitors will have to be put in place to ensure that its role as a modeling site is fulfilled and that the host community can become an active partner and beneficiary of tourism.

Mati City

Macambol – Macambol in the city of Mati offers one of the most scenic seascapes leading to the jump-off point towards the trail to Mt. Hamiguitan. Pulang Lupa, a roadside area bordered by a deep ravine facing Pujada Bay already offers a reprentation of the mountain's ecosystem through the presence of patches of bonsai trees. This is however within the area controlled by the mining firm, AMCOR. Thus, modeling plans will have to be generated once the mining plans are laid out and the site determined to be either worthy or not tenable for tourism development. In the

possibility of abandoning the current site due to a potential conflict with a major stakeholder, another site may have to be identified or even abandon the modeling program and focus instead on off-site tourism destinations (e.g. beaches)

B. Trail Management

Until a trail management plan is formulated and approved by the PAMB, access to Mt. Hamiguitan shall continue to be restricted to research and monitoring.

The three (3) existing trails shall remain as the only access to Hamiguitan Range. These include:

- La Union Trail San Isidro
- Macambol Trail Mati
- Brgy. Sergio Osmena Gov. Generoso

A trail management plan shall be formulated to cover each trail with the following premises:

- Well-defined trails that prevent hikers from unnecessarily veering away and creating more trails or expanding established ones.
- Campsites Campsites shall be established in the most appropriate spots
 that create zero to minimal impacts that allow effective mitigation measures
 or natural regeneration. Existing campsites may be utilized or new ones may
 have to be identified to replace currently established sites.
- Water sources water sources need not be necessarily located within or in the immediate vicinity of the campsites so that the visitors do not create unnecessary harm to the natural environment of the area (e.g. hacking a trail or clearing a vegetation). Hikers and campers will have to adjust to the condition of minimum or zero water availability in specific campsites or trail lengths.
- Appropriate water drainage in case of rains campsites shall not be located
 in areas where water naturally gets collected which then create bogs in case
 of human use. Each campsite should allow rain water to drain down away
 from the tents. Each existing campsite will have to be evaluated based on this
 requirement.
- The Pgymy Forest area shall be made free from camping or overnight use. Established campsite shall be abandoned and allow natural regeneration in the spots. This is to prevent people from depositing human wastes that would create an imbalance on the soil nutrient in the area and affect the natural growth and coverage of vegetation. Another justification is to prevent accidental forest fires that might do great damage to the forest as the trees already serve as sensitive tinder boxes due to the maturity of the bonsai trees' woods. A replacement campsite shall be established at least 50 meters from the edge of the bonsai forest. This would make the peak/pygmy forest

- as an assault-type or day-trip mountaineering objective rather than an overnight destination.
- NO-TAKE Policy shall be implemented The policy shall be strictly enforced in Mt. Hamiguitan. Only individuals or firms with appropriate permits from mandated government agencies (e.g. National Museum) shall be allowed to take biotic and abiotic samples from the area. Visitors insisting on taking "souvenir items" shall be denied further stay in the area and the guides would be mandated to guide back visitors to the jump-off point without prejudice to the guides and the PAMB.

Once the Trail Management Plan is developed and implemented, the following activities and visitors shall then be allowed access to Mt. Hamiguitan

C. Visitor Management (Buffer and Core Zones)

- Scientific Purposes So long as proper permits and coordination are made and recognized by the PAMB, scientific visits shall be allowed in the area.
- Hiking and Camping These activities shall be allowed but the recommended carrying capacities for trails and campsites shall be observed.
- Nature Tours Nature tours shall be allowed provided the tour group is guided and protected by deputized guides.
- Birdwatching and Bird Photography Shall be allowed only along the established trails. Special permits will have to be obtained from the PAMB/PASU for birdwatching activities designed for wildlife monitoring and documentation, which will require veering off from the established trails.
- Other Wildlife Appreciation Activities Activities like butterfly watching and photography will also be allowed only in the jump-off areas and along the trails and campsites. Special permits will have to be obtained from the PAMB/PASU for wildlife watching activities designed for wildlife monitoring and documentation

D. Visitor Management for Mainstream Markets (Periphery of the PA and Buffer Zone)

Mainstream visitors shall be restricted in modelling sites, jump-off or off-site destinations around the borders of the protected area. It is possible that with attractive and appropriate development, the modelling sites could capture more than 90% of the visitors who may want to see and experience Mt. Hamiguitan and its features.

E. The Philippine Eagle

The Philippine Eagle provides great contribution to the biodiversity and environmental values of Mt. Hamiguitan. The Philippine Eagle can be used as an

icon that can raise environmental awareness both to the tourists and even the local communities.

According to the Philippine Eagle Foundation (PEF), an identified eagle nest with eggs/chicks would allow for the possibility of having a seven-month window for eagle monitoring and watching. This proposes a good possibility in inviting visitors as potential partners in conservation through the actual witnessing of this highly-regarded and globally-important wildlife species.

In this case, and only when physically and ecologically possible, special trails and bird hides may be established towards the vantage points for Philippine Eagle Watching and Monitoring. After the juvenile is weaned and made to leave the nest, and without clear possibility of the eagle couple reusing the nest, the trails and the hides may be abandoned and allow the take-over of natural vegetation.

F. Off-site Mainstream Tourism Development

Aside from Mt. Hamiguitan, Davao Oriental has good potential in terms of the number and quality of tourism products. These include beaches, scenic landscapes and seascapes, waterfalls, forests, rivers, and the upcoming Natural Science Museum in Mati City.



Natural Science Museum in Mati City

The potential volume of tourists to be attracted due to the possible inscription of Mt. Hamiguitan can be easily dissipated and make them redirected instead to these other attractions.

However, appropriate development programs in terms of access, site development and tourism facilities and services should be instituted to effectively tap these sites as primary alternatives over Mt. Hamiguitan.

The priority tourism sites include:

Attraction	Location	Remarks
Dahican Beach	Mati City	Already a well-known destination but with still with minor tourism development, the site should be appropriately developed through the observance of the beach set-back, and development standards that may be allowed in the area. The site is known for skim boarding, surfing, and possible encounters with marine turtles and dugongs.
Mati Bay Walk	Mati City	Proper development and attractive landscaping should attract a good number of mass tourists to this site.
Provincial Natural/Historical and Cultural Museum	Mati City	Currently under construction, this museum shall be a unique attraction in the Philippines (as it showcases a 57-foot Sperm Whale skeleton) primarily for domestic tourists. Also included is a good representation of Mt. Hamiguitan's views and resources.
Magum Viewpoint	Macambol, Mati City	Leading towards the Mati-side jump-off point to Mt. Hamiguitan. This particular spot offers an impressive seascape view of Pujada Bay and Island. A nearby patch of bonsai trees can already be used as a modeling site for people who may want to see an actual bonsai forest.
Pujada Bay	Mati City	Currently underutilized for tourism, the bay area can become host to a number of marine and coastal tourism development and activities.
Sleeping Dinosaur	Mati City	Offers the visitors an interesting glimpse of what they can expect in Davao Oriental, plus an interesting land formation in the shape of a sleeping dinosaur.
Sigaboy Island	Gov. Generoso	This small island that can easily be reached due to its proximity to the mainland should be an attractive option

		to visit by the tourists to the area.
Monserrat	Gov. Generoso	A roadside view of the scenic landscape and seascape.
Whale and Dolphin Watching	Mati and Gov. Generoso	There have been consistent reports of the presence of whales and dolphins in the seas of these two areas. Further research for consistency of the presence of these animals should make interesting tour programs. Proper marine mammal encounter trainings will have to be conducted before these products are introduced.
Cape San Agustin	Gov. Generoso	This sites offers dramatic seascape and landscape enhanced by craggy coastline and waves created by crashing bodies of water, the Pacific Ocean and Davao Gulf. A road is currently under construction to make access to the tip of the cape easy for land vehicles.
Cawacawa Falls	San Isidro	An off-site and a possible Mt. Hamiguitan modeling destination, this area should provide a good alternative for people seeking non-sea related natural (or forest) destinations.
La Union	San Isidro	Although a road is currently being developed which would make river-crossings unnecessary to reach the trail towards Mt. Hamiguitan, river crossing as an activity can be developed as a stand-alone tourist activity. The jump-off point can also be developed as the modeling site for Mt. Hamiguitan and introduce other activities such as birdwatching and educational tours.

Table 13 Priority tourism sites surrounding Mt. Hamiguitan.

V. MARKETING PLAN

Based on the markets currently visiting Davao Oriental and the Davao Region, the primary market to be targeted by the province would be the domestic travellers. Foreign visitors shall also be targetted with Davao City providing the gateway for said market.

As a potential center for learning, to be given enough consideration would be the student markets with primary interests on the museum and the Mt. Hamiguitan modelling sites.

Both domestic and foreign visitors travelling on a holiday to Davao Oriental shall be enjoined to prioritize their visits to destinations within the province and for the people with the primary interest on Mt. Hamiguitan, identify the modelling sites as their best options.

Marketing Strategy

Traditional marketing through the use of the established media (paper, television and radio) may prove financially challenging. Thus a Below-the-Line marketing strategy will be implemented through the use of the following:

Brochures – Develop brochures that already indicate the attractions and activities that can be undertaken by the visitors.

Familiarization Tours – Invite suppliers (e.g. Davao City-based tour operators) and media representatives (both traditional and online) to visit the province and the modeling sites. Said tours should be properly planned designed to enjoin the suppliers and the media to appreciate the sites and encourage other to visit the province.

On-Line Campaign – An online marketing person should be hired or appointed in order to effective promote responsible travel to Mt. Hamiguitan and mainstream tourist visit to the province. Said online marketing person shall create social media accounts to effectively address marketing opportunities and queries posted by potential visitors.

VI. INSTITUTIONAL DEVELOPMENT

To effectively operationalize the management of tourism both within Mt. Hamiguitan and its off-site support attractions, local stakeholders to be championed by the local government units shall put in enough resources for institutional development. These include:

- Setting up of municipal/city tourism offices and appointment of plantilla positions for tourism officers. This will ensure that enough focus in terms of product research and development, coordination, and local government support may be provided to particular programs, destinations or host communities.
- Community Organizing since the trekking requires technical skills, appropriate training and enhancement programs should be provided to the local people

- willing to be part of the tourism industry or become tourist service providers such as nature guides.
- Skills Training help tap networks and provide training opportunities both for mainstream (e.g. resort operation) and niche activities (e.g. nature guiding).
- Develop modeling sites to effectively engage mainstream tourists in making them appreciate the values and features of Mt. Hamiguitan without necessarily going into the core zone.
- Improve and introduce tourism infrastructure and facilities for the province to effectively provide services and facilities to the visitors.
- Improve accessibility to the tourism sites.

VII. 5-YEAR TIME FRAME

It is envisioned that within 5 years of the implementation of this tourism development and management plan, the following can be achieved:

- · Development of the Modelling Area.
- Training for Tourism Frontliners such as nature guides.
- Formulate Trail Management Plan for Mt. Hamiguitan
- Appropriately develop/reconfigure trails to effectively manage visitor movement and behavior.
- Develop other sites within the 3 municipalities in order to absorb the influx of mainstream visitors.

Market Davao Oriental as a major ecotourism destination with Mt. Hamiguitan as the tourism icon and supported by other major sites and activities.

		Year 1			Yea	ar 2			Year 3				Year 4			Year 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Stakeholder Coordination for																				
Program Implementation																				
Program Preparations (resources)																				
Trail Management Planning																				
- Trail and Campsite Evaluation																				
- Planning Activity with Stakeholders																				
- Trail Management Plan Output																				
Open Up Mt. Hamiguitan for																				
controlled recreation																				
Development of Modeling Sites																				
- Detailed Planning for Modeling																				
Sites																				
- Physical Development of Modeling																				
Sites																				
- Tourism Services Training																				
Development of Other Tourism Sites																				
- Conduct Tourism Development																				
Workshop to Identify priority and																				
potential sites																				
- Formulate Development																				
Guidelines																				
- Develop priority sites and support																				
services and infrastructure																				
Marketing																				
- Soft Marketing (online,																				
familiarization tours)																				
- Full marketing (with offered tour																				
programs that prioritize off-site and																				
modeling destinations																				

Table 14 Five-year action plan

VIII. BUDGET REQUIREMENTS

The budgetary requirements to implement this management plan is about FIFTY ONE MILLION SIX HUNDRED THOUSAND PESOS (Php51,600,000.00 for the 5-year period) with the breakdown as follows:

Item	Cost Per Year	No. of Years	Total Cost
Administrative Coordination by the local	200,000	5	1,000,000
government units and the PAMB			
Trail Management Plan	100,000	2	200,000
Development of Modeling Sites (4 sites)	20,000,000	2	40,000,000
Tourism Services Training	200,000	4.5	900,000
Formulation of Development Guidelines	5,000,000	-	5,000,000
(e.g. Provincial Master Plan)			
Development of off-site destinations	-	-	
Marketing	500,000	4	2,000,000
Miscellaneous	500,000	5	2,500,000
TOTAL			Php51,600,000

Table 15. Budget Requirements for Plan Implementation

The item that will require the biggest amount for investment is the development of the modelling sites which may require a total expense of Php10 million each for the four (4) sites. However, the figure is based on the usual tourism investments done in similar areas. A more detailed feasibility study will have to be done to determine the optimum amount required to develop the sites.

No amount was assigned to the development of off-site destinations as the costs may vary, depending on the location, size and type of investment put in by either government and private entities.

4.a Mount Hamiguitan Range Wildlife Sanctuary Monitoring and Assessment Program for Climate Change Adaption

MT. HAMIGUITAN RANGE WILDLIFE SANCTUARY MONITORING AND ASSESSMENT PROGRAM FOR CLIMATE CHANGE ADAPTATION



Province of Davao Oriental 2013-2015

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MOUNT HAMIGUITAN RANGE WILDLIFE SANCTUARY RESEARCH AND MONITORING PROGRAM

1. BACKGROUND

Through Executive Order No. 5-A series of 2013, the Provincial Governor created the Technical Group for the continued socio-cultural, economic and ecological study in Mount Hamiguitan Range, tasking the Davao Oriental State College of Science and Technology (DOSCST), through its President, to lead the undertaking. Any research or study to be conducted in Mount Hamiguitan Range shall be coordinated with the DOSCST. Through the institution, Davao Oriental shall be able to acquire study results of the area and shall be able to control bio-piracy. Although specific projection of future scenario could not be exactly correct, still it is prudent to plan for a range of possible futures in order to balance risk and minimize large negative consequences (L. Hannah, 2003).

Through continued research, monitoring and assessment, appropriate measures can be applied to sustain the management, protection and conservation of Mount Hamiguitan Range Wildlife Sanctuary (MHRWS).

In consonance to the above Executive Order, the research and monitoring program to assess and adapt to the impacts of climate change on MHRWS shall be spearheaded by the DOSCST with the collaboration of the site managers by concerned local government units -- the municipalities of San Isidro and Governor Generoso, the City of Mati, and the Provincial Government of Davao Oriental, the Protected Area Management Board (PAMB), the DENR and other stakeholders.

2. PURPOSE OF MONITORING AND ASSESSMENT

The main reason for monitoring the Mount Hamiguitan Range Wildlife Sanctuary is to acquire knowledge for the refinement of management practices in response to the results of the monitoring, study and impact assessment of the area in the face of rapid climate change. The information that shall be gathered from this undertaking shall be used for the appropriate management of the site in order for the wildlife and biodiversity therein to adapt to climate change impacts. The derived information shall be used for the maintenance of biodiversity, safeguard the functions of the ecosystems, control invasive species, and maintain the normal occurrence of the food web in the site.

This research, monitoring and assessment shall also determine the trends in the ecological status of the existing eco-systems and species in the area – the biotic and abiotic components, how they react to the increasing temperature, extreme weather conditions, invasive species, socio-economic pressures in the periphery, and how would they be affected by the possible influx of visitors when the site shall have been enlisted as UNESCO World Heritage Site. The monitoring type to be used for this

purpose is often impact monitoring, complemented with background environment quality monitoring.

The research and monitoring program shall anchor on the inventory of existing species in the area, their abundance and spatial distribution, and their habitat conditions considering that the protected site is for biodiversity conservation. Using biodiversity monitoring approach (Gaines et. al, 1999), preliminary surveys and studies in the area shall be use as basis so as to determine the focus of this research and monitoring program.

For MHRWS to sustain its status of meeting criteria (x) of the UNESCO World Heritage Sites, which is: contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation, there is a need to constantly update its information on ecosystems and biodiversity status of the site and correspondingly upgrade the management schemes in order to be able to meet the challenges of the changing environment. The final aim of this research, monitoring and assessment program is the protection of the critical species in the site for the advancement of scientific knowledge on conservation and survival.

The research, monitoring and assessment of MHRWS for adaptation to climate change may be based on the abundance and distribution or migration pattern of the species in each of the identified ecosystems of the pedo-ecology of the site and the processes and interrelations of the biodiversity and elements within.

The following goals per ecosystem may be aimed to be scrutinized:

- Species abundance and distribution. What are the existing species of flora and fauna in each of the ecosystem range and how are they distributed?
 What are endemic and the invasive species?
- How do the endemic species react to the invasive ones?
- How have past trends in species abundance and distribution been influenced by natural events and by policies led to the present status?
- How does the wildlife in the site cope when the intermittent water bodies in the area dry up?
- Influences of climatological and geological events to the status and quality of wildlife and biodiversity in the area, such as how the wildlife is affected by strong storms, long dry spell, landslides/debris flow, flooding, etc.
- What are the land uses in the area and how have these influenced the status of the different species in the site?
- What is the capacity of the different types of forests and vegetations to assimilate the extreme weather effects?
- Influences of anthropogenic activities, such as effect of non-indigenous species introduced by human activities to the eco-system, increasing number of site visitors, pressures from mining or farming in the periphery, etc. to the status of the ecosystems and status of biodiversity and of wildlife in the area.
- Temperature trend on the site. How was the ambient temperature in the past

- period (10 to 50 years or more before) compared to the present? How does it affect the forest, the wildlife and the general biodiversity of the area?
- What factors in present biodiversity status and in the past and planned future activities can give an insight in future trends and probability, and what are these?
- Will climate change cause significant changes and mortality to the important species in Mt. Hamiguitan Range Wildlife Sanctuary?

These questions are just samples of deriving the goal of achieving the required information in undertaking research, monitoring and assessment for the adaptation of the site to climate change. The program shall approach the assessment and monitoring activities from different perspectives in terms of basic variables, parameters and status, temporal and spatial differences, nature and man-made impacts and management needs to support the adaptive capacity of the protected area to this climate related phenomenon that has also the potential to aggravate geological threats in the area.

3. THE ISSUE ON PROTECTED AREA AND CLIMATE CHANGE

One of the major threats to protected area is climate change. Yet while it is threatened, protected areas provide a natural and economical means of mitigating and adapting to climate change impacts. They are the most sensible response to the challenges of climate change for they can help in mitigation since forests in these areas act as carbon pools, and also in adaptation since they maintain ecosystem integrity, reduce vulnerability and provide ecosystem services (UNDP, 2010).

The valuable data and information which would guide for the appropriate action and decision-making on the management of MHRWS in its adaptation to climate change can be derived from this program. The following are the examples of the range of information that can be gathered in the monitoring and assessment in the site:

• Shifting ranges of species and habitats. As temperature increases, sensitive species may migrate while some species may adapt and some may perish. This will affect the distribution and abundance of ecological features.

The species per range of habitats based on ecosystems existing in MHRWS may be affected. The agricultural ecosystem may not be productive anymore or may become damaged due to landslides or fire or pest infestation, which may force the locals to encroach into the protected area. The dipterocarp forest may become unable to support the essential needs of the Philippine Eagle for survival which would cause the out-migration of the eagle if there are still other alternative sites, or extinction if none. The montane forest may shift to higher altitude or perish due to temperature rise while the mossy forest may lose their moss due to drier atmosphere resulting to the decrease of recharge of springs and aquifer. On the other hand, the mossy pygmy forest, being on the topmost part of the range with nowhere else to shift to may eventually die off considering that these pygmy forest trees are not able to reproduce seedlings.

All along the shifting of habitats, invasive species may come in which will compete with the endemic species and eventually take over the area. To identify endemic from invasive species, further inventory and assessment of existing species in MHRWS is a prerequisite.

- Altered migration patterns and timing. Due to climate change, regular
 migration patterns of identified migratory species of birds in the area will be
 disrupted. They may arrive when their feeding ground on the site may not
 have yet produced their food.
- **Increase habitat fragmentation**. Since climate change affects not only the wildlife in the site but also their habitat, the shifting of species may bring about habitat fragmentation, rendering critical species vulnerable to extinction due to habitat and feeding ground decrease, isolation, and poor genetic exchange.
- Increased frequency and intensity of storms, fires, flooding and landslide. Davao Oriental's experience with typhoon Bopha proved how destructive to the landscape, forest and wildlife strong typhoons are. Mt. Hamiguitan Range, with its unique biodiversity, is very vulnerable to such weather extremes. Being ultramaffic, the range has naturally poor macronutrients (M. Ater et. al., 1999) and having steep slopes, it is vulnerable to erosion, landslide and debris flow, which, all in all, affect the vegetation and wildlife in the area. Barangays Cabuaya and Macambol, the identified nesting ground of the Philippine Eagle, located in the south-eastern part of the protected area nestle in the alluvial fans of the range and have had experiences of debris flows and landslides in the past. These geohazards may be aggravated by weather extremes. On the other hand, farms in the perimeter of the protected site may trigger fire in areas rendered dry by longer hot season while farmers in the periphery, in search of relatively fertile soil, may encroach into the protected area.

4. OBJECTIVES OF MONITORING AND ASSESSMENT

Generally, the program aims to gather scientific-based information for the effective management of MHRWS for its sustainability in the face of climate change.

Specifically, the research, monitoring and assessment program intends to:

- a. Determine the extent and effects of climate change impacts in the site
- Identify baseline conditions and present species of biodiversity and wildlife in the protected area
- c. Detect and determine any signs of degradation of species in relation to climate anomalies
- d. Identify ecosystems and habitats that are affected by climate change impacts
- e. Identify and recommend for the control and removal of invasive species
- f. Come up with factual basis for planning and policy guidelines in the appropriate management of the site in consideration to the threats of climate change

- g. Identification of critical ecosystems
- h. Project probable scenarios of climate change impacts to the ecosystems in the site
- i. Evaluate the effectiveness of the existing conservation and protection measures
- j. Assess and evaluate the impacts of competing land uses in the periphery of the protected area (i.e. mining, farming)
- k. Develop guidelines on the maintenance of the quality of ecosystems in the site in consideration to extreme weather conditions
- I. Develop and recommend regulations on the uses of the site
- m. Determine in situ temperature and precipitation in relation to climate change factors
- n. Develop and recommend a climate change adaptation programme for the site

Achieving the above objectives is not for the benefit of the concerned local government units only but the resulting data may be shared among agencies and programs that have similar, related or distinct objectives. The Integrated Coastal Resource Management Programme could use the data in the management of coastal and marine resources with its ridge-to-reef approach since being archipelagic, the direct catchment of the Mount Hamiguitan Range is the Pujada Bay Protected Seascape in the eastern part and the Davao Gulf in the western portion, which are both critical waterbodies.

5. TOOLS, METHODOLOGIES AND STRATEGIES

To assess the impacts of climate change in MHRWS, the following tools may be used:

- 1. Modelling:
 - a. Species range shift models
 - b. Land-use projection models
 - c. Regional climate models
 - d. Species bioclimatic envelope models
 - e. Other applicable models
- 2. Biodiversity and Ecosystem-based assessment
- 3. Integrative, sensitivity and risk analysis based on identified threats per ecosystem and pedo-ecological features
- 4. Carrying capacity analysis of trails, model sites, habitats of interest
- 5. Combined capture of a variety of data on vegetation, ecological and physical setting as well as GIS mapping

Methodologies and strategies in the research, monitoring and assessment may include the following:

- 1. Collaborative approach
- 2. Multi-level cooperation (vertical, horizontal, local, regional, national and international) and exchange of best practices, enhancement of policies and intellectual supports
- 3. Involving the PAMB members/local residents

- 4. Conservation and climate change adaptation policy enhancement and strict enforcement
- 5. Transect walk and field reconnaissance
- 6. Interview and focus group discussions with local residents

Since MHRWS is a conservation and protection area for wildlife and biodiversity which has significant sensitivity to climate change, the site managers shall also refine their management practices in response to the results of impact assessment. In its research, monitoring and assessment, the research group together with the site managers shall pursue the following steps:

- Scenario-building capturing the major ecological events related to climate change in MHRWS
- 2. Enhanced monitoring of the ecosystems based on scenario developed
- 3. Biological survey, site and habitat assessment of which key data derived from these activities shall complement monitoring and scenario refinement
- 4. Review and revision of management practices based on results of modelling, scenarios, monitoring and survey

PILOT PROJECTS AND PRELIMINARY SURVEYS

The monitoring and assessment program shall start with a small-scale pilot project so as to provide the newly trained staff researchers to gain hands-on experience as well as to confirm if the program components can be implemented as planned. In this stage, testing of assumptions on the status of the biodiversity in certain sampling sites of selected ecosystems or habitat within MHRWS shall be done. Variations of indicators and variables in abundance, distribution and status throughout an annual period shall be considered so that the number of samples can produce sets of data that can be regarded as representative. The preliminary survey shall take off from the results of previous studies in the area which has become the bases for the declaration of the site as protected area.

DESCRIPTION OF MHRWS

The original Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS) as surveyed and delineated based on RA 9303 is only 7,132.76 hectares, disaggregated into 6,348.99 hectares core zone and 783.77 hectares buffer zone. With the extension of the core zone to include the locally declared Philippine Eagle Sanctuary and the expansion of the buffer zone, the total area of the site is now 25,834.45 hectares*, 16,036.67 hectares of which is the core zone while 9,797.78 hectares is the buffer zone. The expanded area still possesses the same ecosystems by pedo-ecology as shown below.

MHRWS is located in an ultramafic peninsula of Governor Generoso in the southern tip of Davao Oriental with its eastern part forming the western embayment of Pujada

^{*} Total area presented here is tentative since this is based only on plotting of the extended map for there is no actual delineation done yet by the DENR.

Bay, another declared protected area under the Network of Protected Areas System (NIPAS) as *Protected Seascape*.

Being located in a peninsula, Mt. Hamiguitan range is enclosed by the sea in its eastern, southern and western sides. In the north-eastern is Pujada Bay, east and

southern is the open sea with its end point as the Cape San Agustin and in the western side is the Davao Gulf.

Table No. 1 shows the ecosystems of the site.

Table 1. MHRWS Ecosystems Location and Functions

MHRWS Ecosystems	Location	Functions
Agro-ecology	Base of the mountain range	Agricultural production area, community settlement
Dipterocarp forest	Adjacent to the agricultural land going uphill	Habitat of wildlife species including the Philippine Eagle
3. Montane forest	Uphill next to the dipterocarp forest	Habitat of wildlife species and extended feeding ground of the Philippine Eagle
4. Mossy forest	Located next to the montane forest	Habitat of wildlife species, extended feeding ground of the Philippine Eagle and recharge areas of local springs and aquifer
5. Mossy Pygmy forest	Located at the topmost part of the mountain range	Habitat of some specialized wildlife species, forest tree species and vegetations adapted to thinner soil, lesser nutrients and harsh weather condition and also acts as recharge to local springs and aquifer

The ecological features of the area based on its ecosystems are shown in Table 2 below while Figures 7.1, 7.2 and 7.3 present the transect diagrams depicting the ecosystems and important species observed in the existing trails to MHRWS, one in each from Sitio Magum, Barangay Macambol of the City of Mati, from Sitio Tumalite, Barangay La Union of the municipality of San Isidro, and from Barangay Sergio Osmeňa, municipality of Governor Generoso.

Table 2. MHRWS Ecological Features and Description

Ecological Feature	Description
Pygmy forest	A 1,234-hectare century-old natural <i>bonsai</i> dipterocarp forest species situated at around 1,200 ft. above sea level of the range, striving to exist in harsh environmental condition at the top of the mountain ridge where soil nutrients are at their lowest and exposure to wind is at its strongest.
Endemic plant species	171 plant species found in the area are endemic to the Philippines, 3 of which are nepenthes species which are site endemic.
Endemic plant species	171 plant species found in the area are endemic to the Philippines, 3 of which are nepenthes species which are site endemic.
Endemic animal species	124 animal species found in the area are endemic to the Philippines, 5 of which are site endemic which includes 4 butterfly and 1 rodent species
Philippine Eagle	One of the most endangered species and a flagship icon for conservation. Its nesting ground found in the dipterocarp forest of Barangay Cabuaya has been declared locally as a Philippine Eagle Sanctuary and is now an extended core zone of MHRWS
Biodiversity	Mt. Hamiguitan is home to an identified 1,380 plant and animal species. It is believed that many are still not identified and classified
Tinagong-Dagat Lake	The only lake found in Mt. Hamiguitan. It is believed to be brackish due to the smell it emits presumably caused by leached minerals brought by run-off waters in the site. It is the primary watering hole of terrestrial wildlife in the area but is now noted to have decreasing volume of water, with its periphery observed to start euthrophication. This lake is also used by the indigenous people in the site for their cultural/spiritual practices.
Waterfalls	Twin Falls and Dumagook Falls are the identified waterfalls in the area. These waterfalls are intermittent and thus easily affected by dry spells.
Ecosystems	 5 ecosystems are identified in the site, each housing different endemic species at each level: 1. Agro-ecosystem formation – the range after the community settlements in the coastline going uphill. This area is used to be occupied by dipterocarp forest but it is now used for agricultural production of

- alienable and disposable. Despite agricultural production, floral species still abound in the area with 246 identified plant species, 44 of which are endemic to the Philippines.
- Dipterocarp forest has 146 identified species in the area representing all animal groups of Mt. Hamiguitan including the Philippine Eagle. This is now threatened by timber poaching, encroachment slash-and-burn farming, wildlife poaching and mining operation.
- 3. Montane forest contains all animal groupings of Mt. Hamiguitan but lesser in abundance compared to the biodiversity in Dipterocarp forest yet it contains 462 identified plant species8, the highest among the 5 ecosystems.
- Mossy forest the ecosystem of Mt. Hamiguitan with the least number of animals but it plays a major role in the water recharge of springs and acuifer of the mountain range.
- 5. Mossy pygmy forest located at the topmost of the mountain range with a total of 338 plant species. This ecosystem represents the struggle of species for survival in a harsh natural environment.

Figure 7.1 Transect diagram of ecosystems and important species observed in the existing trails to MHRWS Sitio Magum, Barangay Macambol, City of Mati

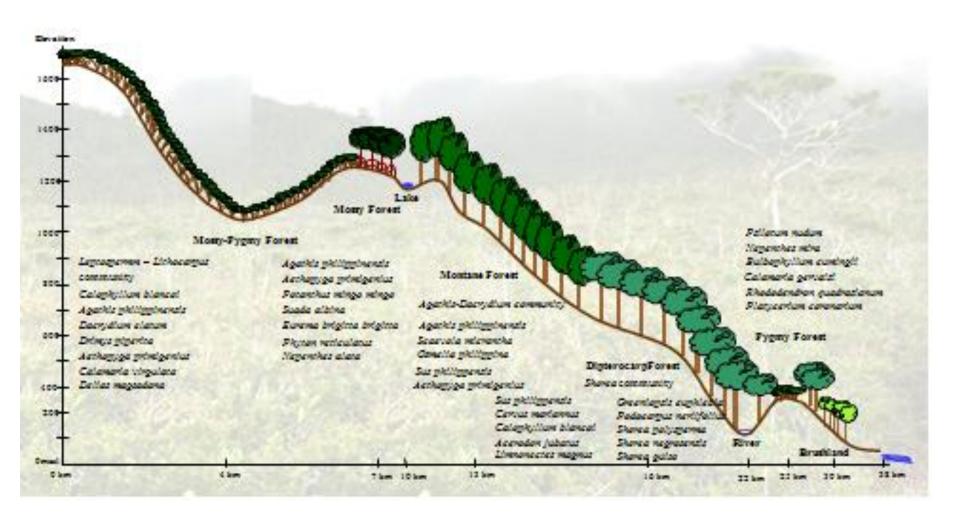


Figure 7.2 Transect diagram of ecosystems and important species observed in the existing trails to MHRWS Sitio Tumalite, Barangay La Union, Municipality of San Isidro

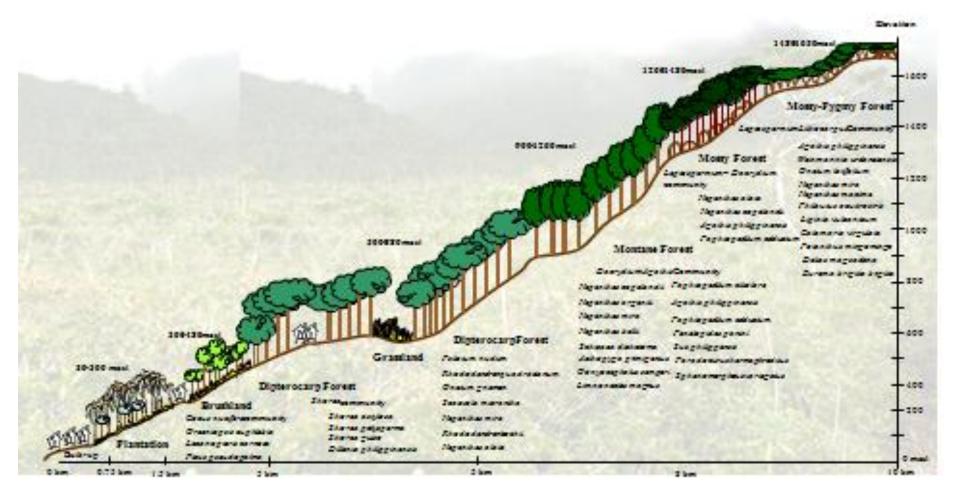
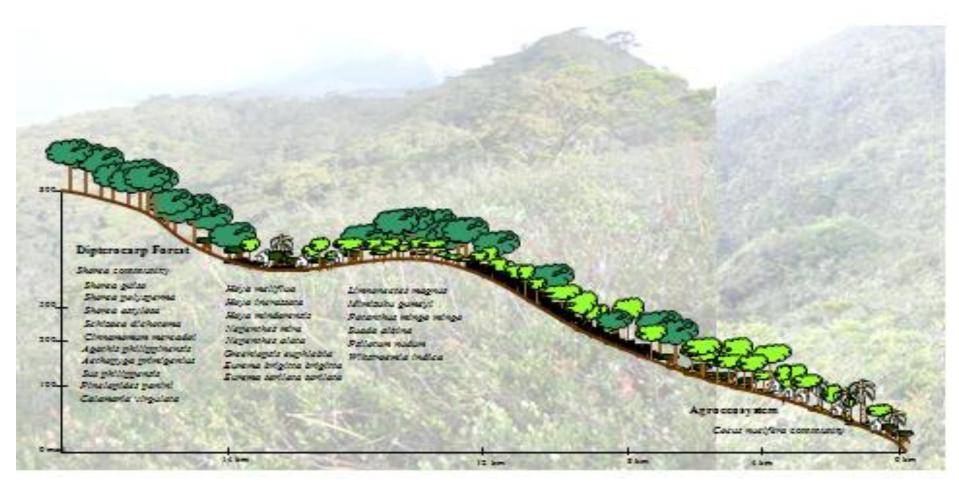


Figure 7.3 Transect diagram of ecosystems and important species observed in the existing trails to MHRWS Barangay Sergio Osmeňa, Municipality of Governor Generoso



8. SELECTION OF SAMPLING SITE

Processes affecting particular ecosystem and their influence to the species within MHRWS shall be taken into account in the selection of sampling sites. Sampling sites and sampling stations need to be consistent with the monitoring and assessment objectives of the program.

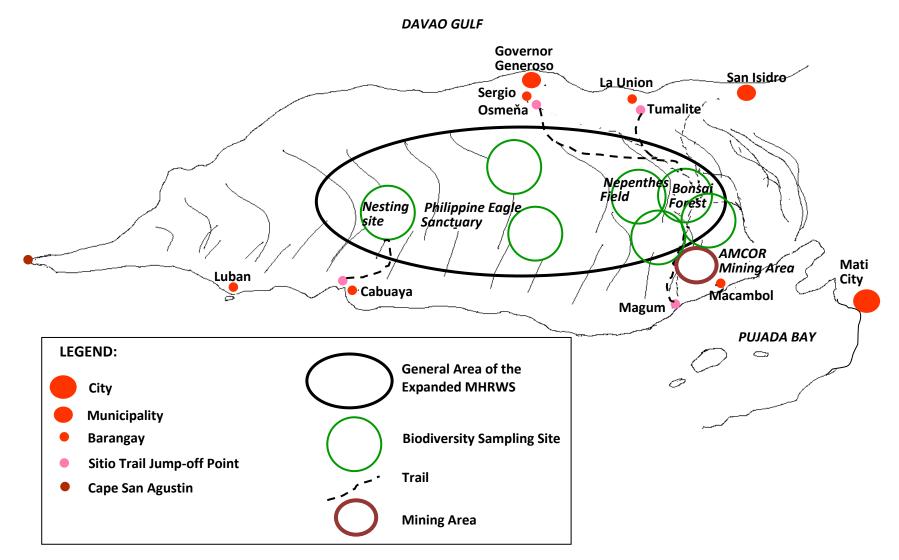
The following table presents the sampling sites based on the existing ecosystems while Figure 8.1 shows the planned sampling sites in the area.

Table 3. Sampling Site by location and by objectives of sampling

Type of		ation and by object ation	Objectives
Site	Sampling Site	Sampling	
Baseline site	Each of the 5 ecosystems: 1. Agro-ecology 2. Dipterocarp forest 3. Montane forest 4. Mossy forest 5. Pygmy mossy	Station Regular interval of 1 to 5 hectare area or any size deemed appropriate based on field investigation	-To determine occurrence of biological diversity/community ecology vis a vis pedo-ecological processes -To provide basis for comparison with sites and stations having significant direct human impacts and environmental stress -To establish species vulnerability to the effects of climate change related
	forest		influences -To identify endemic and non- indigenous species in the site
Trend site	Each of the 5 ecosystems: 1. Agro-ecology 2. Dipterocarp forest 3. Montane forest 4. Mossy forest 5. Pygmy mossy forest	- 1 in every 5 km of trails in the protected area or less as may be determined during field investigation	 To test for long-term changes of biological diversity To provide basis for statistical identification of the possible causes of measured conditions or identified trends To determine ecological patterns and shifting of species per ecosystem per range of time To determine the influence of introduced non-indigenous species to the biodiversity status in the site.
Random site	Anywhere in each of the 5 ecosystems	Randomly chosen sampling station at a spatial interval of 1 km or more and regular temporal interval (see item 9) based on index of severity of threats* of the selected station	 To determine the increase or decrease of impacts of threats to specific sites To rank the ecosystem sites based on severity of threats relative to the severity of threat factors to such areas To develop specific recommendations to control the negative impacts of threats to the site

Index of severity of threats and stress for MHRWS can be developed by applying the methodology used in the study of J.W. Kiringe and M.M. Okello, 2007, or other appropriate study of similar parameters.

Figure 8.1 Planned Sampling Sites in the expanded area of MHRWS



The sampling sites shall be marked in a GIS-generated resource data map of Mt. Hamiguitan Range Wildlife Sanctuary but the final decision on the precise location can be made only after a field investigation and reconnaissance survey to ensure that the sites can provide valid representative samples.

The use of *Relative Threat Factor Severity Index* (RTFSI) developed by Kiringe and Okello (2007) can be applied to the site. Table 4 shows the tabulation format for factors of threats used in the mentioned study, which, with few modifications, are deemed applicable to MHRWS monitoring and assessment.

Table 4. Tabulation Form of Relative Threat Factor Severity Index (RTFSI)

Threat Factor identified by protected area officers	Mean threat factor score (Mean ± SE)	Relative Threat Factor Severity Index (RTFSI)
Illegal killing of wildlife for their bush meat for the local or regional markets	(moun ± oz)	macx (KTT GI)
Large mammal poaching for international commercial purposes		
Direct and indirect danger to biodiversity arising from the nature and intensity of human – wildlife conflicts		
Loss, conversion and degradation of wildlife migration and dispersal corridors important for the protected area		
Human encroachment in terms of their densities and distribution around protected areas		
Unsustainable use, demand and exploitation of natural resources (e.g. water, plant resources and minerals) by local communities surrounding protected area		
 Recent agricultural expansion and other incompatible land use changes to biodiversity requirements 		
 Pollutants from external sources of a protected area that harm biodiversity directly or indirectly 		
Negative and persistent tourism impacts to the welfare of biodiversity and their habitats Fencing of a protected area entirely or in part by certain form of fencing materials		
Mean value (± SE)		

From Kiringe and Okello (2007)

9. FREQUENCY AND TIMING OF SAMPLING

Considering the sensitivity of species to ecological stress, sampling frequency where biological diversity and ecosystem processes are high should be higher than in

stations where ecosystem quality remains relatively constant. For research and monitoring projects of this program that have no advance information on quality variation should be preceded by a preliminary survey (see item 4) and then start with a planned sampling schedule that can be revised when the need arises.

A proposed sampling frequency per station is presented as follows:

Table 5. Sampling Frequency by Sampling Station

Table 5. Sampling Freque	Degree of	
Sampling Station	Frequency	Sampling Frequency
Baseline Stations		
Agro-ecology	Minimum	4 per year
	Optimum	8 per year
Dipterocarp forest	Minimum	12 per year
	Optimum	24 per year
Montane forest	Minimum	12 per year
	Optimum	24 per year
Mossy forest	Minimum	12 per year
	Optimum	24 per year
Pygmy mossy forest	Minimum	12 per year
	Optimum	24 per year
Trend Stations		
Agro-ecology	Minimum	4 per year
	Optimum	8 per year
Dipterocarp forest	Minimum	12 per year
	Maximum	24 per year
Montane forest	Minimum	12 per year
	Maximum	24 per year
Mossy forest	Minimum	12 per year
-	Maximum	24 per year
Pygmy mossy forest	Minimum	12 per year
	Maximum	24 per year
Random Stations		
Station with the highest	Minimum	24 per year
threat index	Maximum	48 per year
Station with moderate	Minimum	12 per year
threat index	Maximum	24 per year
Station with low threat	Minimum	6 per year
index	Maximum	12 per year

The temporal interval of sample collection depends on the specific characteristics of the sample and the objective of monitoring and study. An interval of one month between the collection of individual samples from a certain station for the purpose of

characterizing quality over a long period of time may be generally acceptable. For control purposes, however, weekly sampling may be necessary.

Overall, sample collection should be frequent enough to enable the derivation of accurate calculation of the mean concentrations of variables included in the monitoring program. The frequency of sampling required to obtain a desired level of confidence in the mean values depends on statistical measures such as standard deviation and confidence interval.

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