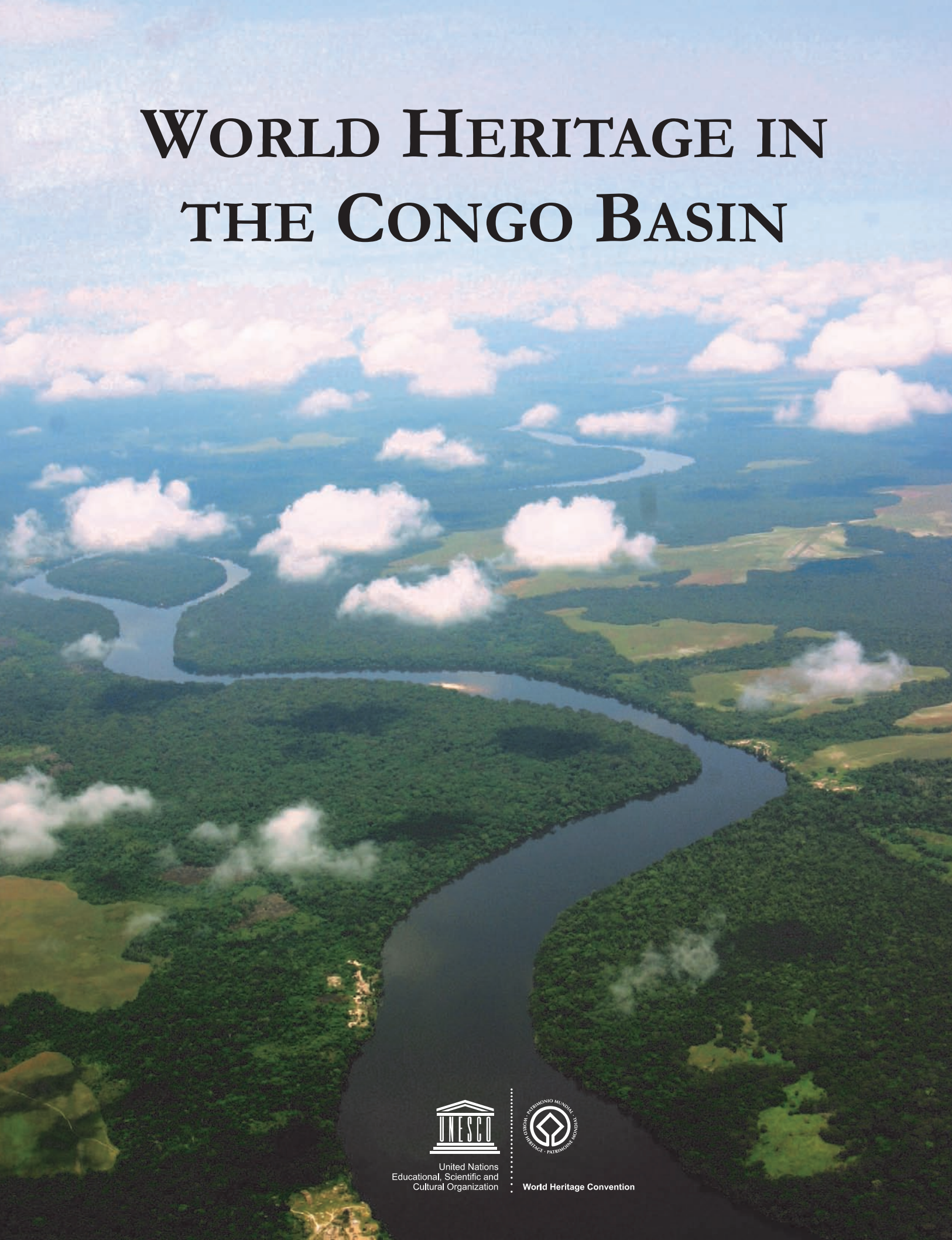
World Heritage in the Congo Basin



United Nations
Educational, Scientific and
Cultural Organization

World Heritage Convention

World Heritage in the Congo Basin

Text and layout: Conrad Aveling

Supervision and coordination: Guy Debonnet

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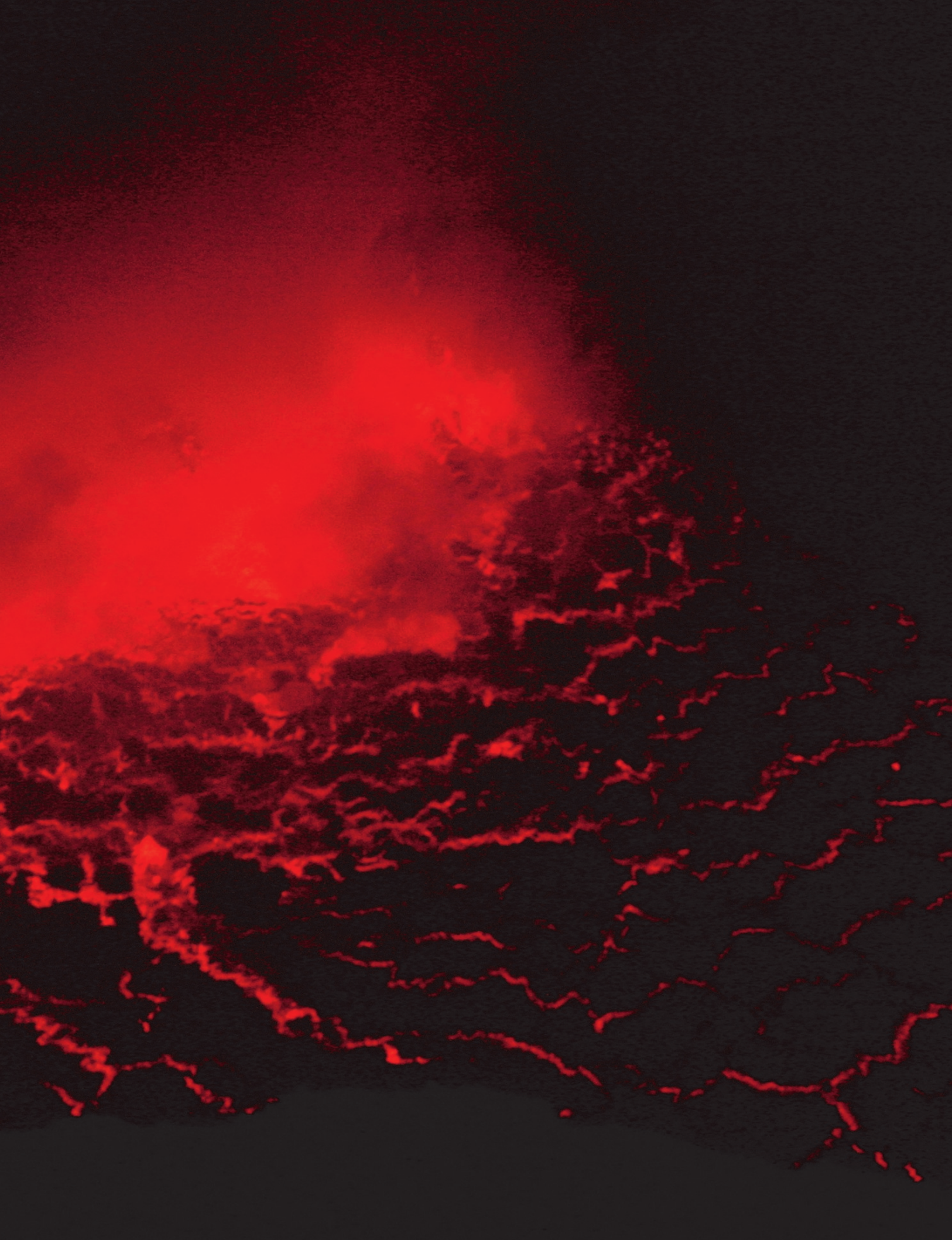
7, Place Fontenoy
75352 Paris 07 SP France
Tel: 33 (0) 45 68 15 71
Fax: 33 (0) 45 68 55 70
E-mail: wh-info@unesco.org

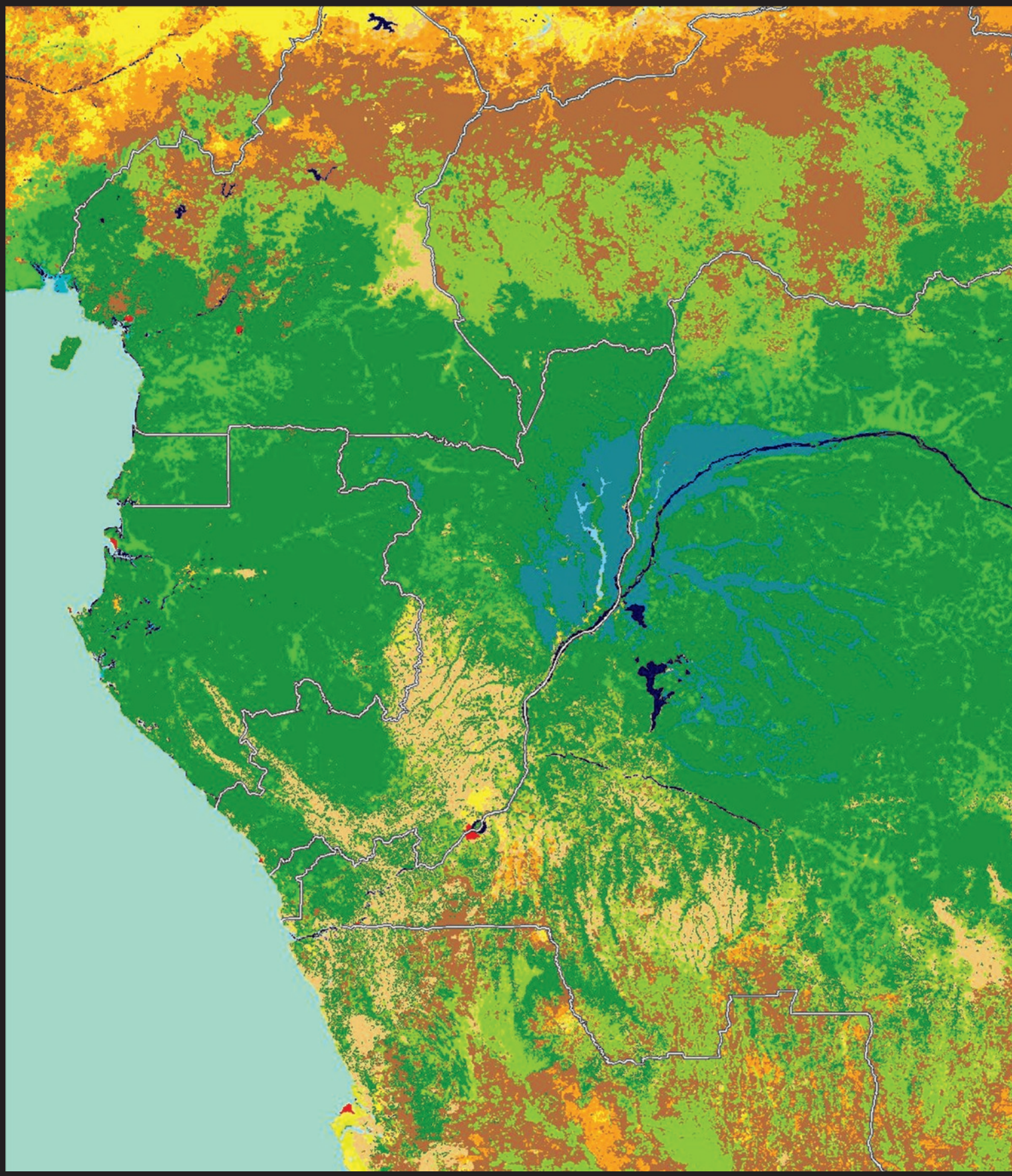
World Heritage in the Congo Basin

SUMMARY

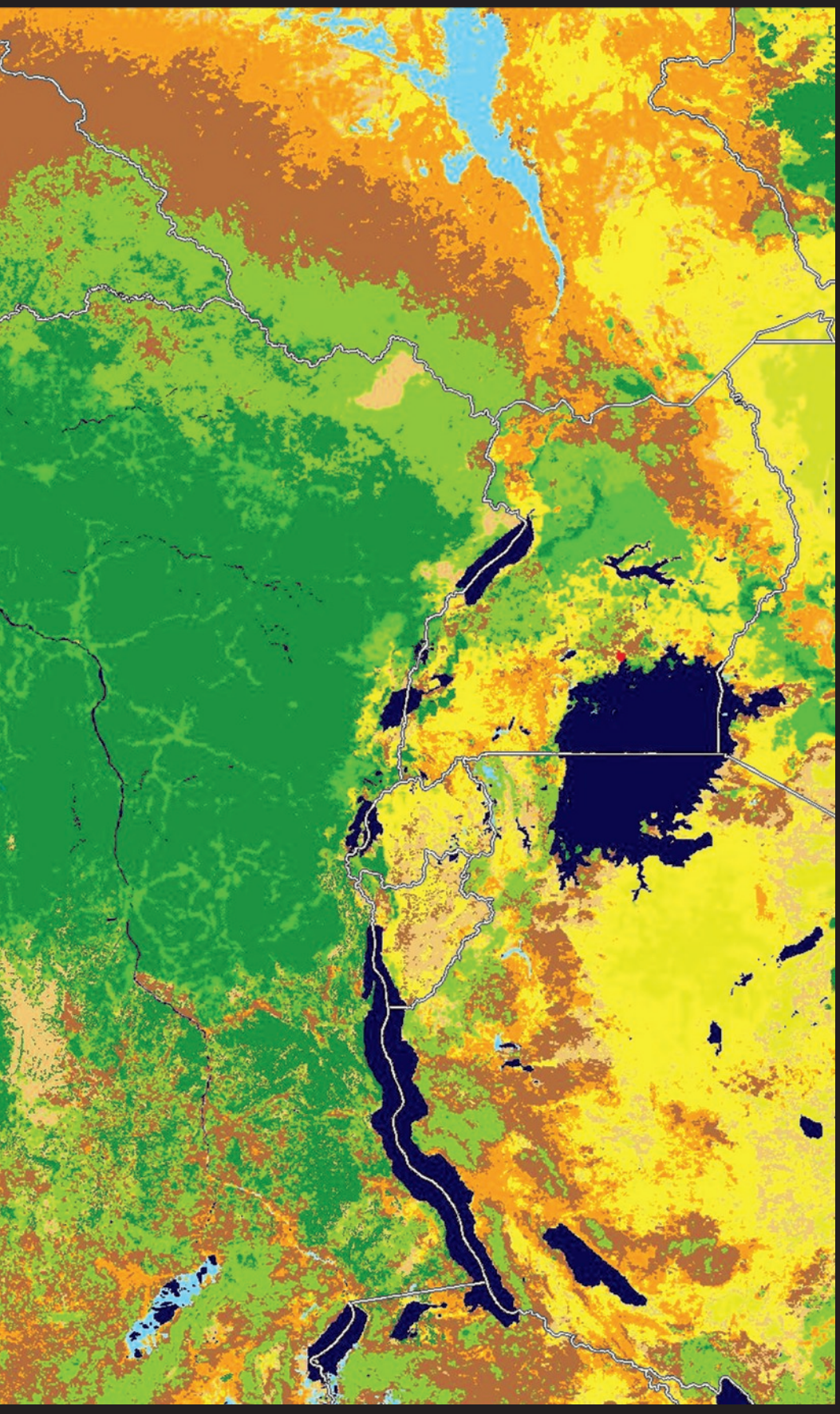
Front cover: A mosaic of lowland rainforest and savannah in the southern part of Salonga National Park, DRC.

This page : A lake of molten larva in the crater of Nyaragongo volcano, Virunga National Park, DRC.





The moist forests of central Africa represent the world's second largest area of tropical rainforest after the Amazon . It is one of the last regions in the to continue undisturbed. A forest elephant could, in theory, move from the Albertine Rift to the coast of Gabon without leaving the forest.



world where vast areas of interconnected rainforest allow biological processes
Vegetation cover image © Joint Research Centre, EC

PREFACE

The central African humid forests, covering an estimated surface area of roughly 1.62 million km², constitute one of the world's most important natural heritages. They contain a large proportion of the world's biodiversity, they play a central role in climate regulation and carbon sequestration and they are home to over 30 million forest dwelling peoples who depend on the innumerable environmental products and services that the forests provide.

The immense natural riches of central Africa, particularly its timber and mineral resources, are also seen as important components of the countries' economic growth and development. However if they are to contribute in a sustainable manner to the nations' social and economic welfare, wise management of these resources will be essential and a fully representative network of well managed protected areas will be a critical element in this process.

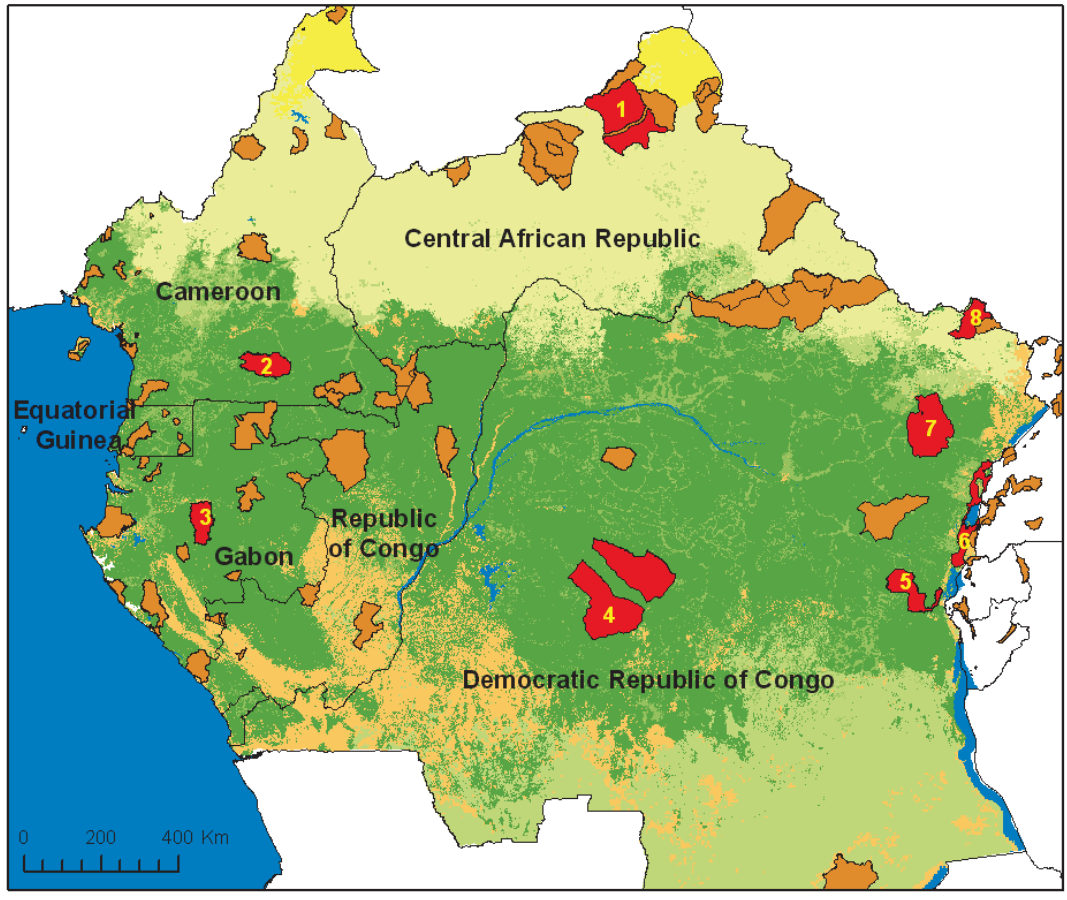
The vast majority of the central African forests have remained, until quite recently, relatively untouched by large scale human activities such as mechanized logging and mining largely because of the difficulties of access. Industrial logging, for example, was confined largely to the coastal area. However the situation is now changing rapidly as more and more of the central African forests are attributed as logging concessions and an increasingly dense network of new roads spreads out through the forest block. Figures presented in the 2008 Congo Basin State of the Forests Report indicate that 32% of the exploitable dense humid forests in central Africa have already been attributed. In Equatorial Guinea, Gabon, CAR and Congo-Brazzaville the figures are particularly high with between 77% and 93% of

the exploitable forests already attributed. Opening up of the forest brings with it many threats. Not only is the forest structure disturbed by the logging activities itself (felling, road building, logging camps) but the influx of people into the newly opened areas in search of employment and other economic opportunities leads to biodiversity impoverishment through increased rates of deforestation for agriculture and commercial exploitation of non timber forest products, particularly bushmeat. Local indigenous communities are also often severely disrupted in the face of this "open access" onslaught on their natural resources.

While a fully a representative network of protected areas is a central pillar for biodiversity conservation in central Africa it is increasingly recognized that a more global landscape approach is also necessary so that gene flows, ecosystem processes and local livelihoods can be sustained in the mosaic of multiple use zones that link the networks of protected areas. Only in this way can the protected areas avoid becoming isolated pockets of biodiversity.

This booklet describes how the UNESCO World Heritage Convention is contributing to this process through the reinforcement of existing protected areas and the promotion of key landscapes where clusters of protected areas can be linked through sound landscape management.

Francesco Bandarin, Director,
World Heritage Center, UNESCO



Currently approximately 18.5 million ha of central Africa's forests, some 10% of the surface area of humid forest block, have been designated as protected areas. Eight World Heritage Sites exist in Central Africa (shown in red), 6 in the tropical forest zone and 2 in the savanna zone to the north.

1. *Gounda-St. Floris National Park*
2. *Dja Wildlife Reserve*
3. *Lopé-Okanda National Park*
4. *Salonga National Park*
5. *Kahuzi-Biega National Park*
6. *Virunga National Park*
7. *Okapi Wildlife Reserve*
8. *Garamba National Park*

Six of Central Africa's World Heritage Sites have been placed on UNESCO's list of the World Heritage in Danger.

THE WORLD HERITAGE CONVENTION

The World Heritage Convention, is an international agreement adopted by the General Conference of UNESCO in 1972 and is founded on the premise that certain places on Earth are of Outstanding Universal Value and thus are part of the common heritage of humankind. In August 2009, there were 186 States Parties to the Convention, making it a globally recognized legal instrument.

In order to ensure their safekeeping for future generations, countries are encouraged to identify natural and cultural sites of Outstanding Universal Value for inclusion in the World Heritage List. By nominating these sites, countries take on a commitment before the international community to preserve and manage them for current and future generations. The World Heritage List comprises 890 sites (as of June 2009) in 146 countries, of which 176 are natural sites and 25 are designated for both their natural and cultural values. Sometimes referred to as the "Nobel Prize for Nature", the List comprises some of the most spectacular natural places on earth. Natural World Heritage sites protect currently almost 180 million ha of land and sea and account for 11% of the world's protected areas' surface area. World Heritage sites protect important refuges of threatened or rare plant and animal species, large-scale ecosystems where on-going ecological processes that are important for the

BOX 1 HOW ARE WORLD HERITAGE PROPERTIES INSCRIBED?

For a property to be nominated a country must first undertake an inventory of its significant cultural and natural properties (known as a Tentative List). From this list, it can then nominate a site for inscription, by submitting a detailed Nomination File which describes why the site is deemed of "Outstanding Universal Value" The nomination is then evaluated by the International Council on Monuments and Sites (ICOMOS) for cultural sites and the International Union for the Conservation of Nature (IUCN) for natural sites. These advisory bodies make their recommendations to the World Heritage Committee which meets once a year to determine whether the nominated properties can be inscribed in the World Heritage List.

To be considered of Outstanding Universal Value, a site must meet at least one of the 10 natural and cultural criteria to be eligible for inclusion on the list. In the case of natural heritage the following criteria apply:

- **Criterion vii** :to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- **Criterion viii** : to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- **Criterion ix** : to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- **Criterion x** : to 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.

A nominated natural heritage property must also meet a number of conditions relating to its integrity. This requires assessing the extent to which the property:

- includes all elements necessary to express its Outstanding Universal Values,
- is of adequate size to ensure complete representativity of the features and processes which convey the property's significance and
- suffers from adverse effects of development and/or neglect.

Furthermore, sufficient legal protection and management measures have to be in place to guarantee the conservation of the values for which the site is proposed for inscription. In other words the property must justify its uniqueness and demonstrate that the necessary protection and management structures are in place to safeguard its integrity and unique values.

very survival of the planet are preserved including some of the most outstanding geological features or natural phenomena. The Convention has thus become an extraordinarily important international instrument for *in situ* nature conservation.

World Heritage sites are our common heritage, to cherish and to respect. Their disappearance would be an irreplaceable loss to humanity. In spite of their global recognition, many sites are threatened by the impacts of unsustainable development, excessive tourism pressure or war and conflict. The UNESCO World Heritage Centre therefore monitors their status closely with the assistance of the International Union for the Conservation of Nature (IUCN). In case of serious imminent threat, a site can be inscribed on the List of World Heritage in Danger. Currently 15 natural sites are listed as endangered, including all five of the DRC's World Heritage sites. There are currently only 7 World Heritage sites in Central Africa, six of them in the moist forest zone of the Congo basin. One of them, the Ecosystem and Relict Cultural Landscape of Lopé-Okanda in Gabon, is a mixed natural and cultural World Heritage site. Several other areas of outstanding natural importance exist in Central Africa but most of them do not yet meet the criteria for inscription in the list of World Heritage properties.

The okapi is one of 28 mammal species endemic to the DRC. This strange forest giraffe, which clearly shows its savannah origins, is the evolutionary result of intermixing of savannah and forest species in the evolutionary whirlpool of the Congo Basin, as wet and dry periods succeeded one another over millions of years.

Photo © Kim S. Gjerstad

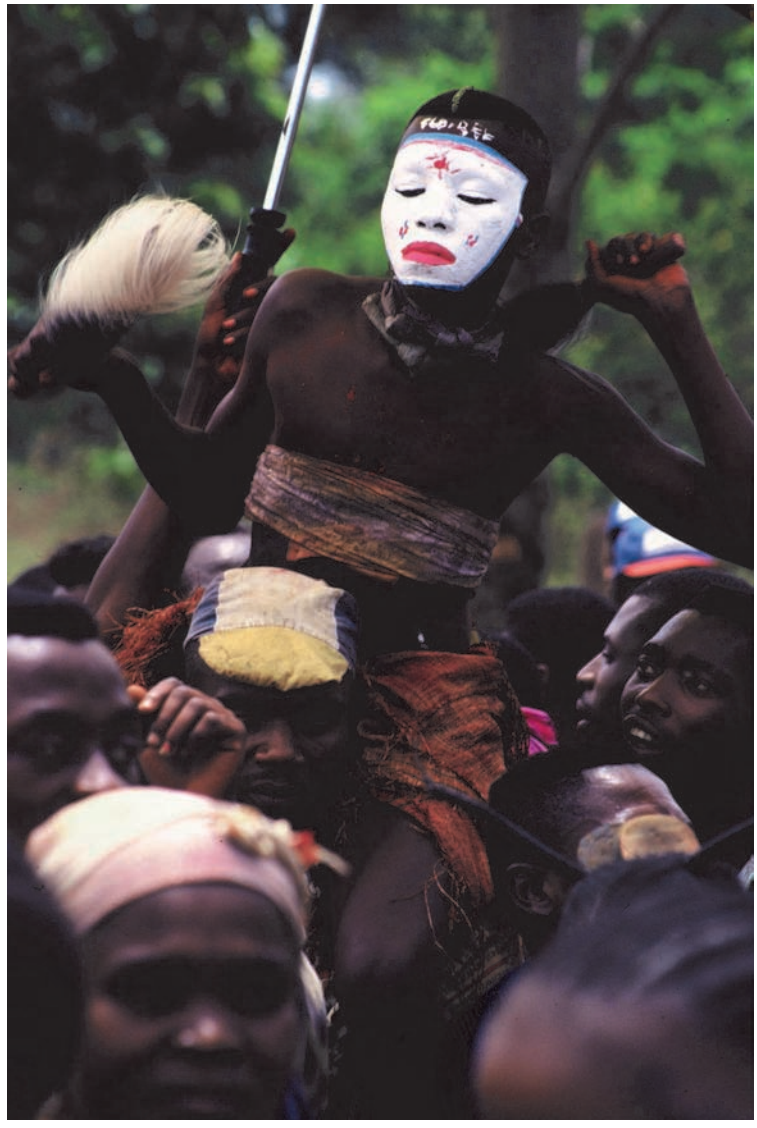
THE GLOBAL IMPORTANCE OF THE CONGO BASIN FORESTS

The moist forests of central Africa represent the world's second largest area of tropical rainforest after the Amazon. Stretching over 2.000 km from the Atlantic coast of the Gulf of Guinea to the highlands of the Albertine Rift in the east of the Democratic Republic of Congo they cover a surface area of about 1.62 km² shared between 7 countries – Cameroon, Central African Republic, Congo Republic, Democratic Republic of Congo, Gabon, Equatorial Guinea and small areas of Nigeria and Angola – with roughly half lying within the DRC. Over 80% are guineo-congolean forests, with two areas of afro-montane forests 2.000 km apart in Cameroon and the Albertine Rift of eastern RDC. Although this vast forest block is commonly referred to as the Congo basin, strictly speaking it is spread over several watersheds (Congo, Sanaga, Ntem, Ogooué, Nyanga, Niari and Kouilou) but with the Congo River watershed covering by far the largest area. Roughly two thirds of the central African moist forests are drained by the Congo River and 50% of these forests fall within the DRC.

Like the Amazon, but unlike the forests of southeast Asia or west Africa, the forests of the Congo basin form an essentially uninterrupted forest block. Unlike the Amazon however, where most of the forests lie just above sea level, roughly 80%

of the Congo forests lie between 300 and 1.000m above sea level. Average annual rainfall is between 1.600 and 2.000 mm, although along the coasts between Cameroon and Gabon annual rainfall is much higher (3.000 to 11.000 mm). The cycle of climate changes over the past 2 million years has had a profound influence on the forests of the Congo basin. In response to expansions and contractions of the polar ice caps, cool dry periods have alternated with warmer, humid periods, causing the forests to shrink and expand. During drier periods, the forests were reduced to a series of scattered refuges situated along the Atlantic coastal mountain ranges, the highlands of eastern DRC, and along the gallery forests and swamps associated with the Congo River. These so called forest refuges acted as reservoirs of forest species in periods of forest contraction and as the forest fragmented and expanded, forest and non forest species were repeatedly intermixed in a kind of "evolutionary whirlpool". The Okapi, the DRC's endemic forest giraffe, is a spectacular example of a forest species clearly displaying its savanna origins. Today these areas are characterized by higher levels of biological diversity and endemism than in the rest of the Congo basin forests.

Overall species diversity of the central African forests is high, although not as high as the Amazon or south-east Asia. However what makes these forests particularly interesting is that much of the fauna and flora is found nowhere else in the world and this is true not only at the species level but also at the genus and even family levels. The lowland forests contain around 10.000 higher plants, of which 30% are endemic (including 9 endemic families), while the afro-montane forests contain around 4.000 species, of which 70% are endemic (including 2 endemic families). Several endemic and charismatic mammals live in the central African forests including the okapi, bongo, fishing genet, gorilla and bonobo and many of the small primates and duikers are also unique to these forests. In addition to the endemic Congo peacock the forests contain at least 5 bird families endemic to Africa. Amphibian, reptile and fish diversity are also high although all three groups are relatively poorly known and new species are regularly discovered. In the DRC alone over 1.000 species of freshwater fish are known.



A young Bakota boy in Mbomo, near Odzala Koukoua National Park in Congo celebrating « Likinda », the traditional circumcision ceremony. Over 150 different ethnic groups live in the central African rainforests.

Photo © C. Aveling

In addition to its importance in terms of species diversity and endemism the Congo basin is one of the last regions in the world where vast areas of interconnected rainforest allow biological processes to continue undisturbed. A forest elephant could, in theory, move from the Albertine Rift to the coast of Gabon without leaving the forest. The Congo basin is also a gigantic carbon sink and as such plays a vital role in regulating the planet's greenhouse gases. Lastly it has a dominating influence on local weather patterns since over 50% of the rain that falls on the central Congo basin comes from evaporation and evapotranspiration from the forest itself.

Some 30 million people, belonging to over 150 different ethnic groups, live in the central African rainfor-

An Mbuti net hunter in the Ituri forest, Okapi Wildlife Reserve. Semi-nomad pygmy hunter-gatherers and Bantou agriculturalists maintain complex relations of interdependence.

Photo © Kim S. Gjerstad

ests. Vestiges of human occupation in some sites (for example the Ecosystem and Relict Cultural Landscape of Lopé-Okanda) go back 400.000 years, although these people were probably living mostly on the forest fringes in the mosaic of savannas and forests created by the fluctuating global climate. It is not known exactly when humans started living permanently in the forest but it is thought that the forest dwelling semi-nomad pygmy hunter-gatherers have been living in the forests for the past 20.000 years and that Bantou farmers started penetrating the forest from the north-west about 4.000 years ago. Over the millennia relatively complex relations of interdependence built up between the hunter-gatherers and the Bantou farmers, the hunter-gatherers providing meat, fish and other forest products for the farmers, and the farmers providing much needed extra sources of carbohydrates for the hunter-gatherers. These relationships still exist today although increasingly pygmy groups are becoming more settled.

Traditional agricultural practices in the central African forest have evolved on the basis of slash and burn with relatively long fallow periods between forest clearance (>25 years). Given the generally poor fertility of the soils in most of the central African forests slash and burn agriculture, combined with a continuing dependence on the forests' natural resources, has been an appropriate survival strategy for forest dwelling peoples. However this traditional way of life can only remain sustainable as long as population densities remain low. Over large areas of the Congo basin, where population densities are below 2 inhabitants/km^2, traditional agriculture still predominates. However, where population densities are rising, particularly in settlements along roads and around towns and villages, fallow periods are shortening and characteristic halos of forest degradation, with associated problems of soil fertility, are beginning to appear. With the development of economic activities (in particular industrial extractive industries such as logging and mining), and the creation of increasingly dense road networks along which human settlements become established, these

Chimpanzee and crocodile, both protected species, on sale in Lambarene bush meat market, Gabon. The increasingly widespread phenomenon of "open access" to natural resources is leading to impoverishment of wildlife populations through overhunting for the bushmeat trade.

Photos © S. Louembet (below) & C. Aveling (right)

A mosaic of fallow fields and mature forest in a lightly populated area of northern Congo Republic. In the generally poor soils of the central African rainforests traditional slash and burn agriculture is sustainable only as long as population densities remain low (< 2 inhabitants/ km²) and fallow periods remain greater than 25 years.

Photo © C. Aveling.

halos of forest clearance coalesce to form ribbons of forest degradation which fragment the remaining forest blocks. This process of forest degradation is further exacerbated when rural populations begin commercializing the forest products (eg bushmeat and other non timber forest products) to supply neighboring urban centers. Unfortunately these same populations are the first to be affected by the negative impacts of this process of forest degradation.

The shifting patterns in human distribution over the past 30 years have had profound socio -cultural and socio-economic influences on rural populations. New, and often less sustainable, ways of extracting and commercializing natural resources have been introduced and the increasing mix with immigrants often brings conflicts with traditional systems of natural resource management. The increasingly widespread phenomenon of "open access" to forest resources is leading to natural resource depletion and this is exacerbated by the uneasy cohabitation of traditional and normal land tenure systems throughout much of the central African forests. The impact of civil strife and war in the Congo basin, occasionally causing massive movements of refugees, has created further strains on traditional land tenure structures and natural resource management systems.

Currently approximately 22.96 million ha of central Africa's moist forests, some 14% of the surface area, have been designated as protected areas. Sizes of protected areas vary considerably, from a few hundred ha to 3.3 million ha (Salonga National Park, a World Heritage site). However while species diversity is high in the Congo basin forests, densities of species are relatively low and for this reason most of the protected areas, except the very largest and best protected, are probably not large enough to ensure the long term conservation of the full range of species and biological processes. This has led to a shift in conservation

strategies in recent years with an increasing emphasis on a landscape approach to conservation. The idea here is to enhance the ecological integrity of protected areas and their surroundings by addressing conservation management issues in the multiple-use zones that link them. The strategy is to manage the impact of human activities, through for example sustainable forestry management and community-based natural resource management, in such a way that gene flows and ecosystem processes are maintained across the landscape, so that protected areas are prevented from becoming isolated, and often unsustainable, islands of biological diversity.

Since most ecological landscapes lie astride international boundaries a regional approach to conservation goes hand in glove with the landscape approach. In 2000 a major priority setting workshop, involving over 160 national and international conservation scientists, was organized by WWF in Libreville to identify the most important sites for biodiversity conservation in central Africa. Some of these sites fell within the existing network of protected areas, but many others were outside protected areas. These sites were then regrouped within a series of vast and relatively intact landscapes on the basis of their biological representativity, the viability of the wildlife populations, and the integrity and resilience of their ecosystems and ecosystem processes.

The landscape concept was integrated as a central pillar of the COMIFAC's (*Commission des Forêts d'Afrique Centrale*) strategic Convergence Plan which emerged from the 1999 Yaoundé Heads of State Summit on sustainable forest management. The landscape concept is now embraced by the majority of the conservation partners currently active in the region within the framework of a major international partnership known as the Congo Basin Forest Partnership, (CBFP).

BOX 2. CONGO BASIN FOREST PARTNERSHIP

The partnership brings together the 10 member states of the COMIFAC, donor agencies, NGOs, scientific institutions and private sector representatives. It currently has 45 members who share the commitment to enhance communication and coordination among the members and to create synergies between their respective projects, programs and policies, in support of the COMIFAC Convergence Plan.

Governments
Belgium, Burundi, Cameroon, Canada, Central African Republic, Chad, Democratic Republic of Congo, Equatorial Guinea, European Commission, France, Gabon, Germany, Japan, Netherlands, Republic of Rwanda, São Tomé and Príncipe, South Africa, Spain, United Kingdom, United States of America.

International Organizations:
African Development Bank, COMIFAC, FAO, Global Mechanism of the United Nations Convention to Combat Desertification, GRASP (Great Apes Survival Partnership), International Tropical Timber Organisation, Secretariat of the Convention on Biological Diversity, Secretariat of the Convention on Migratory Species, UNDP, UNEP, UNESCO, World Bank.

NGOs and research groups:
African Wildlife Foundation, Centre for International Forestry Research (CIFOR), Conservation International, Forest Trends, IUCN, Jane Goodall Institute, Wildlife Conservation Society (WCS), World Resources Institute (WRI), WWF International.

Private sector:
American Forest and Paper Organisation, Inter-African Association of Forest Industries (IFIA), International Technical Association for Tropical Timber (ATIBT), Society of American Foresters

source: http://www.cbfp.org

The CBFP (Box 2) was launched at the World Summit on Sustainable Development in Johannesburg, 2004. It is an association of 45 governmental and non-governmental organizations, including UNESCO, active in the Congo basin whose aim is to coordinate programs and policies of the different partner organizations in order to improve the coherence and effectiveness of their programs for the sustainable development of the Congo Basin's forest ecosystems. In particular the partnership aims to promote programs that improve biodiversity protection and governance and raise the standard of living of the region's inhabitants. Strengthening of the COMIFAC institutions and aligning CBFP activities with those of the COMIFAC's strategic Convergence Plan (Box 3) are central to CBPF's strategy.

BOX 3. THE 10 PILLARS OF THE COMIFAC CONVERGENCE PLAN

1. Harmonization of forestry and fiscal policies
2. Knowledge of the forest resource
3. Ecosystem management and reforestation
4. Biodiversity conservation
5. Sustainable development of forest resources
6. Development of alternative activities and poverty reduction
7. Capacity building, stakeholder participation, information and training
8. Research and development
9. Development of funding mechanisms
10. Regional cooperation and partnerships

Source: http://www.biodiv.be/comifac2

The partnership is governed through a facilitation process provided by one of the partners for a set period. The first facilitator was the USA (2003-2004), followed by France (2005-2007) and now Germany (2008-2009).

WORLD HERITAGE IN THE CONGO BASIN

Given the global importance of the central African rainforests in terms of their species diversity and their sheer size as large intact ecosystems, it is surprising that so few forest sites have achieved World Heritage status (map, page 8). Currently there are only six forest World Heritage properties in the Congo basin forest, all of which fall within one or other of the 12 priority CBFP forest landscapes. Four of them are in the DRC (Virunga, Kahuzi-Biega, and Salonga National Parks and the Okapi Wildlife Reserve[1]), one in Cameroon (Dja Wildlife Reserve) and one in Gabon (Ecosystem and Relict Cultural Landscape of Lopé-Okanda). Furthermore the four DRC sites have been inscribed on the List of World Heritage in Danger since the late 90s because of the threats to the sites resulting from the civil war. As for the other central African countries, the Congo Republic, Central African Republic and Equatorial Guinea[2], do not have World Heritage properties in the forest zone[2] despite harboring some of central Africa's most spectacular and biologically important forest sites. The forests of the islands of the Gulf of Guinea (São Tomé, Príncipe and Bioko) are also not represented in the World Heritage list despite being of immense biological importance because of their high levels of endemism.

The central African forests are therefore a high priority for UNESCO's World Heritage Centre and a number of activities have been developed over the past decade aimed at i) protecting sites inscribed on the List of World Heritage in Danger, ii) identifying new potential sites and iii) improving the management standards of potential sites so that they can meet the World Heritage criteria for inclusion of the World Heritage List.

[1] DRC's fifth World Heritage site, Garamba National Park, is situated in the savanna zone in the north east of the country.

[2] Equatorial Guinea is not yet a signatory to the World Heritage Convention

[3] CAR's Manovo-Gounda-St Floris National Park is located in the savanna zone in the north of the country. It is also on the list of World Heritage in Danger.

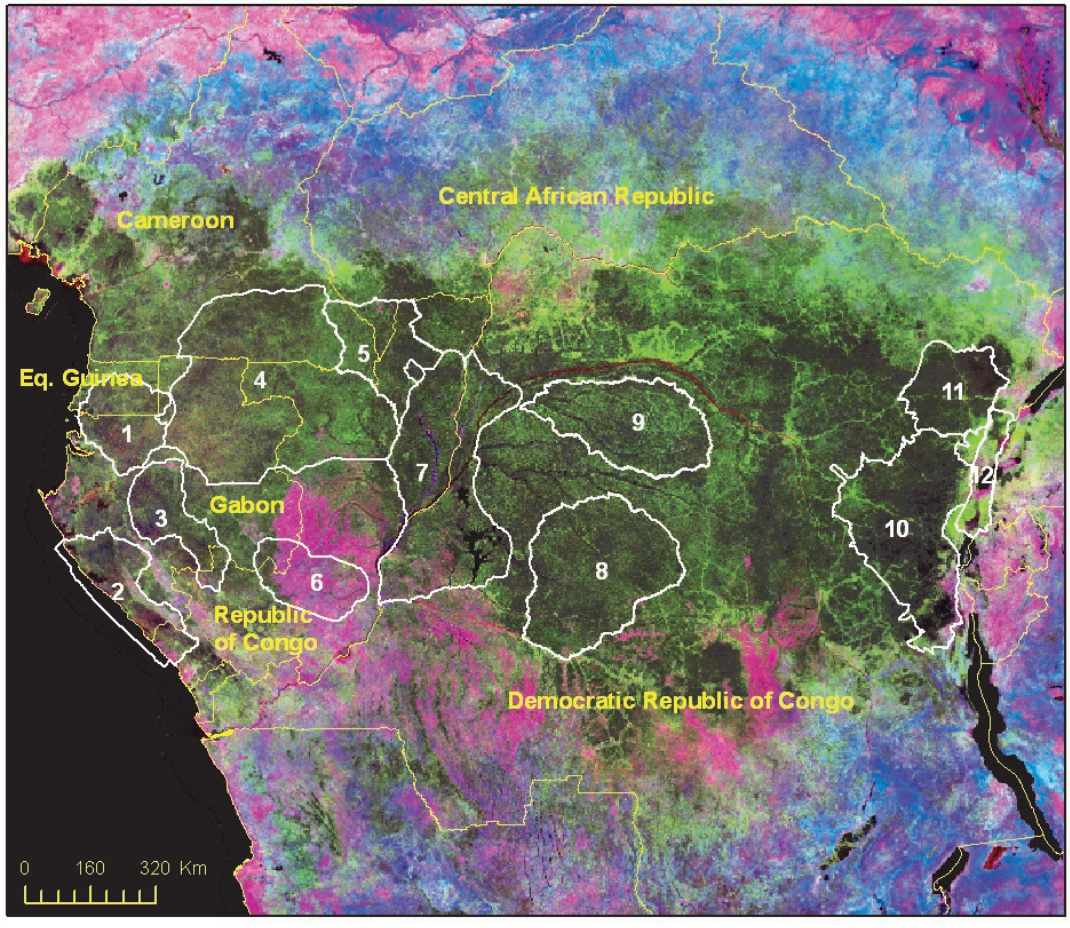
To meet these challenges UNESCO has established an innovative alliance between UN agencies, national authorities and locally experienced international NGOs, each organization bringing its own network, experience and expertise to the partnership:

- **National governments** have protected area networks, but often lack effective management structures on the ground due to lack of capacities and resources;

- **International NGOs** bring their conservation experience, organizational capacities, training resources and core funding to support and strengthen the protected areas on the ground;

- **UNESCO** uses the World Heritage Convention to leverage political support for biodiversity conservation through its permanent contact with State Parties and mobilizes funding from bilateral, multilateral and nongovernmental organizations to support the development and protection of key sites.

UNESCO's central African forest agenda is currently being implemented through two major initiatives: a programme of emergency support to the DRC World Heritage properties entitled *Biodiversity in Regions of Armed Conflict: Protecting World Heritage Sites in the Democratic Republic of the Congo* launched in 2000, and the *Central African World Heritage Forest Initiative* (CAWHFI) launched in 2004 and targeting three transboundary landscapes in Gabon, Congo Republic, Cameroon and CAR.



The central African forest landscapes include protected areas and the multiple use zones that surround them and / or link them. The strategy of the landscape approach to conservation is to manage conservation and development activities across the landscape in such a way that the integrity of ecological processes is preserved.

The landscapes are:

1. *Monte Alén-Monts de Cristal*
2. *Gamba-Mayumba - Conkouati*
3. *Lopé-Chaillu-Louesse*
4. *Dja - Odzala - Minkebe (TRIDOM)*
5. *Tri-National de la Sangha (TNS)*
6. *Léconi-Batéké-Léfini*
7. *Lac Télé-Lac Tumba*
8. *Salonga-Lukenie-Sankuru*
9. *Maringa-Lopori-Wamba*
10. *Maiko-Tayna-Kahuzi Biega*
11. *Ituri-Epulu-Aru*
12. *Virunga*

Source : OFAC

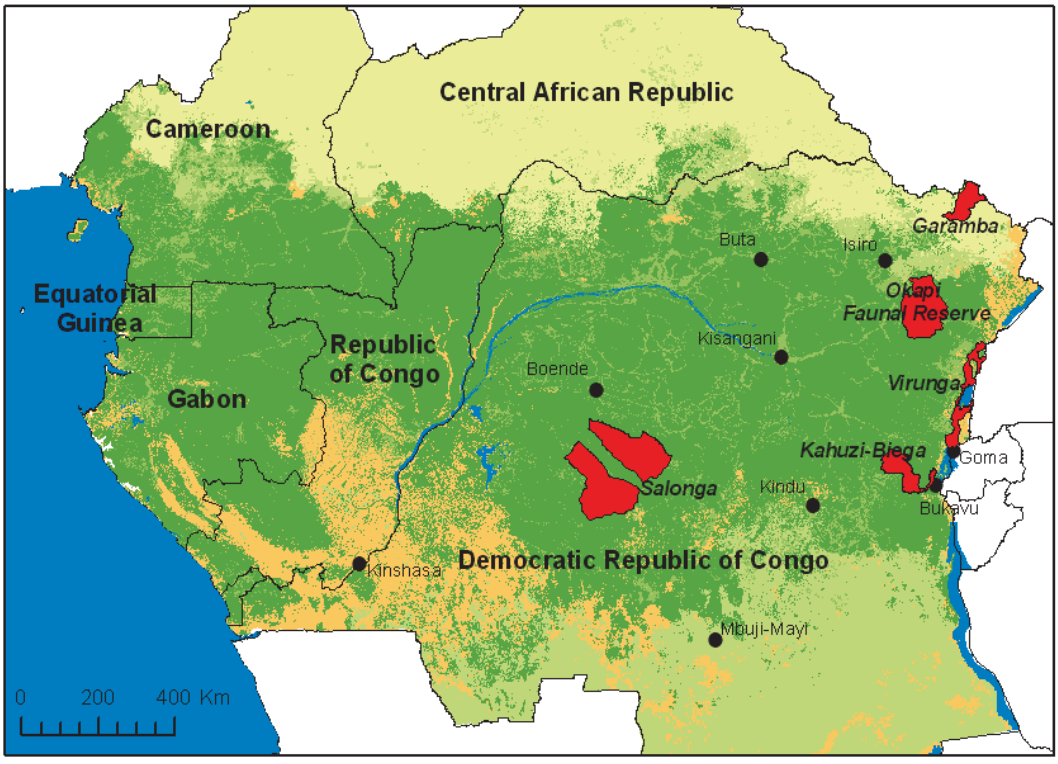
Biodiversity conservation in Regions of Armed Conflict

Protecting World Heritage Sites in the Democratic Republic of the Congo

Twenty years of civil strife and economic collapse, followed by a full blown civil war have placed all five of the DRC's World Heritage properties (four forest sites and one savanna site) under severe pressure from human activities, particularly from large-scale poaching for the ivory and bush meat trades, illegal logging and mining and illegal settlements. Between 1994 and 1999 all five sites were placed on the List of World Heritage in Danger. In response to this crisis UNESCO's World Heritage Center brought together an alliance of conservation partners to provide emergency aid to these sites. The partners included the national protected areas agency l'*Institut Congolais pour la conservation de la Nature* (ICCN), and a group of international conservation NGOs all of whom had a proven track record of work on the ground.

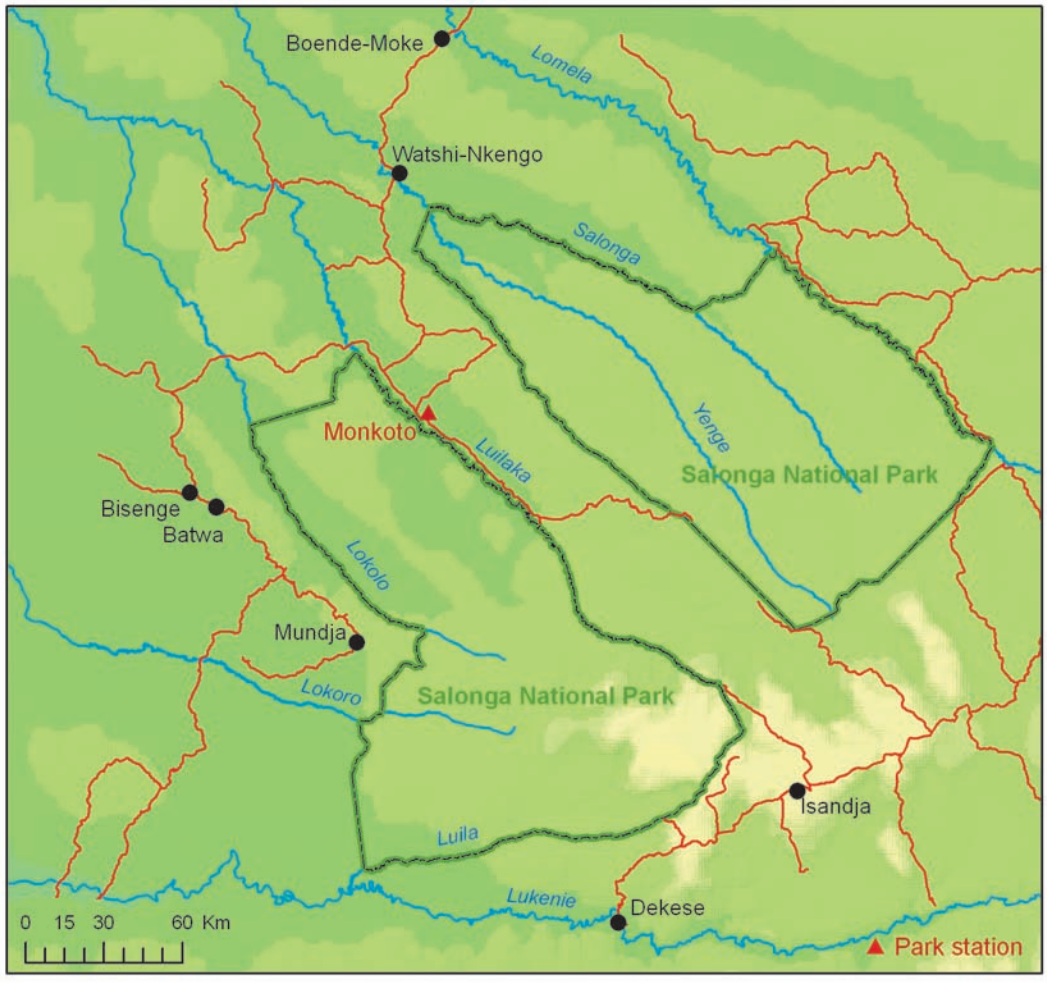
The original partnership included the World Wide Fund for Nature, Wildlife Conservation Society, Gilman International Conservation, Milwaukee Zoological Society, the International Rhino Fund and the International Gorilla Conservation Programme[4] as well as the German bilateral aid agency GTZ and the Belgian government. The program, entitled *Biodiversity in Regions of Armed Conflict: Protecting World Heritage in the Democratic Republic of the Congo*, was launched in 2000 at the height of the civil war with funding from the United Nations Foundation and the Government of Belgium, and provided critical support to enable these sites to maintain their values and integrity at a time when four of the sites found themselves in rebel-held territory and almost all bilateral and multilateral aid partners had temporarily withdrawn from the country. Other NGOs have since joined this partnership (Fauna and Flora International, London Zoological Society, Frankfurt Zoological Society, African Parks Foundation, African Conservation Fund, IUCN) and the second phase of the program has also received funding from Italy. Discussion for a third phase are currently underway with contributions from Belgium and Spain.

[4] *The International Gorilla Conservation Program is a coalition of three partners: African Wildlife Foundation; Fauna and Flora International; World Wide Fund for Nature)*



The long period of conflict in the DRC has seriously threatened the integrity of the country's protected area network. Between 1994 and 1999 all five of the DRC's World Heritage Sites (in red) were placed on the list of World Heritage in Danger.

Salonga National Park



Salonga National Park at a glance

Status	National Park (1970); World Heritage List (1984 - criteria vii and ix); World Heritage Site in Danger (1999)
Coordinates	1°00'-3°20'S, 20°-22°30'E
Surface area	33,346 km²
Altitude	350 – 700 m
Terrestrial Ecoregions	Eastern Congolian Swamp forests; Central Congolian lowland forests
Aquatic Ecoregions	Central basin
UNESCO's site partners	MZL, WCS, WWF

Salonga National Park is the largest protected area of dense humid forest on the African continent, so managing this vast area with less than 200 park staff presents enormous challenges for ICCN. Travel in and around the park is on foot or by pirogue and simply visiting all the patrol posts can take up to 3 months! Transferring a poacher to the nearest tribunal involves a 200 km journey on foot or by bicycle.

The park comprises lowland guineo-congolean rainforest dominated by leguminous species from the Caesalpinacea family, mixed with large areas of swamp and riverine forest. Mineral rich forest clearings ("*botoka njoku*"), which attract large mammals particularly elephants, also occur. To the south of the park, areas of forest/savanna mosaic add to its floral diversity. While overall biodiversity is not as high as the Atlantic forests to the west or the Alber-

The vegetation in the Salonga National Park is dominated by species from the Caesalpinacea family mixed with large areas of swamp and riverine forest. To the south areas of forest/savannah mosaic add to the floral diversity of the park. Photos © Kim S. Gjerstad

tine Rift forests to the east, this is more than offset by the fact that its sheer size means that it has the potential to harbour very large assemblages of the species that do occur there. The presence of two endemic primate genera (the bonobo and the marsh monkey), as well as an endemic species (the Salonga monkey) and several endemic sub-species of primate, make this an important protected area bio-geographically. Its vast size also makes it hugely important in terms of climate regulation and carbon sequestration.

Human population densities are low in this remote area, averaging around 2,4 inhabitants/ km². Exploitation of the area's natural resources accounts for over 95% of human activities (agriculture, fishing, hunting, non-lignite forest products (NTFPs). The socio-economic collapse brought on by the past 20 years of conflict has made local populations ever more dependant on natural resource exploitation as an economic activity. Two populations live within the park's boundaries. The Kitwalistes, a religious sect, took refuge in the north-eastern part of the northern block in the 70s and have remained there, essentially beyond the reach of the law, ever since. They currently number between 3.000 and 4.000. In the southern block the Iyaelema, belonging to the Mongo group, who refused to leave their ancestral lands when the park was created, currently occupy 8 villages and number about 2.340 inhabitants. Their presence is tolerated by the parks authorities who have a tacit agreement with them about the scope of activities permitted.

Human populations rely heavily on exploitation of natural resources in this remote area. Fishing accounts for 65% of household revenues around the Salonga National Park. Commercial hunting has also increased dramatically.

Photo © J.T Hart

Despite its size and apparent inaccessibility recent surveys have shown that wildlife populations have been depleted during the period of political instability. The large navigable rivers in fact provide easy access for poachers and armed groups, including uncontrolled elements of the army, to penetrate deep into the park to hunt for ivory and bushmeat. Massive quantities of bushmeat from Salonga National Park are now finding their way to distant markets in Kinshasa and Katanga province where they fetch prices up to 10 times higher than in the villages and camps around Salonga. However a wildlife survey report published by WCS in 2006 estimates that bonobo numbers are still relatively healthy, with a population estimate of 14,800.

VIRUNGA NATIONAL PARK

Virunga National Park at a glance

Status	National Park (1925); World Heritage site (1979 - criteria vii, viii, x); World Heritage site in Danger (1994); Ramsar Site (1996)
Coordinates	0°55'N -1°35'S and 29°10 - 30°00'E
Surface area	7,900 km²
Altitude	798 – 5,119 m
Terrestrial Ecoregions	Albertine Rift montane forests; East Sudanese savanna
Aquatic Ecoregions	Rift Valley lakes, Albertine Rift mountains
UNESCO's site partners	WWF, LZS, IGCP (a consortium of FFI, WWF and AWF), FZS, ACF

Situated along the Albertine Rift, the Virunga National Park is arguably the most spectacular protected area in Africa. From freshwater lakes, to active volcanoes, savannas, dry forests, dense humid forests, afro-tropical alpine meadows and snow-capped mountains it is tempting to suggest that the only biomes that are missing in the PNV are the desert and the sea. The first park in Africa, it was created in 1925 to protect the mountain gorillas of the Virunga volcanoes and was later extended northwards to include the Rwindi grassland plains, Lake Edward, the dense humid forest of the Semiliki valley and the snow-capped Ruwenzori Mountains. Virunga National Park is contiguous with 6 other national parks in neighbouring countries (Volcans in Rwanda; Mgahinga, Bwindi, Queen Elizabeth, Ruwenzori and Semliki in Uganda) which act as reservoirs for commonly shared wildlife species, a vital consideration in times of war. Both Bwindi and Ruwenzori are also World Heritage Sites.

The enormous variety of habitat types means that Virunga has by far the greatest diversity of fauna and flora in the DRC. Of the 2,077 plant species recorded in the park 230 are endemic to the Albertine Rift mountains. In an area representing only 0,3% of the total surface area of DRC, the Virunga is home to over half of the DRC's mammal species (218 out of 415 species, including 22 primate species) and two thirds of its bird species (706 out of 1094 species, of which 25 are endemic to the Albertine Rift). In addition to the world famous population of mountain gorillas, comprising 700 individuals shared between DRC, Uganda and Rwanda, Virunga is unique in that it also harbours a small population of a second subspecies of gorilla, Grauer's gorilla, on Mount Tchiaberimu. Chimpanzees also occur in several sites in the park. Before the war gorilla and chimpanzee viewing was the basis of a flourishing tourism industry in the park, generating up to half a million dollars per year in park entrance fees. Between 2008 and 2009 the gorilla sector was occupied by FDLR rebel forces. However despite initial fears for the survival of the gorilla population, the rebels appeared to have understood the economic returns of keeping the gorillas alive since in the early stages of their occupation they were reported to be running tourist excursions! Recent surveys in the VNP have also confirmed the presence of one of the DRC's other

charismatic large mammal endemics, the Okapi, which had not been seen in the park for over 50 years.

Virunga National Park is contiguous with several protected areas in neighbouring Uganda and Rwanda. Once peace returns to eastern Congo wildlife populations, including the charismatic flagship species, should be able to recover through a process of repopulation from the neighbouring protected areas.

Photo © Kim S. Gjerstad

Virunga National Park is particularly vulnerable to pressure because of its geographic location and its shape. The park is over 200km long with nearly 1,000km of border. In addition the fertile volcanic soils of the region support one of the highest human population densities in Africa (as high as 600 inhabitants/km² in some areas), of which 80% are engaged in permanent agriculture and 5% in fishing on the Lakes. However the last decade of civil war has seen a dramatic increase in incursions into the park accompanied by massive scale poaching for the bushmeat trade. Hippos in the central sector of the park declined from 23,000 in 1989 to less than 500 today, and most of the plains species (elephant, buffalo, and antelope) have declined sharply as well. Fishing villages have mushroomed along the shore line of Lake Edward and fish production is declining through overfishing. This is a particular concern since of the 80 species of fish described from Lakes Edward and George, 60 are endemic.

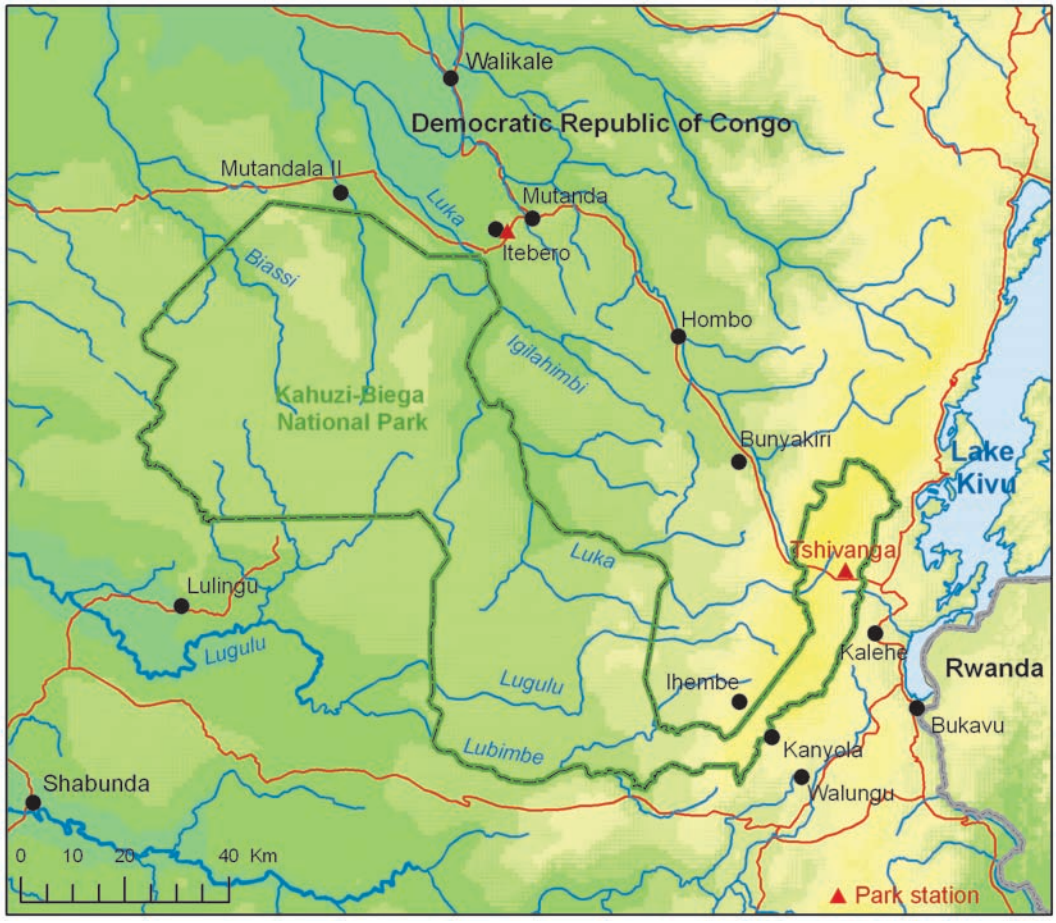
Clearance of the forest, particularly in the larva plains around the two active volcanoes, to supply fuel wood and charcoal for the burgeoning city of Goma, is a massive threat to the integrity of the southern sector of the park and is proving particularly difficult to eliminate because of the many interest groups involved. These include military, local authorities, and even some of the park staff themselves.

Finally increasing interest in the oil and gas reserves under the Albertine Rift in Uganda and DRC, for which several exploration permits are awaiting Presidential approval, represents yet another threat to the integrity of the complex of protected areas shared by Uganda, DRC and Rwanda.

An exceptional diversity of landscapes including volcanoes, snow-capped mountains, dense forests, savannahs, rivers and lakes makes the Virunga National Park one of the most biologically diverse ecosystems in Africa. Photos © Kim S. Gjerstad (left), C. Aveling (centre and right)

KAHUZI-BIEGA NATIONAL PARK

Originally created in 1970 to protect the montane habitat of the Grauer's gorilla, a subspecies endemic to DRC, the park was later extended to cover the lower altitude forests to the west. Today the park covers 6,000 km². The great altitudinal range of (from 600m to 3,300m) covered by the park is rare for a forested protected area in Africa. Almost everywhere else in Africa the mid-altitude forests have been cleared for agriculture and ranching. The land around the highland sector of the park is heavily populated with densities of up to 300 inhabitants /km², their main activities being permanent agriculture and livestock. To the west, in the lowland sector, population densities are less than 30 inhabitants/km². Here subsistence slash and burn agriculture dominates although recently many people have abandoned agriculture in favour of artisanal



Status	National Park (1970, extended 1975); World Heritage site 1980 (criteria vii, viii, x); World Heritage site in Danger 1994
Coordinates	1°36' – 2°37'S and 27°33' - 28°40'E
Surface area	6,000 km²
Altitude	700 – 3308 m
Terrestrial Ecoregions	Northeastern Congolian lowland forests Afro-montane forests of the Albertine Rift
Aquatic Ecoregions	Upper Congo, Albertine Rift mountains
UNESCO's site partners	GTZ, WWF, WCS

Tourism based on gorilla viewing was pioneered in the 1970s in Kahuzi-Biega National Park . Gorilla viewing has now become a multi-million dollar business in the three countries of the Great Lakes region that share the remaining mountain gorilla populations.

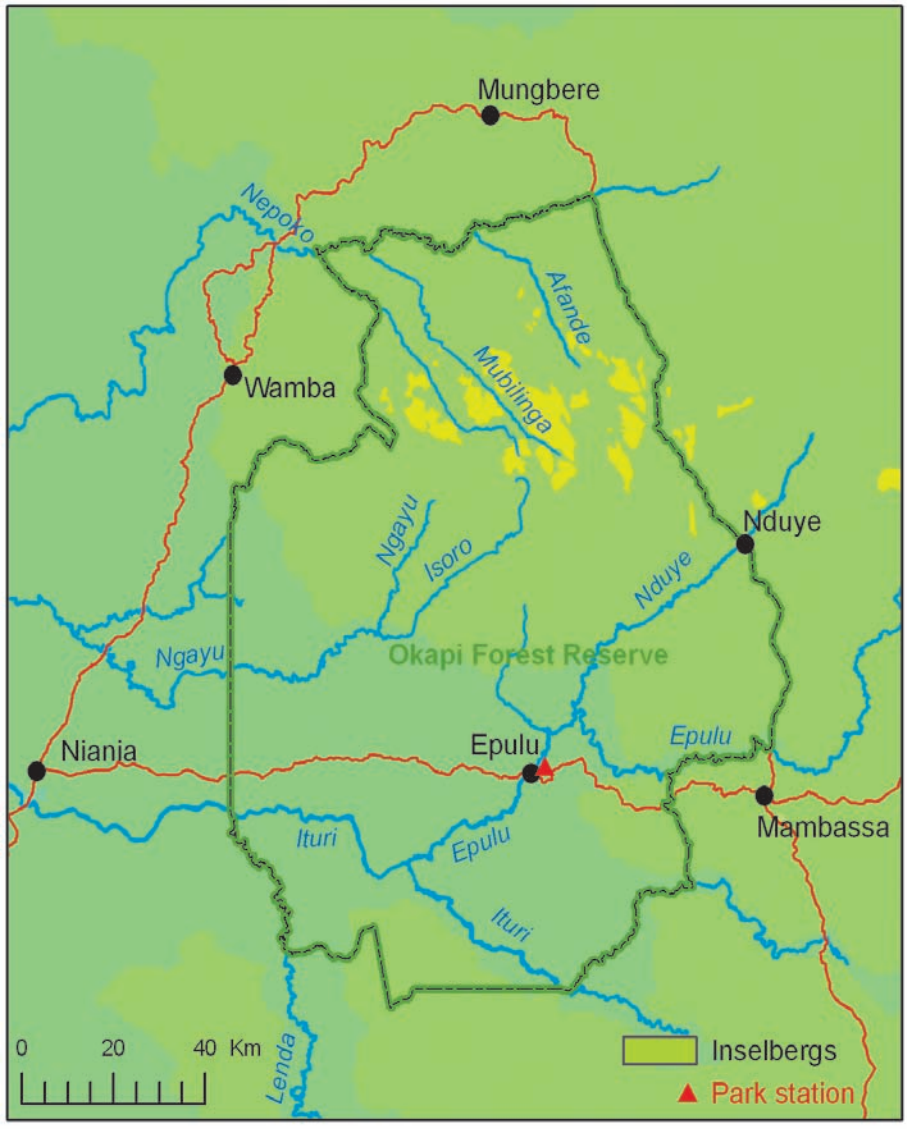
Photo © Simon J. Childs

mining activities (gold, diamonds, coltan, tin).

Situated within the species-rich Albertine Rift the forests of Kahuzi-Biega National Park have exceptionally high floral diversity with 1,171 recorded species, of which 145 are endemic to the Albertine Rift. In addition to the low and mid-altitude closed canopy moist tropical forests a number of other important habitat types occur including extensive bamboo forests, swamp forests, peat bogs, and afro-alpine fern forest and meadows. This floral diversity is matched by a high faunal diversity with 136 mammal species (with 15 Albertine Rift endemics) and 335 bird species (with 29 Albertine Rift endemics).

The civil war has had a devastating effect on wildlife in Kahuzi-Biega National Park with widespread poaching to supply Bukavu's burgeoning bushmeat trade during the 90's. By 2003 the highland sector of the park had lost more than 95% of its elephant population and about 50% of its gorilla population, including several of the habituated families used for tourism. Recently completed surveys in the lowland sector also confirm that wildlife populations appear to have been badly hit. However no species have been lost and there is every reason to believe that populations can recover once ICCN recovers control of the area. Until recently the presence of armed bandits, rebel militias, and army deserters, many of whom are involved in the bushmeat trade and illegal mining, made much of this area a "no-go" zone for ICCN. However the situation is now improving slowly, although settlements and land clearance for agriculture in the narrow corridor linking the highland and lowland sectors of the park remains a serious problem.

Okapi Wildlife Reserve



Okapi Wildlife Reserve at a glance

Status	Wildlife Reserve (IUCN cat II National Park), World Heritage site 1996 (criterion x), World Heritage site in Danger 1999
Coordinates	1°00'-2°42'N and 28°02'- 29°08'E.
Surface area	13,726 km²ha
Altitude	500 – 1,000 m
Terrestrial Ecoregions	Northeastern Congolian lowland forests
Aquatic Ecoregions	Uélé, Central basin
UNESCO's site partners	GIC, WCS

The Okapi Wildlife Reserve is situated in the Ituri forest to the west of the Albertine rift and covers almost 14,000 km² of lowland and mid-altitude forest, with extensive areas of mono-dominant *Gilbertiodendron* forest. As its name suggests it was created to protect the habitat of the Okapi, DRC's most intriguing endemic mammal (photo page 10). This strange forest dwelling giraffe was described to the explorer

Stanley by the Mbuti pygmy inhabitants as he passed through the Ituri forest in the 1860's but it was not until 1901 that scientists collected and described this species. Later studies confirmed that the Okapi, so unlike any other forest species, has a very limited distribution and is confined to north eastern DRC.

A male bongo, Africa's largest forest antelope species, in a forest clearing (edo) in the OWR.

Photo © Reto Kuster

There are several other spectacular and endemic species in the OWR including the rarely seen Congo peacock, the aquatic fishing genet and the giant genet. Over 90 mammal species are recorded from the reserve including the highest number of primates of any single forest block in Africa (13 diurnal, 4 nocturnal - Virunga has more species but dispersed over several habitat types). These include chimpanzees but, interestingly, not gorillas even though the Ituri forest is contiguous with other forested areas where gorillas are found. In the north of the reserve spectacular granite inselbergs tower above the forest canopy and are home to a number of plant and animal species specially adapted to this micro-habitat.

The area covered by the OWR has been occupied by man since at least the Stone Age. The earliest occupants were probably the Mbuti and Efe semi-nomads who currently number around 30,000 in the landscape. The status of Reserve rather than National Park for this area ensures that these semi-nomad groups are able to maintain their traditional way of life in the forest. The area has remained, until relatively recently, one of the most lightly populated areas of north east DRC. However the past 30 years has seen a steady immigration of people leaving the overpopulated highlands to the east in search of new agricultural land. This is now one of the key threats to the area as it has led to increased pressure on the Ituri forest through forest clearance for agriculture, and increased hunting. It has also led to conflict between resident ethnic groups and the newcomers.

Inselbergs in the north of the OWR are home to a number of plant and animal species specially adapted to this micro-habitat.

Photo © Reto Kuster

During the civil war Epulu was the front line between the warring parties. The breakdown in law and order during the 90's provided the opportunity for thousands of itinerant miners, as well as elements from the Ugandan army, to enter the forests of eastern DRC to extract timber and mine for gold, diamonds and coltan. Temporary mining camps composed of miners, their families, hunters, itinerant traders and other hangers-on appeared all over the forest. The effects on wildlife were devastating as the mining camps became centres for the commercial bushmeat and ivory trades. Fortunately the situation has improved considerably since 2007 when ICCN managed to regain control of 95% of the Reserve and, with the support of administrative and traditional authorities, closed down most of the mining camps. Elephant poaching has also been brought under better control through more effective surveillance and improved collaboration with the armed forces and administrative authorities.

Garamba National Park

Established in 1938, Garamba is of particular importance in the DRC's network of protected areas as its geographic situation at the northern limit of the forest / savannah mosaic zone gives it a unique mix of forest and savannah plant and animal species. The southern part of the park is predominantly grassland savannah with scattered trees. Along the Dungu and Garamba rivers, there are mosaics of riverine galleries, forests and thickets. Further north the vegetation is mainly mixed woodland, dense dry forests and riverine and small swamp forests. In contrast, the surrounding hunting areas are predominantly dense bush savannahs, mixed woodlands and forests.

Garamba's flagship mammal species is the highly endangered northern white rhino whose last remaining population was, until very recently, confined to Garamba National Park. Garamba is also famous for its large population of elephants which display morphological characteristics that are intermediate between the forest and the savannah forms. Other purely savannah species include the Congo giraffe - an endemic subspecies occurring only

Garamba National Park at a glance

Status	National Park (1938); World Heritage site (1980 – criteria vii, x); World Heritage site in Danger (1996)
Coordinates	3°45' - 4°41'N, 28°48' - 30°00'E
Surface area	4,920 km² surrounded by three hunting reserves (Azande, Mondo-Missa, Gangala na Bodio) totaling 10,000 km²
Altitude	710m to 1,061m
Terrestrial Ecoregion	Northern Congolian forest-savanna mosaic
Aquatic Ecoregion	Uélé
UNESCO's site partners	IRF, WWF, FFI, APN

in Garamba, the roan antelope and the hartebeest. Typical forest mammal species found in the extensive areas of gallery forest include the chimpanzee, 8 small primates (baboons, colobus and guenons), 3 duikers, the bongo, red river hog and giant forest hog.

Garamba National Park contained, until recently, the last remaining population of the northern white rhino. No specimens have been seen since November 2007.

Photo © C. Aveling

The traditional inhabitants of this region are the Azande people who practice subsistence agriculture and hunting. Population densities are not high (about 4 inhabitants / km²) but the social dynamics and security of the region have been adversely affected not only by the DRC wars but also by the wars in the neighbouring countries of Sudan and Uganda. At the beginning of the 1990s the war in Sudan resulted in the displacement of some 80,000 refugees to camps to the east and west of the park, and well armed and organised Sudanese militias have frequently targeted the park for poaching of bushmeat, ivory and rhino horn. Since 2005 the Ugandan Lord's Resistance Army rebels frequently use DRC to avoid the Ugandan army and in January 2009 staged a raid on the park destroying vital equipment (valued at 1.6m$US) and killing ten people, including ICCN staff and family members.

As a result the park has seen significant declines in its wildlife populations. In 2006 elephant and buffalo numbers were estimated at 3,800 and 8,000 respectively, compared with 11,000 and 25,000 respectively in 1995 and 20,000 and 50,000 respectively in the late 70's. There are also serious concerns about the survival of the world's last population of northern white rhinos. In 2004, when approximately 10 individuals remained, a proposal was made for the translocation of a breeding group of five individuals to a safe haven but the idea was rejected at the last minute by the DRC government in the face of opposition from the local community. By 2006 there were only 4 known individuals, and none have been seen since. There have been no sightings since November 2007 and it is possible that the sub-species is now extinct.

Rolling grasslands, woodlands and riverine forests, together with a plentiful supply of water makes Garamba National Park an ideal habitat for large herbivores, including, elephant, buffalo and giraffe. There are signs that the elephant population has started to recover since the end of hostilities.

Photos © C. Aveling

Most of the wildlife is currently concentrated in the southern section of the park which is the only area where ICCN is still able to maintain a minimum level of surveillance. However as the security situation improves and ICCN, with the support of its conservation partners, gradually regains control of the north of the park, wildlife numbers are expected to recover. In March 2006 an aerial survey, covering 4,400 km² of the southern part of GNP and parts of the neighbouring hunting domains, was conducted by the IUCN African Rhino Specialist Group on behalf of the African Parks Foundation who have been managing the Garamba National Park under contract to ICCN since September 2005. While the survey only covered about one third of the Garamba ecosystem the results showed encouraging signs of recovery with respect to the elephant, buffalo and hippo populations. There was also a significant improvement in the ratio of old to new carcasses (many more old carcasses than new carcasses) indicating that poaching pressure has been reduced.

Using the World Heritage Convention to enhance international support and strengthen partnerships

Protecting the World Heritage Sites in DRC during periods of conflict

UNESCO launched its intervention in favour of the five DRC World Heritage Sites at a time when most development aid agencies had suspended the majority of their activities in DRC because of the chaos and insecurity caused by the civil war. The World Heritage sites were in a desperate state, devoid of resources and cut off from their headquarters in Kinshasa. Four of the sites had fallen into rebel hands and the ICCN field staff found themselves having to deal with a disparate band of war lords whose least concern was the protection of these natural World Heritage sites. On the contrary occupation of the sites was seen as an opportunity to loot the parks' infrastructures and organise the massive exploitation of their mineral, wildlife and timber resources. In the general breakdown of law and order, illegal settlements, mining camps, fishing villages, farms, and cattle ranches mushroomed inside the parks and there was a real fear that the sites would be irremediably damaged if emergency action was not taken immediately.

In response to this situation UNESCO's project strategy was to address the immediate crisis on the ground by using the World Heritage Convention to raise awareness for protection of the sites and deliver urgently needed material and technical support on the ground, while at the same time pursuing more long term objectives (strengthening international partnerships, retraining of field staff, sustainable funding) in order to prepare ICCN for the post-war challenges.

In the confused and dangerous situation facing the five World Heritage Sites, UNESCO was in the unique position of being able to intervene, and most importantly be seen to intervene, in an entirely neutral capacity both at the international and local levels since all the countries involved directly or indirectly in the conflict (DRC, Sudan, Uganda, Rwanda) were signatories of the World Heritage Convention.

Direct field support to address urgent threats to the integrity of the sites

Support on the ground is delivered through a coalition of ICCN's conservation partners brought together by UNESCO. These were all organisations with many years of experience in DRC which had all opted to remain at ICCN's side in this moment of crisis. In the initial 5-year phase from 1999 to 2004 a major part of this support took the form of cash bonuses for the unpaid park guards in order to keep them motivated and active in the field. This was accompanied by the provision of essential equipment such as vehicles, radio communications, and uniforms, much of which had been lost in the looting. Services such as aerial surveillance in Garamba and Virunga were also provided. There is little doubt that this direct support in the form of bonuses and supplies was absolutely critical to ensuring that the sites survived the war. While it is evident that certain of the values for which the sites were nominated were degraded during this crisis, with the possible exception of the northern white rhino, all appear to have survived. It is unlikely that this would have been the case if

UNESCO had not intervened. The courage and fortitude of the ICCN field staff and their NGO conservation partners (who shouldered the considerable risks and costs of delivering cash and equipment to the sites) were also critical to the success of these early operations.

However, while the parks may have survived the wars between 1999 and 2004, the situation at the time of the signature of the 2004 peace accords was still highly precarious in all five sites and emergency actions were still required to deal with site specific issues that had not been targeted in the initial project design. Therefore in the second phase of the programme emergency action plans were developed to address urgent threats to the 5 sites. Implementation is currently on going and will be continued in the third phase.

BOX 5. EMERGENCY ACTION PLANS DEVELOPED FOR DRC'S FIVE WORLD HERITAGE SITES

	Threats to the sites	Emergency Actions supported by UNESCO
Garamba National Park	• Poaching of rhino, elephant and buffalo by local hunters and highly armed and well-organised horsemen from Sudan. • Isolation and derelict infrastructures • The presence of tens of thousands of Sudanese refugees in the immediate vicinity of the park • Gold and diamond mining in the hunting reserves adjoining the park	• Guard training specifically designed to strengthen the rangers' capacities to confront the paramilitary Sudanese poachers • Infrastructure rehabilitation • Development of a community conservation strategy. Community initiatives are funded within the framework of co-management agreements with traditional authorities. Key activities include support for social infrastructures (health centres, schools….)
Kahuzi-Biega National Park	• Presence of armed militia in lowland sector rendering much of the lowland sector a no-go area • Poaching of elephant and commercial hunting for the bushmeat trade • Mining for coltan, gold and tin • Illegal farming and cattle ranching in the narrow corridor (Nindja corridor) linking the highland and lowland sectors of the park	• Support to ICCN to strengthen surveillance activities and regain control over the lowland sector of the park. • Intensive high level awareness raising, communication and participatory boundary marking to resolve the illegal occupation issue in the Nindja biological corridor.
Okapi Wildlife Reserve	• Poaching of elephant and commercial hunting for the bushmeat trade • Mining for gold and diamonds • Immigration into the permanent village enclaves within the Reserve as a result of the rehabilitation of the RN4 highway.	• Collaboration with military and police authorities to deploy joint surveillance activities. By 2007 control over most of the reserve had been recovered, illegal mining camps had been closed down and military and police involved in poaching, particularly of elephants, had been removed from the area. • Establishment of a system to monitor and control immigration into the legally recognised village enclaves within the Reserve along the main RN4 highway. • Elaboration of an updated management plan. Immigration into the Reserve, and resource use within the Reserve by Bantou and Pygmy semi-nomad communities, are specifically addressed.
Salonga National Park	• Poaching of elephant and commercial hunting for the bushmeat trade	• Collaboration with military and police authorities to deploy joint surveillance activities to combat elephant poaching.
Virunga National Park	• Illegal occupation of the park, particularly along the western shore of lake Edward • Illegal charcoal making in the dry forests of the southern sector • Poaching of large mammals, particularly hippo, in the central and northern sectors of the park.	• Participatory park boundary marking followed by voluntary evacuation. By the end of 2008 some 70.000 people had voluntarily moved out of the park. (note that the UNESCO project is part of a coalition of agencies contributing to the voluntary evacuation initiatives). • Support for the development of alternatives to the use of charcoal.

STRENGTHENING CAPACITIES

Years of neglect, followed by the devastating effects of the civil war had eroded the institutional capacities of ICCN and left it in a dangerously weak position to face the post-war challenges. The project therefore focused on three key areas:

- Strengthening law enforcement and monitoring systems in order to improve the effectiveness of ICCN's surveillance activities
- Assessing the post-war conservation status of the sites, and establishing bio-monitoring and information management systems
- Modernising ICCN's approach to conservation by introducing new concepts of community conservation.

Strengthening law enforcement and monitoring systems

As from 2002 a major effort has been placed on guard training. The initial phase took place in Garamba NP, organised by the African Field Ranger Training Services based in South Africa. A group of the most promising elements were selected to become future trainers. Between 2005 and 2006 further extensive training was then organised in Virunga by FZS and LZS (with additional EC emergency funding) using Ishango as the operations base.

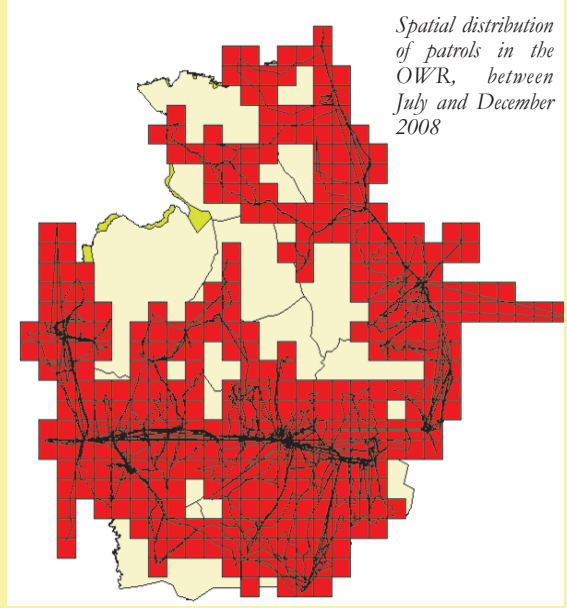
BOX 6. RANGER BASED MONITORING

Ranger-based monitoring is an essential tool for park managers to monitor what is going on in their parks. It enables them to adjust management strategies as a function of the information gathered by the rangers on patrol. Historically park rangers in the DRC have always been required to produce patrol reports but the information has usually been poorly exploited, because it was rarely recorded in a sufficiently systematic manner and because the park managers never had the time or resources to analyse the data adequately. All too often the result has been piles of unread paper reports gathering dust on the floor of an overstretched park warden's office!

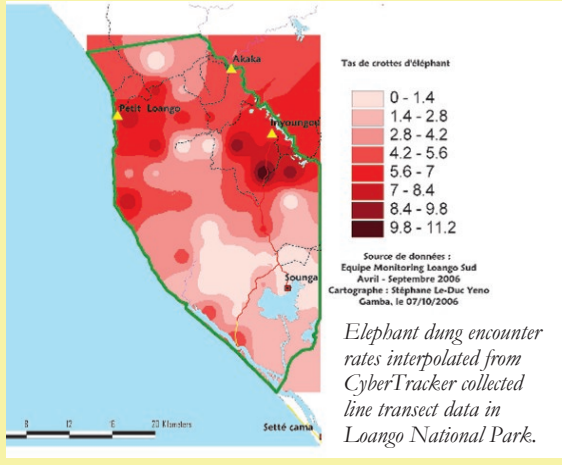
Modern computer and GPS technology, however, has changed all that. Detailed geo-referenced observations can now be simply recorded in the field and entered into GIS systems for rapid analysis. One such system, MIST (*Monitoring Information System*), is being successfully employed in the DRC's Virunga National Park and the Okapi Wildlife Reserve. Information generated is enabling park managers to obtain up to date (almost real time) information on threats to the park which enables a more efficient deployment of their ranger force. MIST enables surveillance effort (spatial distribution, man-days of patrol), and its effectiveness in controlling illegal activities and protecting target species, to be monitored continuously.

In the TRIDOM and Gamba-Mayumba-Conkouati landscapes data recording in the field has been taken a step further by using CyberTracker technology* to record detailed geo-reference observations directly onto a hand-held computer (PDA, or smart phone as they are commonly referred to) using the tactile screen. The data can then be downloaded directly into a GIS system without going through the time consuming, and error prone, process of manual data entry. CyberTracker also speeds up the data recording step as paper and pencil are not required in the field.

* *www.cybertracker.org*



Spatial distribution of patrols in the OWR, between July and December 2008



Elephant dung encounter rates interpolated from CyberTracker collected line transect data in Loango National Park.

Guards from all sites were trained. Training focused on leadership, wildlife law, law enforcement, conflict resolution, paramilitary skills and vehicle maintenance.

Law Enforcement Monitoring (LEM) is now a universally accepted management tool for protected areas, particularly in Africa where poaching is often a major threat to park integrity. LEM enables park managers to evaluate the efficiency and effectiveness of its surveillance activities by monitoring conservation "effort" (man-days of surveillance, spatial distribution) and relating this to levels of illegal activities in the park. The project elaborated a standardised LEM system for all the sites, trained the personnel and provided the GPS and computer equipment to enable all data collected to be geo-referenced and integrated into GIS data bases on site.

Establishment of bio-monitoring and information management systems

Status surveys: Having lost control of considerable areas of the sites during the wars it was essential to assess the status of the areas in order to understand the scale of the damage done and target post-conflict conservation measures. Bio-monitoring teams were trained and surveys conducted wherever the security situation permitted. The bio-monitoring activities were coordinated by the WCS Wildlife Inventory Unit in collaboration with the MIKE programme (*Monitoring of Illegal Killing of Elephants*), the International Rhino Fund and African Parks northern white rhino monitoring activities. In some cases, such as the lowland sector of Kahuzi-Biega the security situation prevented the completion of surveys. In others, such as Salonga and the Okapi Wildlife Reserve it was possible to cover the entire area, although not without considerable difficulties and delays for logistical and security reasons. Although the results show widespread impoverishment of wildlife populations (Box 7) the situation is not without hope. With the exception of the northern white rhino no species appear to have disappeared and the general situation indicates that recovery can be ensured if strong conservation measures can be maintained.

Information management: Management of data relating to protected areas is of fundamental importance. Not only does good data management provide protected managers with information essential for planning their management activities, but it also enables parks to communicate more effectively with local, national and international stakeholders. Surprisingly a significant gap was the existence of accurate maps of the sites. As a first step the project established accurate base maps of all the sites. This work was piloted by two Belgian Universities (Louvain Catholic University and Gent University with the support of the Belgian Federal Science Policy Office).

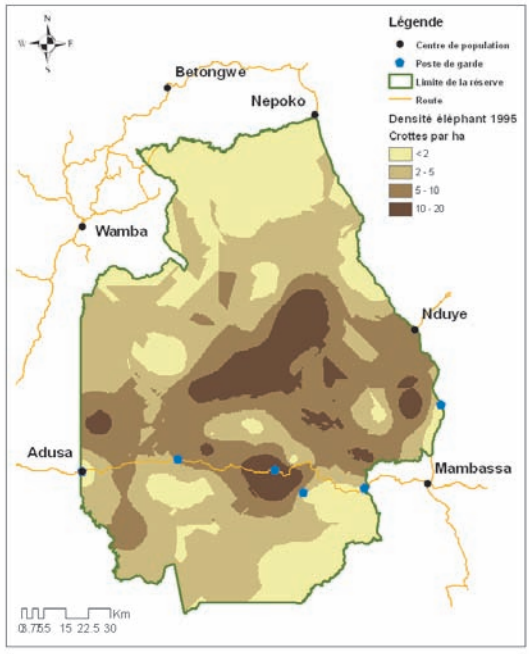
In parallel the project set about designing and implementing a protected areas information management system known as SYGIAP (*Système de Gestion de l'Information des Aires Protégées*). Equipment has been provided, operators trained and data, particularly site-based LEM data, has started to flow into the system from the sites (Box 6).

Everywhere else the Congo basin forest elephants have suffered intensive poaching for the international ivory trade. Civil and military authorities are often involved.

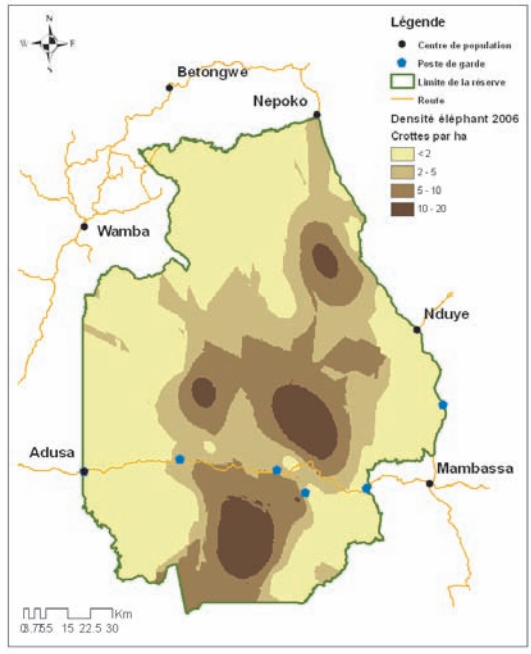
Photos © Reto Kuster

BOX 7. THE VALUE OF LONG TERM DATA FOR MONITORING POPULATION TRENDS.

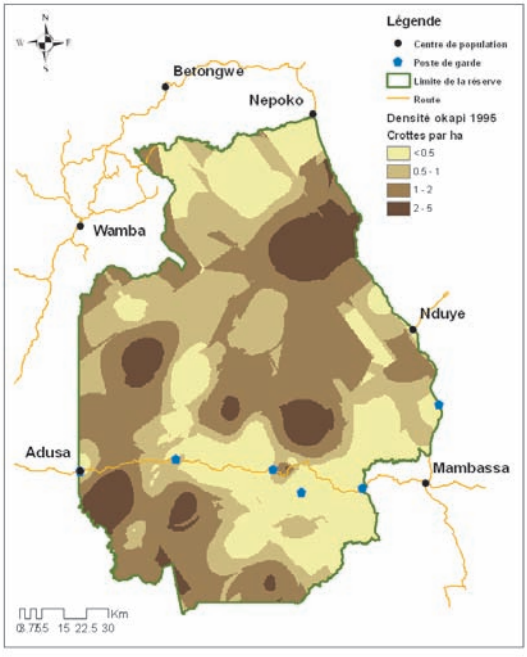
Using a standardised methodology ICCN and WCS bio-monitoring teams have been able to show the impact of the war on wildlife populations in the OWR. Significant declines have occurred not only in the populations of flagship species such as forest elephant and okapi (below), but also in most of the duiker species.



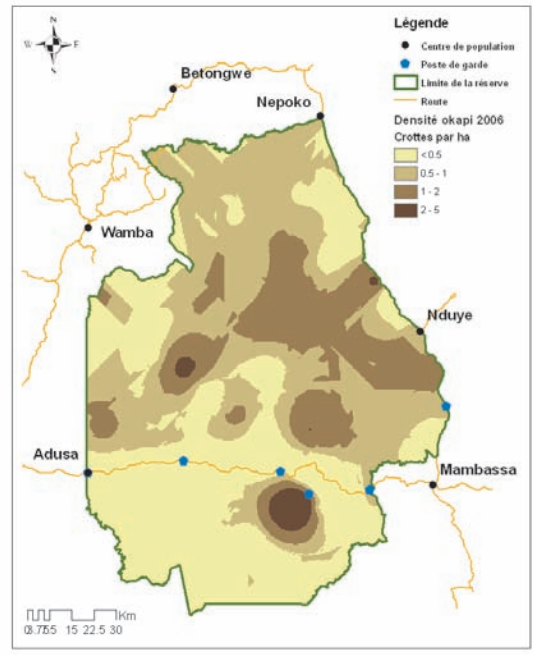
Elephant dung density 1995



Elephant dung density 2006



Okapi dung density 1995



Okapi dung density 2006

Maps: Rene Beyers

BOX 8 PARTICIPATORY BOUNDARY MARKING IN THE VIRUNGA NATIONAL PARK

The boundaries of the VNP were established well over 70 years ago when the demographic and political contexts were very different from those of today. Natural demographic growth, and the population movements caused by the recent conflicts in the Great Lake region, have meant that pressure for land has increased dramatically and made the land within the park particularly attractive. Furthermore over the years many of the original boundary markers have disappeared, descriptions of many of the landmarks used in the wording of the original legal texts are no longer recognisable today and "arrangements" have sometimes been made between ICCN and local populations in an attempt to dissipate conflicts arising from the huge pressure for land. As a result in many areas the park boundaries have been violated, often deliberately but sometimes inadvertently, by local populations. The recent period of conflict has sharply accelerated this process. As ICCN attempts to reassert its control over the park the confused situation over the park boundaries merely serves to heighten tensions and inflame conflicts since at least three versions of the park boundary are being employed: the "ICCN boundary" (which may or may not correspond to the true boundary), the "populations' boundary" (which corresponds to their understanding, erroneous or otherwise, of the park boundary) and the "legal" boundary (which is the true boundary as defined in the legal texts).

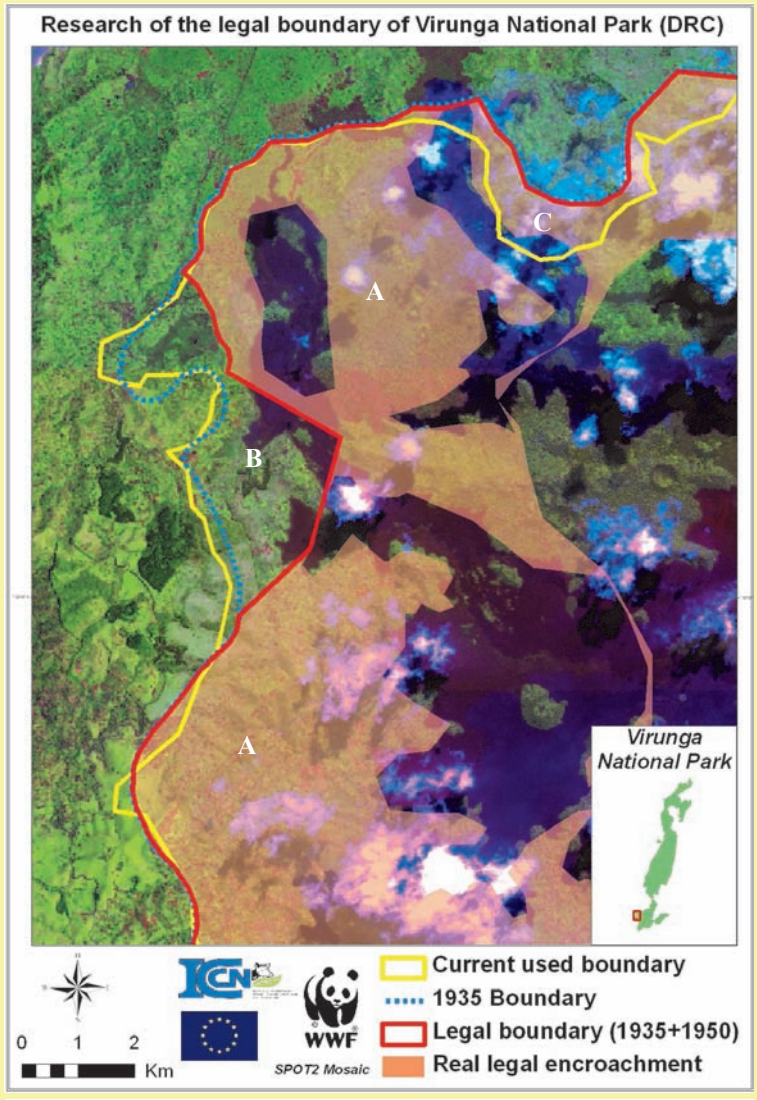
ICCN and WWF, with support from the UNESCO program, have developed an innovative method of tackling the problem by involving all the local stakeholders in a process of participatory boundary marking. Underlying principles are that:

- The VNP is a national and international heritage that only a Presidential decree can change.
- The boundaries are those originally published in 1935 and 1950
- Local communities should know the exact limits in order to plan their livelihood activities.
- Boundary markers, whether natural or artificial, must be accepted by all and officially registered (GPS points, placement of marker and written description of sites).
- Wherever possible, ICCN should help local communities who demonstrate willingness to respect the park boundaries to obtain access to alternative land outside the park.

The method involves working sector by sector with a mixed commission comprising representatives of the Governor's office, land title office, traditional authorities, WWF, ICCN. Land surveyors, agronomists and resource persons who have particular historical knowledge of the area may also participate. Disagreements are resolved by consensus and the decisions formally acted. Markers are then placed and registered and a certified report is signed jointly by ICCN and the traditional authorities.

This process provides the basis on which voluntary evacuation of illegal settlers can be negotiated. ICCN and its conservation partners help identify areas where they can be resettled and negotiate with host communities to receive them. Currently some 70,000 people have been voluntarily evacuated from the park. Communities living on the edge of the park who respect the boundaries receive support from ICCN. This can vary from tree nurseries to various social infrastructures (water sources, school, dispensary, etc).

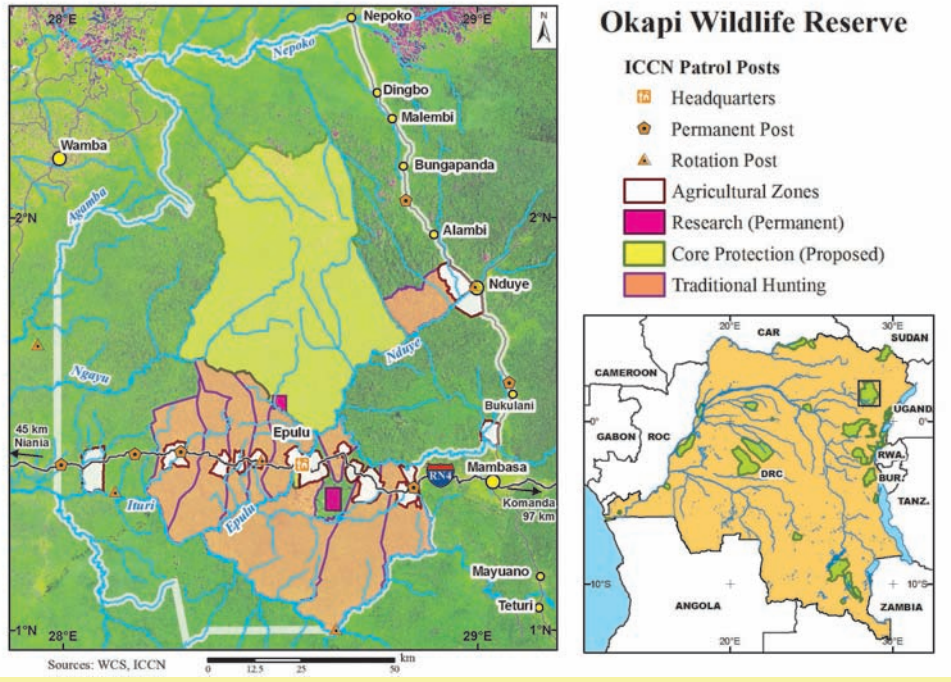
Source: WWF - PNVi.



The map illustrates the confusions that exist over the exact alignment of the park boundary in the Kirolirwe sector of the southern sector of Virunga NP. ICCN enforces the boundary marked in yellow, which follows more or less the original 1935 boundary (blue dots), rather than the true legal boundary which integrates the 1950 modifications (red). While much of the area is indeed illegally occupied (A - areas in pink) ICCN's erroneous interpretation of the boundary means that in some areas it is excluding people from areas that they do in fact have the right to occupy (B), while in others it is allowing people to occupy areas that are in fact inside the park (C). *Map: Bruno Hugel, WWF*

BOX 9. ZONING OF HUMAN ACTIVITIES AND MANAGEMENT OF IMMIGRATION IN THE OWR

The Okapi Wildlife Reserve has a number of permanent human settlements within its borders. These are essentially the villages situated along the main RN4 highway that existed prior to the creation of the Reserve and along the road forming the eastern border of the Reserve. Mbuti and Efe pygmies also live in the Reserve and are permitted to pursue their traditional hunting and gathering activities. Ensuring that human activities within the Reserve do not threaten the integrity of the site is therefore one of the key challenges facing ICCN.



The recent period of conflict, followed by the rehabilitation initiatives since the signature of the peace accords, has brought new challenges to the OWR. Migration away from the war-torn and overpopulated highlands to the east resulted in many new families settling in the villages along the RN4 highway. The problem was exacerbated by the rehabilitation of the RN4 which, after 20 years of being little more than a footpath, suddenly became a major highway with hundreds of vehicles, carrying would-be immigrants, crossing the Reserve each month. It also led to a sharp increase in the volumes of natural resources coming out of the Ituri forest (bushmeat, timber and other NTFP).

Since 2000 ICCN and its conservation partners WCS and GIC, through the UNESCO programme, have been developing strategies to manage the critical issues of immigration and unsustainable natural resource use by villagers in the OWR. Through a participatory process involving all the stakeholders, agricultural zones have been established around the villages and rules and regulations about the type and scale of activities within these zones are being formally agreed upon. In return the OWR helps residents develop more sustainable agricultural practices using a variety of agro-forestry techniques. In parallel a system to monitor and control immigration into the Reserve has been established in order to stabilise the number of people settling in the agricultural zones.

Integrating the special needs of the Mbuti and Efe Pygmies into the management strategy for the Reserve is a special challenge. Their semi-nomadic way of life as hunter-gatherers, and their particular relationship with their bantu neighbours (described by anthropologists as « political clientelism » - a voluntary relation between two parties with a degree of inequality regarding power and access to resources) makes this a particularly complex management issue.


Photo © Kim S. Gjerstad

While their traditional hunting and gathering activities within the reserve are guaranteed it is clear that limits need to be set since monitoring data clearly shows that current levels of traditional net hunting, together with snare hunting practised by bantu residents, much of it to supply the commercial bushmeat trade, is significantly reducing ungulate populations. The establishment of hunting zones, with clear rules and responsibilities accepted and adhered to by all parties, together with the creation of a totally protected core zone, will be the key to safeguarding the resource base on which their traditional lifestyles depend.

Introducing new concepts of community conservation

Historically ICCN was one of Africa's leaders in the field of protected area management. However the decades of turmoil and neglect has meant that ICCN has not kept up with modern trends in conservation which place greater emphasis on consultation rather than relying solely on coercion. Clearly in the particular Congolese context of widespread break down of law and order, law enforcement and dealing with the impact of uncontrolled military actions will remain for the foreseeable future an important component of park management. However in the long term parks will only survive if local communities understand that it is in their best interests to support them. One of the project's objectives was therefore to help ICCN to develop a national strategy for community conservation. This strategy was elaborated with the technical support of FFI, in collaboration with UNDP/GEF, with contributions from all the conservation partners, and is now the reference document for all protected areas in the DRC.

Based on the strategy, the programme also developed a training programme for protected area staff on community conservation. Training sessions are currently ongoing for key staff from all World Heritage sites and other DRC protected areas.

Community conservation activities must be tailored to suit the particular situations in the different sites. However one thing that is common to all community conservation activities is the existence of permanent dialogue between the parks authorities and local communities. Through this dialogue the problems and aspirations of all parties can be discussed and solutions negotiated on the basis of clearly defined rights and responsibilities. Pilot projects were developed in the first phase of the project, and more substantial activities were launched in the second phase (Boxes 8 & 9).

STRENGTHENING AND COORDINATING PARTNERSHIPS

Coordination between partners

Good coordination between the different implementing partners is essential for the success of the project interventions and here again UNESCO's role has been critical. Conservation NGOs and funding agencies do not always manage to work effectively together but in this case the scale of the crisis was such that UNESCO was able to provide the pillar around which the conservation partners could federate. Together they were able to achieve what would have been impossible to achieve alone. The basis for this coordinated approach is the Conservation Coalition for Congo (*CoCoCongo*), a concept that emerged from the "Core Group" comprising ICCN and its conservation partners that convened for the first time in Nairobi in 1998 (through the initiative of GTZ) to discuss emergency actions for the World Heritage Sites and which led to the development of the UNESCO project. The *CoCoCongo* is currently made up of ICCN, its conservation partners and the aid agencies that provide the funds. It is based in Kinshasa and ensures a concerted and coordinated approach at the national level. It is an important tool for communication with the international conservation community, and is also a point of reference for new conservation partners wishing to join the on-going efforts.

At each World Heritage site a Site Coordination Committee (*CoCoSi*) was also created to ensure that on-the-ground activities by the different field partners were properly coordinated and addressed ICCN priorities. This innovative structure has proved very successful and has enabled ICCN to reaffirm its leadership role in the sites – a role that had been eclipsed during the troubles with the different partners tending to work in isolation as they struggled to meet the ever-evolving challenges The CoCoSi has since been replicated throughout the DRC protected area network.

Conservation diplomacy, lobbying and communication

Effective delivery of support on the ground depended on all parties involved in the conflict understanding the overriding importance of these sites and the necessity of allowing the ICCN staff and their partners to carry out their conservation activities. In the early stages of the conflict so-called "diplomatic missions" were organised to meet the various protagonists and obtain agreement for the conservation activities to go ahead. These missions involved meeting high-level political representatives from all three countries involved in the war as well as local commanders of the different armed forces operating in the region and coordinating this with the UN peace-keeping force, MONUC, and the Congolese army. They were accompanied by information campaigns in the news media and within the conservation and development community in order to highlight the plight of the sites. Tripartite meetings between the protected area authorities of the areas controlled by the DRC Government and the areas under rebel control were also organised on neutral ground in Nairobi. Awareness raising through UNESCO-led missions enabled some of the excesses of the Congolese army in the parks to be curbed, and also provided the political backing for dealing with the issues of illegal settlements in the parks.

BOX 10. COMMITMENTS GIVEN BY THE DRC GOVERNMENT AT THE 2004 PARIS DONOR CONFERENCE

- Establish a Trust Fund for the rehabilitation of the World Heritage sites, to which the contribution by the Government will be established in the 2005 budget;
- Take active measures to evacuate armed troops and other populations that have invaded the sites and are contributing to their destruction;
- Contribute to the preservation and restoration of the integrity of the World Heritage sites;
- Ensure salary payments to site staff;
- Facilitate the work of ICCN;
- Ensure that the integrity of the sites is respected and take into account the interests of local people through participatory development and reconstruction projects;
- Ensure that local populations get a fair share of the financial benefits generated through ecotourism.

At the national and international level the World Heritage Committee has been an important mechanism for communicating with the wider conservation community and lobbying for increased commitments. In September 2004 the World Heritage Centre organised an international conference of donors and conservation partners at its headquarters in Paris. It was attended by over 240 participants and provided an ideal forum for the DRC to demonstrate to the international community its continued commitment to biodiversity conservation despite the desperate circumstances prevailing in the country (Box 10), and to lobby for further political and financial support for the World Heritage sites. Important donor commitments to ICCN in favour of World Heritage Sites were made by Belgium, Italy, Germany (GTZ and KfW), US (CARPE), EC, World Bank (GEF) and UNDP (GEF), and UNF.

UNESCO's World Heritage Committee was also a particularly useful mechanism for bringing pressure to bear to resolve a number of key issues threatening the sites, such as:

- Ensuring that the rehabilitation of the RN3 and RN4 highways, which cross KBNP and OWR respectively, were suspended until appropriate impact assessments had been made and mitigation measures agreed upon,
- Ensuring that recently attributed mining permits which overlapped with three of the World Heritage sites were redrawn and a mixed technical working group set up to monitor the situation.
- Obtaining written assurances from the government that the oil exploration permit attributed to Dominion Congo Limited, which encompasses the whole of the central and southern sectors of the PNV, will respect the special legal status of the park.
- Establishing better collaboration between ICCN and MONUC and FARDC to ensure that ICCN can continue its conservation activities. In certain cases MONUC now participates in joint surveillance activities and has facilitated meetings with some of the rebel groups in control of certain sites. FARDC and MONUC and are also members of a series of committees, known as *Comités de Sauvegarde* (rescue committees), for the different sites.

Sustainable funding

In the first phase of the programme, from 1999 to 2004, more than 60% of project funds were used to pay salary bonuses to park staff in order to enable them to continue the conservation field activities. However, while continuing to rely on donor support for guard payments in the short term it was essential to start moving towards a more long term solution for funding the running costs of the five World Heritage sites.

Working closely with sustainable funding specialists from WWF UNESCO developed a concept for a trust fund and lobbied donors to participate. The fund will be a private entity benefiting from the legal and fiscal guarantees that are necessary in order to attract new actors. Its capital will be invested in perpetuity on the international financial markets and the return on the investments will be used to support the financial needs of priority protected areas, including natural resource management in their peripheral zones. The fund will be managed by an independent and mixed Board of Directors representing the interests of all actors involved, with a majority from the private sector. Potential sources of funding include both national and international donors and could include contributions resulting from debt conversions and carbon markets. An internationally recognized investment manager will manage the assets on the basis of guidelines provided by the Board and specific social and environmental criteria would be guaranteed. The investment strategy should be based on diversification of the types of investments and markets.

The Belgian government has agreed to donate 1 million € to set up the fund and various other donors including France, Germany and the United Kingdom have also expressed an interest in contributing to the fund. The DRC government has established a Steering Committee which will be responsible for defining in detail the profile of the fund, producing its legal and management tools and mobilizing financial resources. The Steering Committee will be made up of representatives of the Government, the civil society, conservation NGOs, the donor community and the private sector.

Below: Direct field support to ICCN rangers in the form of field equipment, cash bonuses and training enabled DRC's World Heritage sites to survive the civil war. Sadly many ICCN staff and family members lost their lives during this difficult time.

Photos © Kim S. Gjerstad

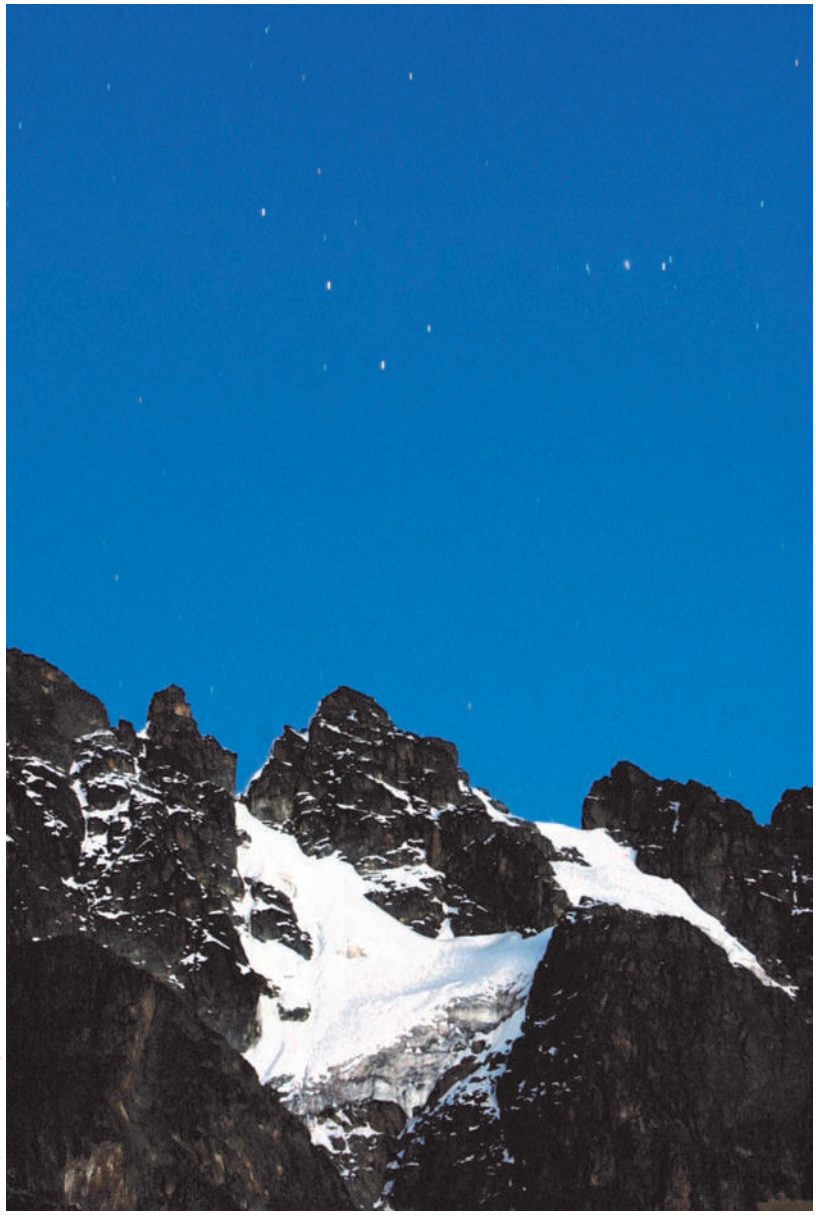
10 YEARS ON IN THE DRC….

It is widely recognized that without the support, at such a critical time, provided by the Biodiversity in Regions of Armed Conflict project, and without the remarkable commitment of ICCN's staff on the ground, as well as that of its conservation partners who remained on site throughout the crisis, there would be little left of the natural heritage that had justified the original inscription of these sites on the World Heritage list. The mounting tide of pressures that were threatening to overwhelm the sites in 2000 was stemmed, and control over the protected areas has slowly but surely been reasserted in the intervening eight years. There are many reasons for optimism. ICCN has regained control over the Okapi Wildlife Reserve, thousand of illegal settlers have voluntarily moved out of Virunga and poaching pressure in Garamba has declined significantly.

However the struggle is far from over and new crises continue to shake the region and test the resolve of ICCN and its conservation partners. In early 2009, renewed fighting erupted in eastern DRC as a result of efforts of the DRC Government to neutralize CNDP, FDLR and LRA rebels and this fighting has affected Kahuzi-Biega, Virunga and Garamba. In all sites varying levels of illegal natural resource exploitation still continues and illegal settlements remain a problem. However the breathing space afforded by the support of the international community during this period of crises has enabled ICCN to regroup and prepare to move from a crisis management mode to a more measured approach in which long term objectives are pursued in a more strategic manner with the coordinated support of the international community.

The project has demonstrated how the World Heritage Convention can be used to mobilize the international community for biodiversity conservation in a time of crisis and bring pressure to bear to resolve problems affecting sites of global biodiversity importance. The particular context in which this project operated demonstrated the added value that comes when conservation partners adopt a common vision and collaborate closely on the ground. Conservation partners collaborated to develop innovative linkages between biodiversity conservation and sustainable development and significant threats to biodiversity were addressed by developing replicable models at the site level.

The international attention generated by UNESCO's intervention has raised the profile of biodiversity conservation issues not only in DRC but also more widely in the central African region and has set the stage for broadening the scope of World Heritage in the Congo basin.



Snow and ice on the equator. The Ruwenzori mountains - one of the many exceptional features that justify the inclusion of the Virunga National Park on the World Heritage list. Africa's oldest National Park was able to survive the war thanks to support from UNESCO and a coalition of dedicated international conservation NGO's.

Photos © Kim S. Gjerstad

Setting the stage for new World Heritage Sites in Central Africa

The Central African World Heritage Forest Initiative (CAWHFI)

Although the DRC contains the lion's share of central Africa's rainforests and World Heritage sites there are a number of other sites outside the DRC which are of exceptional importance and have the potential to become World Heritage sites. Building on the successes of the DRC project UNESCO's World Heritage Centre has been facilitating, since 2004, a series of interventions aimed at preparing the way for the inclusion of additional central African sites in the World Heritage list. This is being achieved through the Central African World Heritage Initiative, CAWHFI.

As with the DRC project, CAWHFI is a collaborative undertaking between UNESCO's World Heritage Centre, FAO, international NGOs (WWF, WCS, CI) and the national protected area authorities. The initiative is funded by the United Nations Foundation, the French Global Environment Facility (FFEM) and the European Commission. Matching funds are provided by the participating NGOs. The initiative involves a four-pronged approach of:

- Field support to improve management of selected clusters protected areas with recognized potential for becoming World Heritage properties
- Working with the private sector and other local stakeholders to promote and monitor the sustainable use of natural resources, particularly the bushmeat trade, in the multi-use landscapes within which the targeted clusters of protected areas are located.
- Using the World Heritage process to raise awareness of the exceptional natural value of the targeted sites and help governments to identify and prioritize other sites which, through inscription on the World Heritage List, would enable a better representation of the Outstanding Universal Values of the region's natural heritage to be achieved.
- Support for the development of sustainable conservation finance mechanisms.

CAWFHI's trans-boundary landscape approach is fully in line with COMIFAC and CBFP strategic priorities. It focuses on three outstanding landscapes :

i. Conkouati-Mayumba-Gamba (Republics of Gabon and Congo)
ii. Tri-national Sangha (TNS) (Republics of Cameroon and Congo, and Central African Republic)
iii. Tri-national Dja-Odzala-Minkebe (TRIDOM) (Republics of Gabon, Cameroon and Congo)

Each of these transborder landscapes contains a cluster of globally important protected areas, which together represent 25% of the total surface area of the landscapes.

GAMBA-MAYUMBA-CONKOUATI LANDSCAPE

The Gamba-Mayumba-Conkouati landscape at a glance*

Countries involved: Republics of Congo and Gabon
Coordinates: 1°36'26"S to 4°26'26"S; 9°15'48"E to 12°24'28"E
Surface area: 47.346 km², of which 36.926 km² terrestrial and 10.420 km² marine
Altitude: 0 – 840 m
Terrestrial Eco-regions: Atlantic Equatorial Forest; south-western Congolian Savanna-Forest Mosaic
Aquatic Eco-region: Southernmost western equatorial coastal eco-region
Protected Areas:
Loango National Park, 153,581 ha, 2002, Gabon
Moukalaba-Doudou National Park, 502,805 ha, 2002, Gabon
Mayumba National Park, 80,000 ha, 2002, Gabon
Conkouati-Douli National Park, 505,000 ha, 1980/1999, Republic of Congo
Ngové-Ndogo Hunting Area, 1956, Gabon (legal status unclear, under reclassification)
Iguela Hunting Area, 1962, Gabon (legal status unclear, under reclassification)
Moukalaba Hunting Area, 20,000 ha, 1962, Gabon (legal status unclear, under reclassification)
Sette Cama Hunting Area, 1962, Gabon (legal status unclear, under reclassification)
Ouanga Plain Wildlife Reserve, 1962, Gabon (legal status unclear, under reclassification)
Monts Doudou Wildlife Utilisation Area, 1988 (almost entirely reclassified as Moukalaba-Doudou National Park; legal status of remaining areas unclear)
UNESCO's site partners : WWF, WCS.

(*) sources: State of Forests Report 2006 & WWF Gabon

Situated along the Atlantic coast of Gabon and Congo the Gamba-Mayumba-Conkouati landscape covers 34.258 km², three quarters of which lies within Gabon. It is centered on the Loango, Moukalaba-Doudou and Mayumba National Parks in Gabon and the Conkouati-Douli National Park in Congo. The Mayumba and Conkouati-Douli National Parks have marine sections extending respectively 15 and 22 km from the shoreline and as they are contiguous they provide 120km of protected shoreline. The landscape also includes 1.500 km² of forestry concessions, 4.300 km² of oil and gas exploration and production permits, a cattle ranch of 1,000 km² in Gabon and 276 km² of eucalyptus plantations in Congo.

The landscape is particularly diverse because it falls within three of the WWF Global 200 Eco-regions: the Atlantic Equatorial Forest, the Western Congolian Savanna-Forest Mosaic, and the Guinean-Congolian Coastal Mangroves. This rich mix of ecosystems results in an exceptionally high biodiversity and places it among the highest regional and global conservation priorities. Overall some 11% of the plant species in the landscape are endemic to this bio-geographical zone. Plant species diversity on Mount Doudou is particularly high and lends support to the theory that Mount Doudou was one of the Pleistocene forest refuges. The landscape's floral diversity is matched by its faunal diversity, both terrestrial and aquatic. It harbors important large mammal populations such as the forest elephant, the western lowland gorilla, chimpanzee, mandrill, forest buffalo, probably the world's most important west African manatee population and hippo. The fact that several of these species can be observed along the shoreline makes this a particularly intriguing landscape. The spectacle is further enhanced by the presence of the Nile crocodile, four species of marine turtle and 17 species of Cetacean, including five whale species, in the off-shore waters of the landscape. Humpback whales, migrating from the Southern Ocean to breed in the warmer tropical waters, are particularly abundant between June and October. The 120 km of protected beach in the Mayumba and Conkouati-Douli National Parks is also the most important site in the world for the nesting of Leatherback turtles.

The natural resources of the landscape's forests and waters, especially fish and bushmeat, are crucial to the livelihoods of local human populations. The total human population is estimated at 26,000 people. Rural exodus has resulted in a rural population density of 0.7people/km² but the large towns within or close to the landscape exercise a strong pressure on its natural resources, particularly fish and bushmeat. The most important towns within the landscape are Gamba, which came into existence with the arrival of Shell Gabon in 1963, and Mayumba. Congo's second largest city, Pointe Noire, is located just south of Conkouati-Douli National Park. With a population of around 663,400 inhabitants (2005 census) the large urban markets of Pointe Noire have a particularly strong impact on the natural resources of Conkouati-Douli.

The main direct threats to the landscape's biodiversity are unsustainable commercial and local hunting and fishing practices, unsustainable logging practices and unsustainable agricultural practices, risks of oil pollution linked to on-shore and off-shore oil exploration and production activities, and environmental impacts of potential upcoming mining activities. Several companies have been granted oil and gas as well as mining exploration permits which overlap with all National Parks in the Landscape. Off-shore oil production is ongoing in both Mayumba and Conkouati-Douli National Parks.

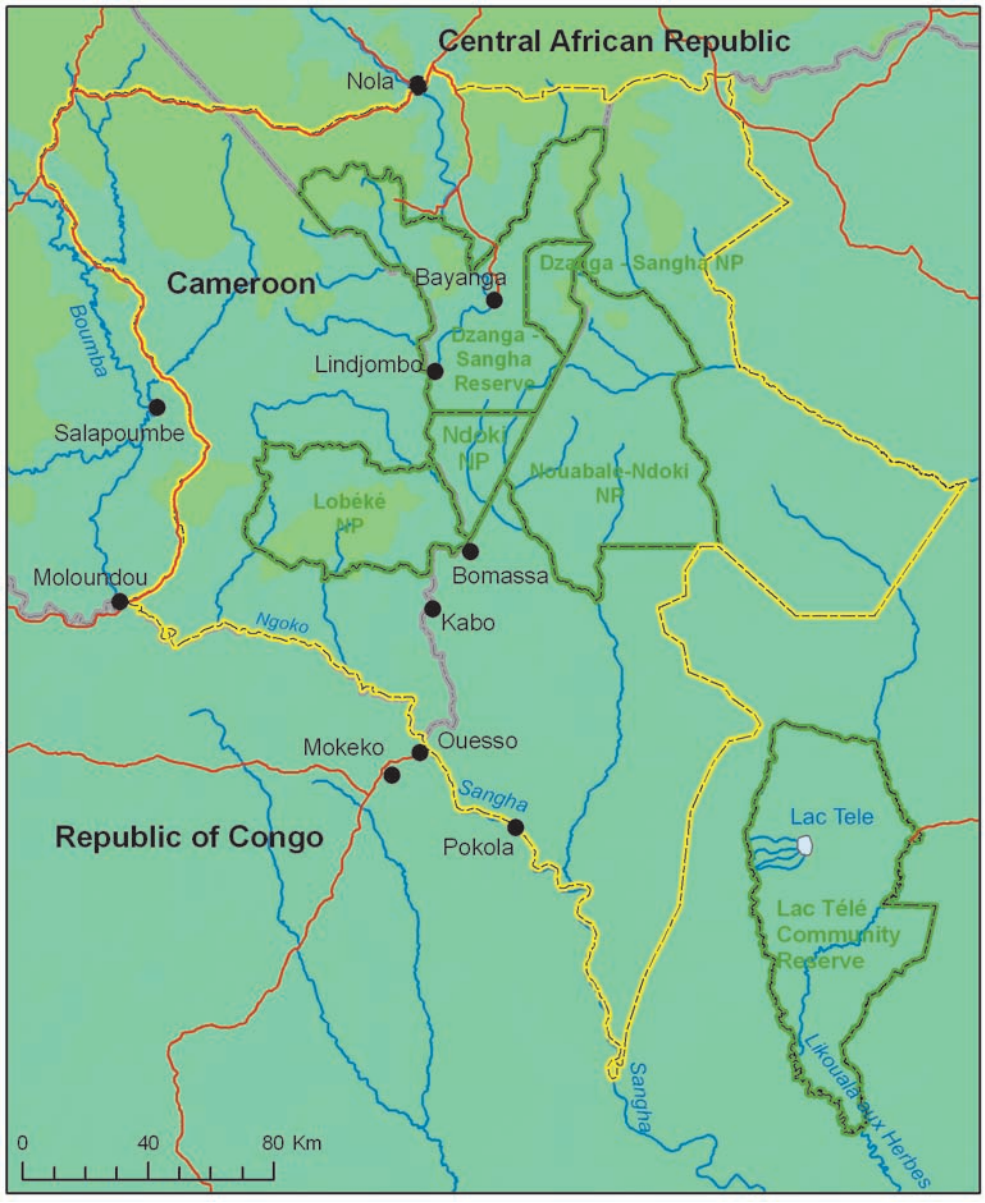
Above: A humpback whale breaching off the coast of Mayumba National Park, Gabon. It is estimated that 10% of the world's humpback whale population breeds in the Gulf of Guinea.

Photo © Tim Collins - Ocean Giants/WCS

Below: Forest elephants can often be seen in the lagoons and on the beaches of the Gamba complex of protected areas in Gabon.

Photo © A. Marin

TRINATIONAL SANGHA LANDSCAPE



The Tri-national Sangha Landscape at a glance*

Countries involved: Republics of Congo, Cameroon and Central Africa
Coordinates: 3°32'12"S to 0°40'29"S; 15°28'26"E to 1°34'08"E
Surface area: 36.236 km²
Altitude: 330 - 700 m
Terrestrial Eco-regions: North West Congolian Forests.
Aquatic Eco-regions: Sangha Eco-region
Protected Areas:
Nouabalé-Ndoki National Park, 419,000 ha, 1993, Republic of Congo
Lobéké National Park, 43,000 ha, 2001, Cameroon
Dzanga-Ndoki National Park, 125,100 ha, 1990, Central African Republic
Dzanga-Sangha Special Reserve, 310,100 ha, 1990, Central African Republic
UNESCO's site partners: WWF, WCS.
(*) source: State of Forests Report 2006

As its name suggests, this landscape covers three countries and is bisected from north to south by the Sangha River. It contains vast areas of intact forest, displaying a high degree of ecological integrity, and harbours a great number of Africa's large mammal populations, particularly forest elephants and gorillas. Opportunities for effective conservation over a vast area are particularly good because protected areas cover 21.5% of the landscape and formal agreements between the three countries for transborder cooperation exist since 2000. There is good potential for developing eco-tourism, in particular for forest elephant and lowland gorilla viewing, and this constitutes a significant opportunity for focusing international interest on the landscape. Consumptive tourism in the form of safari hunting also has considerable potential and is conducted in Cameroon and CAR.

On the Congolese side the landscape covers a total area of 21,470 km² and includes the Nouabalé-Ndoki National Park and five active logging concessions which act as a buffer zone to the park. The Central African section covers 4,644 km² made up essentially of the Dzanga-Ndoki National Park, divided into two sectors, Dzanga and Ndoki, and the Dzanga-Sangha Special Reserve which acts as a buffer zone between them. The two Forest Management Units in the Dzanga-Sangha Special Reserve are currently not being logged. The Cameroonian section is centred on the Lobéké National Park which is surrounded to its north, west and south by buffer zones comprising six community-managed hunting zones, seven Sport Hunting Zones and 14 Forest Management Units attributed to 5 logging concessionaires.

The famous mineral rich Bayanga bai in the CAR section of the Tri-National Sangha landscape attracts large numbers of forest elephant.

Photo © A. Billand, CIRAD

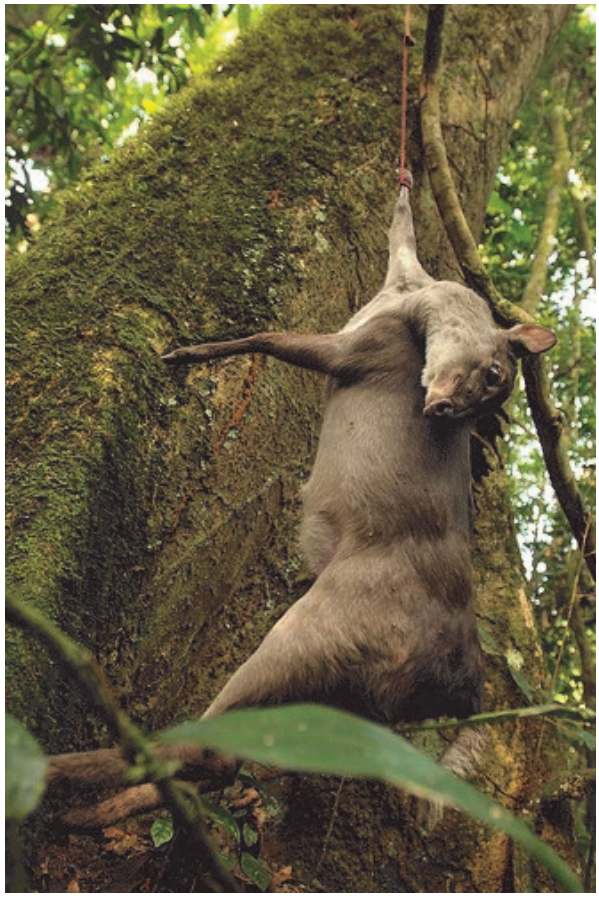
The floral communities of this landscape include semi-deciduous *terra firma* forest, monodominant *Gilbertiodendron* forest, Marantaceae forest, swamp forest and *Uapaca* dominated riparian forest. Several commercially valuable timber species found in this landscape figure in the IUCN Red Data list including African teak (afromosia), African mahogany sipo, sapelli and acajou. The cluster of National Parks therefore serves as a vital sanctuary of these important species.

The landscape includes some of Africa's largest assemblages of emblematic large mammal species such as the forest elephant, western lowland gorillas, bongo, and forest buffalo. This is partly due to the presence of more than 100 forest clearings (or *bais* in the local language) where these species congregate, attracted by the mineral salts and the particular vegetation types . In Cameroon some of the bais attract very high numbers of African grey parrots. There are therefore exceptional opportunities for eco-tourism. A remarkable population of "naïve" chimpanzees has also been discovered in the south of Nouabalé-Ndoki in the Goualogou Triangle. Because of the isolated nature of this area of forest, the chimpanzees display almost no fear of man and this has enabled scientists to make ground-breaking behavioural studies on tool use by these chimpanzees.

The average population density in the landscape is 0.7 inhabitants/km², although the majority of the population is concentrated around the main towns and logging camps. In the CAR and Congo sections around 30% of the population is made up of various groups of semi-nomads (Baka, Bambendzélé, Bangombé). The influence of logging activities on human demographics in the forest zone are well-illustrated in this landscape where annual growth increases of over 10% (essentially through immigration) have been recorded in and around some logging camps. Immigrant populations tend to exert strong pressures on natural resources by overriding traditional systems of natural resource use. While logging related activities are the main occupation of human populations in the landscape, artisanal mining (mainly for diamonds), hunting, fishing and agriculture are also important.

Threats to the landscape are commercial bushmeat hunting, elephant poaching for ivory, unsustainable industrial logging, and artisanal mining. The international pet trade for African grey parrots (below right) is also a threat.

Photos © Reto Kuster



WWF and WCS have been active in this zone for the better part of two decades and were instrumental, along with GTZ, in the creation of the TNS Foundation, the first trans-border conservation initiative of its kind in Africa. After nearly ten years of negotiations the Foundation is now up and running with an initial capital of 12 million € (Box 11).

BOX 11. SANGHA TRI NATIONAL FOUNDATION. AN EXAMPLE OF A CONSERVATION TRUST FUND FOR SUSTAINABLE FUNDING OF PROTECTED AREAS

The TNS covers a total surface area of 28.000km² of lowland forest and includes the three contiguous National Parks of Lobeke in Cameroun, Dzanga-Ndoki in CAR and Nouabale-Ndoki in Congo and their buffer zones. The process for the development of the Sangha Tri-National Trust Fund ("Fondation pour le Tri-National de la Sangha") received support mainly from the World Bank/WWF Alliance for Forest Conservation and Sustainable Use, GTZ, Wildlife Conservation Society (WCS), the French Cooperation, AFD and the USAID-funded Central African Regional Program for the Environment (CARPE).

The Foundation was established in March 2007 as a Charity under British law, with executive headquarters in Central Africa. Formal agreements define the terms of the collaboration between the Foundation and each of the three countries. The Foundation is managed by a Board of Directors of 11 members consisting of representatives of the Governments of Cameroon, Congo and CAR, WCS, WWF, Regenwald Stiftung, KfW, AFD and civil society. Around 12 million Euros have already been mobilized so far by KfW, AFD, and Regenwalt Striftung through the "Krombacher Regenwald Kampagne". These funds will be invested in international markets and will produce a stable revenue stream to cover targeted activities for conservation and sustainable management of natural resources in the TNS. A recent EC grant to CAWHFI will enable the Foundation to disburse a series of small grants, totaling €400,000 over three years, to the parks and other eligible stakeholders

Sources; http://carpe.umd.edu/tns_foundation, EC, WWF.

Mbeli bai in Nouabalé-Ndoki National Park, an exceptional site for observing the large mammal fauna typical of the central African forests. Photo © M. Azink & J. Oonk

TRIDOM LANDSCAPE

The Trinational Dja-Odzala-Minkebe (TRIDOM) landscape at a glance*

Countries concerned: Republics of Gabon, Congo and Cameroon
Coordinates: 3°29'53"N to 0°26'28"N; 11°51'54"E to 15°57'21"E
Surface area: 186.500 km²
Altitude: 300 - 1000 m
Terrestrial Ecoregions: North-West Congolian Forests;
Aquatic Ecoregions: South-West Equatorial Coastal; Sangha
Protected Areas:
Odzala-Koukoua National Park, 1,350,000 ha, 1935/1999, Republic of Congo
Minkebe National Park, 756,700 ha, 1997/2000/2002, Gabon
Ivindo National Park, 300,000 ha, 1971/2002, Gabon
Mwanga National Park, 116,500 ha, 2002, Gabon
Boumba-Bek National Park, 238,255 ha, 2005, Cameroon
Nki National Park, 309,365 ha, 2005, Cameroon
Dja Wildlife Reserve, 526,000 ha, 1950, Cameroon (World Heritage Site)
Mengame Gorilla Sanctuary / Kom complex, 95,800 ha, Cameroon (final stages of classification)
Lossi Gorilla Sanctuary, 38 000 ha, 2001, Congo
UNESCO site partners: WWF, WCS, CI / CyberTracker Conservation
(*) source: State of Forests Report 2006 & WWF Gabon

The TRIDOM landscape lies astride Gabon, Cameroon and Congo Republic. It covers a surface area of 186,500 km², four times larger than either of the other two CAWHFI landscapes and includes nine protected areas totalling 37,360 km² (20% of the landscape). The landscape lies on a plateau ranging from 300 to 1,000 m above sea level. It is punctuated by several spectacular inselbergs (particularly in Minkebe National Park) and bisected by a 75 km long escarpment running from north to south along the Gabon – Congo frontier which separates the two main watersheds that this landscape feeds, the Ogooué and the Congo. A series of spectacular rapids and waterfalls occur on the Ivindo River, acting as a biogeographic barrier in the Ogooué watershed.

Lowland gorillas and forest buffalo (above) meet in the Lokué bai in Odzala-Koukoua National Park, Congo..

Photo © C. Aveling

The majority of the landscape is covered by *terra firma* forests including semi-deciduous forests rich in Meliaceae, Ulmaceae and Sterculiaceae, open canopy Marantaceae forests and mono-dominant *Gilbertiodendron* forests. Large areas of permanently and seasonally flooded forest and swamps also occur. The floristic composition shows a gradient from Atlantic influences in the west to Congo influences in the east. The inselbergs and lower rocky outcrops in Minkebe and Dja are covered with herbaceous prairies and woody thickets comprising many specialized species with limited distributions from the Euphorbia and Orchid families. Many hundreds of forest clearings punctuate the landscape, of which those in Odzala-Koukoua National Park are the most well known. As in the TNS landscape many of these *bais* are rich in mineral salts and attract large concentrations of mammals including forest elephants, lowland gorillas, bongo, forest buffalo and giant forest hog. Finally in the south eastern part of the landscape (Odzala-Koukua National Park) there is a zone of forest -savannah mosaic which represents the northernmost limit of the Batéké plateau.

Several typically savannah mammal species occur in the forest-savannah mosaic of Odzala-Koukoua National Park, including the spotted hyena and possibly a relict population of lions.

Photo © C. Aveling

This landscape contains central Africa's highest concentrations of forest elephants (an estimated 30,000 occur in the Minkebe forest alone) and forest buffalo. The fact that so much of the landscape is relatively inaccessible means that large mammal populations have remained relatively protected from the impacts of commercial bushmeat and ivory hunting. However in some areas recent outbreaks of the Ebola virus appear to have caused a dramatic decline in great ape populations. Minkebe National Park appears to have lost 98% of its great ape population since the early 90s and in Odzala-Koukoua National Parks, where the first known outbreaks of Ebola were recorded in 2002, the decline has also been very severe.

Human population densities vary between 1-2 inhabitants/km² throughout most of the landscape, but reach 3-4 inhabitants/km² in the south of the Cameroon section of the landscape. Vast areas of the Gabon and Congo sections are virtually uninhabited. The main activities are agriculture (slash and burn and some cocoa/coffee), industrial logging, hunting, and artisanal mining (mainly gold panning). In Cameroon timber exploitation has become an important part of the village economy since 40% of timber taxes are returned to the local communities. As a result community forests are developing rapidly in Cameroon.

As in the other landscapes commercial hunting for bushmeat and the ivory trade are major threats. Emerging diseases (notably Ebola) have also recently become a threat. The expansion of industrial logging in the landscape has been very rapid over the past 10 years, with over 50% of the landscape currently attributed. Much of the vast central area of the landscape (south of Ngoïla and west of Sounake) is still unattributed but pressure to log these areas is mounting. Finally large-scale industrial mining is scheduled to begin in the near future and this is certain to have a very significant impact on the landscape (Box 12).

Box 12. MINING IN THE TRIDOM LANDSCAPE

Artisanal mining for gold attracts many thousands of people into the heart of the TRIDOM landscape. In addition to the physical damage to the forest, this type of essentially unregulated activity is generally associated with large-scale poaching, cross-border smuggling and illegal immigration.

Large-scale industrial mining projects are planned in the TRIDOM heartland and inevitably pose a serious threat to the ecological integrity of the landscape. In Gabon a Chinese company (CMEC) has acquired the rights to develop the Belinga iron ore deposits and an Australian company (Sundance Resources Ltd) has acquired the rights to the Mbalam deposit in Cameroon as well as other deposits (Nabeba, Letioukbala) in the neighbouring Souanke District in Congo. Another company, Core Mining (Australia/France) has started exploration of iron ore deposits in the Avima mountains, also in Congo in the remote area to the west of Souanke. The Belinga and Mbalam deposits are estimated at 1 billion tons each, among the richest in the world. To exploit the Mbalam deposit a railway may be constructed to Kribi, on the Cameroon coast. To exploit Belinga an extension to the trans-gabonese railway is planned and the construction of a hydroelectric dam on the Ivindo river has been considered. This would severely impact the Ivindo National Park with its spectacular series of rapids and waterfalls at Koungou. Finally a major cobalt and nickel deposit near Lomié, on the edge of the Dja Wildlife Reserve World Heritage site in Cameroon has been attributed to an American company (GEOVIC).

A large gold mining camp close to the boundary of Minkebe National Park, Gabon.

Photo © Gustav Mabaza

All these industrial mining activities will have a profound impact on the landscape and might herald the end of TRIDOM as a continous forest with interconnected protected areas if adequate mitigation measures are not taken. They will attract thousands of immigrant workers into the landscape and this will inevitably result in increasing pressures on the natural resources particularly through forest clearance for agriculture and hunting for bushmeat and ivory. The construction of railways or special roads might have an even greater impact. The potential for biodiversity offsets linked to these mining projects is currently being investigated.

CAWHFI ACTIVITES IN THE THREE LANDSCAPES

CAWHFI activities are organized around three components:

1. Strengthening management of protected areas
2. Managing wildlife in the multi-use zones linking the protected areas
3. Identifying potential World Heritage sites and developing new nominations

Most CAWFHI field activities are implemented by WWF and WCS, both of whom have been active in the landscapes for over 20 years. Both organizations are currently implementing a wide range of conservation activities with funding from several private, bilateral and multilateral sources. Given the enormous conservation challenges facing the landscapes, and the critical shortage of financial resources available to tackle them, CAWHFI has opted for a pragmatic approach designed to achieve economies of scale by supporting field activities that complement or scale up those already being implemented by WWF and WCS. Overall, CAWHFI funding represents roughly 15 to 20% of the total funds mobilized by these organizations in the landscapes.

Strengthening management of the protected areas

Law enforcement and monitoring (LEM)

Strengthening of park management has involved scaling up the intensity and effectiveness of surveillance activities and supporting the additional costs incurred such as bonuses, field allowances, equipment, fuel, spare parts and the construction of patrol posts. Basic training of guards has been provided and LEM systems have been established to allow park managers to assess the level and impact of their surveillance activities. Training in bio-monitoring has also been provided.

In addition to the classic surveillance within the protected areas CAWHFI has also supported joint trans-border patrols, particularly in the TNS and TRIDOM landscapes. In the case of TNS the protected areas are contiguous and so cooperation between the protected area authorities is relatively straightforward. The situation is more complex in the centre of the TRIDOM landscape where the protected areas are not contiguous along the international boundaries and the remoteness of the area means that there is very little control over the movement and activities of people operating in the border area. The Mouloundou sector of the Dja River along the Cameroon-Congo border is a particular hot-spot for poaching and illegal trafficking of ivory and bushmeat and CAWHFI has pioneered trans-border surveillance patrols along the international border.

A key problem, common to all the landscapes, concerns the difficulty of ensuring that wildlife laws are properly applied and offenders appropriately prosecuted. While poor governance and corruption are certainly contributing factors, it is also clear that the judi-

Training has been a central element of UNESCO's support to the World Heritage sites. In Central Africa. Given the remoteness of many of these sites a well-developed ability to adapt to local conditions is essential.

Photo © Kim S. Gjerstad

Unsustainable fishing practices are threatening the marine resources in the Gamba-Mayumba-Conkouati landscape. Illegal inshore trawling (right) and the destructive practice of shark fin fishing (left) are closely monitored by the CAWHFI conservation partners.

Photo © Tim Collins - Ocean Giants/ WCS

ciary is often unaware of the importance of wildlife laws and consequently has little interest in applying them. CAWHFI funding has therefore been used to organize workshops and site visits for magistrates and other senior members of the local administration and this type of relatively simple intervention appears to produce positive results in terms of successful prosecutions.

The impact of oil exploitation on marine resources requires close monitoring and oil companies must be made accountable for the effects of oil pollution.

Photo © Tim Collins - Ocean Giants/WCS

In the case of the Gamba-Mayumba-Conkouati landscape, which encompasses large areas of marine habitat, special surveillance and monitoring techniques have been developed to address the specific conservation issues related to illegal industrial fishing activities within the national park boundaries and pollution from offshore oil exploitation (some of which also occurs with the park boundaries). Illegal industrial fishing is having a devastating impact on fish stocks and threatens the livelihoods of local fishing communities. Charismatic marine wildlife species, such as whales, dolphins, sharks (fished for their fins) and marine turtles also require special attention in view of their global importance and their position in the food chains. In Mayumba an observation tower equipped with radar to monitor illegal fishing activities has been installed and this is proving to be very effective in reducing illegal fishing activities in the park. In both Gabon and Congo, however, more effort is needed from the relevant government fisheries services to end these unsustainable practices.

Well-equipped teams of guards, supported by local NGOs such as *Aventure Sans Frontière*, *Gabon Environnement* and *Ibonga* also patrol the beaches during the marine turtle nesting season. Nest counting and turtle tagging (including with GPS receptors) confirm the global importance of these beaches, with up to 194 nest /km at the height of the nesting season.

CAWHFI also supports monitoring of the impacts of oil exploitation activities, particularly in Mayumba. However while detecting oil spills is relatively straightforward, responding to them and persuading the industry to accept the principle of accountability for this kind of pollution are proving to be more challenging. Since there is currently no national plan in Gabon for pollution response the project is working closely with the government Anti-Pollution Centre to provide input to a future national plan. As oil exploitation within Mayumba is a *fait*

accompli (because it existed prior to the creation of the park), and is likely to become so in Conkouati (where the permit was granted after the creation of the park), the project is actively exploring ways to turn a potentially negative situation into a positive one through working agreements with the companies involved.

Protected area management planning

Protected areas management planning is an important component of CAWHFI activities. This is particularly complex in Conkouati-Douli National Park where the issues of logging and oil exploration in the park must be resolved. An updated and more coherent zoning plan has been proposed for the park and its immediate periphery but this has yet to be approved. The CAWHFI intervention therefore comes at an opportune moment for the park as it lends impetus to an important series of ongoing conservation activities and brings additional international pressure to bear on the controversial issue of industrial extractive industries operating within a globally important, and legally fully-protected, conservation area.

***Eco-tourism*:**

The potential for eco-tourism development in the landscapes is enormous, although so are the challenges. CAWHFI is supporting these activities as they have considerable potential for giving added value to the sites and bringing tangible benefits to local stakeholders. Where local NGOs are directly involved with the implementation of the activities local support for the park is greatly enhanced. This kind of partnership is proving to be particularly promising in the Gamba complex where a local environmental NGO *Ibonga* is closely involved. The project has also provided support for development of great ape tourism in Nouabalé-Ndoki National Park through the rehabilitation of viewing platforms in the famous Mbeli bai and the implementation of a feasibility study for chimpanzee viewing. However many hurdles remain to be overcome before significant levels of tourism can occur in these sites. These constraints, which affect tourism throughout central Africa, are largely outside of the control of the park and concern issues such as high costs of international travel to the region, reliability of in-country transport, suitability of local accommodation and the willingness of local operators to invest in nature based tourism.

Whale watching is likely to become an important tourist attraction off the coasts of Gabon and Congo.

Photo © Tim Collins - Ocean Giants/WCS

Moving beyond the boundaries of protected areas

One of the unique aspects of protected areas in the Congo Basin, is that in most cases, they are still embedded in larger natural landscapes, even if natural resources in these landscapes are utilized, for example as logging concessions. These landscapes cover a much greater surface area than protected areas themselves in central Africa and it can be assumed that a very significant proportion of the wildlife can be found within them. Management of wildlife in these logging concessions can therefore make a very significant contribution to biodiversity conservation in the region. By preserving the ecosystem processes across the landscapes also ensures that biological linkages between protected areas are preserved. In addition, these landscapes are in many cases essential to sustain the key values of the protected area. For example home ranges of most elephants extend well beyond the boundaries of the

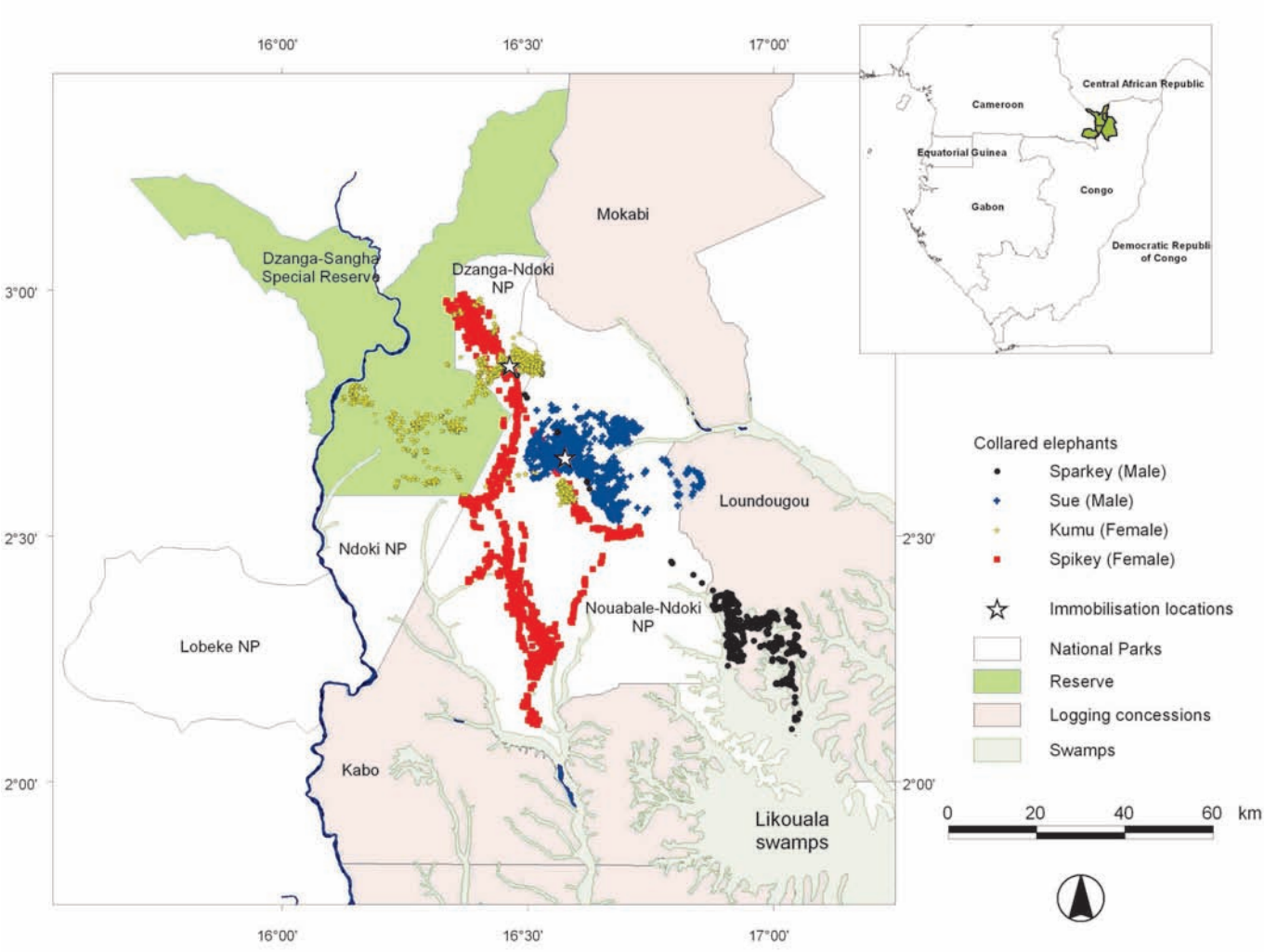
BOX 13. SOME COMMON PRINCIPLES FOR MANAGING WILDLIFE IN MULTIPLE-USE LANDSCAPES

Although the models for wildlife management will vary from site to site, a certain number of common underlying principles can be identified from the different pilot projects implemented in the CAWHFI landscapes:

- In logging concessions control of hunting is promoted by strictly enforcing national wildlife laws throughout the concession and ensuring that logging companies enforce internal rules and regulations, particularly with respect to the transport of bushmeat, hunters and hunting equipment in company vehicles.
- Access to wildlife resources is regulated through forest use planning and zoning. This generally involves the definition of hunting zones and the elaboration of simple management plans. These may be designated zones within the logging concession as part of the logging company's management plan as in the CIB and IFO concessions in northern Congo. In Gabon WWF has worked with the logging company CBG, local authorities and park managers to facilitate the official recognition of a traditional village zone (*terroir villageois*), an enclave within the Moukalaba-Doudou National Park, for the exclusive use of the indigenous inhabitants of Pény village. In Cameroon community hunting zones (*Zones d'Intérêt Cynégétique à Gestion Communautaire - ZICGC*) or sport hunting zones (*Zones d'Intérêt Cynégetique - ZIC*) can be located within logging concessions, communal forests or agro-forestry zones. In the forest concessions around Minkebe National Park WWF has pioneered a simple, pragmatic and participative approach based on the principle that if the use of vehicles for hunting is prevented (by controlling the roads entering the forest concessions), hunting will be limited to a 15 to 20 km band along public roads and rivers since this is the maximum distance that hunters will cover on foot in a day. A large part of the Minkebe forest block can thus stay outside of hunting territories. However the principle is only valid as long as hunters are targeting mainly fresh meat. Once they switch to smoked meat, as in Cameroon, hunters will be able to hunt at much greater distances from the roads using camps deep in the forest to smoke the meat.
- Local communities are empowered to take responsibility for wildlife management so that the "open access" system of wildlife use, which is so destructive to wildlife populations, can be eliminated. This will involve the creation of community-based natural resource management structures. In the TNS and TRIDOM landscapes special consideration is being given to semi-nomad pygmy communities whose particular lifestyles mean that they are often marginalised. Sensitization campaigns are essential and need to be sustained over long periods since there is so much resistance (through ignorance and/or economic hardship) to the need for limiting wildlife offtake in order to make hunting sustainable. Capacity-building and mentoring for the natural resource management structures are essential.
- Economic and protein alternatives to hunting bushmeat may also be promoted in order to reduce the hunting pressure. Various initiatives are being tested including importation by concessionaires of domestically reared meat for the workforce, support for livelihood activities such as family-scale animal husbandry and agro-forestry, local crafts enterprises and revenue-sharing systems for tourism revenue. Employment on protected area management activities is also an important economic incentive for local stakeholders, although this could never rival the levels of employment generated by a logging concession.
- Research and monitoring provide feed-back into the management process. A variety of research and monitoring methods are used to measure hunting pressure, bushmeat availability and consumption and the status of wildlife populations.

There are of course economic costs related to wildlife management in concessions but most of these can, and should, be borne by the concessionaire. Logging, unlike protected areas management, generates revenue and so the costs should be passed on to the customer, particularly in the case of certified timber.

Sources: WWF-Gabon, WWF-Cameroon WCS-Congo.



Home ranges of forest elephants usually extend well beyond the boundaries of the protected areas where they occur. A landscape approach is needed to ensure that their ecological requirements are covered. This map displays the movements of four elephants fitted with GPS collars in the TNS landscape and shows how their movements straddle international boundaries and include several habitat types and land use areas (swamps, logging concessions, protected areas).

Map © S. Blake

protected areas where they occur (map above).

Sustainable forest management plans are now a central legal requirement of the forestry laws of the three countries. This means, amongst other things, that social issues and questions relating to the conservation and management of wildlife and other NTFP within the logging concessions now have to be specifically addressed in the management planning process. This involves undertaking detailed socio-economic and wildlife surveys to establish baselines on natural resource use and wildlife populations, and setting aside conservation areas within the concession.

Furthermore since logging companies, particularly European ones, are increasingly moving towards certification of their timber for the European markets, wildlife conservation and management has become an important consideration. As most logging companies do not have expertise in this field they are increasingly open to collaboration with specialists to help them. Through the FFEM-funded component of the initiative WWF and WCS have been able to expand the scope of their collaboration with logging companies active in the three landscapes. CAWHFI is currently contributing to the implementation of on-going agreements with 11 logging companies whose concessions cover some 5,3 million ha of forest. Box 13 presents some common principles for managing wildlife in multiple-use landscapes where logging is a major activity.

Finding the right balance between sustainable wildlife use and the economic needs of local communities

Bushmeat is an important component of rural people's diet but all indicators from the Congo basin show that commercialisation of bushmeat, which is strongly influenced by the demand from urban markets, is leading to severe impoverishment of wildlife and local extinctions of many large and medium bodied mammal species. Fish and other aquatic resources are also very important in local diets but here again excessive off take for the commercial trade (both local and international) is leading to diminishing stocks. The tragedy is that it is the local communities who have most need of these resources and who are the most adversely affected (both in terms of diet and economic spin-offs) by the loss of these resources. CAWHFI is therefore supporting initiatives aimed at achieving more sustainable wildlife use so that local livelihoods can be safeguarded. A range of initiatives are being tested from improved natural resource exploitation techniques such as sustainable hunting and fishing techniques (Box 15 opposite) and eco-tourism, to alternative economic activities such as small scale animal husbandry, agricultural, agro-forestry schemes and handicrafts.

However living with wildlife also has its down side. Crop raiding, particularly by elephants, can occasionally cause considerable hardships to villagers. The problem is often particularly acute in the periphery of protected areas, where conservation measures have allowed elephant populations to thrive, and is a constant source of antagonism between the villagers and the protected area authorities. If the issue is not seen to be addressed this can create enormous bad feeling and can seriously undermine efforts to develop collaborative partnerships with local communities. CAWHFI supports efforts to address this problem (Box 14).

BOX 14. FINDING SOLUTIONS TO CROP RAIDING BY FOREST ELEPHANTS

In Nouabalé-Ndoki National Park an innovative approach is being developed by WCS using a variety of chilli pepper plant from southern Africa. Dried bricks made of elephant dung and chilli peppers, when burnt, produce a smoke that appears to be a deterrent to elephants. Ground chilli pepper mixed with grease can also be smeared on cable fences (provided by logging companies) set up around fields. Furthermore, since there appears to be a market for this variety of chilli peppers, families participating in the pilot project may be able to use it as an additional cash crop.

In the Gamba complex of protected areas WWF is attempting to address the issue with the help of one of the oil sector service companies which provides discarded metallic flow lines (used to clean oil pipes) for use as anti-elephant fences. In Conkouati-Douli community-managed solar powered electric fences to protect fields are being tested.

While no miracle solutions have ever been found for this thorny problem experience, elsewhere in Africa has shown that the active participation of the farmers themselves in protection strategies is essential.

Forest elephants are often attracted into village plantations in the Gamba protected area complex (above). Discarded metal cables used by the oil industry make good anti-elephant fences (below). Metal drinks cans attached to the cable enhance the deterrent affect by jangling when the cable moves.

Photo © R. Beville (above); WWF-Gabon (below)

Sources: WCS & WWF

BOX 15. PROMOTING SUSTAINABLE OYSTER HARVESTING IN MAYUMBA

No residents of Mayumba can remember a time when diving for oysters was not part of the town's culture. The Mayumba oyster grows on the aerial roots of mangrove trees, and more commonly on the sandy or muddy bed of the Banio Lagoon. Oyster beds are known to promote high productivity within estuarine ecosystems. The shells slow down water currents and provide habitat for crabs, other shellfish, benthic fish species, and invertebrates. These in turn help to feed other animal communities. While feeding, oysters filter enormous quantities of water each day and are thus extremely important in maintaining water quality.

Oyster harvesting (photo top right) has declined sharply over the past two years and a survey by WCS in 2008 found very few live oysters in the lagoon, and these were largely restricted to one small area. Traditional oyster beds were found to be devoid of adult oysters, and the situation was judged to be critical.

The reason for this decline is primarily the lack of any control on the number of oyster divers, the length of the oyster season, and the number of oysters lifted by any one operator. Compounding this is the devastating effect of removing oyster shells from the lagoon. Traditionally, oysters were opened by hand while still in the canoe. Shells were then thrown back overboard. More recently, however, practices have changed and oysters have been taken ashore and opened using hot water and steam. The empty shells are then abandoned in large heaps on the lagoon shore (photo middle right). Steaming opens the shells kills all juvenile and non-exploitable oysters on the block. In some cases, there may be as many as 15 young oysters growing on the shell of a single adult. The level of wastage is therefore extreme. In addition to killing all the oysters that would otherwise form the basis for the following year's adult generation, the removal of hundreds of tons of oyster shells from the lagoon removes the very substrate upon which larval oysters depend for attachment. These two effects have combined to bring about the collapse of the oyster population, and the end of commercial oyster harvesting in Mayumba. Furthermore the overall effect on lagoon water quality and productivity of losing the oyster beds is likely to be massive.

A number of management interventions are therefore being implemented in order to a) rehabilitate the oyster beds and b) establish a sustainable system of commercial harvesting of oysters. These interventions include:

- an immediate ban on oyster harvesting
- instigation of a monitoring program to measure recovery and provide guidance to local authorities and resource users as to an appropriate time to recommence harvesting
- the creation of an oyster - divers and -sellers association
- controls on harvesting effort and timing of the harvesting season to enable sustainable use, and continued capability of the oyster population to replenish
- development of a zoning system for no-take zones to ensure a permanent breeding stock of oysters
- mandatory return of oyster shells to the lagoon immediately after harvesting
- rejuvenation of oyster habitat using old harvested oyster shells from the lagoon edge (photo bottom right)

Much of the success of this project is due to the Mayumba Oyster-Divers Association, which has provided an effective and locally accepted mechanism for regulating oyster harvesting (numbers of divers and length of the harvesting season are limited, only members of the association are permitted to dive).

These efforts to regenerate the oyster habitat and control harvesting have enabled a serious crisis to be avoided. Results from the monitoring program are showing encouraging indications of the beginnings of recovery, with an increase seen in 2009 in the abundance of juvenile oysters.

Source WCS-Mayumba

Photos © R. Parnell

Awareness building with local communities

A precondition for the success of all activities aimed at promoting sustainable use of natural resources in local communities is good communication and awareness building, and CAWHFI therefore provides support for these activities. The best results are obtained in situations where the project can involve dynamic and competent local organizations. In central Africa such organizations are still rather rare so capacity building has to be an integral part of the project's support. In the Gamba complex CAWHFI works with a local NGO, Ibonga –ACPE *(Association pour la Connsiassance et Protection de l'Environnement)* which is involved in a wide rage of awareness building activities and these are among the most successful activities that CAWHFI supports (Box 16).

BOX 16. SUPPORTING GRASS ROOTS ENVIRONMENTAL ORGANIZATIONS. IBONGA-ACPE, A LOCAL NGO PROMOTING UNDERSTANDING AND PROTECTION OF THE ENVIRONMENT.

Created in 1999, Ibonga - which means turtle in the local balumbu language - is a local non-profit organization based in the Gamba complex of protected areas and dedicated to the understanding and protection of the environment. This is achieved through a variety of activities that CAWHFI supports:

- **Formal environmental education and training** for the schools in the town of Gamba, targeting both the school children and the teachers. A comprehensive environmental curriculum has been developed in collaboration with the local education authorities. Regular field trips to Loango South National Park are also organized.

- **Public awareness building and communication** within the communities of the Gamba complex of protected areas. A particularly effective communication tool has been the Conservation Roadshow - a mobile road show involving song and dance, plays, puppet shows, films, books and posters (photo right). The Ministry of Water and Forests are closely involved with the public awareness activities and this is important since there is understandable antagonism to the vital anti-poaching activities that they undertake and little understanding on the part of local communities of the reasons for enforcing wildlife laws.

- **Visitors centre.** In collaboration with the park authorities Ibonga manages the South Loango National Park Visitors Centre. The centre serves as the official park entrance, information point and museum. Ibonga also sells local books, postcards and handicrafts to tourists.

- **Promotion of local handicrafts**. Ibonga helps develop and promote local handicrafts and runs a shop at Gamba airport where the products are sold.

- **Marine turtle monitoring and protection**. Ibonga is a member of the Gabon Marine Turtle Partnership dedicated to monitoring and protecting the globally important marine turtle nesting sites along Gabon's 800 km of coastline. Ibonga runs a research and monitoring programme (photo right) on the beaches of the Gamba complex of protected areas and also offers guided tours and educational visits.

Source: www.ibonga.org *Photos ©WWF-Gamba*

Identifying potential World Heritage sites and developing new nominations

In parallel with the site-based activities, which are aimed at helping sites raise their standards to meet World Heritage criteria, CAWHFI also aims to enlarge the scope of World Heritage in central Africa by helping ites that have the potential to meet the criteria to prepare their dossiers for submission to the World Heritage Committee, and assisting the countries to draw up Tentative Lists of other sites for possible submission.

In the case of Lopé National Park in Gabon the site was inscribed on the list in 2007. In view of the exceptional archeological richness of the site, showing evidence of human activities as far back as 400,000 years, the site was inscribed as a mixed cultural and natural World Heritage site. The TNS dossier for the cluster of trans-border protected areas is currently under preparation with the support of the CAWHFI component funded by the European Commission.

A two day workshop in Brazzaville in March 2008, organized by CAWHFI, established an exhaustive list of central African forest sites displaying significant natural heritage values and assessed them according to the World Heritage criteria. Their ecological representativity was also cross-checked with respect to the WWF 200 Ecoregions classification, of which 17 occur in central Africa. Six sites are considered of particularly high value, either because of their intrinsic richness or because they bring unique and/or new characteristics to the existing list of World Heritage properties. These priority sites are:

- The volcanic islands of São Tomé, Príncipe and Annobón (São Tomé & Príncipe[5] and Equatorial Guinea[6])
- The trans border protected area complex of Korup and Cross River National Parks (Cameroon and Nigeria)
- The Mount Cristal National Park (Gabon)
- The Itombwe mountain massif and Nyungwe National Park (DRC and Rwanda respectively)
- The Batéké Plateaux National Park (predominantly savannas, with some forest) (Gabon & Congo)

In addition three other sites were identified as potentially important but requiring further investigation before deciding if they can be added to the list of priority sites. These are:

- Mbam and Djerem NP (Cameroon),
- the Montane forests of western Cameroon (Cameroon)
- the Montane forests Mount Cameroun and Bioko (Cameroon & Equatorial Guinea).

The workshop also examined the existing Tentative Lists prepared by Cameroon, Gabon CAR and Congo, in order to provide an objective analysis of the value of these sites with respect to World Heritage criteria. A publication was edited to disseminate the results of this work to decision makers and other interested parties in the region. The publication can be downloaded at http://whc.unesco.org/fr/cawhfi.

[5] São Tomé & Príncipe has not yet drawn up a Tentative List

[6] Equatorial Guinea is not yet a signatory to the World Heritage Convention. This is a major concern since Equatorial Guinea contains several areas of outstanding natural value, particularly on its two islands, Bioko and Annobón.

Cão Grande, a spectacular volcanic plug towering above the forest canopy in the south of the Ôbo National Park, São Tomé, where annual rainfall often exceeds 7 meters.

Photo © C. Aveling

INTEGRATION OF WORLD HERITAGE ACTIVITIES INTO NATIONAL AND REGIONAL CONSERVATION POLICIES

The Yaoundé Declaration, signed by the central African Heads of State at the Yaoundé Summit in 1999, recognizes the protection of the Congo Basin's ecosystems as an integral component of the development process and reaffirms the signatories' commitments to work cooperatively to promote the sustainable use of the central African forests in accordance with their social, economic, and environmental agendas. This Declaration led to the creation of the Central African Forest Commission (COMIFAC) which is the primary authority for decision-making and coordination of sub-regional initiatives for conservation and sustainable management of the central African forests. It also set the scene for the creation of Congo Basin Forest Partnership. It was formalised by the signature of a treaty in 2005 giving it the legal framework to implement its 10 point strategic plan, known as the *Plan de Convergence* .

One of the most important considerations for UNESCO was that its actions should be fully in line with regional and national conservation priorities and that its initiatives should be firmly integrated in national, regional and international development partnerships. The Table below summarises the COMIFAC's Strategic Plan and associated activities and shows clearly that World Heritage activities are fully in line with at least nine of the Strategic Plan's ten points. Furthermore a close working relationship is maintained with the regional association, Central African Protected Areas Network (better known by its french acronym RAPAC), COMIFAC's officially recognised technical partner for matters relating to protected areas.

Mount Kalami in the Batéké Plateaux National Park in Gabon, a potential World Heritage site. It could also become a trans boundary protected area, one of the COMIFAC priorities, if Congo creates a Batéké Plateaux protected area.

Photo © J-P Vander Weghe

By implementing its activities through long standing conservation actors within the sub-region the World Heritage Centre reinforces the complementarity of its activities and its integration into regional and international development partnerships. Working in seven different protected areas over eight landscapes, integration of all activities with existing initiatives is essential since no single initiative is able to mobilise enough resources on its own to address the many conservation problems in these vast landscapes. By combining forces with locally active partners considerable economies of scale can be achieved in the use of CAWHFI resources while maintaining the specificity of its intervention which is its focus on World Heritage.

In the case of the DRC programme, the World Heritage Centre has been instrumental in the development of a new partnership between the different conservation NGOs and ICCN to improve conservation the 5 World Heritage sites. This model has now been extended by ICCN to include all protected areas and conservation partners.

The coordination unit, working out of the RAPAC offices in Libreville, ensures visibility for its activities and takes and active role in national and regional fora. Of particular inter-

	Components of COMIFAC Strategic Plan	COMIFAC Activities (activities supported by CAWHFI are marked in bold)
1	Harmonization of forestry and fiscal policies	**Adherence to International Conventions**; render forest policies coherent between countries and with other sector policies; Fiscal harmonization
2	Knowledge of the resource	**Inventories of forest resources**; Establishment / strengthening of national and regional observatories and **data bases**
3	Management of the ecosystem and reforestation	**Land use planning of forested areas**; **Management planning of concessions and protected areas**; **Reforestation / regeneration**; Combating desertification
4	Biodiversity conservation	**Strengthening protected area networks ; Collaborative management of trans-border areas;** Identification, development and protection of phyto-genetic resources
5	Sustainable development of forest resources	**Economic development of timber, NTFP, wildlife, tourism; Monitoring of management and use of resources; Forest certification** and traceability; **Law enforcement against illegal exploitation of forest resources including poaching**
6	Development of alternative activities and poverty reduction	**Alternatives to poaching; Revenue generating micro-projects**
7	Capacity building, stakeholder participation, information, training	**Participation of actors / forums; Implication of local populations and indigenous groups; Communication, information, sensitization, education; Training**
8	Research – Development	Develop research programs in line with forest policies; create partnerships with research institutions; **Use traditional knowledge for natural resource management; Define techniques for using / regenerating NTFPs; Set up structures for monitoring wildlife diseases**
9	Develop sustainable funding mechanisms	**Trust Funds; Forestry Funds,** common Regional funds; **Private sector funding; Carbon credits**; Forest conversion taxes.
10	Regional cooperation and partnerships	Develop collaboration mechanisms & codes of conduct.

est is the impetus that the CAWHFI regional coordination is able to give to the work of the different national World Heritage committees as they prepare their lists of potential World Heritage sites for submission to the World Heritage Centre.

Finally it is worth also underlining that by focusing on trans-border collaboration between clusters of protected areas, CAWHFI effectively promotes regional integration, which is an important factor for economic and social stability within the region.

The Sangha river which bisects the Sangha Tri-national landscape. This transboundary cluster of three protected areas is soon to be nominated as a new world heritage site.
Photo © C. Aveling

PERSPECTIVES

Since the signing of the Yaoundé declaration, important progress has been made in terms of sustainable forestry and biodiversity conservation in the Congo Basin. Both are now firmly on the national and regional political agendas. Protected areas are the cornerstone of efforts to conserve the exceptional biodiversity of the region and over the past two decades the protected area network has been expanded significantly. At the same time there has been a major increase in the international attention and support for forest conservation in Central Africa. It is now widely recognised that the Congo Basin forests are not only part of our global heritage but also play an essential role in climate regulation and as such are vital for the future of mankind. International recognition of this role of the Congo Basin forests at the next round of discussions on climate change within the framework of the United Nations Framework Convention on Climate Change could potentially generate substantial resources for forest conservation in the region.

Nevertheless, important challenges remain. Protected areas remain seriously under funded and are heavily dependant on external support, both financial and technical. The long term future of protected areas can only be assured if governments commit the appropriate resources to ensuring that they are properly managed.

In spite of efforts to implement more sustainable forest practices, the bush meat crisis remains a reality. Forestry operations and other economic activities open up large areas of previously undisturbed forest, and commercial poaching is increasingly affecting many of the protected areas. Recent studies show that greater economic wealth is leading to an increased demand for bushmeat, particular in urban areas. A fundamental shift in attitudes towards bushmeat is necessary but this can only happen when wildlife is considered as part of the nation's natural heritage, and once issues of ownership of wildlife resources by local communities have been more clearly defined.

At the same time, a growing interest for the important mineral and oil resources in the region brings new threats and challenges to protected areas, some of which contain substantial reserves of these resources. As the countries of the sub region tackle the critical issue of poverty alleviation political pressures to de-gazette parts of the protected areas in order to exploit their oil and mineral resources are bound to build up. Currently at least five of the protected areas in the CAWHFI landscapes, together with Virunga National park in the DRC, are threatened by large scale commercial industrial extractive activities despite having legal statuses that preclude this type of activity. Even when protected areas are not directly affected, most of these industrial projects will entail profound changes in the economic and social fabric of the areas where they are located, and this will inevitably affect protected areas and biodiversity in the vicinity.

The Democratic Republic of the Congo is of particular concern since it includes a major part of the Congo Basin forest and has so many important areas for biodiversity conservation. Even though the war is officially over, instability and insecurity continues to plague many parts of the country. In these areas a parallel economy based on the illegal extraction of mineral and natural resources developed during the war and continues to flourish today. These activities are having serious detrimental consequences not only for the biodiversity but also for the local communities.

UNESCO and its conservation partners believe that the World Heritage Convention can make an important contribution to addressing some of these challenges. With the exception of Equatorial Guinea, all the countries in the Congo Basin are State Parties to the Conven-

tion and as such, have made a commitment towards protecting natural heritage of "Outstanding Universal Value". Currently, seven protected areas in the region are recognized under the Convention and several others have been included in the Tentative Lists of the countries.

Through its initiatives, UNESCO and its partners are assisting countries to prepare nominations to the World Heritage List. Parallel to this, UNESCO is raising awareness about the Convention among regional decision makers and other stakeholders by communicating the benefits of the World Heritage system.

World Heritage listing can bring about national pride and increase national support for the conservation of this heritage, at both government and local community levels. In many other regions of the world governments have used the World Heritage status to promote the biodiversity potential of their countries, with tourism being one of the key spin-offs. While the central African countries are still a long way from being able to match, for example, Australia's marketing of its Great Barrier Reef World Heritage site, the forests of the Congo basin are just as unique in their own way and have an undoubted potential that can, and should, be marketed. Before the war, gorilla tourism was an important driver of economic development around the Kahuzi-Biega and Virunga National Parks. In the Trinational Sangha and Gamba-Mayumba-Conkouati landscapes this potential is already being successfully tapped through low volume, high quality, eco-tourism and if developed wisely these initiatives will continue to grow.

In the particular case of the five World Heritage sites in DRC, communication and awareness raising has been a central element of UNESCO's interventions, the aim being to mobilize support for the sites from all of the different stake holders - government at the national and regional levels, the DRC army, the UN mission to DRC (MONUC), local communities and civil society.

Inscription on the World Heritage List will also provide international recognition of the global importance of the most significant protected areas in the region. The case of the DRC sites showed clearly how World Heritage listing can mobilise international support for the conservation of the sites. Under the Convention, countries accept a shared responsibility for the conservation of World Heritage sites. The development of Trust Funds can provide sustainable funding for the management of these sites and provides a mechanism for donor countries to fulfil their commitments under the Convention. The developing carbon markets, particularly if avoided deforestation becomes an acceptable criterion, also have massive potential for contributing to sustainable funding particularly as deforestation rates in central Africa are twice as low as those of Amazonia, and four times lower than those of south east Asia.

However, to achieve recognition under the Convention, areas not only have to demonstrate their exceptional global value and integrity, but must also show that appropriate management systems in place to ensure that the value and integrity of the sites can be maintained over time. Therefore an important focus for UNESCO's initiatives in the Congo Basin is on improving the management of the sites within the context of their wider landscape by developing appropriate management models and building capacities of the management agencies and other stakeholders. This has been achieved through the strategic partnerships that were developed with our international NGO conservation partners.

Our hope is that these combined efforts will ultimately lead to a network of well managed World Heritage sites across the Congo Basin which reflect the exceptional natural heritage of the region and which are sustained through local, national and international support..

ACRONYMES

APN	African Parks Network
AFD	Agence Française de Développement
AFC	Africa Conservation Fund
AWF	African Wildlife Foundation
CAWHFI	Central African World Heritage Initiative
CARPE	Central African Programme for the Environment
CBFP	Congo Basin Forest Partnership
CBG	Compagnie des Bois du Gabon
CI	Conservation International
CoCoCongo	Conservation Coalition for Congo
CoCoSi	Comité de Coordination du Site
Coltan	A valuable metallic ore containing Columbite and Tantalite
COMIFAC	Commission des Forêts d'Afrique Centrale
CNDP	Congrès National pour la Défense du Peuple (armed militia)
CMEC	China National Machinery & Equipment Import & Export Corporation
CIB	Congolaise Industrielle des Bois
DRC	Democratic Republic of Congo
EC	European Commission
FAO	Food and Agriculture Organisation
FARDC	Forces Armées de la République Démocratique du Congo
FFI	Faune and Flora International
FFEM	Fonds Français pour l'Environnement Mondial
FZS	Frankfurt Zoological Society
FDLR	Force Démocratique pour la Libération du Rwanda (armed militia)
GIC	Gilman International Conservation
GIS	Geographic Information System
GEF	Global Environment Facility
GPS	Global Positioning System
GRASP	Great Apes Survival Partnership
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
ICOMOS	International Council on Monuments and Sites
IFO	Industries Forestières d'Ouesso
IRF	International Rhino Fund
ICCN	Institut Congolais pour la Conservation de la Nature
IGCP	International Gorilla Conservation Program
IUCN	International Union for the Conservation of Nature
KfW	Banque Kreditanstalt für Wiederaufbau
KBNP	Kahuzi-Biega National Park
LEM	Law Enforcement Monitoring
LRA	Lord's Resistance Army (armed militia)
LZS	London Zoological Society
MIKE	Monitoring of Illegal Killing of Elephants
MIST	Monitoring Information System
MONUC	United Nations Organisation Mission in DR Congo
MZS	Milwaukee Zoological Society
NGO	Non Governmental Organisation
NP	National Park
NTFP	Non Timber Forest Product
OWR	Okapi Wildlife Reserve
OFAC	Observatory for the Forests of Central Africa
PDA	Personal Digital Assistant
RAPAC	Réseau des Aires Protégées en Afrique Centrale
RN	Route Nationale (Main Road)
TRIDOM	Tri National Dja-Odzala-Minkebe
TNS	Tri National Sangha
VNP	Virunga National Park
WWF	World Wide Fund for Nature
WCS	Wildlife Conservation Society
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNEP	United Nations Environment Program
UNDP	United Nations Development Program
UNF	United Nations Foundation
USAID	United States Agency for International Development

The World Heritage Centre

Established in 1992, the World Heritage Centre is the UNESCO secretariat to the World Heritage Convention. Ensuring the day-to-day management of the Convention, the Centre organizes the annual sessions of the World Heritage Committee, provides advice to States Parties in the preparation of site nominations, prepares international assistance from the World Heritage Fund and ensures, together with the advisory bodies to the Convention IUCN and ICOMOS, the reporting on the state of conservation of the inscribed sites. The Centre has been managing a number of large scale conservation initiatives such as the ones in the Congo Basin, thanks to outside donor funding.

The Partnership

The most important actors in this partnership are the State Parties to the Convention concerned by this initiative, the Governments of the Republic of Cameroun, Central-African Republic, Republic of Congo, Democratic Republic of Congo and Republic of Gabon, and their respective ministries and technical agencies such as the DRC protected areas agency ICCN. Activities support the COMIFAC strategic plan and are coordinated with COMIFAC and its technical partner on protected area-related issues, RAPAC. The FAO is a partner to the UNF funded component of CAWHFI.

The field activities are implemented by a consortium of international and regional conservation organisations, most of which have many years of experience supporting the protected area authorities of the Congo basin. WWF, WCS and Conservation International have also mobilized important matching funds for the programmes.

Implementing Partners

Gilman International Conservation

African Parks Conservation

Wildlife Conservation Society

Fondation Tri-National de la Sangha

Fauna & Flora International — Conserving wildlife since 1903

WWF

Frankfurt Zoological Society — Help for Threatened Wildlife

IRF — International Rhino Foundation

ZSL

La Société Zoologique de Milwaukee — ▪ SOUTENIR ▪ INSTRUIRE ▪ CONSERVER ▪

Back cover: a western lowland gorilla male displaying in a forest clearing (bai) in the Odzala-Koukoua National Park, north Congo.

Photo © Sylvain Gatti & Florence Levréro, CNRS, Station Biologique Paimpont-Université de Rennes

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