
BIODIVERSITY & PEACE

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Session I

- ❑ Biodiversity
- ❑ Types of Biodiversity
- ❑ Essential Elements of Biodiversity
- ❑ Importance of Biodiversity
- ❑ Thriving Biodiversity
- ❑ Factors Affecting Biodiversity
- ❑ Global Biodiversity Hotspots
- ❑ Human Impact on Biodiversity
- ❑ Land degradation, Climate Change and Biodiversity
- ❑ Summary

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Session II

- ❑ Pakistan's Diverse Landscape
- ❑ Pakistan, Vibrant & Rich in Biodiversity
- ❑ Pakistan, From K-2 to Arabian Sea
- ❑ Challenges to the Peace of Biodiversity
- ❑ Endangered Biodiversity of Pakistan
- ❑ Eco-Regions in Pakistan
- ❑ Protected Areas in Pakistan
- ❑ Forest Species Level Case Study



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Session III

- Research Themes and Ideas on Biodiversity and Peace



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“Bio” (life) and “diversity”, refers to the variety of life

It is described as *degree* of variation of life

The term “biodiversity” was initially used by wildlife scientist and conservationist **Raymond F. Dasmann** in the 1968

Source : (Dasmann, R.F.(1968). Environmental Conservation. Wiley, USA.)

**According to the United Nations Environment Programme
(UNEP)**

***Biodiversity typically measures variation at the genetic, the species,
and the ecosystem level***



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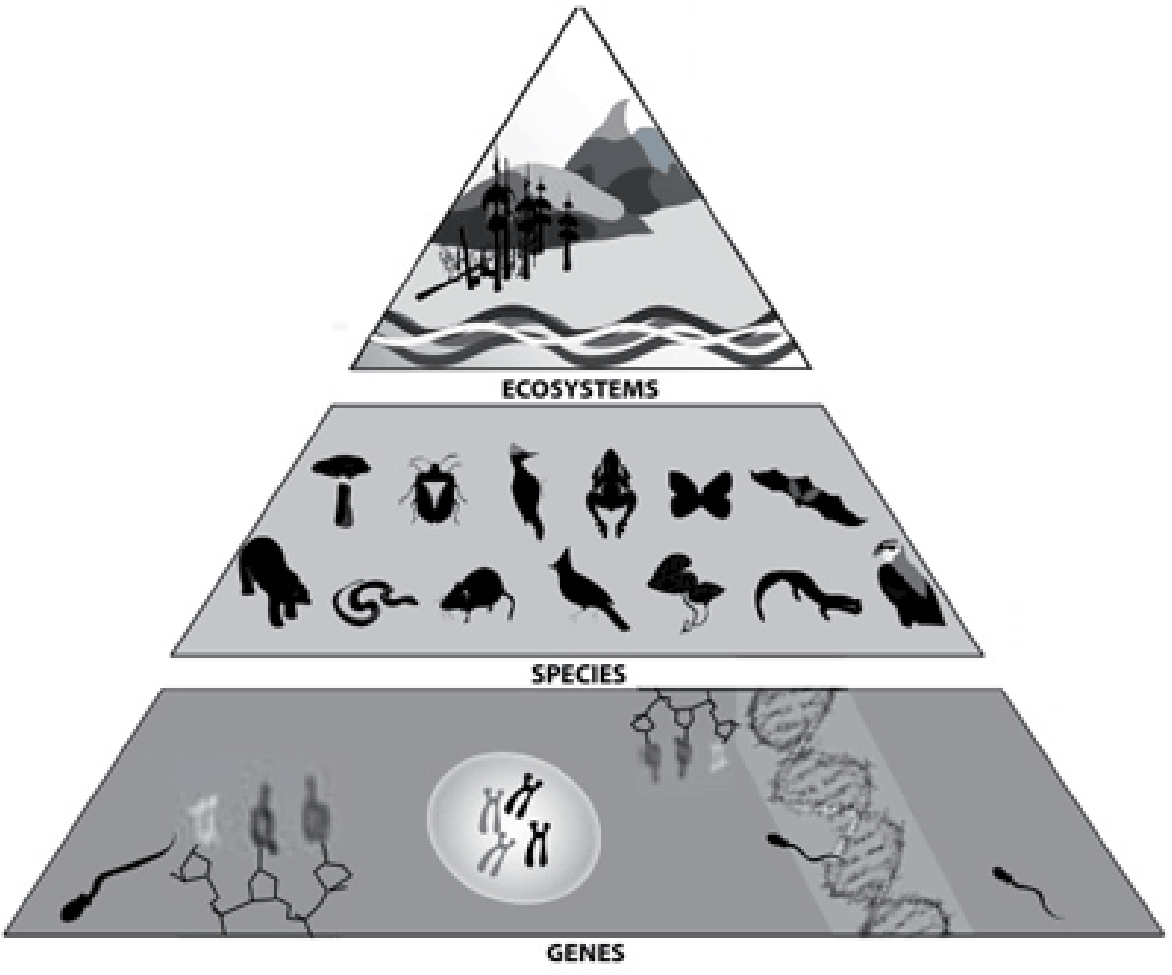
Types of Biodiversity

- ❑ Genetic diversity
- ❑ Species diversity
- ❑ Ecosystem diversity



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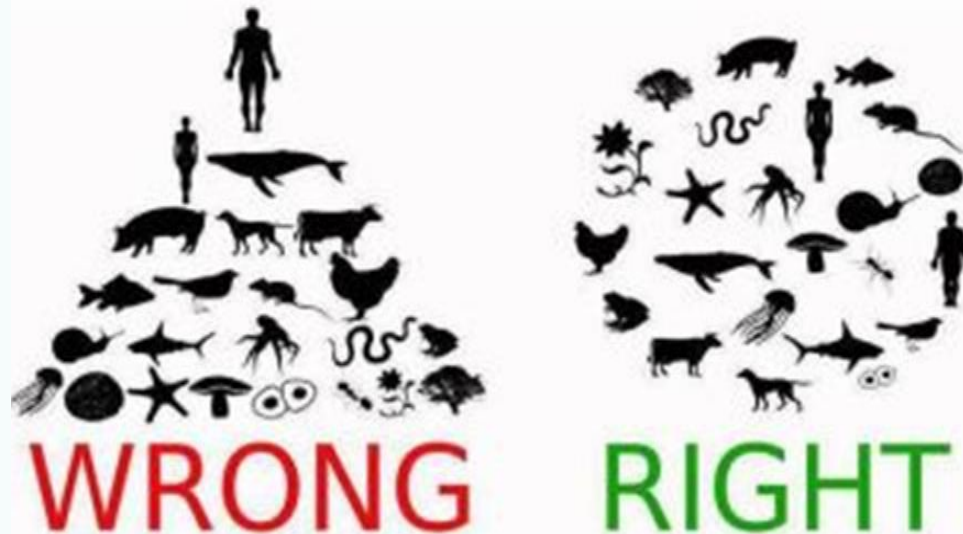
Essential Elements of Biodiversity



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Importance of Biodiversity

- ❑ In biodiversity, each species, no matter how big or small, has an important role to play in ecosystem
- ❑ Plant and animal species depend on each other, and ensures natural sustainability for all life forms



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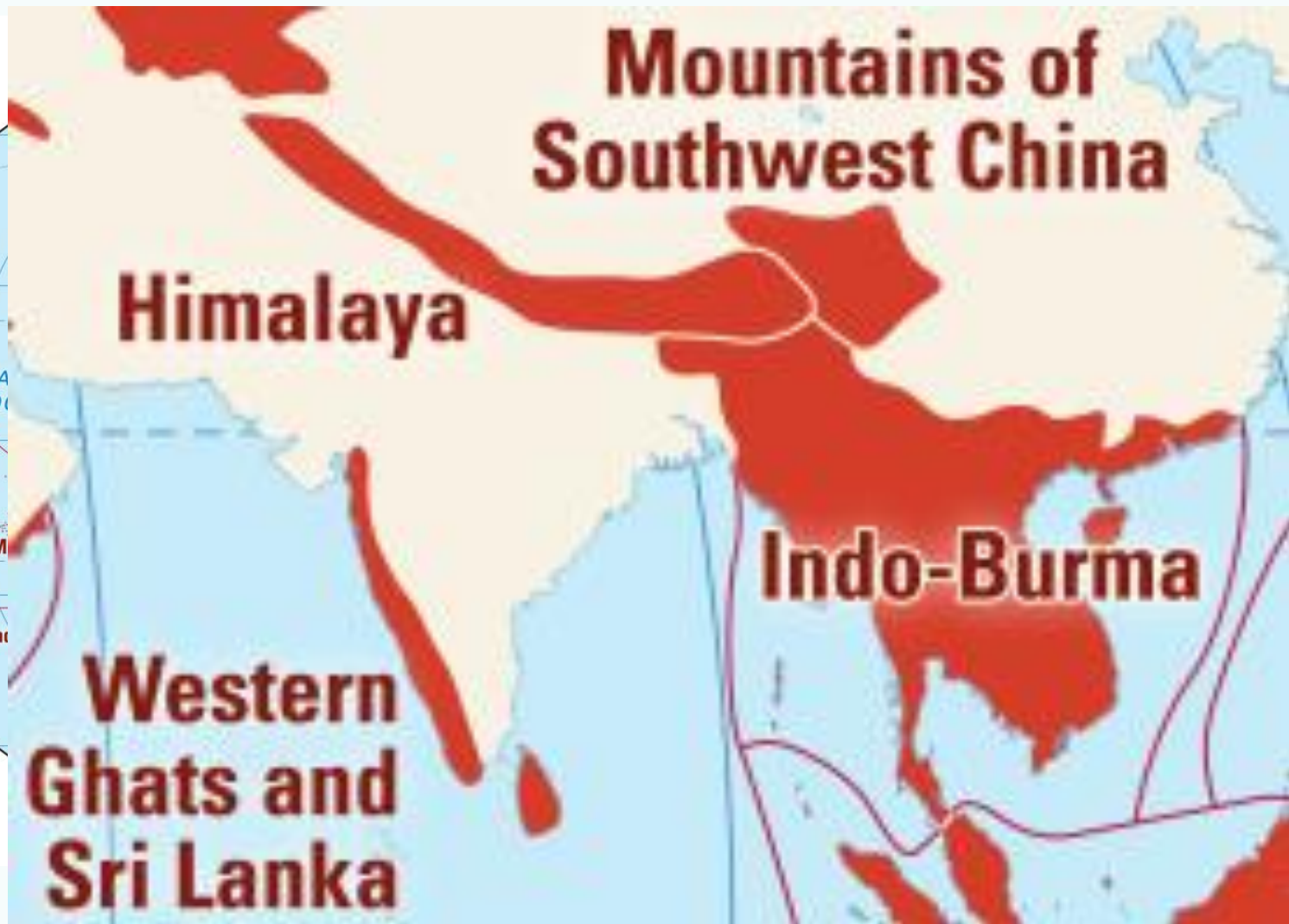
Thriving Biodiversity

- ❑ Sustenance of water resources
- ❑ Soils formation and protection of nutrient storage and recycling
- ❑ Pollution breakdown and absorption
- ❑ Contribution to climate stability
- ❑ Maintenance of ecosystems
- ❑ Biological resources (Food) / Medicinal resources
- ❑ Timber resources
- ❑ Future resources / Diversity in genes, species and ecosystems
- ❑ Social benefits, such as Research, education and monitoring
- ❑ Recreation and tourism / Cultural values (Natives and aboriginal people)

Factors Affecting Biodiversity

- ❑ Factors influencing biodiversity include temperature, altitude, precipitation, soils and impact of these variables on other species
- ❑ Geographical distribution of biodiversity is not uniform on earth
- ❑ Biodiversity increases from poles to the tropics, and it is richest in the tropics
- ❑ Terrestrial biodiversity tends to be greater near and around the equatorial regions
- ❑ Ocean biodiversity is considered 25 times lesser than terrestrial biodiversity

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Human Impact on Biodiversity

- ❑ Biosphere & the atmosphere, upon which the humanity as a whole depends, have been deeply reconfigured by the human impact
- ❑ By 2010, more than 50% of the land, housing biodiversity has been altered & according to the studies, by 2050, almost >75 % of the land is projected to be significantly altered
- ❑ By 2010, 34% of global biodiversity had been lost and an increase of up to 38 - 46% is projected by the year 2050

(Source : The Intergovernmental Platform on Biodiversity and Ecosystem Services www.ipbes.net)

Land degradation, Climate Change and Biodiversity

- ❑ Between 2000-2009, land degradation was responsible for annual global emissions of up to 4.4 billion tonnes of CO₂
- ❑ Deforestation alone has contributed 10% of all human-induced greenhouse gas emissions
- ❑ Halting and reversing land degradation can provide more than 1/3 of the most cost-effective greenhouse gas mitigation activities to keep global warming under 2°C
- ❑ The combination of land degradation and climate change projected to reduce global crop yields by 10% (up to 50% in some regions) by 2050, forcing up to 700 million people to migrate

(Source : The Intergovernmental Platform on Biodiversity and Ecosystem Services www.ipbes.net)



Summary

In order to preserve “PEACE” in a biologically diverse world

We need to put our efforts together to accept

the rule of mother nature, & that is

“Merit Based Natural Selection”

This rule has prevailed for the last 4 Billion Years

Efforts form the most intellectually sound species “The Humans”

is needed to preserve this billions years old inheritance

“PEACE”



THANK YOU



Pakistan

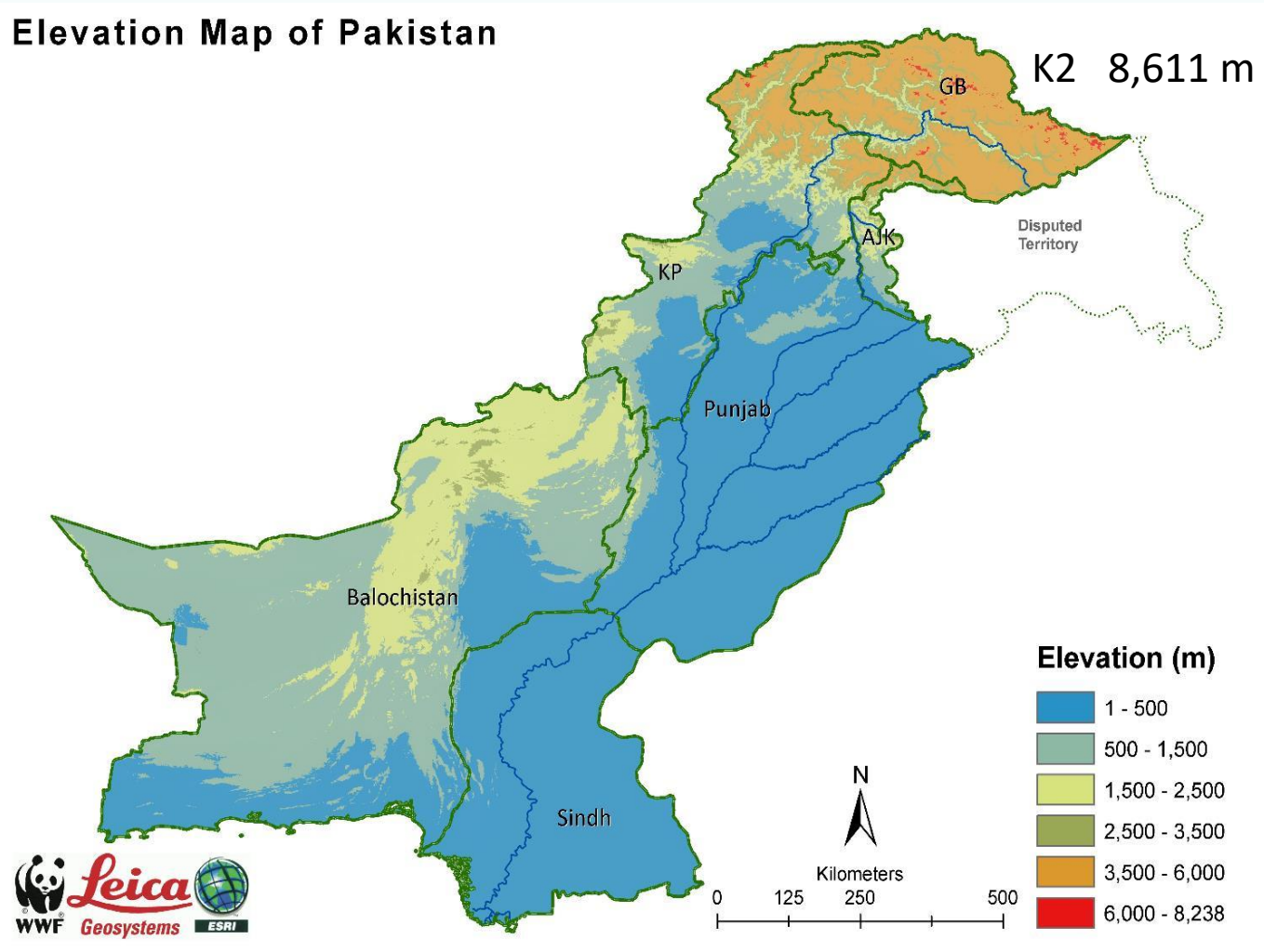
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Pakistan's Diverse Landscape

Elevation Map of Pakistan

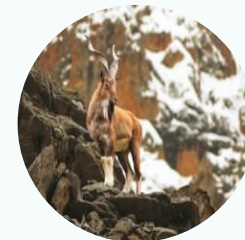
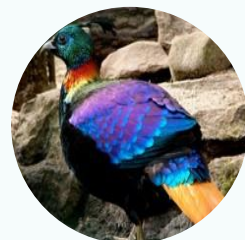


(Source : WWf - Pakistan)

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(Image Source : WWf - Pakistan)

Pakistan Vibrant & Rich in Biodiversity



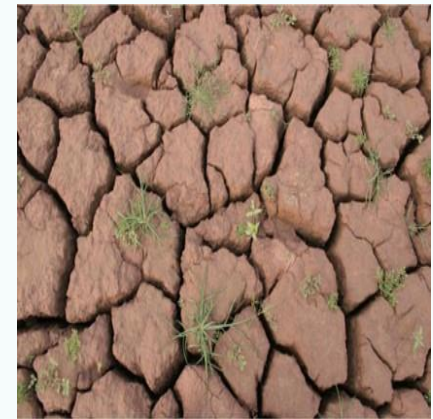
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Pakistan, From K-2 to Arabian Sea



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Challenges to the peace of Biodiversity



Endangered biodiversity of Pakistan

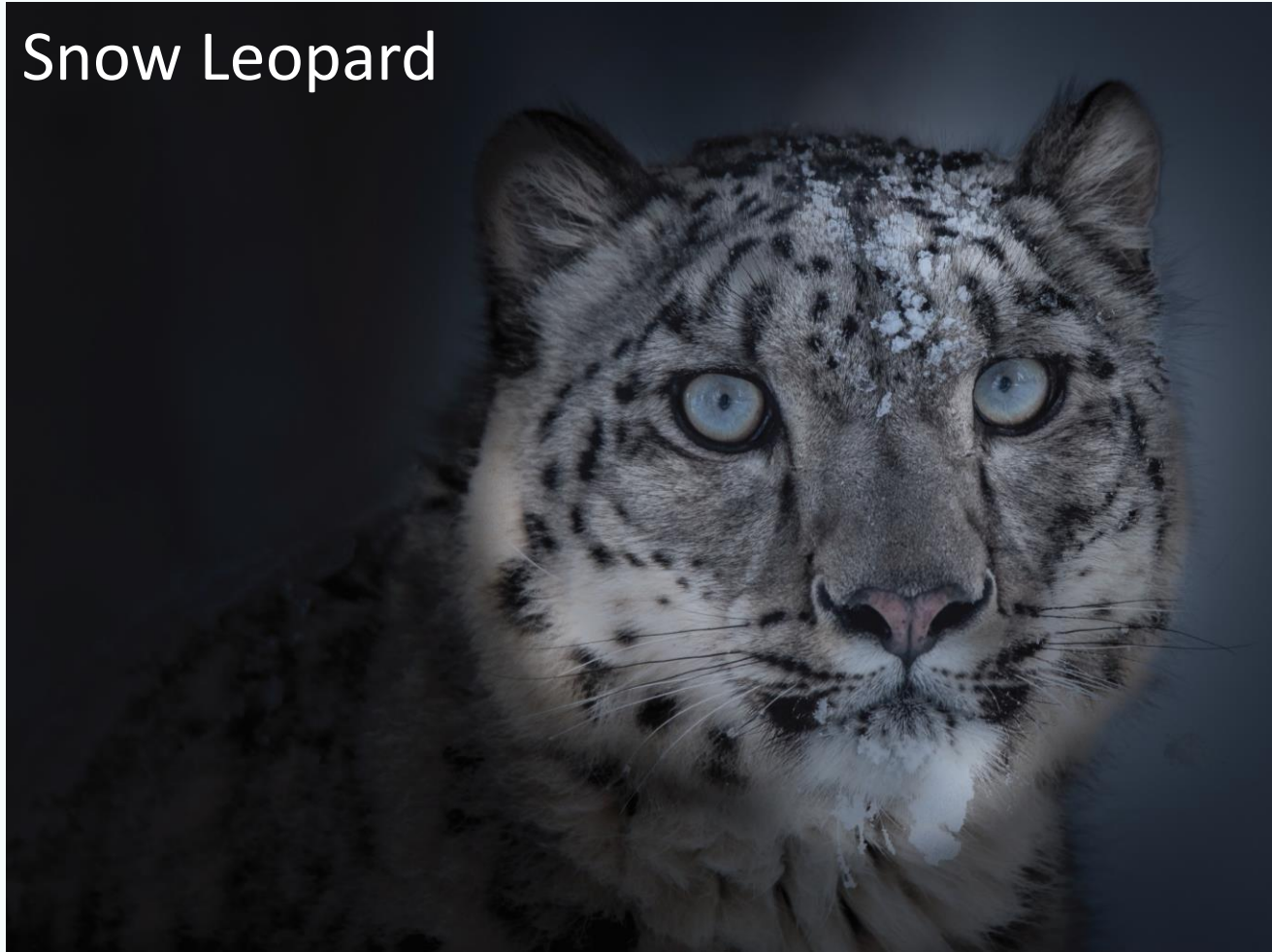
Indus Blind Dolphin



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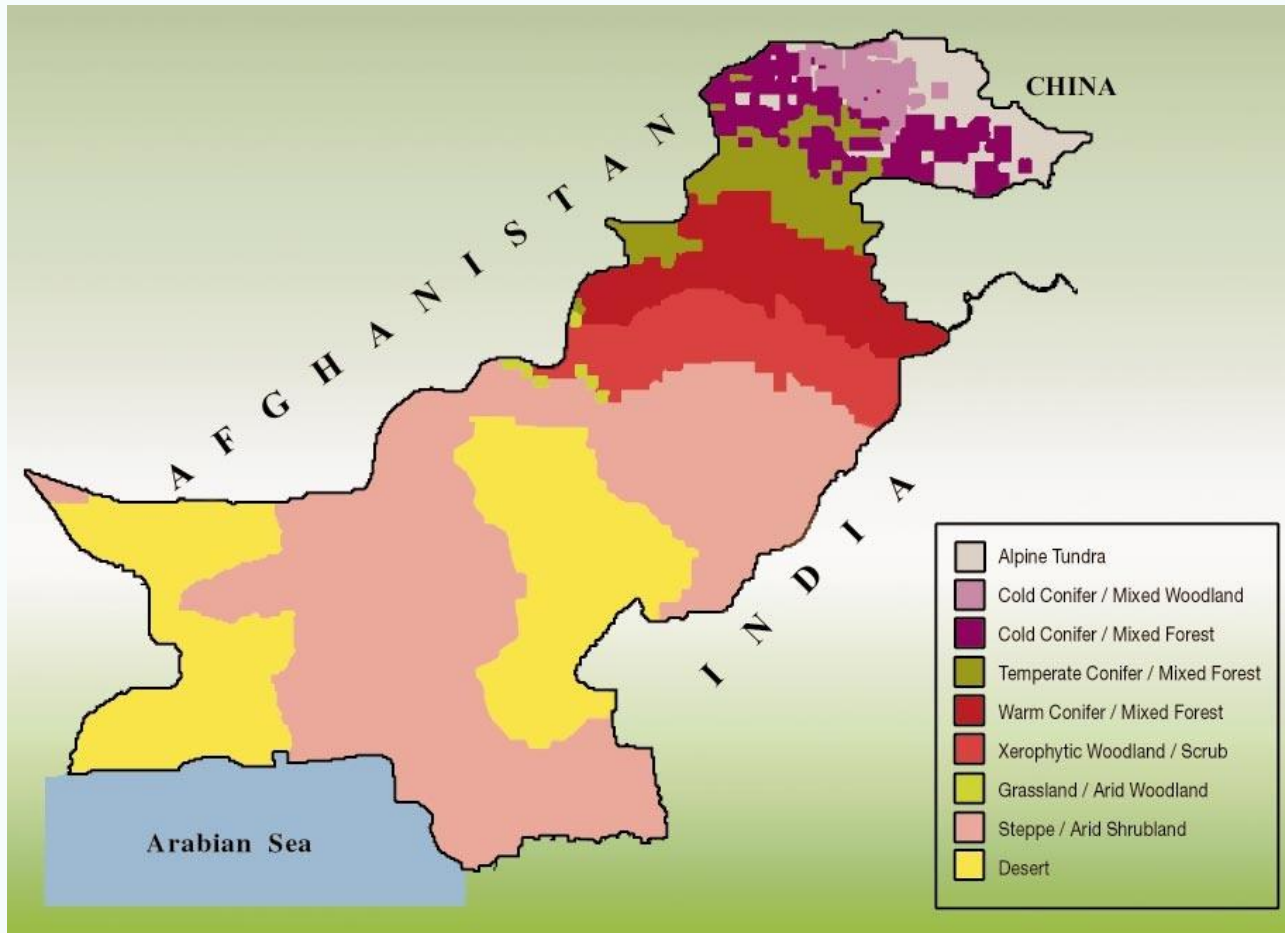
Endangered biodiversity of Pakistan

Snow Leopard



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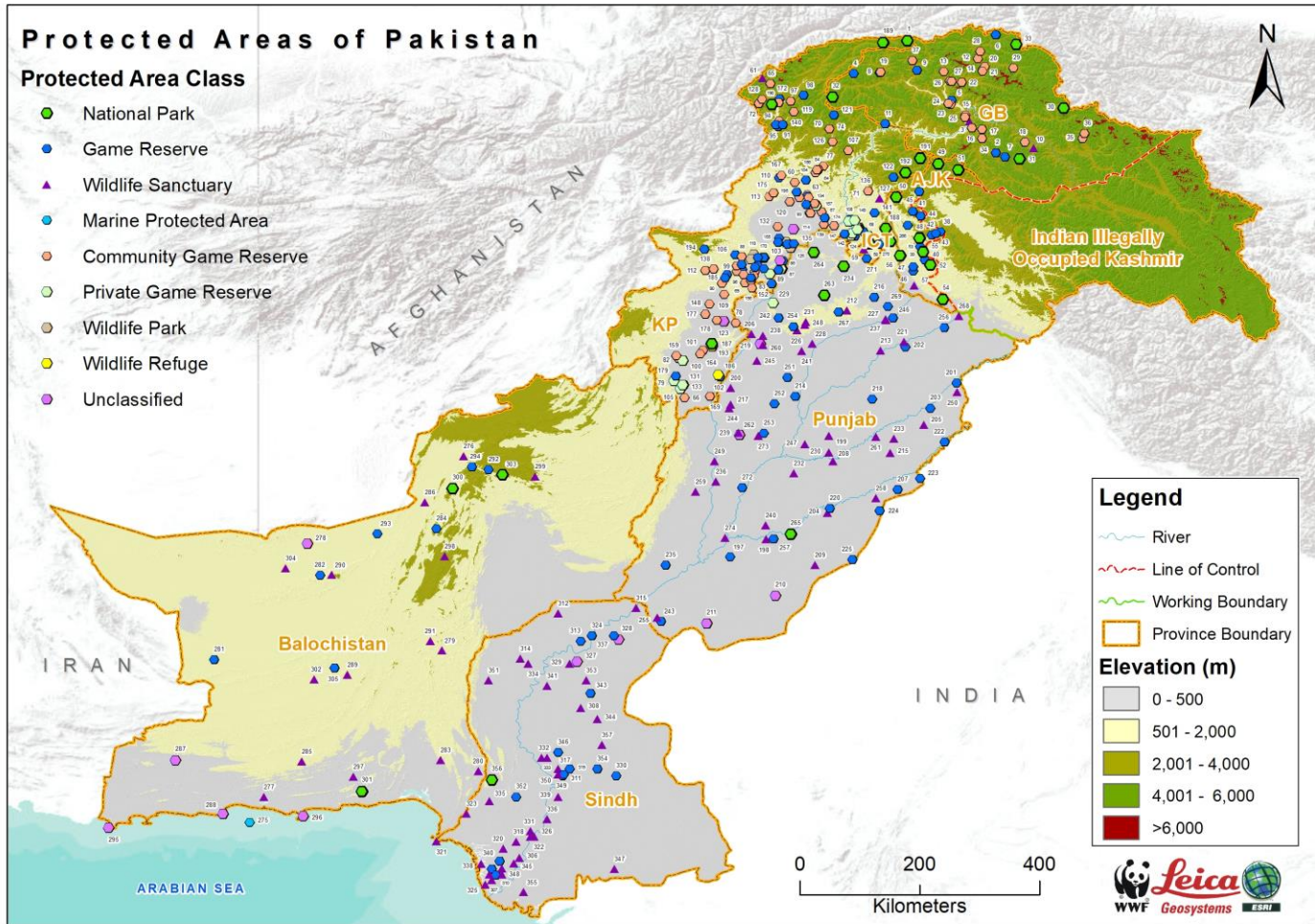
Eco-Regions in Pakistan



Source: K. M. Siddiqui, Iqbal Mohammad, Mohammad Ayaz. 1999. Forest ecosystem climate change impact assessment and adaptation strategies for Pakistan. CLIMATERESEARCH. Vol. 12: 195-203, 1999.

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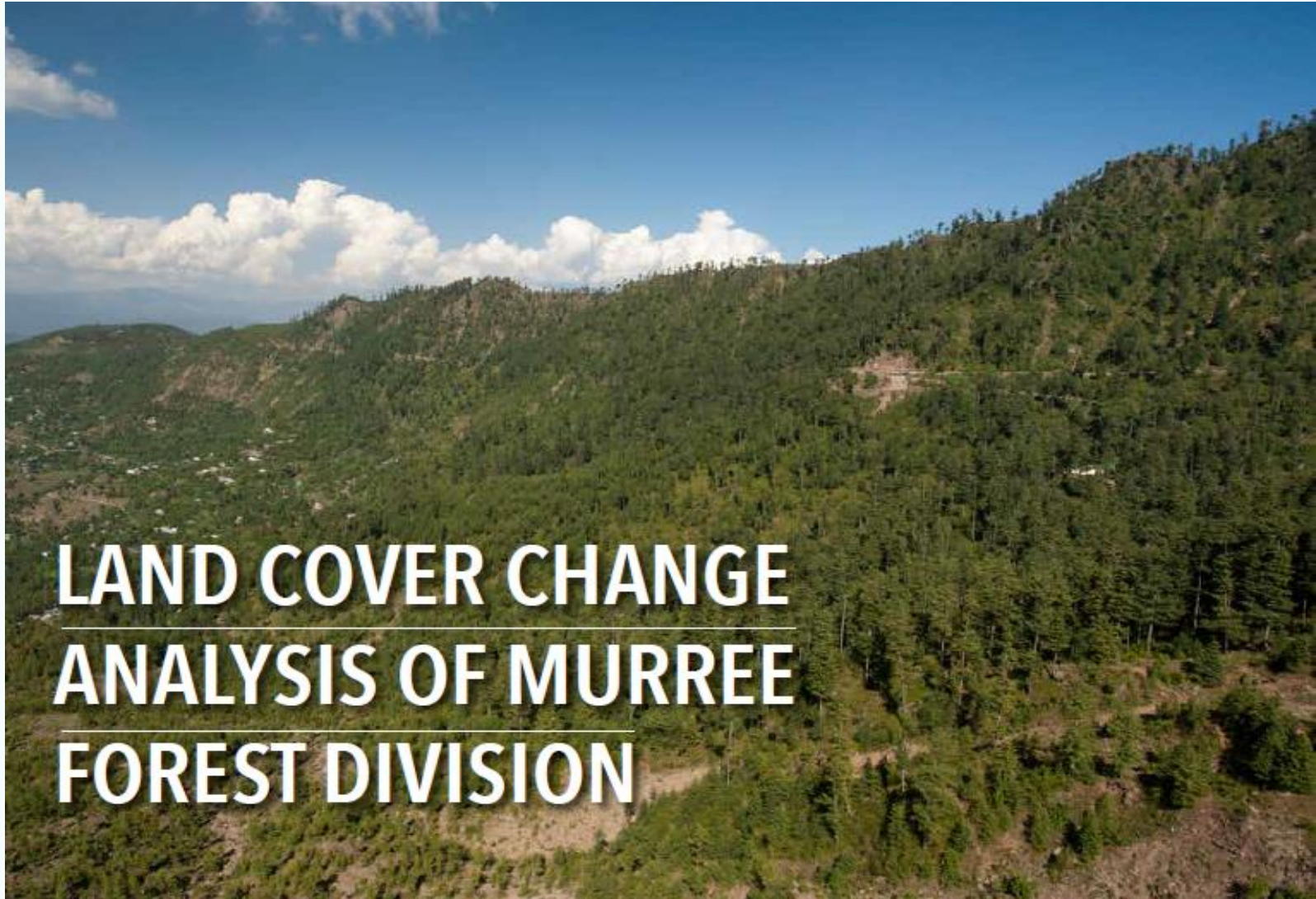
Protected Areas of Pakistan



(Map Credit : WWf - Pakistan)



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LAND COVER CHANGE ANALYSIS OF MURREE FOREST DIVISION

Study Credited to WWF-Pakistan



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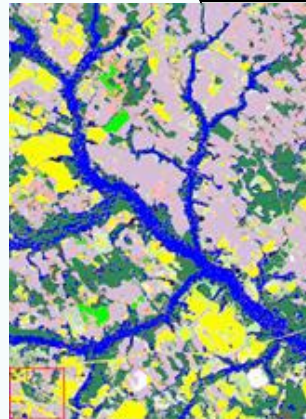
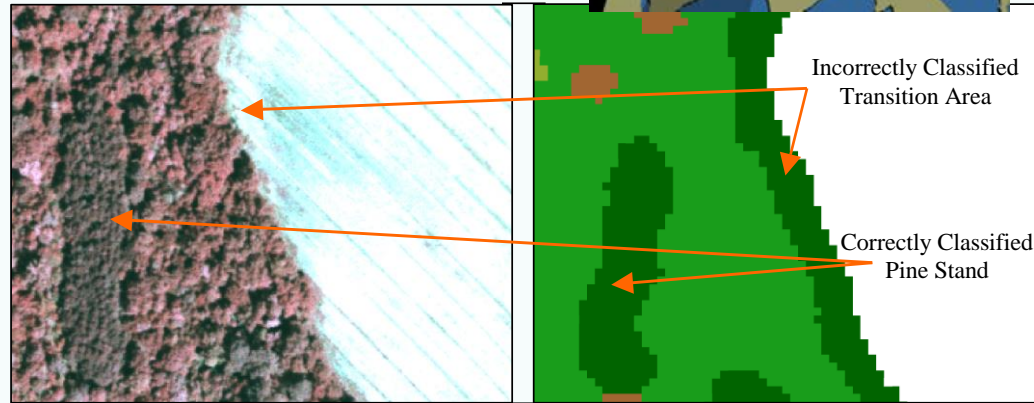
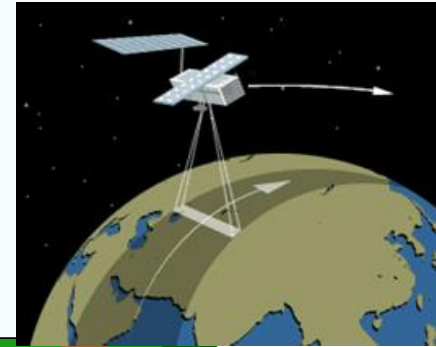
Satellite Remote Sensing for Forest Monitoring

Mapping and monitoring capability of existing forest

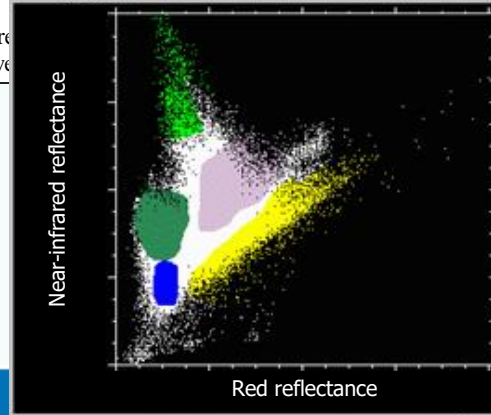
Identification and demarcation of protection forest

Forest management

Help in Defining the policies on forestry



1 - Areas between



results in misclassification of

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Satellite /Aerial Imagery Used

Sr. No.	Spatial Resolution	Acquisition Date
Aerial Photographs	41 Scanned Photographs	1952/1954
Keyhole/Corona	Black and white scanned image	16 th May 1962
SPOT 1	XS: 20 m	18 th Sept. 1986
SPOT 1	XS: 20 m	13 th Nov. 1992
SPOT 3	XS: 20 m	10 th June 1997
SPOT 4	XS: 20 m	11 th Nov. 1999
SPOT 5	Panchromatic: 2.5 m XS: 10 m	25 th Oct. 2005
		16 th May 2011

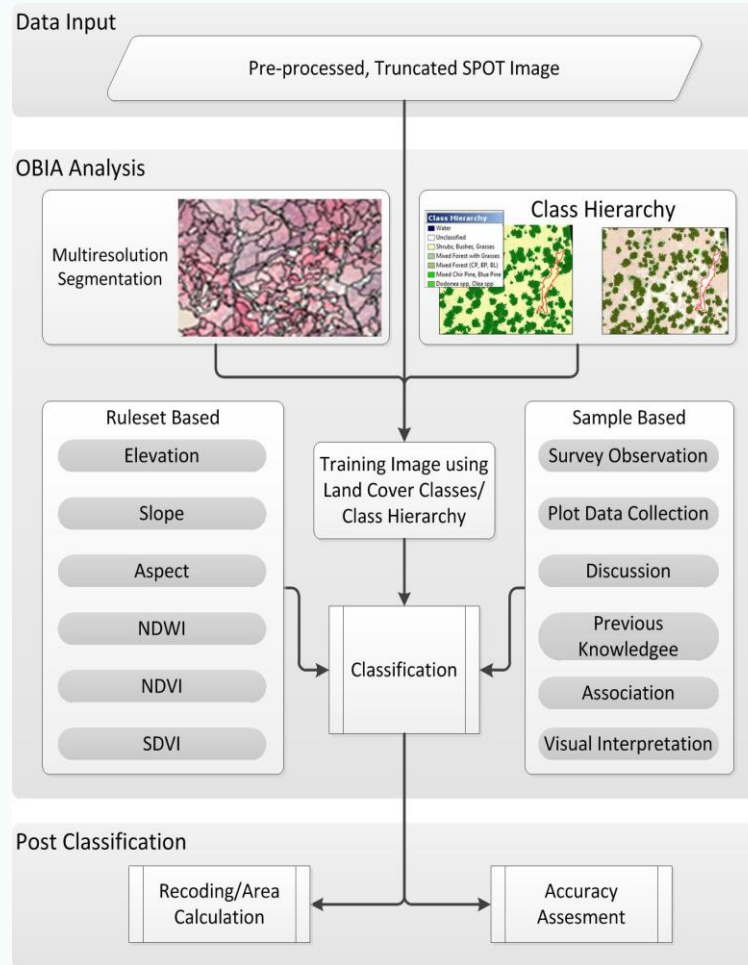
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Forest Species exist in Murree Forest Division

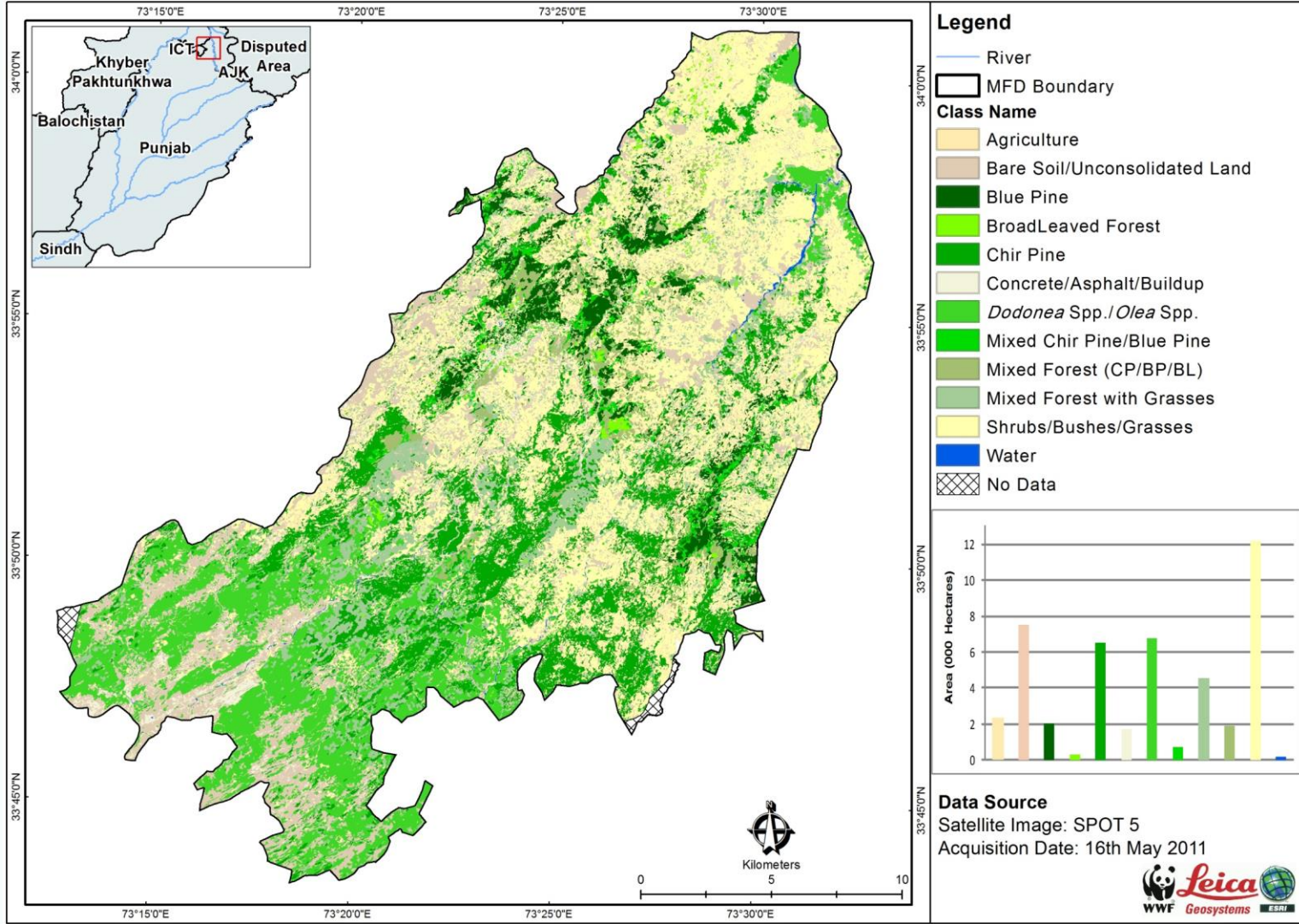
Common Name/English Name		Extra Notes	Tree Type
Amaltas	<i>Cassia fistula</i>		Broadleaf
Amlok	<i>Diospyros lotus</i>	Deciduous	Tree
Ananthus	<i>Ailanthus altissima</i>	Deciduous	Tree
Ban Akhrot/Ban Khor	<i>Aesculus indica</i>	Ban khor (Hazara) Ban Akhor (Rawalpindi) "horse chestnut"	Broadleaf
Batangi	<i>Pyrus pashia</i>	Deciduous	Tree
Bebrang	<i>Myrsine africana</i>		Shrub
Bhekar	<i>Justicia adhatoda</i>		Shrub
Blue pine/Kail	<i>Pinus wallichiana</i>		Conifer
Chir pine/Chir	<i>Pinus roxburghii</i>		Conifer
Dhrek/Bakain	<i>Melia azedarach</i>	Tree upto 12 m (Pinnate) Deciduous	Tree
Deodar	<i>Cedrus deodara</i>		Conifer
Sufeda	<i>Eucalyptus</i>	<i>Eucalytus bicostata</i> Fair Growth in Murree (Ghora Galli)	Tree/Shrub
Fir	<i>Abes pindrow</i>		Conifer
Garanda	<i>Carissa opaca</i>		Shrub
Kanair/Kanehra	<i>Nerium oleander</i>		Shrub
Kangar	<i>Pistacia integerrina</i>	Deciduous	Tree/Shrub
Kau	<i>Olea ferruginea</i>		Tree/Shrub
Phulai	<i>Acacia modesta</i>	Deciduous	Small Tree
poplus	<i>Populus alba</i>	Deciduous	Tree
reh (Barungi)	<i>Quercus dilatata</i>		Broadleaf
Rein	<i>Quercus incana</i>	Kamra block in Daleh has Rein Mix with Chir Pine	Broadleaf
Sanatha	<i>Dodonaea viscosa</i>		Shrub
Shamshad	<i>Buxus wallichiana</i>	Evergreen	Tree/Shrub
Sheesham (Talli)	<i>Dalbergia sissoo</i>	Deciduous	Tree

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Advanced Image Processing Technique - OBIA



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QUESTIONS
(If Any)??



Research Themes and Ideas

- ❑ Ecosystems in dynamic Climate and Landuse/Landcover Exploitation
- ❑ Preservation and Zonation of Sensitive Climatic Ecosystems
- ❑ Human Induced Impact on Climate Change
- ❑ Human induced Impact on biodiversity
- ❑ Drought and migration patterns (A biodiversity & Peace Perspective)
- ❑ Deforestation and Impacts on Climate Variables
- ❑ Habitat Mapping of Endangered Species (Fauna / Flora)
- ❑ Timescale Atmospheric variabilities affecting Atmospheric gases and their connection to biodiversity

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- ❑ **Extreme Weather Events and Implications on Biodiversity and Peace**
- ❑ **Psychological Impacts linked with Climatic Variabilities**
- ❑ **National & International Conflicts and their Environmental Implications**
- ❑ **Fresh Water Resources and International Conflicts**
- ❑ **Socioeconomic Uplift of Underprivileged Communities and Impact on Biodiversity**
- ❑ **Poverty Alleviation through Nature Conservation**
- ❑ **Biodiversity Conservation through Transboundary Peace Initiatives**



THANK YOU

