

# Protected Area systems- with special reference to Management and Governance Categories in India

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# Outline

- Key Definitions
- Protected Area Categories in the world
- Protected Area categories in India
- A Biogeographic classification approach to categorise PA network in India .
- A few stats
- Protected Area Management Vs Governance
- YOUR VIEW !

# What is a protected area?

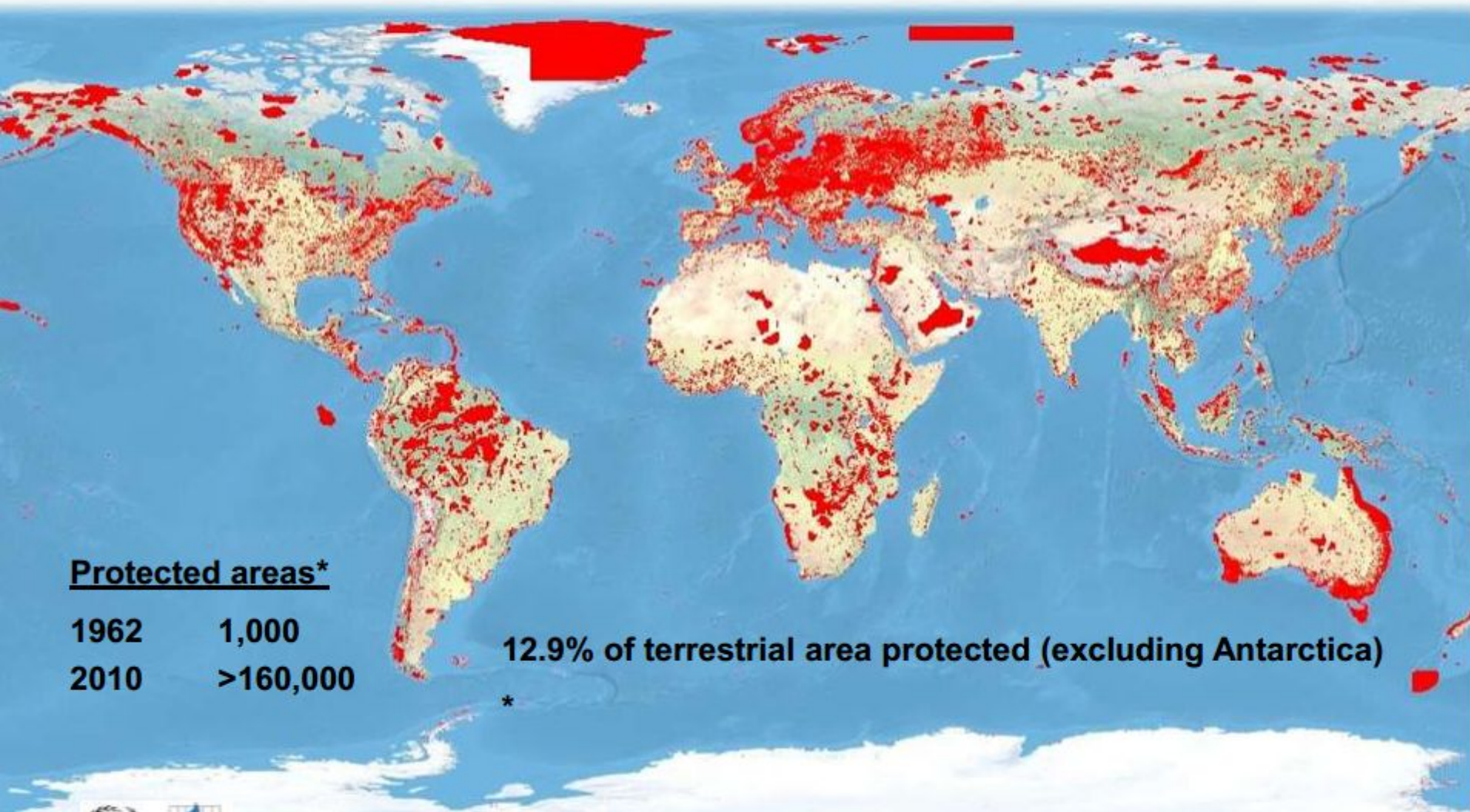
- "An area of land and/or sea especially dedicated to the protection of biological diversity and natural and associated cultural resources, and managed through legal or other effective means (IUCN 1996)."
- A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley, 2008).

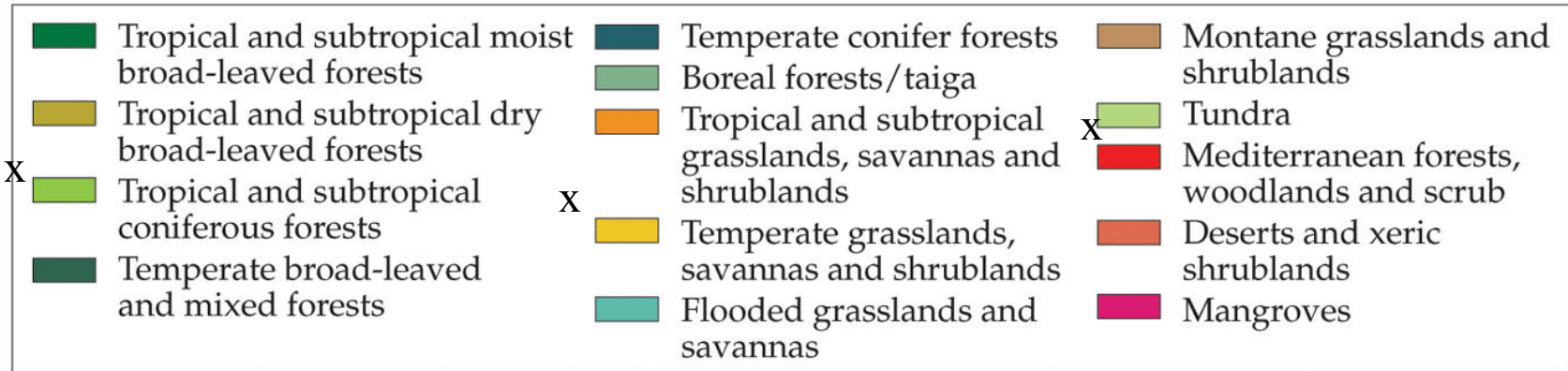
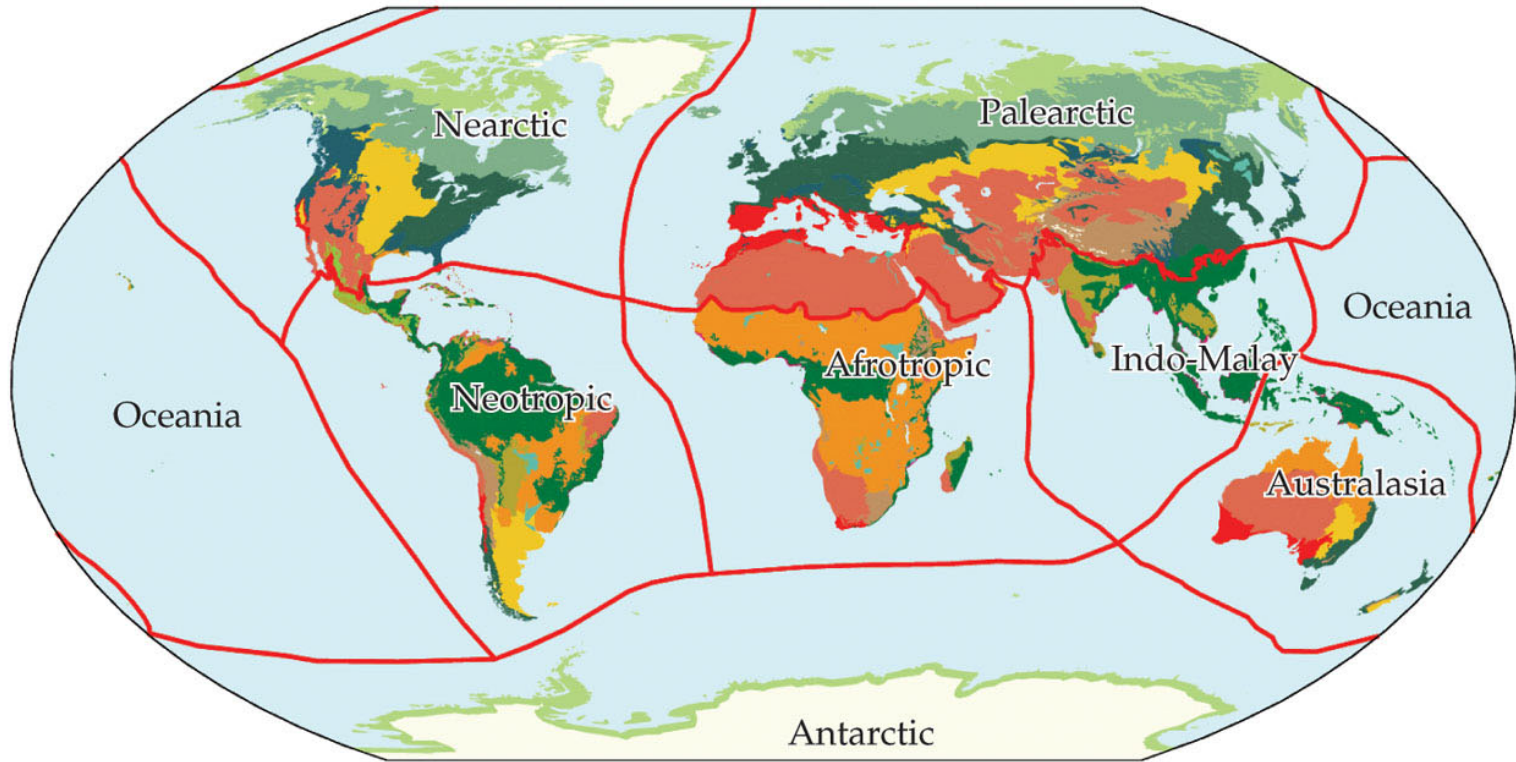
# Benefits provided by protected areas

- Conservation of ecosystems and biodiversity
- Recreation
- Prevention of erosion on watersheds
- Provision of clean water to cities
- Provision of clean air
- Control of biological pests
- Preservation of medicinal and genetic resources
- Maintenance of harvestable resources
- Soil regeneration
- Nutrient cycling
- Carbon sequestration/climatic regulation
- Ecosystem Based Disaster Risk Reduction



# Global extent of protected areas

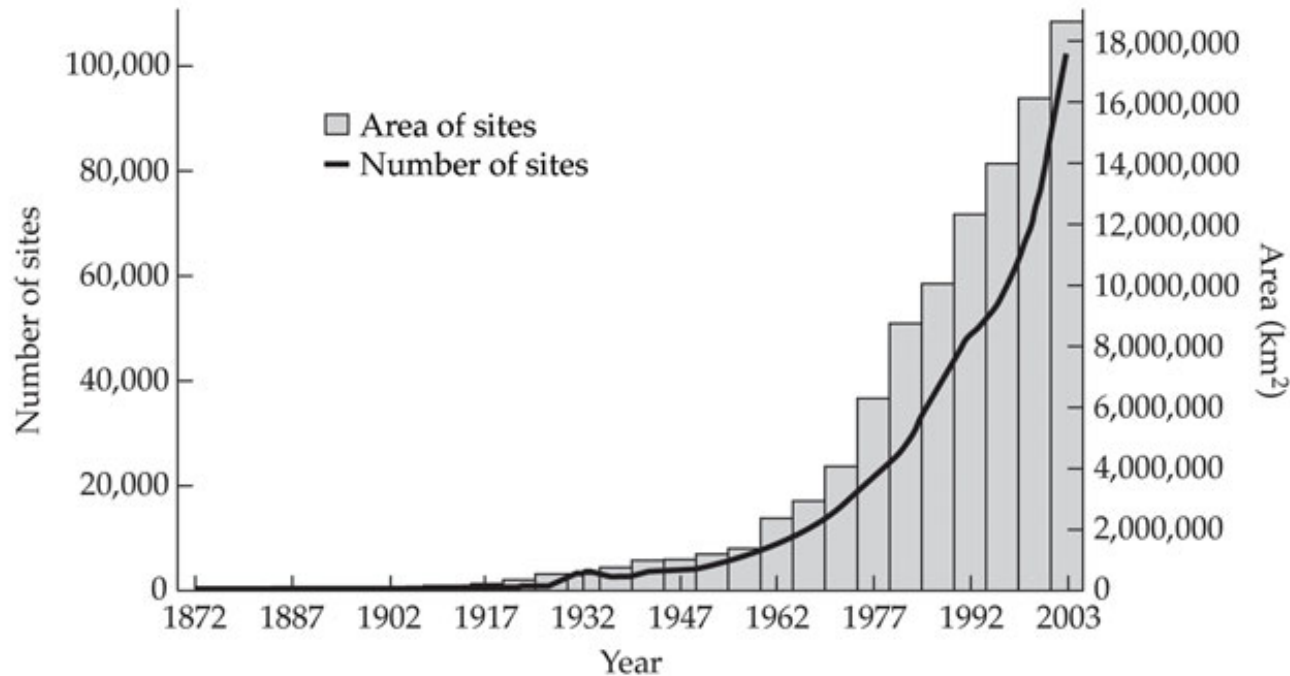




X - least protected biomes



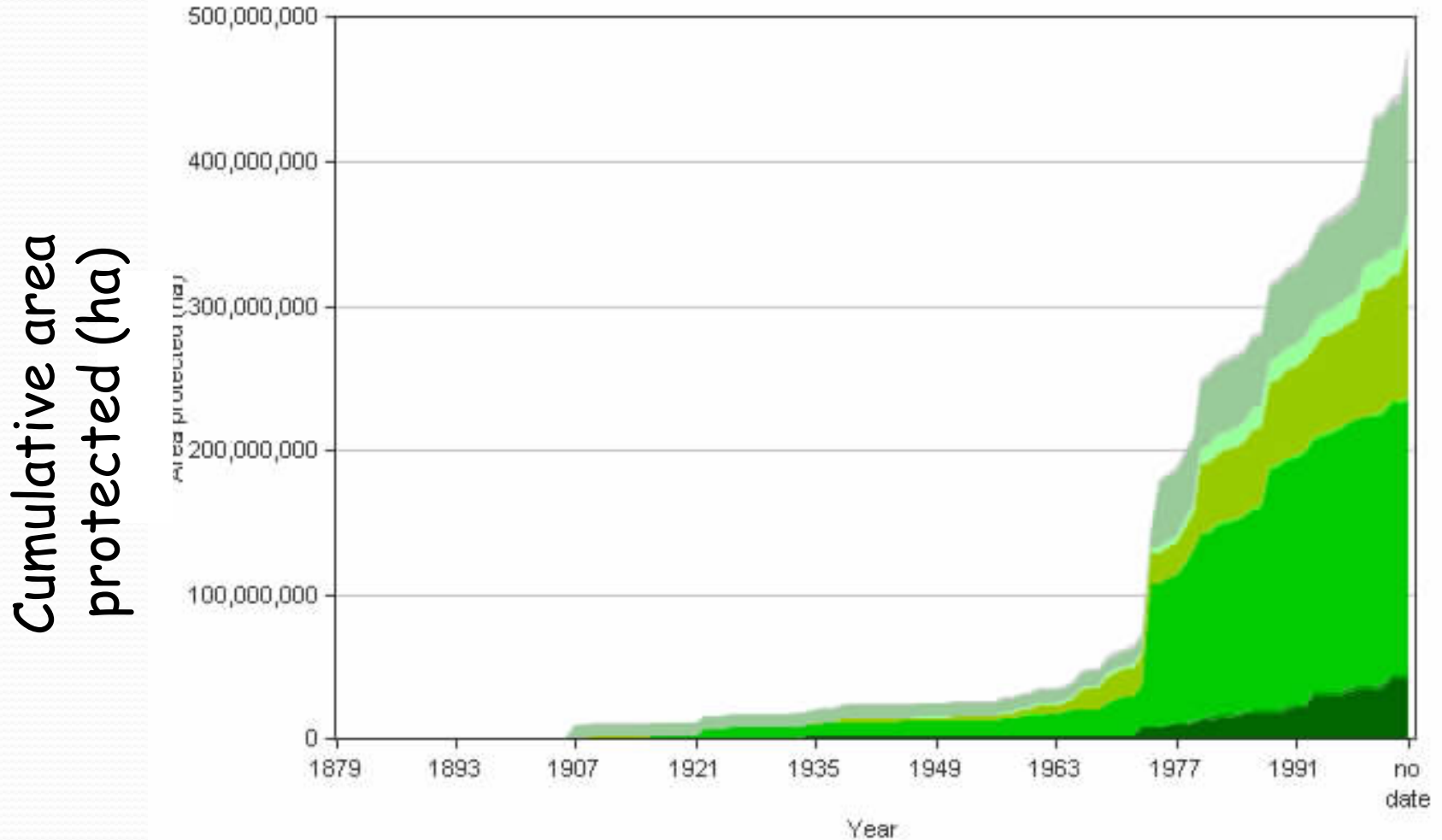
# Terrestrial protected areas



Currently 160,000 protected areas, conserving 13 per cent of terrestrial areas and 1.6 per cent of marine ecosystems (Bertzky et al., 2012).

**AICHI BIODIVERSITY TARGETS- 10<sup>th</sup> CoP CBD in 2010 aims at “at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas “ under PA system by 2020.**

# marine protected areas



but only 1.6% of the whole ocean!!!

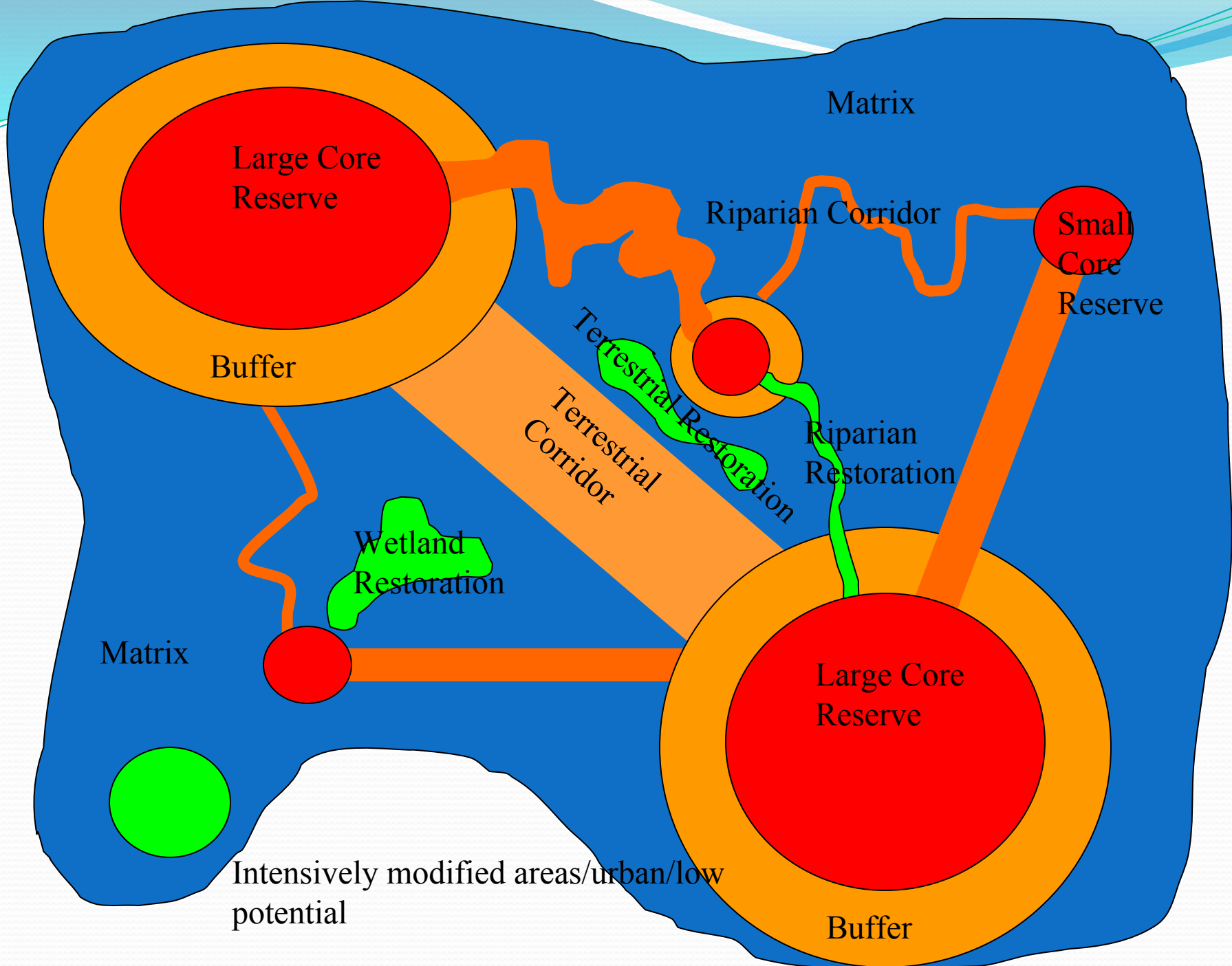


# Goals of Protected areas

- Protect particular species
- Preserve biodiversity: focus on areas of high species richness/endemism
- Preserve large and functioning ecosystems and their services

## Scientific Basis for creating PAs

- SLOSS = single large or several small
- **Minimum Critical Area:** The minimum size needed to support viable populations of constituent species
- **Minimum Dynamic Area:** The minimum size needed to absorb large disturbances and still maintain colonization sources and viable populations
- Redundancy
- Representativeness
- Gap Analysis



# IUCN's Six Protected Areas Management Categories

- Category I. **Strict Nature Reserve:** managed for science or wilderness
- Category II. **National Park:** managed primarily for ecosystem protection and recreation
- Category III. **Natural Monument:** managed primarily for conservation of specific natural features
- Category IV. **Habitat/Species Management Area:** managed for conservation through active intervention
- Category V. **Protected Landscape/Seascape:** Managed for cultural and scenic integrity, conservation, and recreation; settlements and agricultural areas are accommodated
- Category VI. **Managed Resource Protected Area:** Managed primarily for the sustainable use of ecosystems



# **PROTECTED AREA MANAGEMENT CATEGORIES IN INDIA**

# Legal Categories of PAs in India

- Tiger Reserve (48)
- National Park (103)
- Wildlife Sanctuary (528)
- Conservation Reserve (65)
- Community Reserve (4)

*Elephant Reserve, Biosphere Reserve, World Heritage Site, trans-boundary Protected Area etc. are recognized as management categories and their whole areas or parts may be notified as one or the other of the above legal categories*



[http://www.wiienvis.nic.in/Database/Protected Area 854.aspx](http://www.wiienvis.nic.in/Database/ProtectedArea854.aspx)

# Tiger Reserve (Sec 38 V under WLP (1972), 2006 amendment)

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- Protected area managed mainly for ecosystem protection and tourism
- Natural area of land and/or sea, designated to
  - (a) protect the ecological integrity of one or more ecosystems for present and future generations,
  - (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and
  - (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

# National Park (Sec 35)

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- Protected area managed mainly for ecosystem protection and tourism
- Natural area of land and/or sea, designated to
  - (a) protect the ecological integrity of one or more ecosystems for present and future generations,
  - (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and
  - (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

# Wildlife Sanctuary (Sec 18,26)

- Protected area managed mainly for conservation through management intervention
- Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

# Conservation Reserve (Sec 36 A of WLP (1972), 2003 amendment)

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- An area owned by the Government, particularly the areas adjacent to National Parks and Sanctuaries and those areas which link one protected area with another.
- Primary aim for protecting landscapes, seascapes, flora and fauna and their habitat.



# Community Reserve (Sec 36a, c of WLP(1972), 2003 amendment)

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- any private or community land not comprised within a National Park, sanctuary or a conservation reserve, may constitute a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.

# Elephant Reserve

- Under Project Elephant of MoEF in 1992.
- to provide financial and technical support of wildlife management efforts by states for their free ranging populations of wild Asian Elephants.
- Currently **28 ERs** over about 58,000 square kilometres have been formally notified by various State Government.
- Emphasis on corridor connectivity.
- Legally yet to be accorded as a separate PA status.

# Biosphere Reserve

- A management category recognised under the **Man and the Biosphere Programme** of UNESCO in 1971 to promote interdisciplinary approaches to management, research and education in ecosystem conservation and sustainable use of natural resources.
- demonstrates innovative approaches to living and working in harmony with nature.
- India has 18 Biosphere Reserves out of which 9 are part of the World Network of Biosphere Reserves under UNESCO-MAB.

# World Heritage Site

- A **World Heritage Site** is a place (such as a building, city, complex, desert, forest, island, lake, monument, or mountain) that is listed by UNESCO as being of special cultural or physical significance.
- Total 10 criteria of Outstanding Universal Value (OUV).
- Criteria VII to X qualify for Natural World Heritage.
- India has 7 Natural World Heritage sites (Sundarbans, Kaziranga, Manas, Keoladeo, GHNP, Nanda Devi and VOF, Western Ghats)

# RAMSAR sites

- Wetlands declared under the Ramsar Convention (an international treaty for the conservation and sustainable utilization of wetlands, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value).
- 26 RAMSAR sites in India.



# Important Coastal and Marine Biodiversity Areas (ICMBAs)

- Recognised to achieve the National Biodiversity Target no 6 and Aichi Biodiversity Target no 11 (to conserve a substantial portion of the coastal and marine areas in the country and world respectively).
- 106 coastal and marine sites have been identified and prioritized as Important Coastal and Marine Areas (ICMBAs) out of which 62 (along the west coast) and 44 are along the (east coast).
- Of these, 22 ICMBAs have been prioritized for immediate conservation actions and proposed to be upgraded as Protected Areas under categories such as Conservation or Communities Reserve to increase participation of the local communities in governance

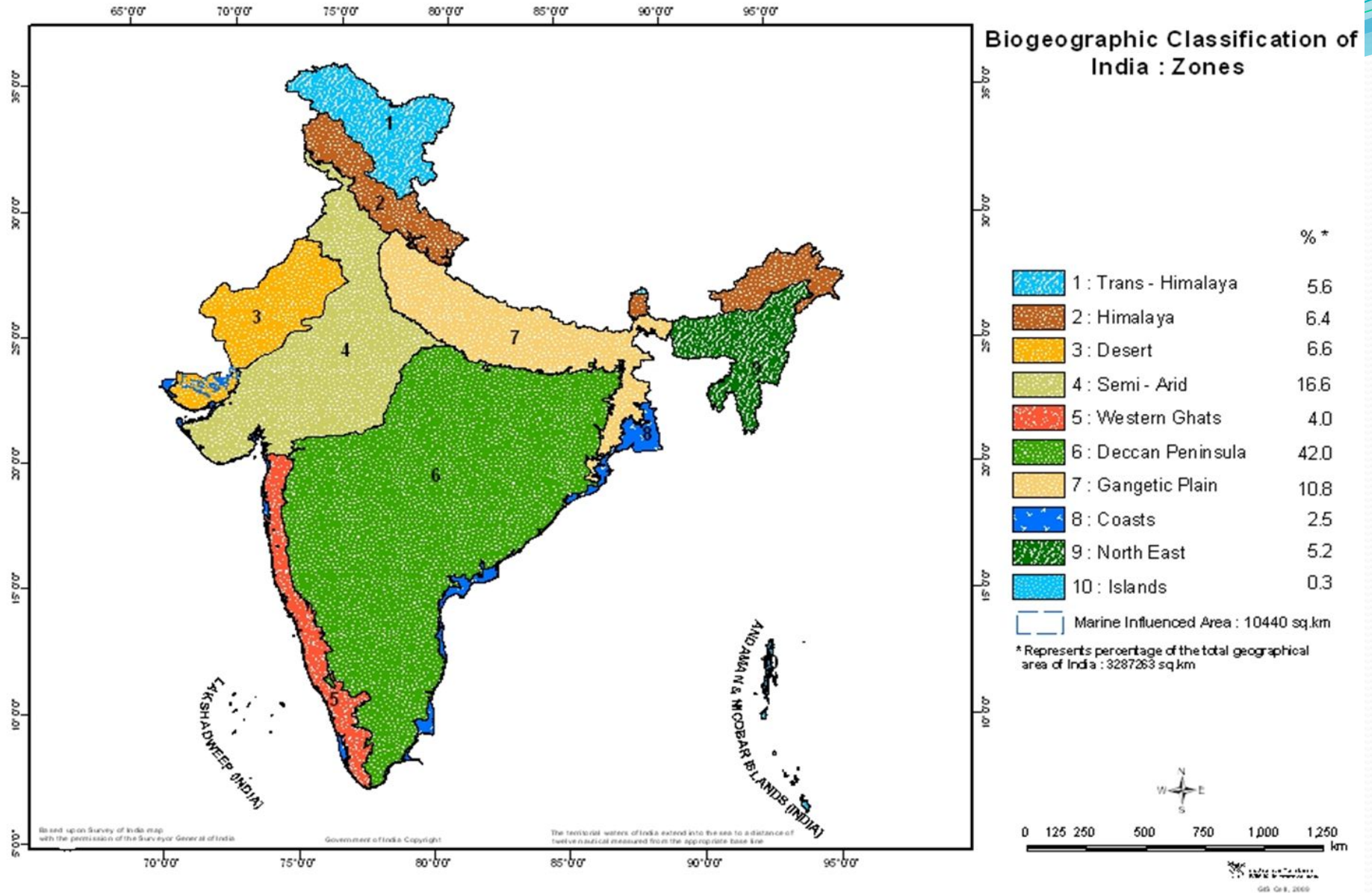
# GeoParks

- a unified area with geological heritage of international significance.
- Promoted by UNESCO.
- Geoparks are not a legislative designation though the key heritage sites within a Geopark are often protected under local, regional or national legislation as appropriate.
- No site currently in India (as on 2015).

# Challenges faced by Protected Areas

- Earlier Land was often protected if it is "worthless".
  - Alpine - over-represented, Coastal lowland forest - under-represented.
  - Protection is revoked if land is valuable.
  - Ambivalent Legal status
  - People in Protected Areas.
  - People and surrounding Landuse
  - Wildlife outside Protected Areas
  - Current Financial resource
  - Human capacity in PA management
  - Research and monitoring

# **A Biogeographic classification approach to categorise PA network in India**



**Basis for PA system in India ideally to represent 10 Biogeographic Zones, which are further divided into 26 Biotic Provinces (Rodgers and Panwar, 1988, 2000).**



# Biogeographic Zone:

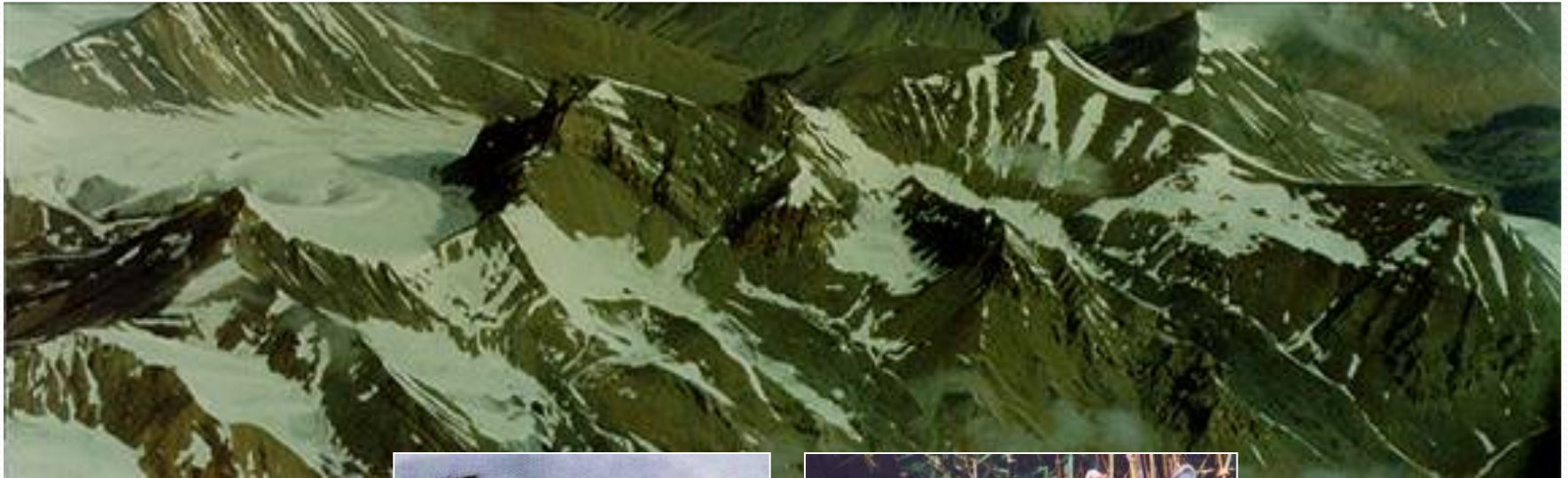
## *Trans Himalayas*



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Trans Himalaya	184823	5.62	3	5809.00	3.14	4	11305.56	6.12	7	17114.56	9.26

# Biogeographic Zone:

## *Himalayas*



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Himalaya	210673	6.41	15	8203.00	3.89	65	16850.10	8.00	80	25053.10	11.89



# Biogeographic Zone:

## Desert



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Desert	214014	6.51	1	3162.00	1.48	5	12913.38	6.03	6	16075.38	7.51

# Biogeographic Zone:

## *Semi-Arid*

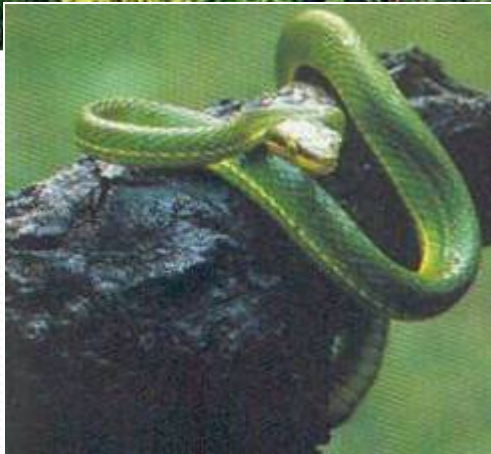


Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Semi-Arid	539479	16.41	10	1505.78	0.28	81	12690.54	2.35	91	14196.32	2.63



# Biogeographic Zone:

## *Western Ghats*



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Western Ghats	132179	4.02	16	3673.52	2.78	50	10419.67	7.88	66	14093.19	10.66

# Biogeographic Zone:

## Deccan Peninsula

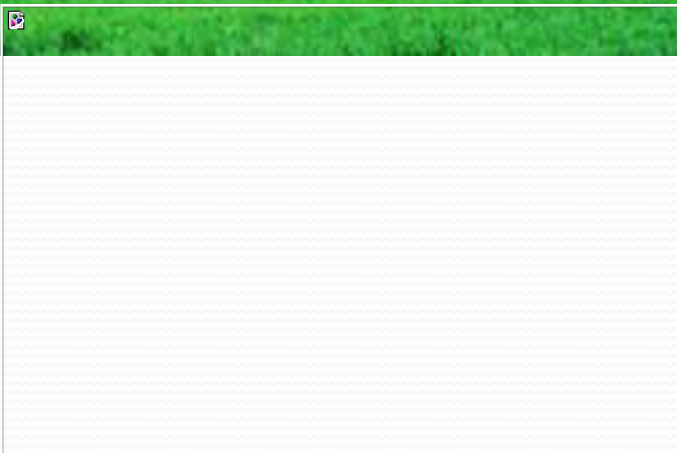


Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Deccan Peninsula	1380339	41.99	24	9798.91	0.71	130	46230.45	3.35	151	56029.36	4.06



# Biogeographic Zone:

## *Gangetic Plains*



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Gangetic Plain	354848	10.79	6	2363.44	0.67	32	5372.05	1.51	38	7735.49	2.18

# Biogeographic Zone:

## Coasts



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Coasts	91319	2.78	5	1731.18	1.90	20	2959.43	3.24	25	4690.61	5.14



# Biogeographic Zone:

## North East



Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (k m <sup>2</sup> )	% of Zone
North East	171340	5.21	13	2674.00	1.56	37	3736.76	2.18	50	6410.76	3.74

# Biogeographic Zone:

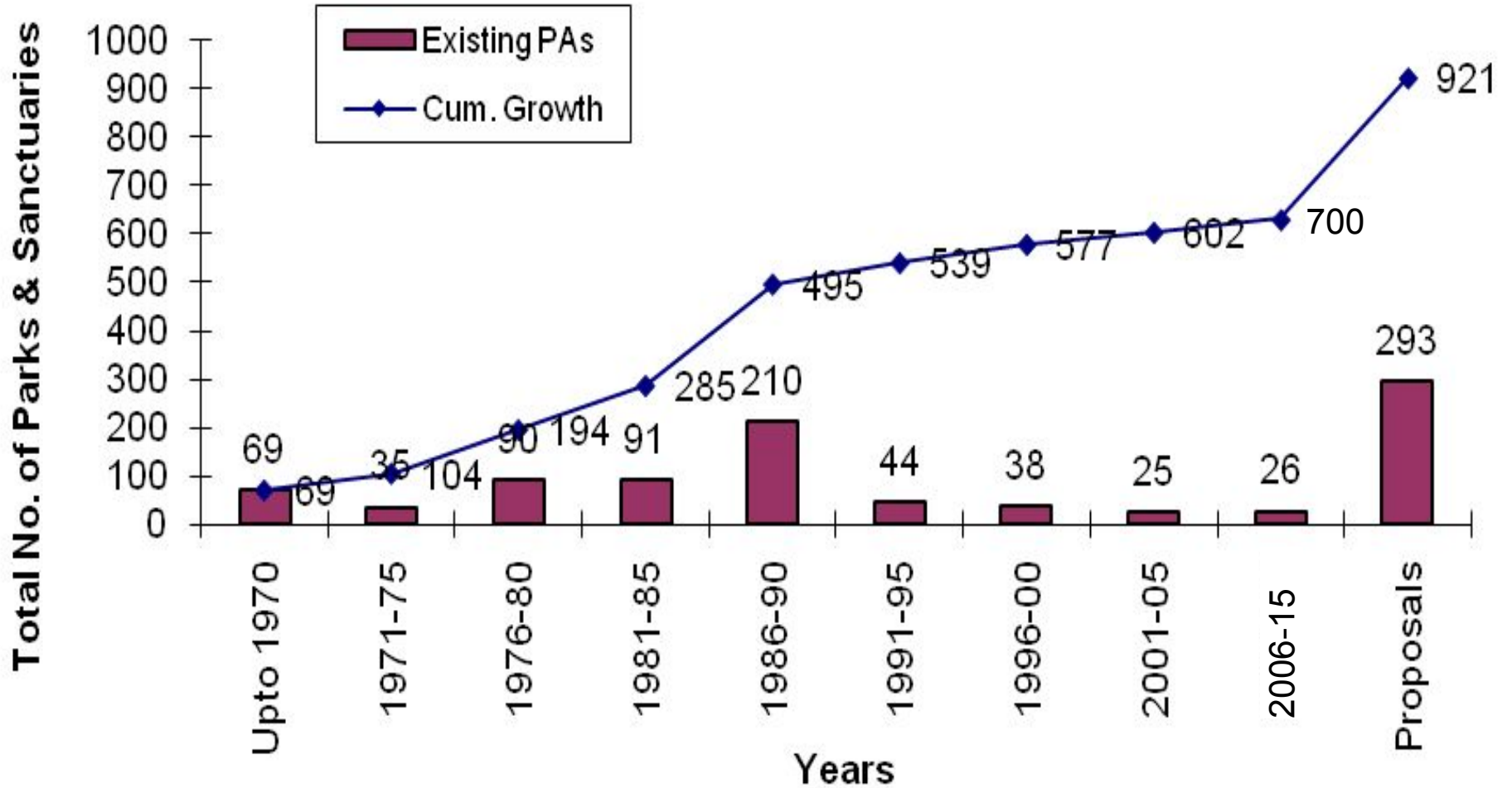
## *Islands*



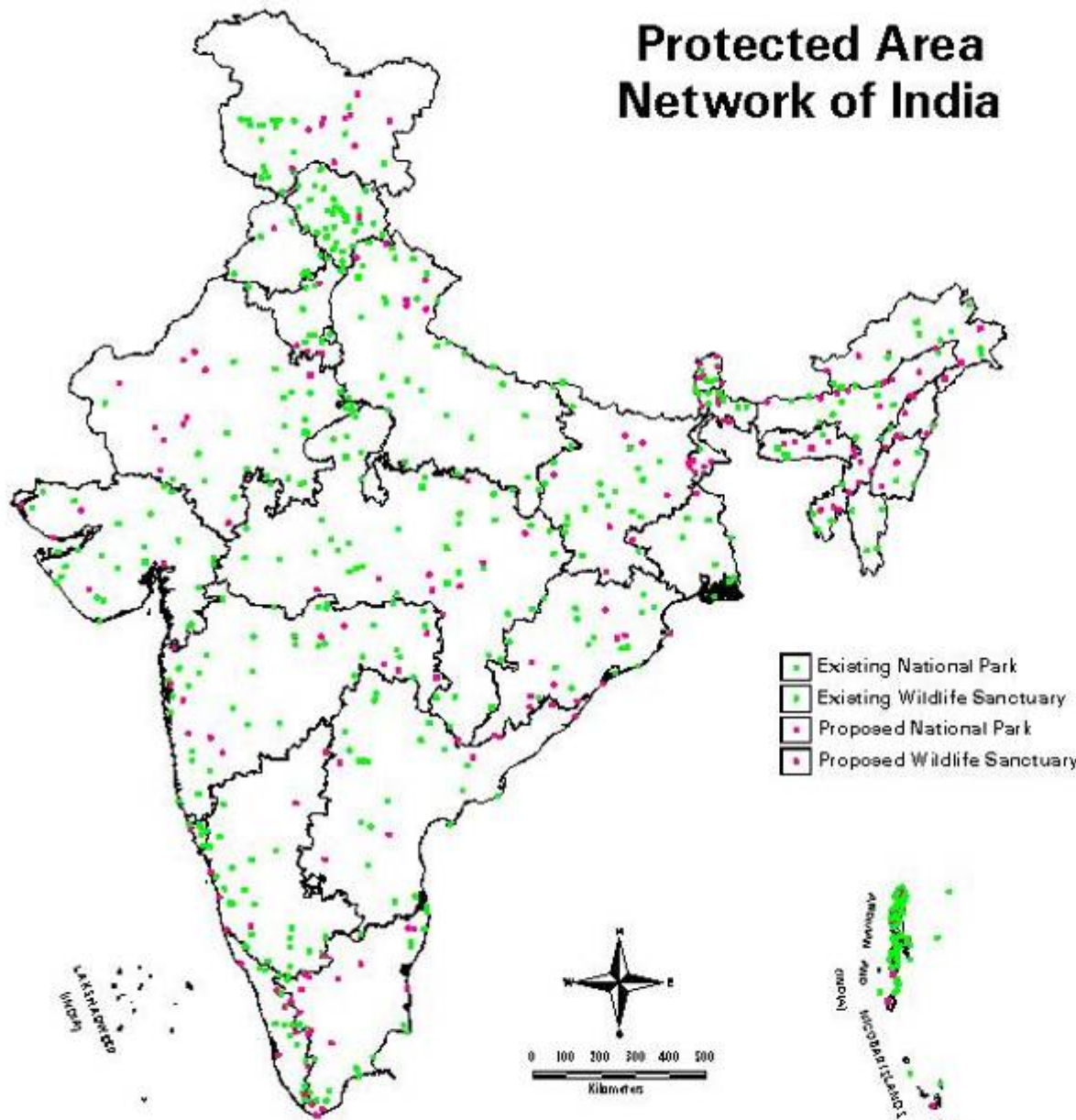
Zone Name	Zone Area (km <sup>2</sup> )	% of India	No. of NPs	Area (km <sup>2</sup> )	% of Zone	No. of WLS	Area (km <sup>2</sup> )	% of Zone	No. of NPs + WLS	Area (km <sup>2</sup> )	% of Zone
Island	8249	0.25	9	1153.94	13.99	96	389.39	4.72	105	1546.30	18.75



# Growth of Protected Areas in India



# Protected Area Network of India



In 1988, there were 54 National Parks (NPs) and 372 Wildlife Sanctuaries (WLS) covering 109652 sq.km or 3.34 % of the country's geographical area. The Protected Area Network report (Rodgers and Panwar, 1988) recommended a total of 160 NPs and 698 WLS covering 187,192 sq.km or 5.69 % of the total geographical area. Since then, the network has expanded and currently covers 86 NPs and 480 WLS or 4.6 % of the total area. This expansion has been based primarily on the recommendations in the report.

Recently, two new categories of PAs viz. Conservation Reserve and Community Reserve have been proposed as amendments to the Wildlife (Protection) Act. The former will safeguard traditional or cultural conservation values whereas the latter will promote conservation in multiple-use areas with substantial human populations, especially in corridors between reserves. Both these categories will provide opportunities for people's participation in establishment and management of PAs.

Based upon Survey of India map with the permission of the Surveyor General of India

Government of India Copyright 1998

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate baseline



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India  
GIS Cell, March 2000

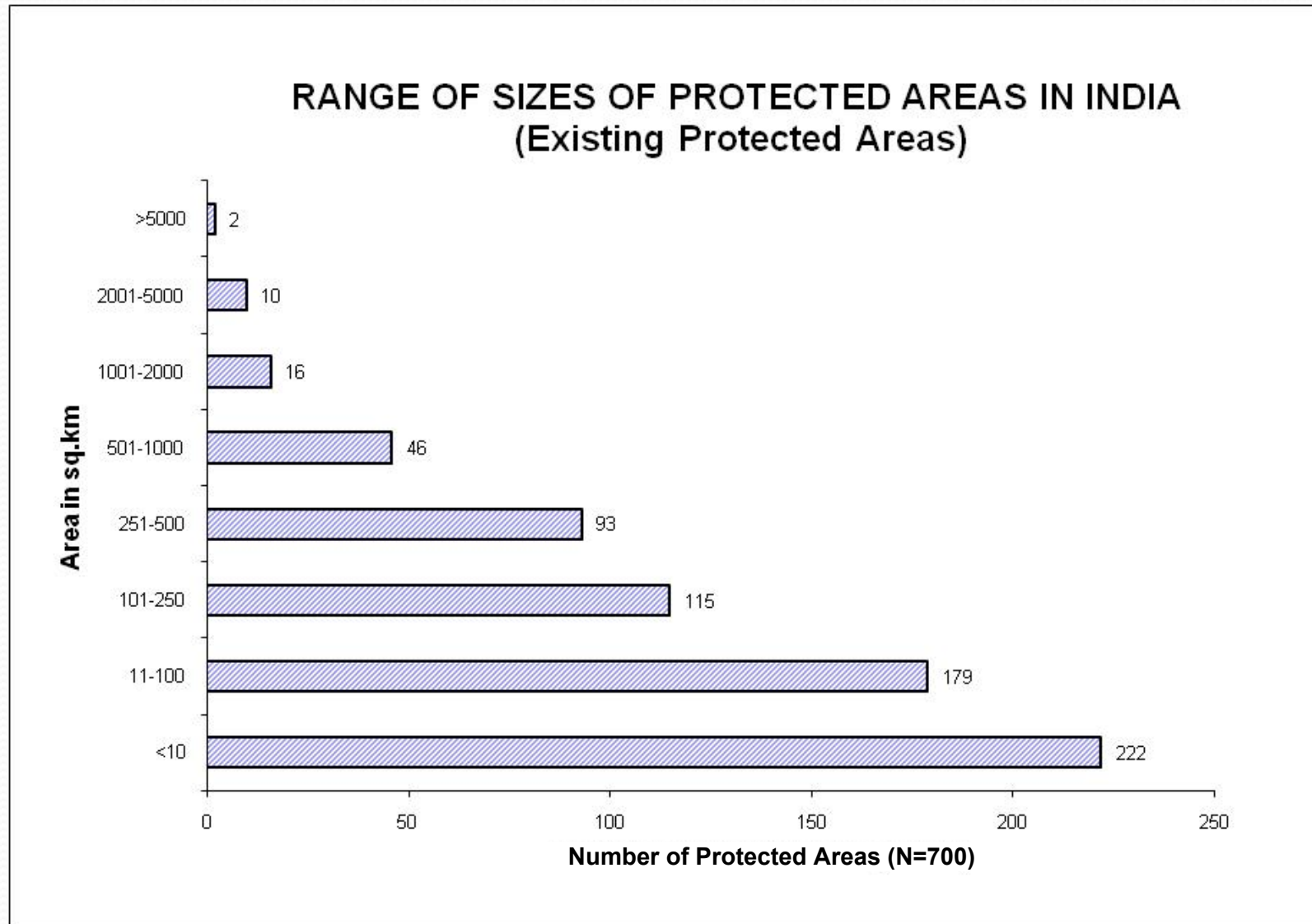
Source: Rodgers, Panwar & Mathur (2000)



# PROTECTED AREA SUMMARY OF INDIA BY BIOGEOGRAPHIC ZONE (data source : Rodgers, Panwar and Mathur, 2005)

	<u>Biogeographic Zone</u>	<u>Area Existing</u>	<u>Area</u>	<u>Protected Areas</u>	
	<u>Zone</u>	<u>in km<sup>2</sup></u>	<u>PAs</u>	<u>in km<sup>2</sup></u>	<u>% of Zone Area</u>
1-	Trans Himalaya	184823	7	17002.5	9.20
2-	Himalaya	210673	67	20939.36	9.94
3-	Desert	214014	6	16076.08	7.51
4-	Semi-Arid	539479	88	14320.49	2.65
5-	Western Ghats	132179	53	13000.33	9.84
6-	Deccan Peninsula	1380339	130	50870.72	3.69
7-	Gangetic Plain	354848	36	7672.12	2.16
8-	Coasts	91319	26	5619.58	6.15
9-	North East	171340	37	4354.15	2.54
10-	Island	8249	102	1273.13	15.43

# Protected Area Size Classes in India



# DISTRIBUTION BY STATES

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*States with a low PA coverage are (in%)*

**Nagaland 1.37**

**Meghalaya 1.35**

**Manipur 1.01**

**Haryana 0.63**

**Delhi 0.89**

**Punjab 0.63**

# **DISTRIBUTION BY STATES**

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*National Parks: Best covered states are:*

<b>Sikkim</b>	<b>25.14</b>
<b>Arunachal Pradesh</b>	<b>2.95</b>
<b>Goa</b>	<b>2.89</b>
<b>Himachal Pradesh</b>	<b>2.59</b>
<b>Jammu &amp; Kashmir</b>	<b>2.09</b>

Some states have no National Parks viz. Punjab, Tripura & Delhi

# MAMMAL SPECIES OF CONSERVATION SIGNIFICANCE

*12 Mammalian species have no or insignificant populations in a Protected Area:*

Indian Wild Ass 3A Kutchchh

Pharye's Leaf Monkey 8B Assam Hills-Tripura

Malabar Civet 5A+B? Western Ghats, Kerala

Malay Sun Bear 8B north-east India

Markhor 2A N.W. Himalaya, J&K

Argali/Nayan 1A Ladakh

Pallas Cat 1A Ladakh

Rusty-spotted cat 5B+6B? Maharashtra & Gujarat

Tibetan Antelope 1A Ladakh

Tibetan Gazelle 1A Ladakh

Pig-tailed Macaque 8B Assam Hills

Stump-tailed Macaque 8B Assam Hills

Hangul, Sangai, Urial, Tibetan Ass, Dryland Swamp deer, Asiatic Lion, Golden Langur, Hispid Hare, Pygmy Hog are all dependent on the protection offered in a single NP.

# PROTECTED AREA GOVERNANCE

# Difference between Management and Governance

- **Management** is about.....what is done in pursuit of given objectives, the means and actions to achieve such objectives.
- **Governance** is about...
  - Who decides what the objectives are, what to do to pursue them and with what means.
  - How those decision are taken
  - Who holds power, authority and responsibility.
  - Who is (or should be ) held accountable.



# Protected Area Governance

IUCN defines four governance types.

- 1. Governance by government:** **Federal or national ministry/ agency in charge; sub-national ministry/agency in charge;** government-delegated management (e.g. to NGO)
- 2. Shared governance:** **Collaborative management (various degrees of influence);** joint management (pluralist management board; **transboundary management (various levels across international borders)**)
- 3. Private governance:** By individual owner; by non-profit organisations (NGOs, universities, cooperatives); by for profit organisations (individuals or corporate)
- 4. Governance by indigenous peoples and local communities:** **Indigenous peoples conserved areas and territories; community conserved areas – declared and run by local communities**



**authority, responsibility and accountability in governing protected areas: a continuum**



**Figure 4. The governance continuum from the perspective of a government agency vis-à-vis local rightsholders and stakeholders (e.g. local landowners or communities).**

Ref: Citation: Borrini-Feyerabend, G., N. Dudley, T. Jaeger, B. Lassen, N. Pathak Broome, A. Phillips and T. Sandwith (2013). **Governance of Protected Areas: From understanding to action. Best Practice Protected Area Guidelines Series No. 20**, Gland, Switzerland: IUCN. xvi + 124pp.

## Your view !

- Opportunities and challenges for management of Protected Areas
- Opportunities and challenges for Governance of Protected Areas



# Further Reading

GOVERNANCE OF PROTECTED AREAS- PUBLISHED BY IUCN

[http://www.iucn.org/about/work/programmes/gpap\\_home/gpap\\_capacity2/gpap\\_bpg/?13678/Governance-of-Protected-Areas-From-understanding-to-action](http://www.iucn.org/about/work/programmes/gpap_home/gpap_capacity2/gpap_bpg/?13678/Governance-of-Protected-Areas-From-understanding-to-action)

THANK YOU!