Integrating biodiversity into landscape management

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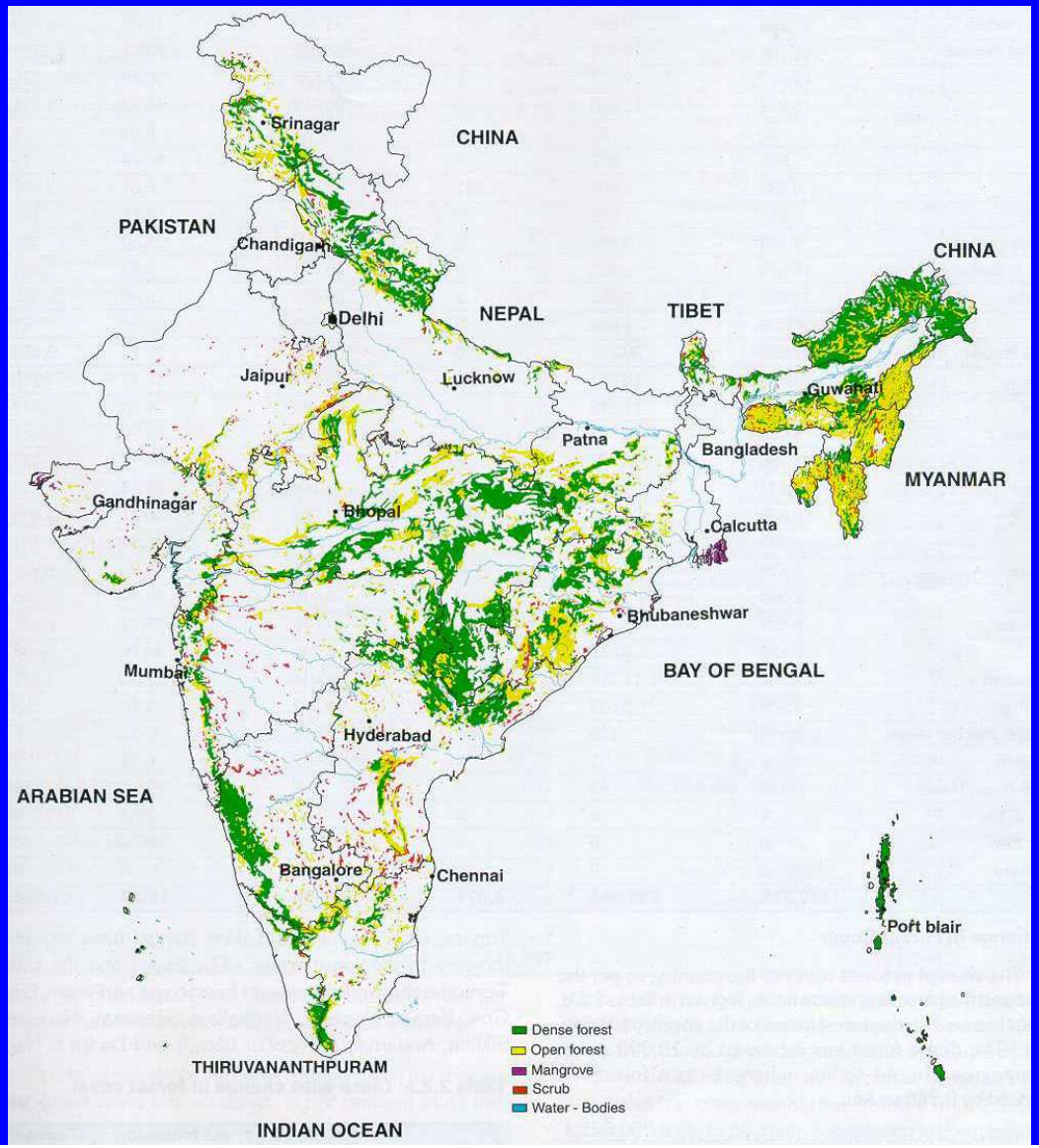
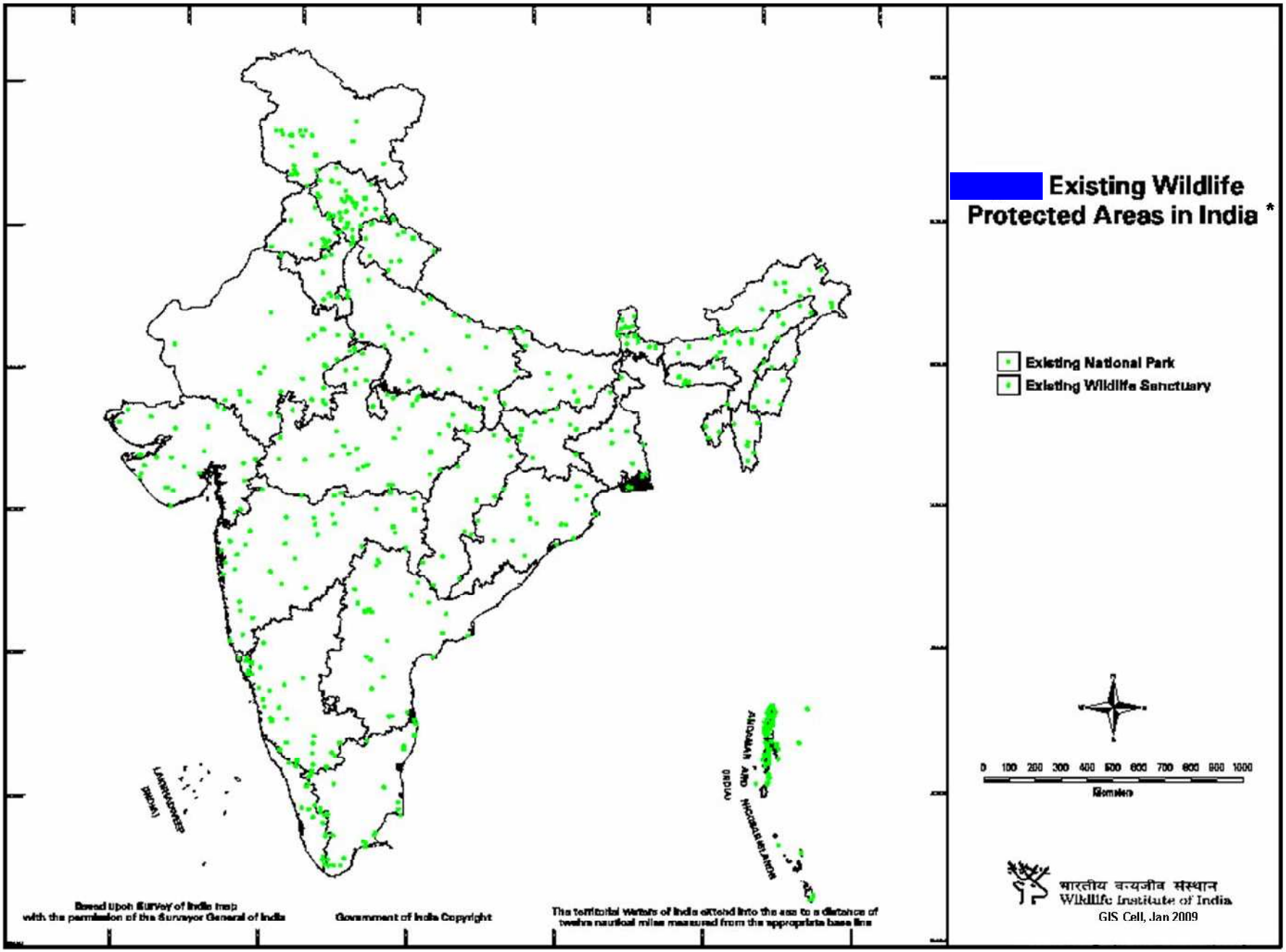
Forest cover of India



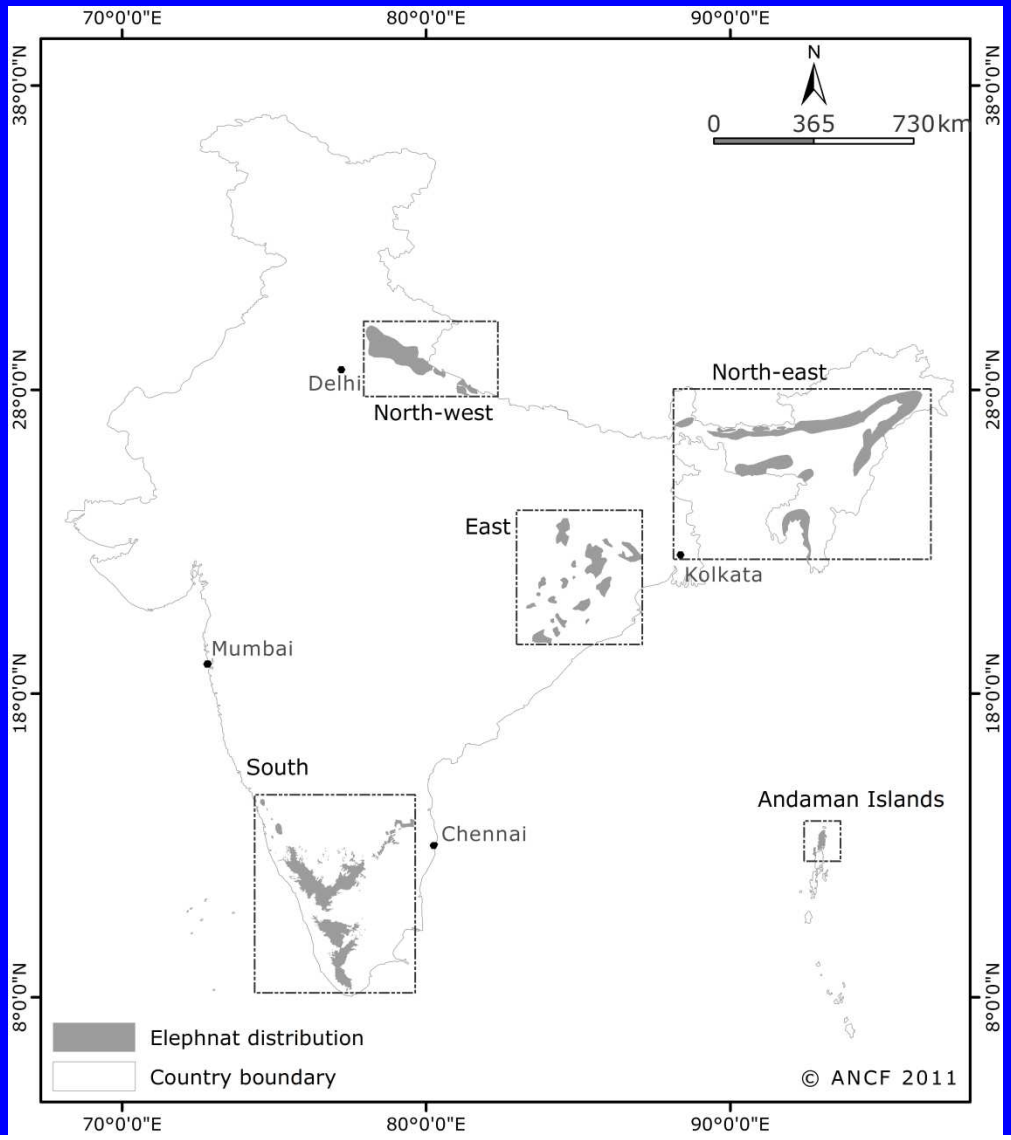
Forest Survey of India



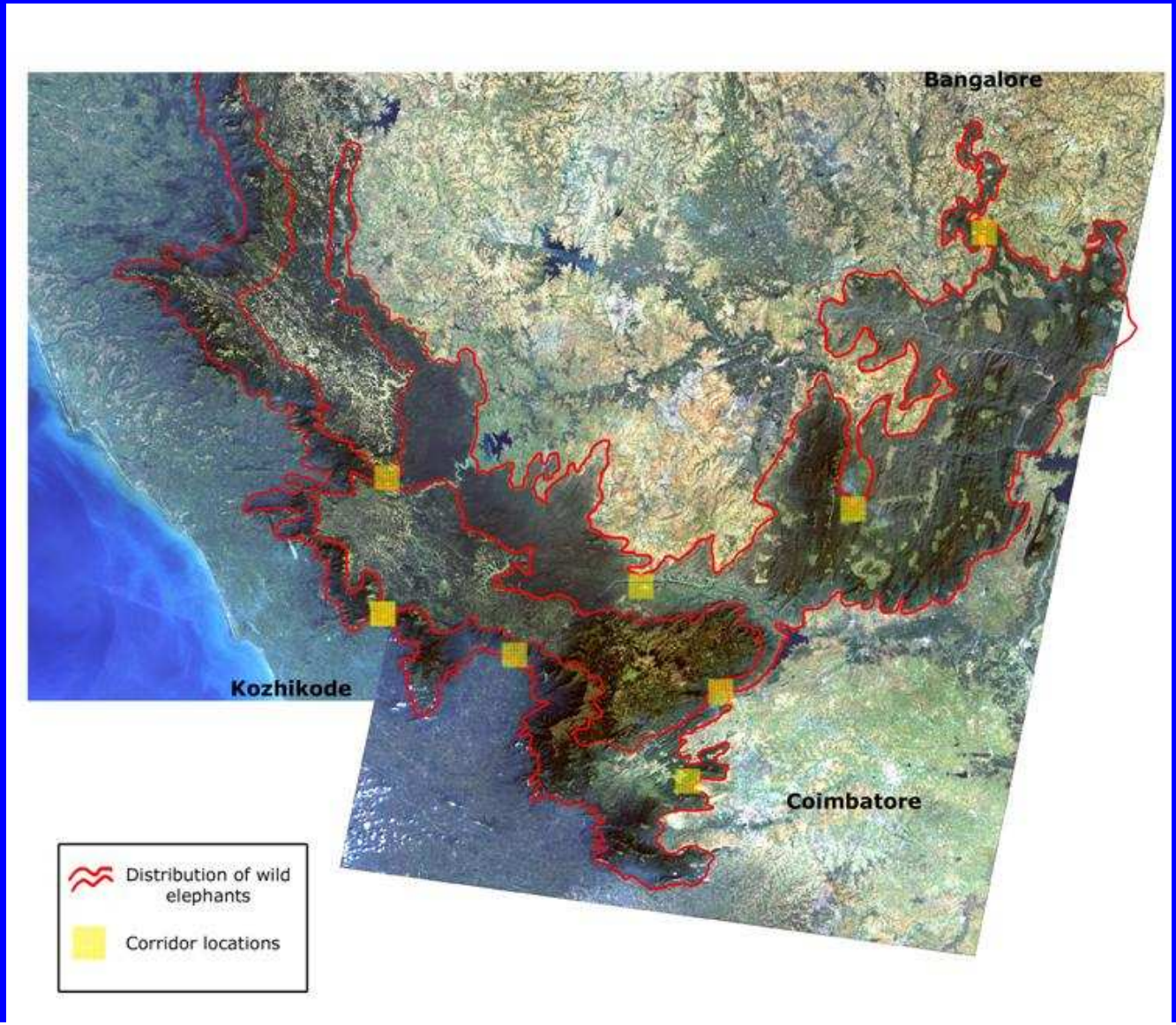
*Locations of Conservation Reserves and Community Reserves are not included

Project Elephant (1992): The first conservation project that gave primary importance to landscape conservation

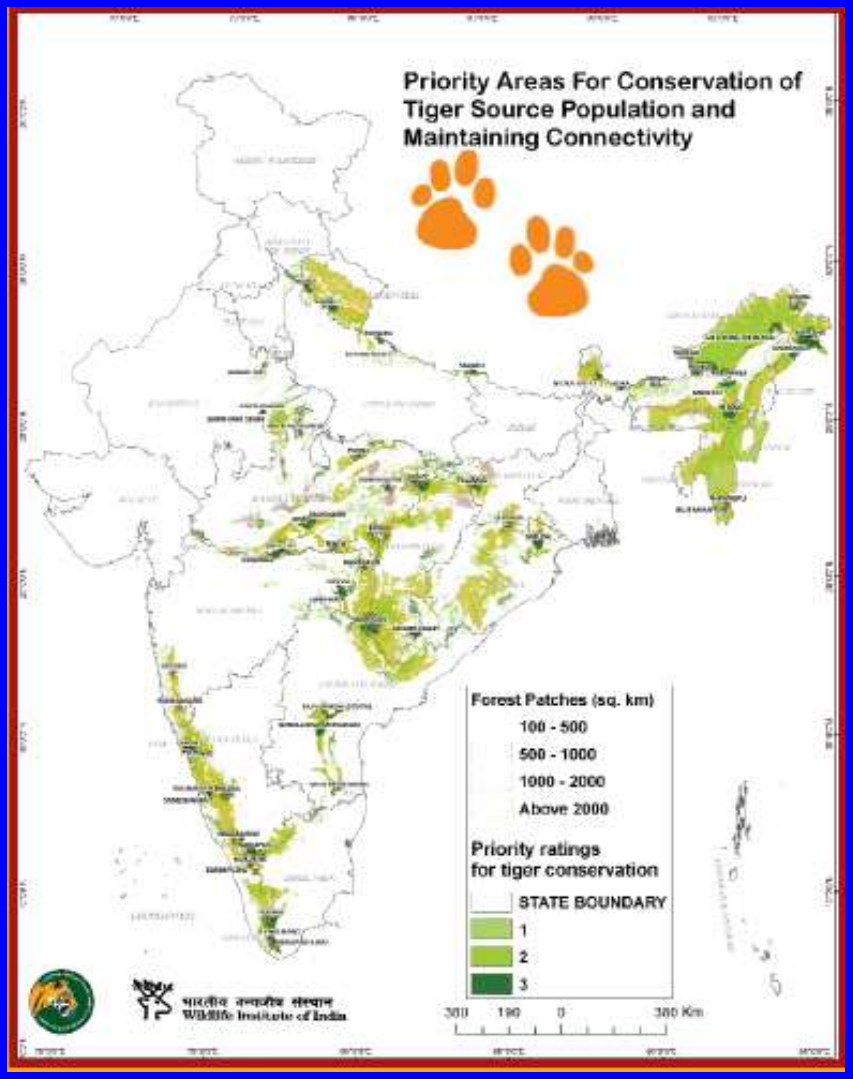
Elephant landscapes in India



The Nilgiri-Mysore-Wyanad Elephant Landscape in S.India



Landscapes for the tiger

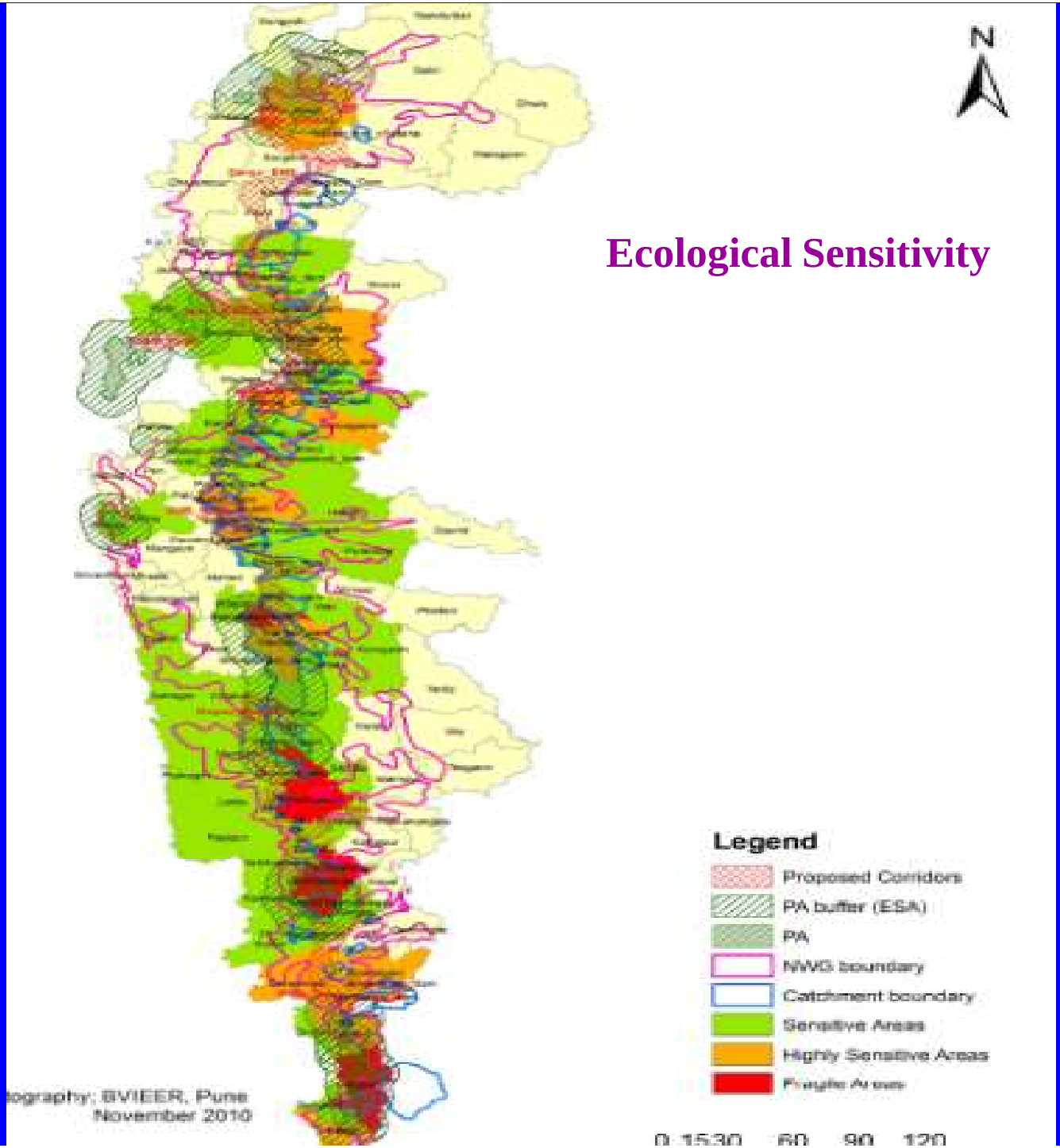


Western Ghats Expert Ecology Panel

L1- Surat-Goa Deccan Trap Landscape
L2- Goa-Nilgiris Pre-Cambrian Dharwar System Landscape
L3- Goa-Nilgiris Pre-Cambrian Peninsular Gneiss Landscape
L4- Goa-Nilgiris Pre-Cambrian Charnockites Landscape
L5- Goa-Nilgiris Recent Sedimentary Rocks Landscape
L6- South of Palghat Gap Pre-Cambrian Charnockites Landscape
L7- South of Palghat Gap Pre-Cambrian Peninsular Gneiss Landscape
L8- South of Palghat Gap Pre-Cambrian Khondalites Landscape
L9- South of Palghat Gap Recent Sedimentary Rocks Landscape

W. Ghats Landscapes (after R.J. Daniels)

Ecological Sensitivity



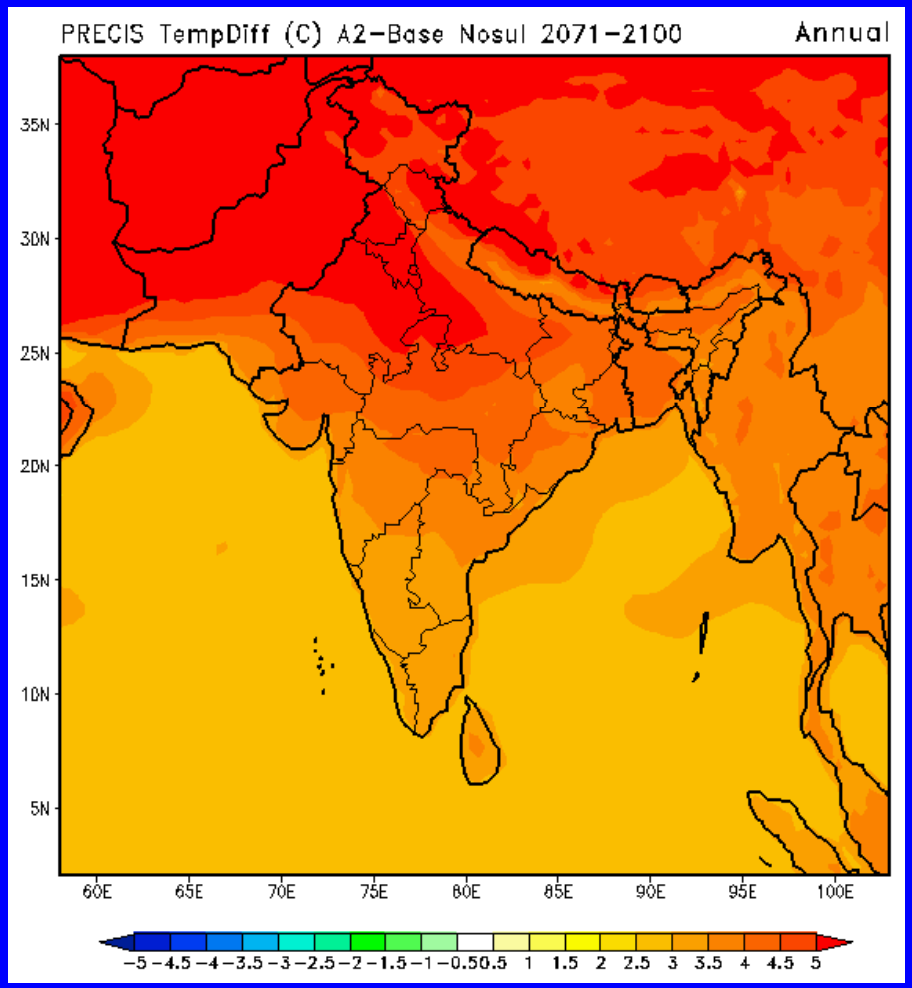
Western Ghats Ecologically Sensitive Areas: Criteria

- Endemic plants
- Endemic vertebrates (IUCN Red List)
- Vegetation types (Evergreen forests, percentage forest cover)
- Topography (slope, elevation)
- Protected Areas
- Riparian forests
- Important bird areas
- Elephant corridors

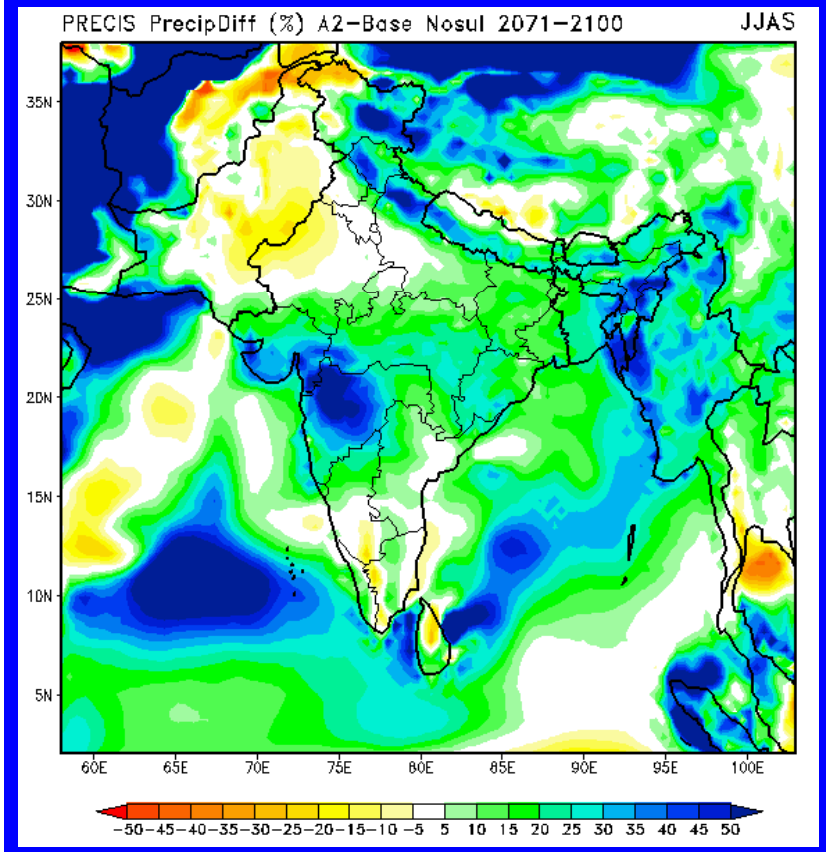
Participatory management of forests and wildlife

- Joint Forest Management has been moderately successful in regeneration tree cover and providing additional income to villagers outside mainstream forests
- Similar incentive-based schemes have to be launched within landscapes in order to restore biodiversity and wildlife corridors

Temperature Change



Rainfall Projections



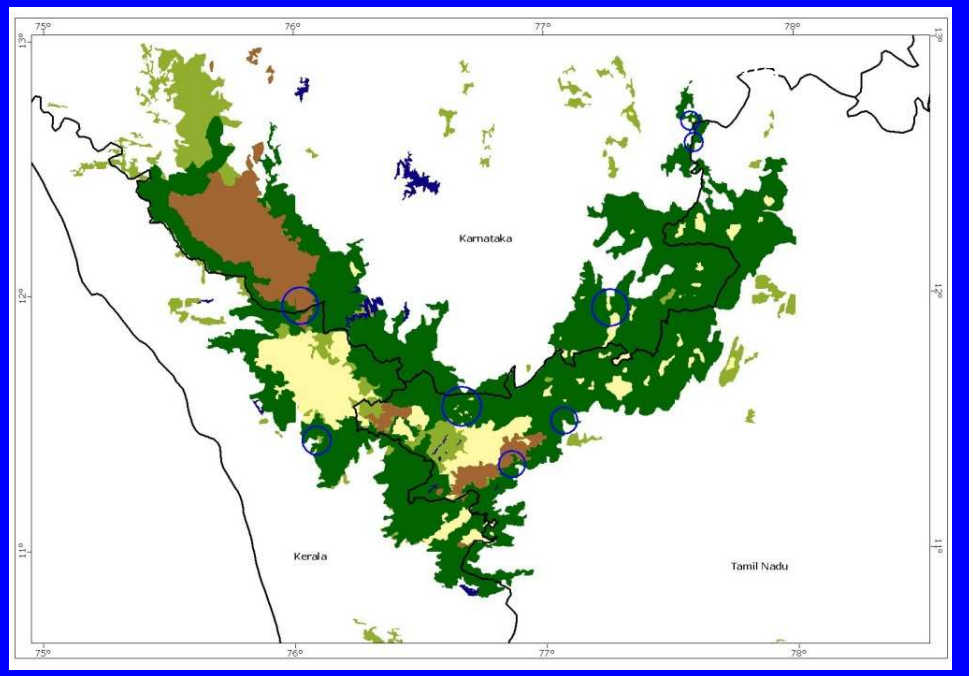
Source: IITM, Pune

How to Green India?

- Prime Minister has announced an ambitious programme of “Green India” with 6 million ha to be afforested in 5 years
- Climate change considerations have to be integrated with this effort if we are to promote adaptation
- Greening is not just about planting trees but also about WHAT to plant and WHERE to plant
- Planting to facilitate migration

Corridors at Landscape Scales through payments for ecosystems services

- Both plant and animal species need to adapt through migration along latitudinal and altitudinal gradients
- Habitat fragmentation would be a constraint to migration, especially in species with limited dispersal abilities
- “Corridors” across large landscapes are needed for effective dispersal and establishment of species



Corridors across the Nilgiri-Mysore Elephant Landscape in S. India

Examples of incentive-based biodiversity conservation in multi-use landscapes

- Relocating to alternative lands [often of higher commercial value]
- Increasing natural tree cover in private lands that may act as corridors to plant and animal movement and dispersal [gene flow, climate change adaptation, carbon sequestration]
- Conversion of commercial plantations [e.g. Tea] into mixed forest plantations to promote biodiversity [and carbon sequestration], with value addition through nature tourism

Rationalization of Protected Area boundaries

- India has about 600 Protected Areas (National Parks/Sanctuaries)
- Need to redesign Protected Areas taking into consideration possible changes in ecosystem structure and function as a result of future climate change