Wildlife corridors

- A wildlife corridor, habitat corridor, or green corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging).
- This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity (via genetic drift) that often occur within isolated populations.
- Corridors may also help facilitate the re-establishment of populations that have been reduced or eliminated due to random events (such as fires or disease).

Why corridors important?

- Habitat loss
- fragmentation

Purpose:

- **Increase biodiversity**: When areas of land are broken up by human interference, population numbers become unstable and many animal and plant species become endangered. By re-connecting the fragments, the population fluctuations can decrease dramatically. Corridors can contribute to three factors that stabilize a population:
- **Colonization**—animals are able to move and occupy new areas when food sources or other natural resources are lacking in their core habitat.
- **Migration**—species that relocate seasonally can do so more safely and effectively when it does not interfere with human development barriers.
- **Interbreeding**—animals can find new mates in neighbouring regions so that genetic diversity can increase and thus have a positive impact on the overall population.

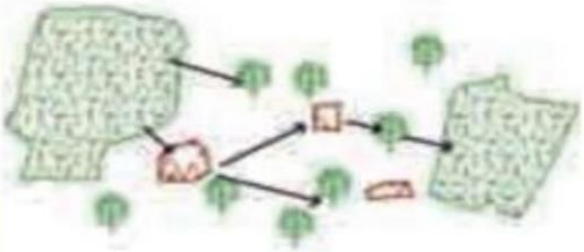
Types

- Habitat corridors can be categorized according to their width.
- Typically the wider the corridor, the more use it will get from species.
- The strip of land will suffer less from edge effects such as weeds, predators, and chemicals if it is constructed properly.
- The following are three divisions in corridor widths:
  - **Regional** – (>500m wide); connect major ecological gradients such as migratory pathways.
  - **Sub-regional** – (>300m wide); connect larger vegetated landscape features such as ridgelines and valley floors.
  - **Local** – (some <50m); connect remnant patches of gullies, wetlands, ridgelines, etc.

Types at spatial scale:

- Small corridors: created by local communities to large corridors that stretch across many different landscapes. For example, a small corridor might be an area along a creek that has been revegetated by a local community group to link two patches of forest. Native animals could then move more freely between these forests to find food, shelter and opportunities to breed.
- Large-scale corridors might span tens or hundreds of kilometres across multiple landscape types and jurisdictions.

Types of corridors

		
Continuous corridor	**Stepping stone corridor comprised of vegetation patches**	**Stepping stone corridor comprised of isolated trees and small patches**
Some wildlife species have difficulty living in or moving through a developed landscape. They require a continuous link of suitable habitat between two vegetation patches in order to safely move across the landscape. Examples of animals that require continuous corridors include small mammals, small reptiles, some ground-dwelling birds and non-flying invertebrates.	One or more 'stepping stones' of suitable habitat may be sufficient to allow some wildlife to move through a relatively developed landscape. Examples of animals that can use this type of corridor include highly mobile birds such as cuckoos, fruit pigeons and lorikeets, flying foxes and flying insects.	A mosaic of natural and modified vegetation (such as scattered trees in paddocks) may be sufficient for some wildlife species to move through an area. These species are tolerant of land uses in the surrounding environment. Examples of animals that can use isolated trees as stepping stones include some kangaroos, wallabies and common open-paddock birds such as magpies.

Other types:

- Natural corridor: Wildlife Corridors can naturally occur by means of already existing geographic features such as mountain ranges.

- Man-made corridor: Corridors that have been purposefully created by humans to support biodiversity are often overpasses or underpasses for roads and large motorways that have created habitat fragmentation upon their construction.

Users

Species can be categorized in one of two groups:

- Passage users: Occupy corridors for brief periods of time.
  - These animals use corridors for such events as seasonal migration, dispersal of a juvenile, or moving between parts of a large home range.
  - Usually large herbivores, medium to large carnivores, and migratory species are passage users (Beier & Loe 1992).
- Corridor dwellers: can occupy the passage anywhere from several days to several years.
  - Species such as plants, reptiles, amphibians, birds, insects, and small mammals can spend their entire lives in linear habitats.
  - In this case, the corridor must include everything that a species needs to live and breed, such as soil for germination, burrowing areas, and multiple other breeding adults (Beier & Loe 1992).

How to design?

Following features should be implemented

- Maintain as much natural open space as possible next to any culverts to encourage the use of the culverts.
- Maximize land use adjacent to the corridor that reduce human impacts to the corridor.
- Do not allow housing or other impacts to project into the corridor to form impediments to movement and increase harmful edge effects.

Contd...

- Bridged under crossings are preferable.
- On the road above the culverts, install speed bumps and wildlife crossing signs to slow the cars, and prohibit street lighting to facilitate use of the crossing.
- Plant native trees, shrubs and other plants to provide food and cover, as well as nesting opportunities for birds.
- No wood fences should be allowed in the corridor and along any of the lots adjacent to the corridor.
- No domestic pets are to be allowed in the corridor. Cats and dogs should be trapped and returned to owners if they have a collar or brought to the animal shelter if they have no identification tags.
- Any violations should be strictly enforced and citable.

Landscape elements that contribute to wildlife corridors

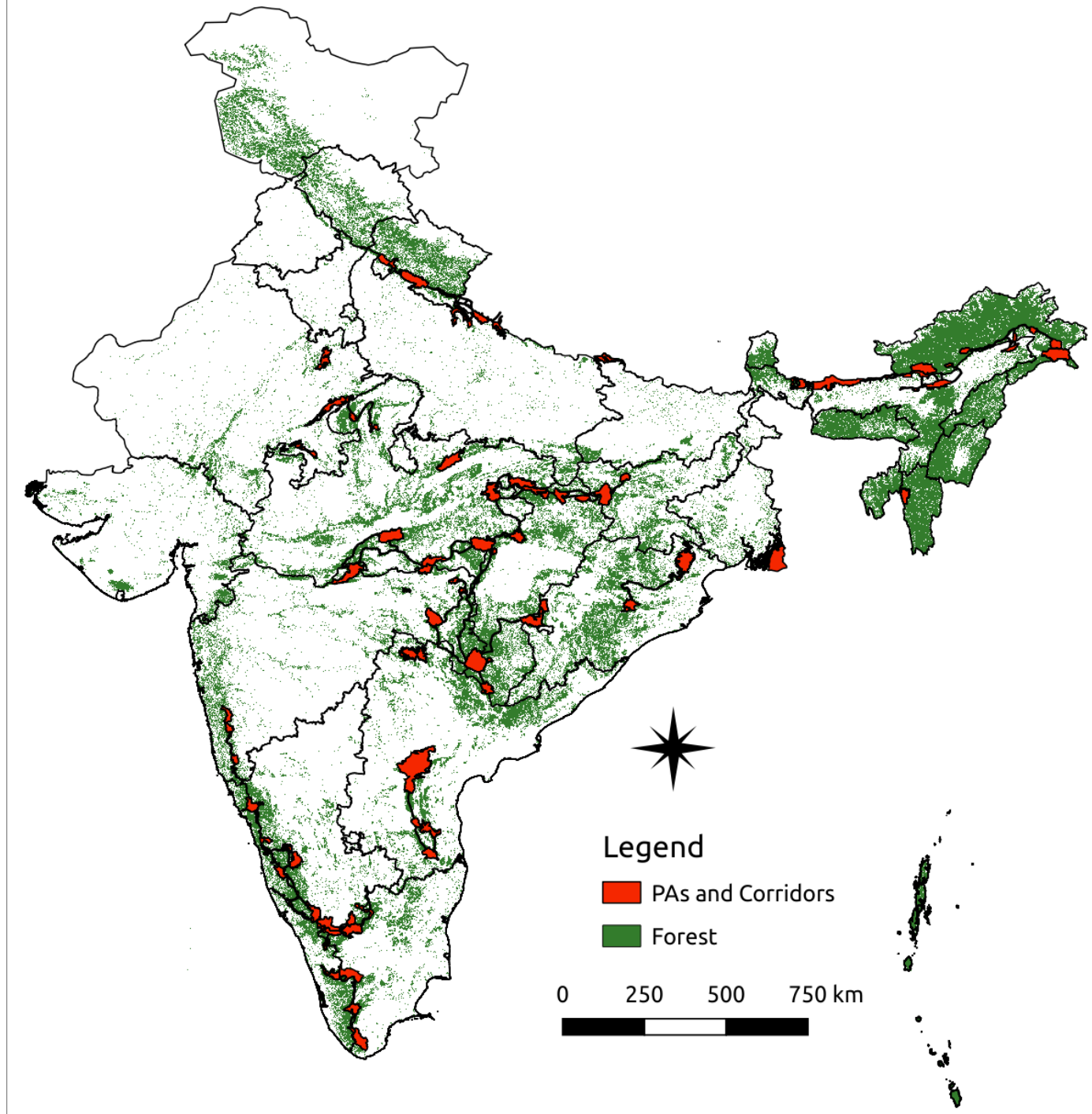
- Native grasslands provide habitat and pasture
- Linear strips of roadside and fence line vegetation form important links in the landscape
- 'Stepping stones' of native vegetation such as paddock trees link larger patches
- Sensitively designed urban parks and gardens contribute habitat for native species
- Free-flowing rivers transport nutrients and sediment to the sea
  - Fish travel between fresh and saltwater environments at different lifecycle stages
- Migratory bird species rely on important wetland and shore habitats
- Fauna moving by air and water through the landscape disperse pollen and seed
- Floodplain inundation triggers plant regeneration and provides habitat for aquatic species
- Large patches of native vegetation provide core habitat
- 'Buffers' around natural areas protect them from external threats
- Long distance movement (by air) of migratory species

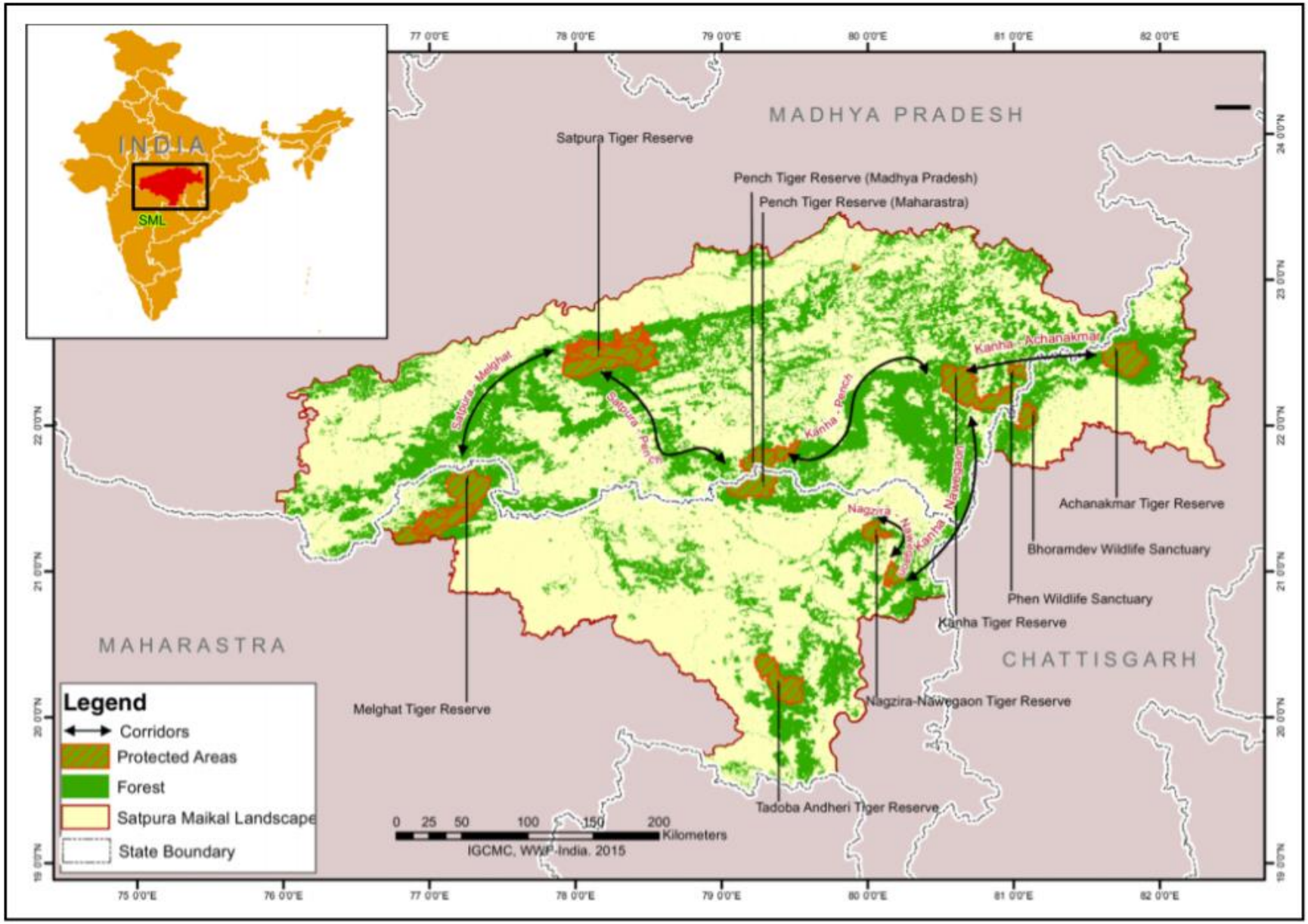
Land use practices contributing to wildlife corridors include:

- Indigenous Protected Areas managed for cultural and ecological values
- Restoration efforts such as revegetation link core habitat patches
- National parks managed to preserve values and minimise impacts of invasive species
- Private land conservation and stewardship
- Development offsets contribute to habitat restoration and management
- Periodic wetland inundation from environmental flows
- Landcare and Coastcare groups manage local areas
- Local governments incorporate connectivity conservation in land planning and management
- Urban landholders create biodiverse gardens friendly to wildlife
- Natural resource management grants and other incentives assist landholders to manage threats and restore habitat
- Roadside vegetation managed by state and local governments connect core habitat patches
- Holistic farm management plans assist private landholders
- Biodiverse plantings by landholders contribute to long-term carbon stores
- Paddock tree protection helps natural regeneration
- Invasive species management keeps landscapes healthy

Major Indian wildlife corridors

- The eastern himalayan corridor
- The siju-rewak corridor: Located in the Garo hills of Inida. For maintain elephants population.
- The 16 km long kanha-pench elevated corridor on NH 44.


Legend
PAs and Corridors
Forest
0
250
500
750 km


INDIA
SML
MADHYA PRADESH
MAHARASTRA
CHATTISGARH
Satpura Tiger Reserve
Pench Tiger Reserve (Madhya Pradesh)
Pench Tiger Reserve (Maharastra)
Satpura - Melghat
Satpura - Pench
Kanha - Pench
Kanha - Achanakmar
Nagzira - Navegaon
Nagzira - Tadoba - Kanha
Achanakmar Tiger Reserve
Bhoramdev Wildlife Sanctuary
Phen Wildlife Sanctuary
Kanha Tiger Reserve
Melghat Tiger Reserve
Nagzira-Nawegaon Tiger Reserve
Tadoba Andheri Tiger Reserve
Legend
Corridors
Protected Areas
Forest
Satpura Maikal Landscape
State Boundary
0 25 50 100 150 200
Kilometers
IGCMC, WWF-India, 2015
77 0'0"E
78 0'0"E
79 0'0"E
80 0'0"E
81 0'0"E
82 0'0"E
75 0'0"E
76 0'0"E
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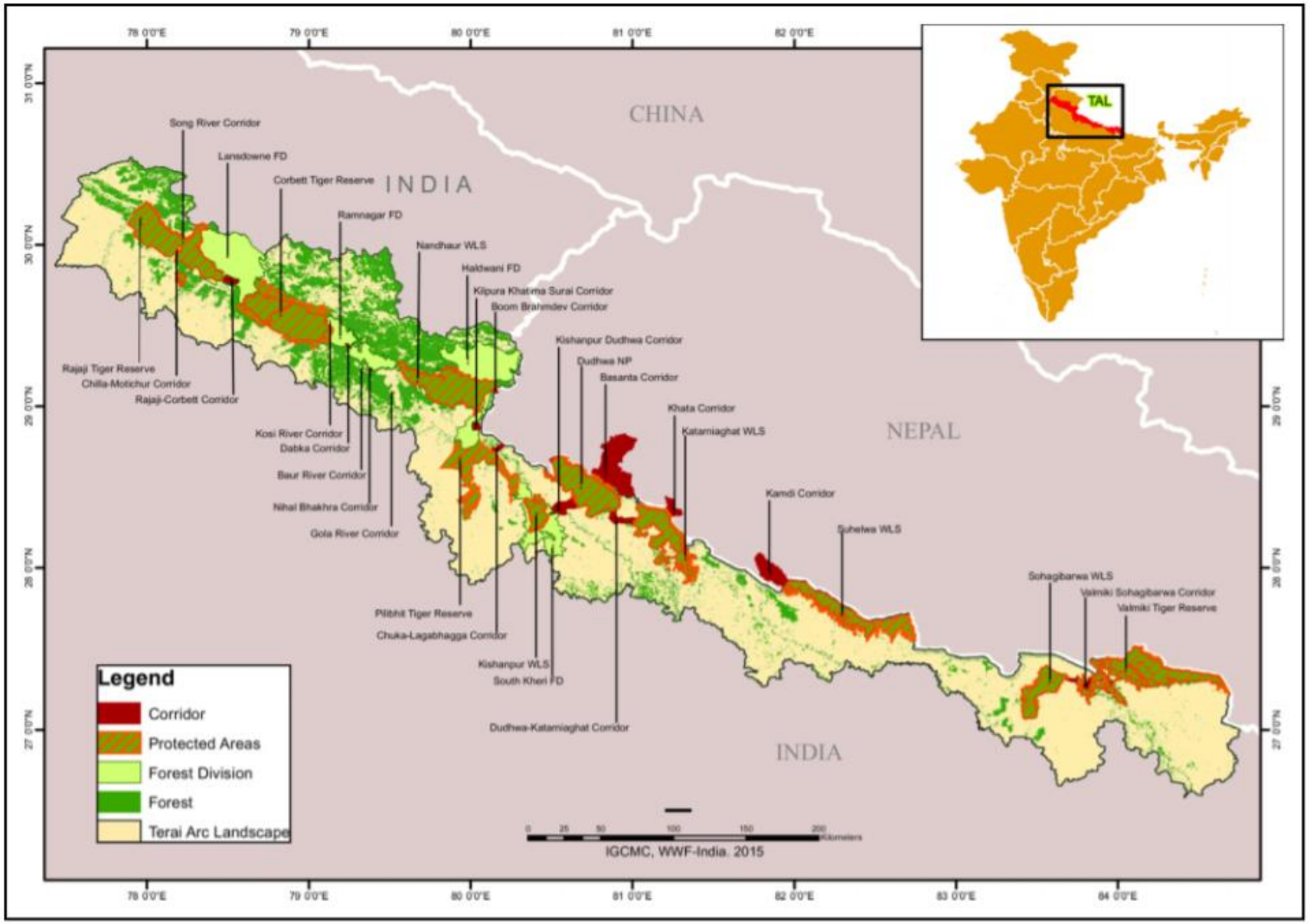
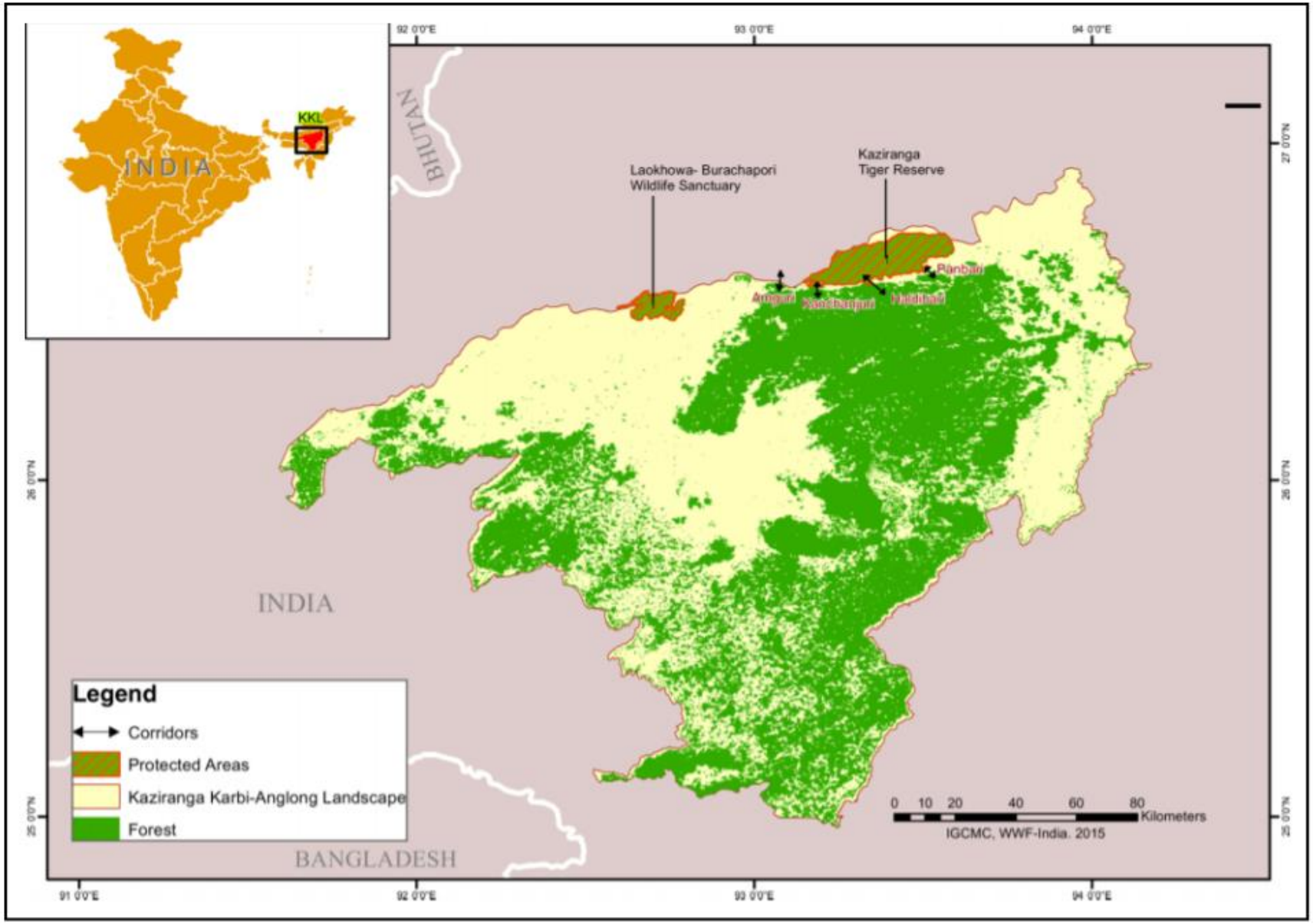


Note: The corridor indicated is notional and not to scale, but is based on field observations of animal movements in the region.



Note: The corridor indicated is notional and not to scale, but is based on field observations of animal movements in the region.

The Siju-rewak corridor

What is particularly important about the area is that it contains one of only four crossing points for elephants along the Simsang River, the length of which almost divides the Garo Hills in two. Elephant Corridor has gentle sandy beaches on both sides of the river, where elephants can cross easily.

Thank you