

*Prioritizations and Strategies
in Population Management:*
Choices and Noises

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Lecture 3
29 June 2015

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**Evolutionarily Significant Units
&
Meta-populations**

Evolutionarily Significant Units (ESU)

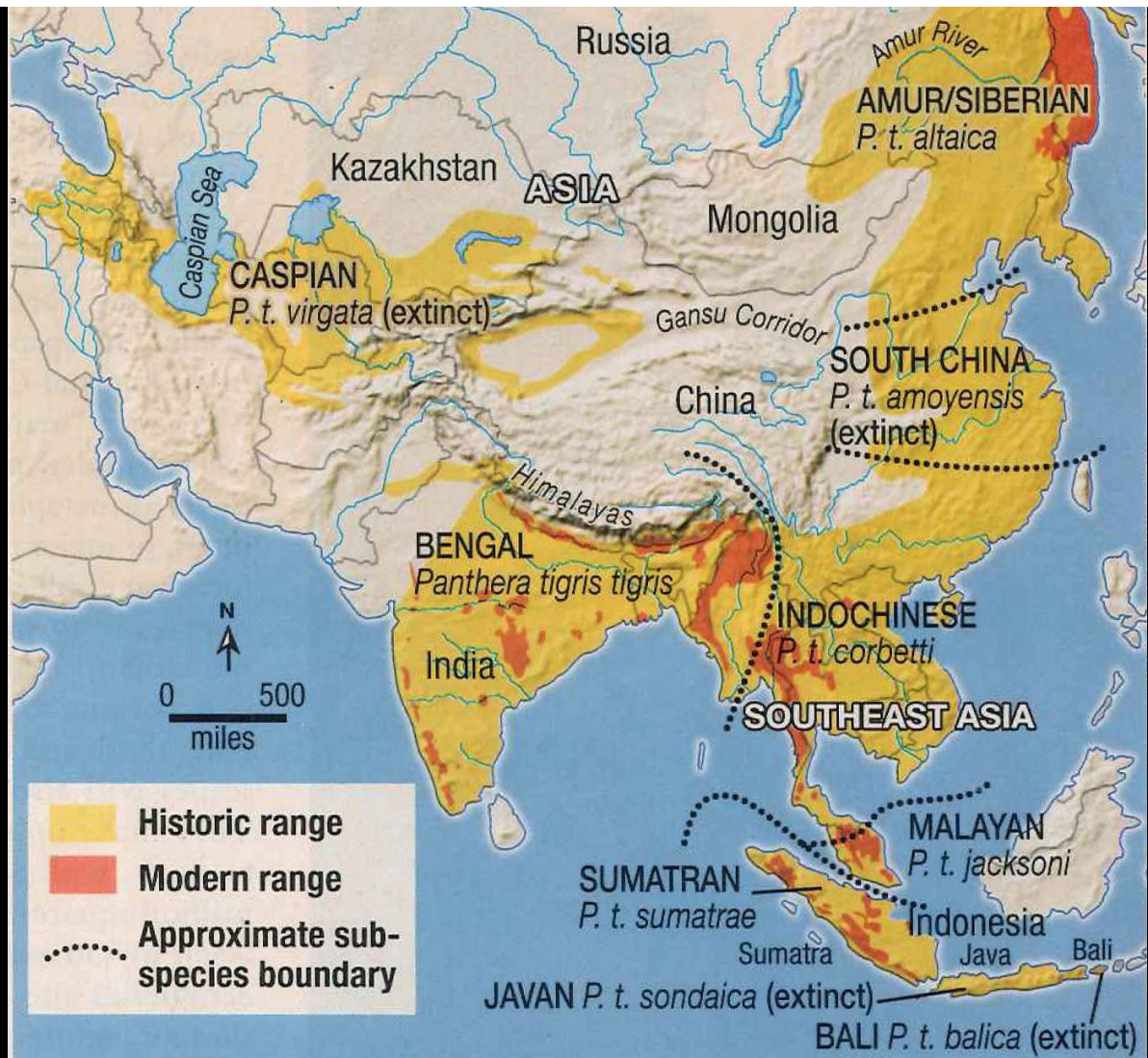
Population of a species that display distinct evolutionary and ecological traits (reflecting the evolutionary process)

Evolutionarily Significant Units (ESU)

ESU concepts aims to preserve...

- **evolutionary processes**
- **adaptive potential**
- **still aims to retain overall variation within the species**

TIGER SUBSPECIES OF THE WORLD



Extinction and Recovery Choices

Recovery of Tiger in Cambodia



© FA / WWF-Cambodia

Tiger Population in Sundarbans



Reintroduction of Cheetah in India



Relict Species



PHASIANUS WALLICHII

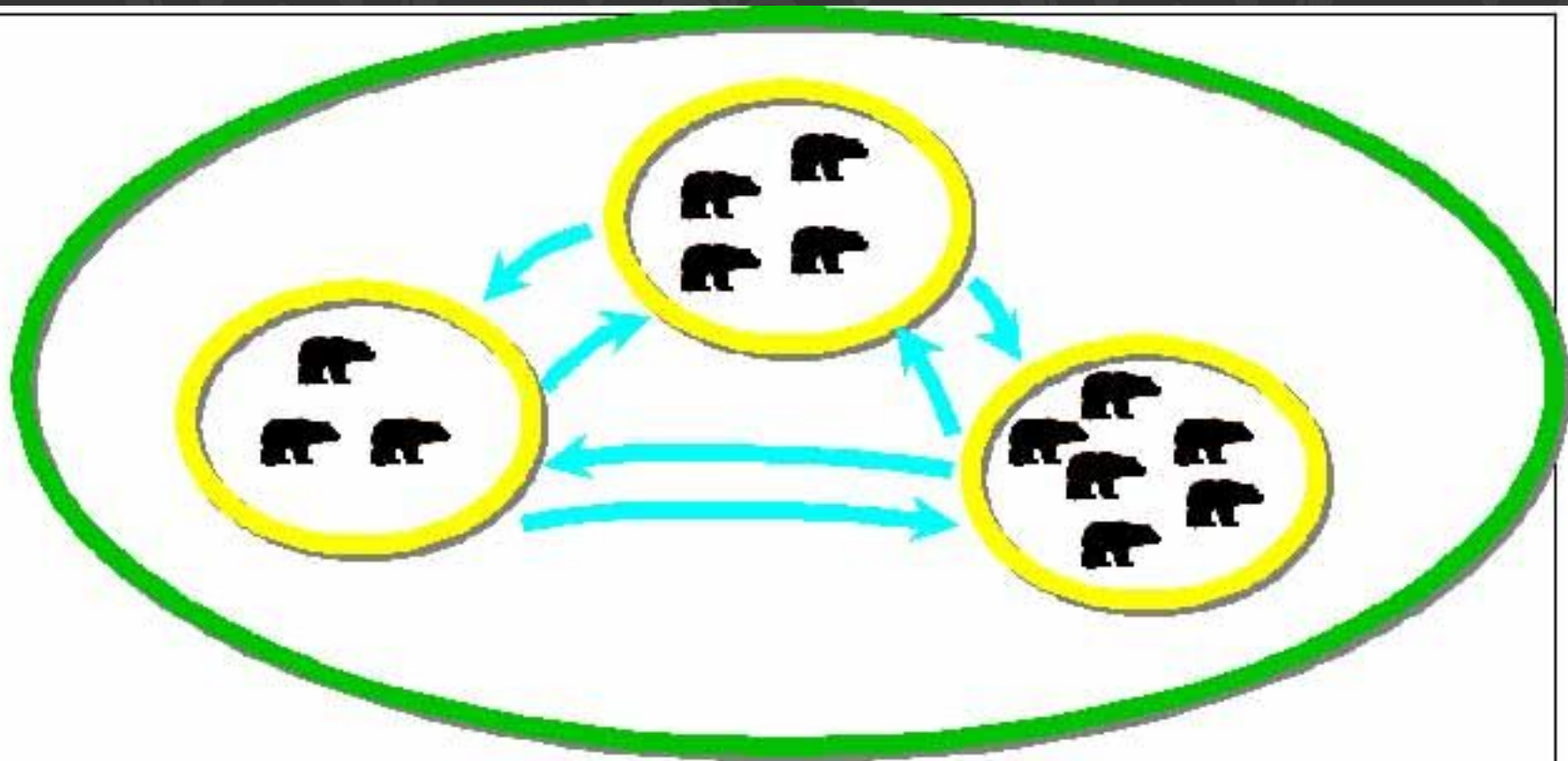
Speciation by Genetics?

First-ever illustrated global bird classification reveals 400 new species

The Splitters Have it!!!

Meta-population

Meta-population is a population of populations which is arranged in spatially discrete patches with interaction at some level



disjoint, but interacting nuclei



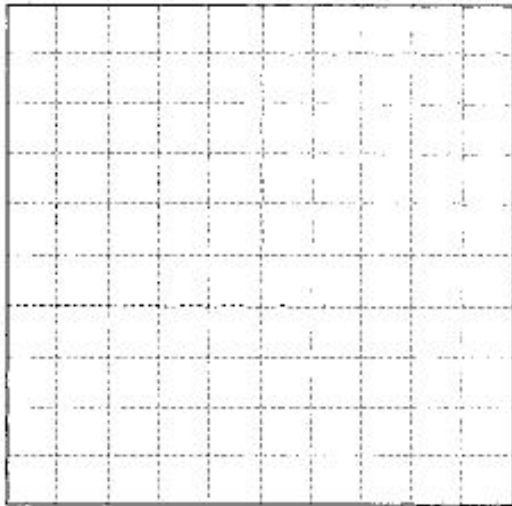
movement of individuals



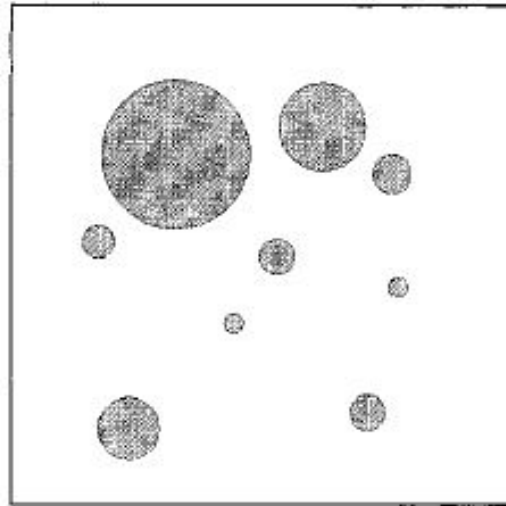
metapopulation (common gene pool)

Meta-population Dynamics

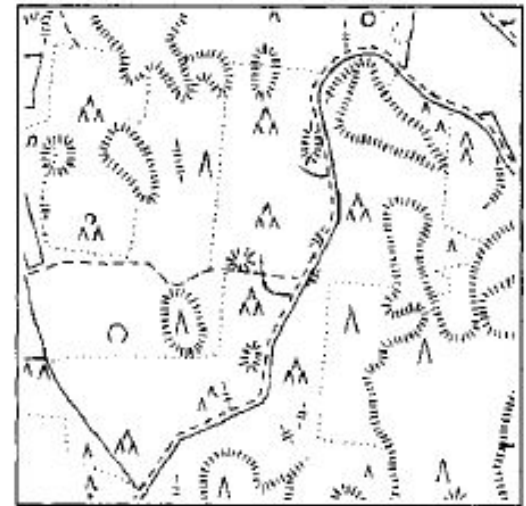
Theoretical
ecology



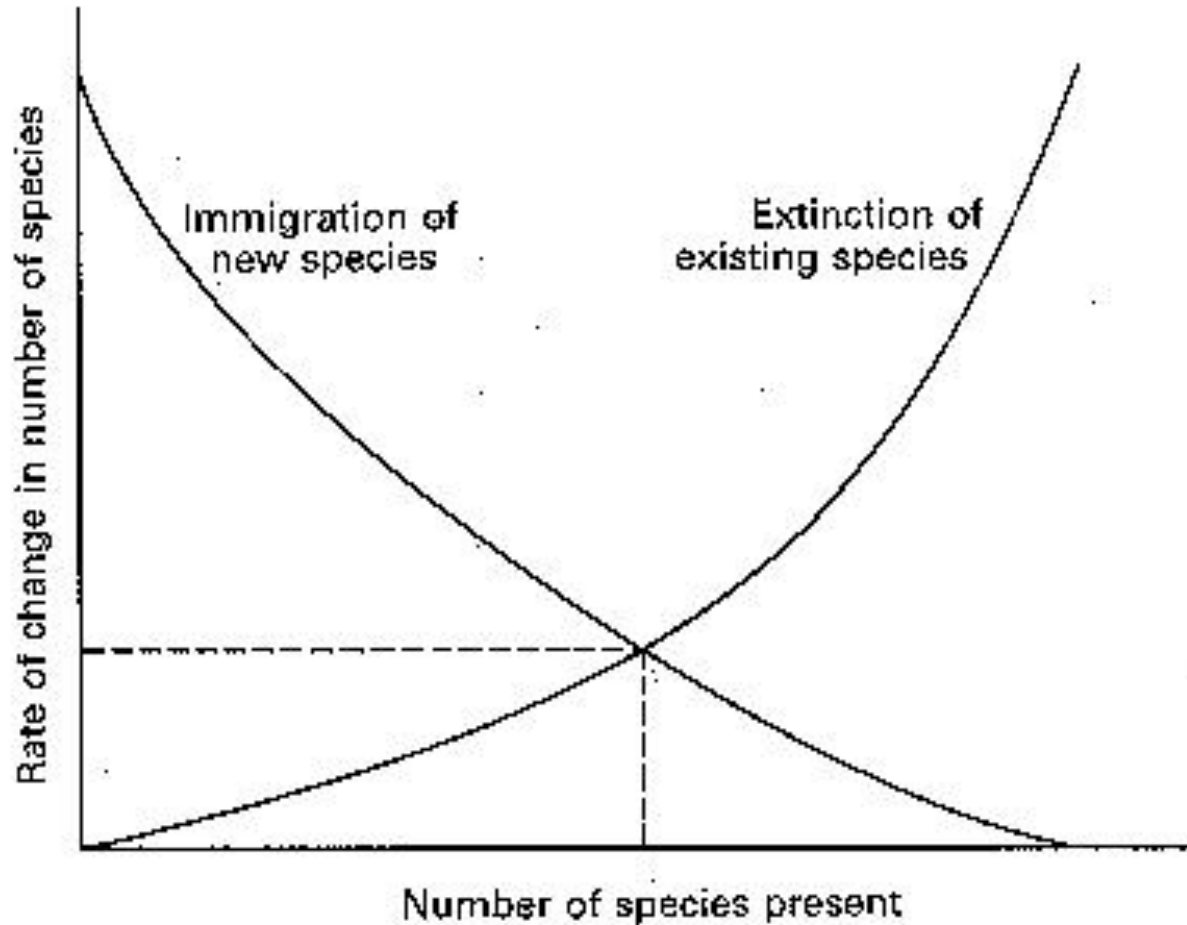
Metapopulation
ecology



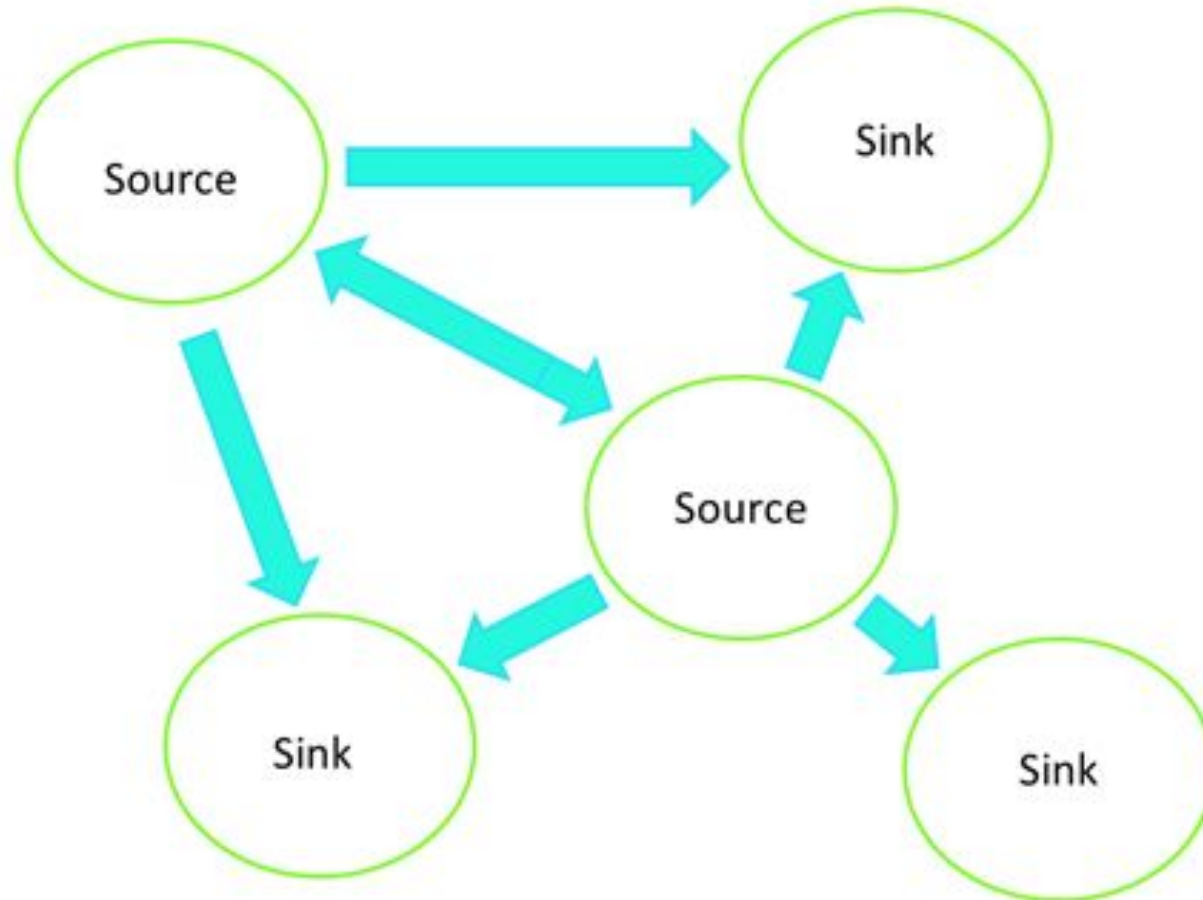
Landscape
ecology



Island Biogeography Theory



Source-Sink Model



Space and Scale

Acts in what Hutchinson (1965) has called the "ecological theatre" are played out on various scales of space and time. To understand these dramas, we must view them on the appropriate scale.

Space and Scale



Extent

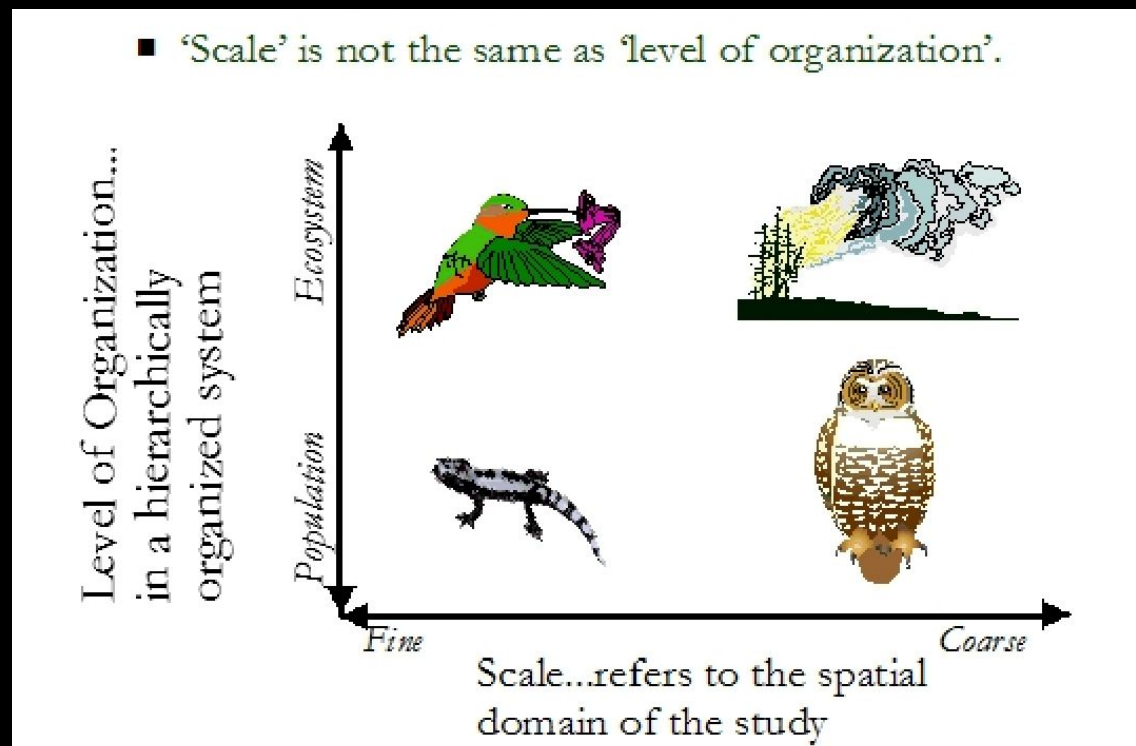


Grain

Scale and Level

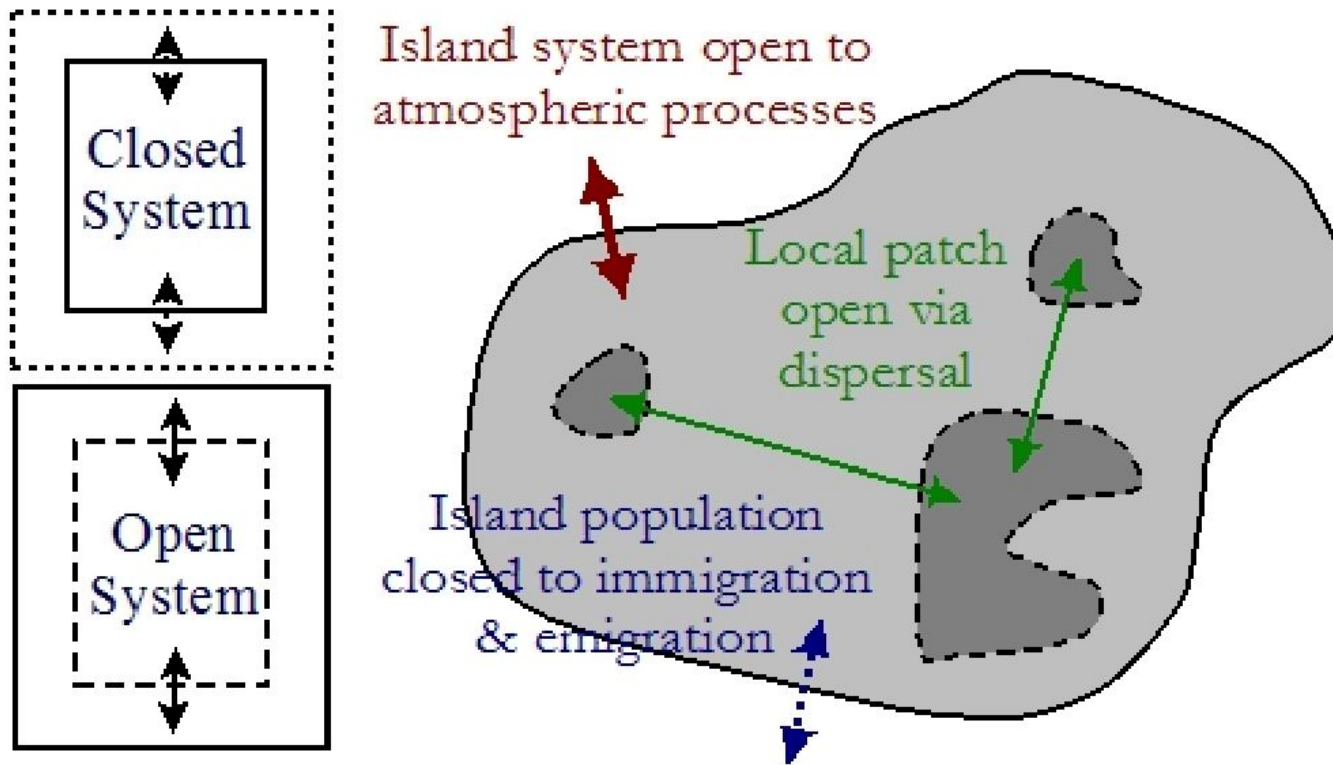
SCALE – Spatial and Temporal Dimension
(Map/Cartographic Scale Vs Ecological Scale)

LEVEL – Landscape Level, Trophic Level, etc.

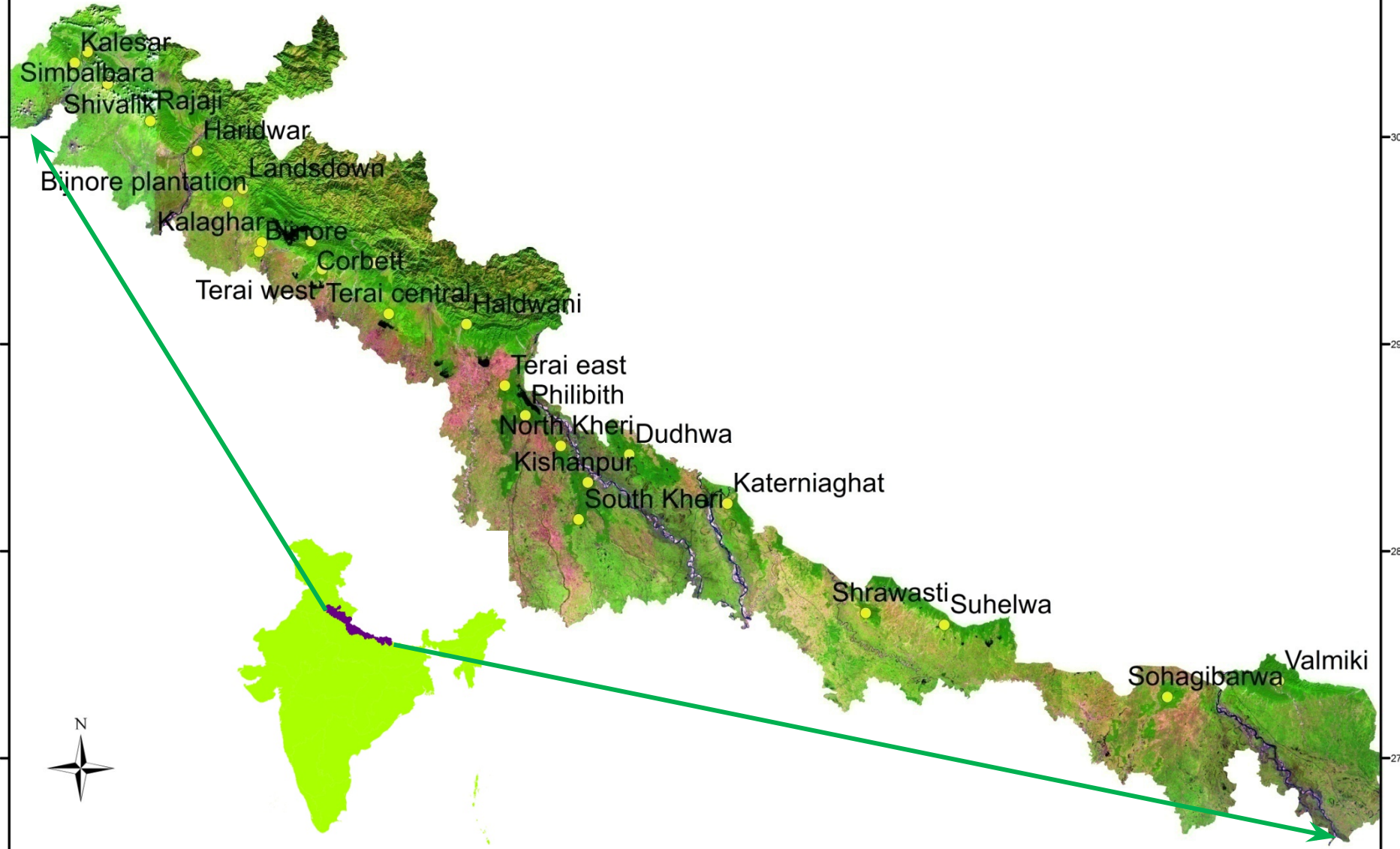


Why scale is important?

- As one changes scale, systems may switch between “closed” and “open.”



SHIVALIK TERAI LANDSCAPE INDIA



● Forest_Divisions

Shivalik Range (Mixed Forest)



Bhabar Tract (Dry Woodlands)



Terai Forests (Moist Woodland-Grassland mosaic)



Shivalik Terai Landscape: Composition

Landscape

Shivalik



Terai



Undulating topography
Low water table
Sal mixed and Misc. forests



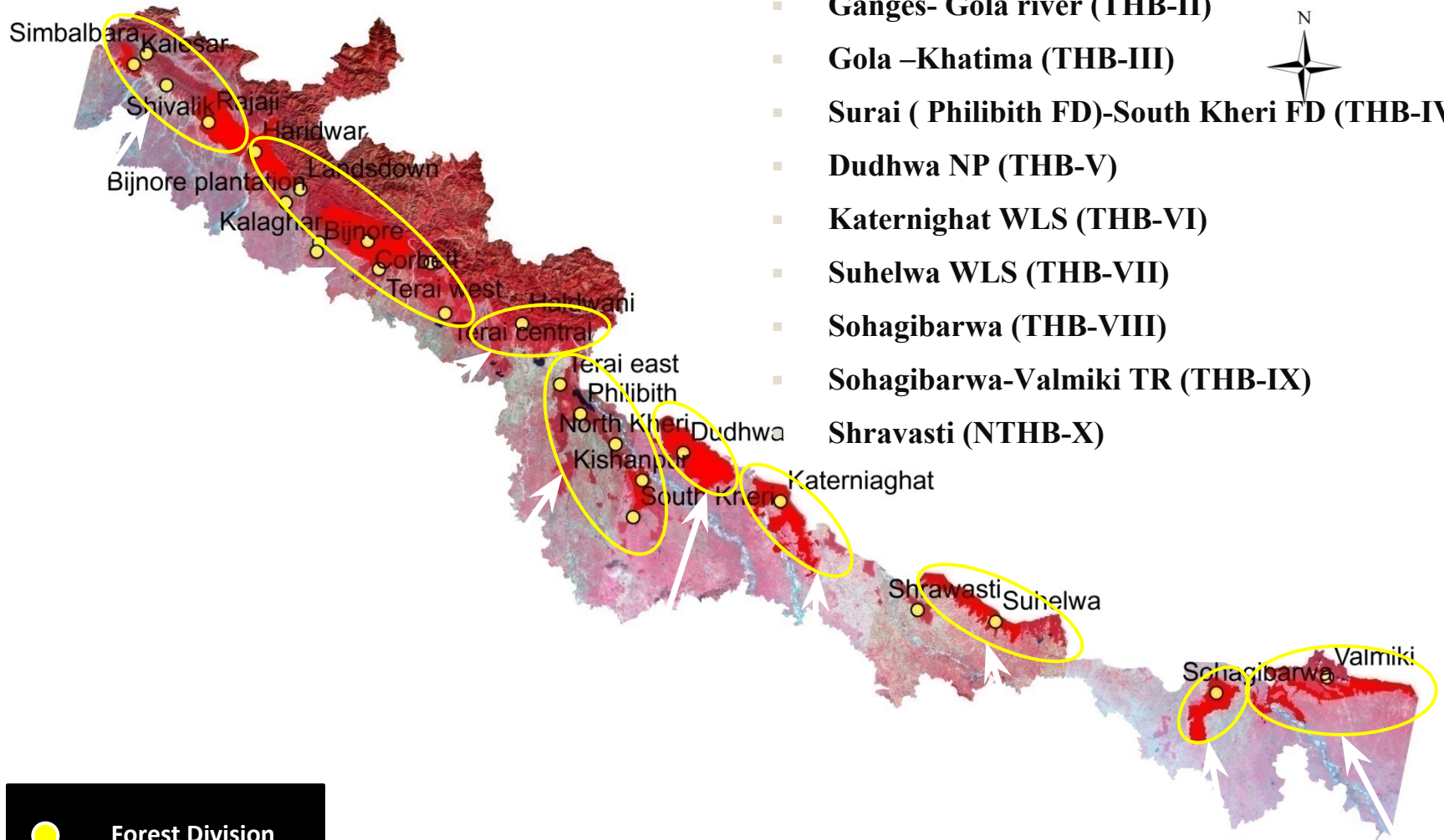
Flat terrain and alluvial soil
High water table
Sal and grass land

Sambar
Barking deer

Chital
Nilgai
Wild pig

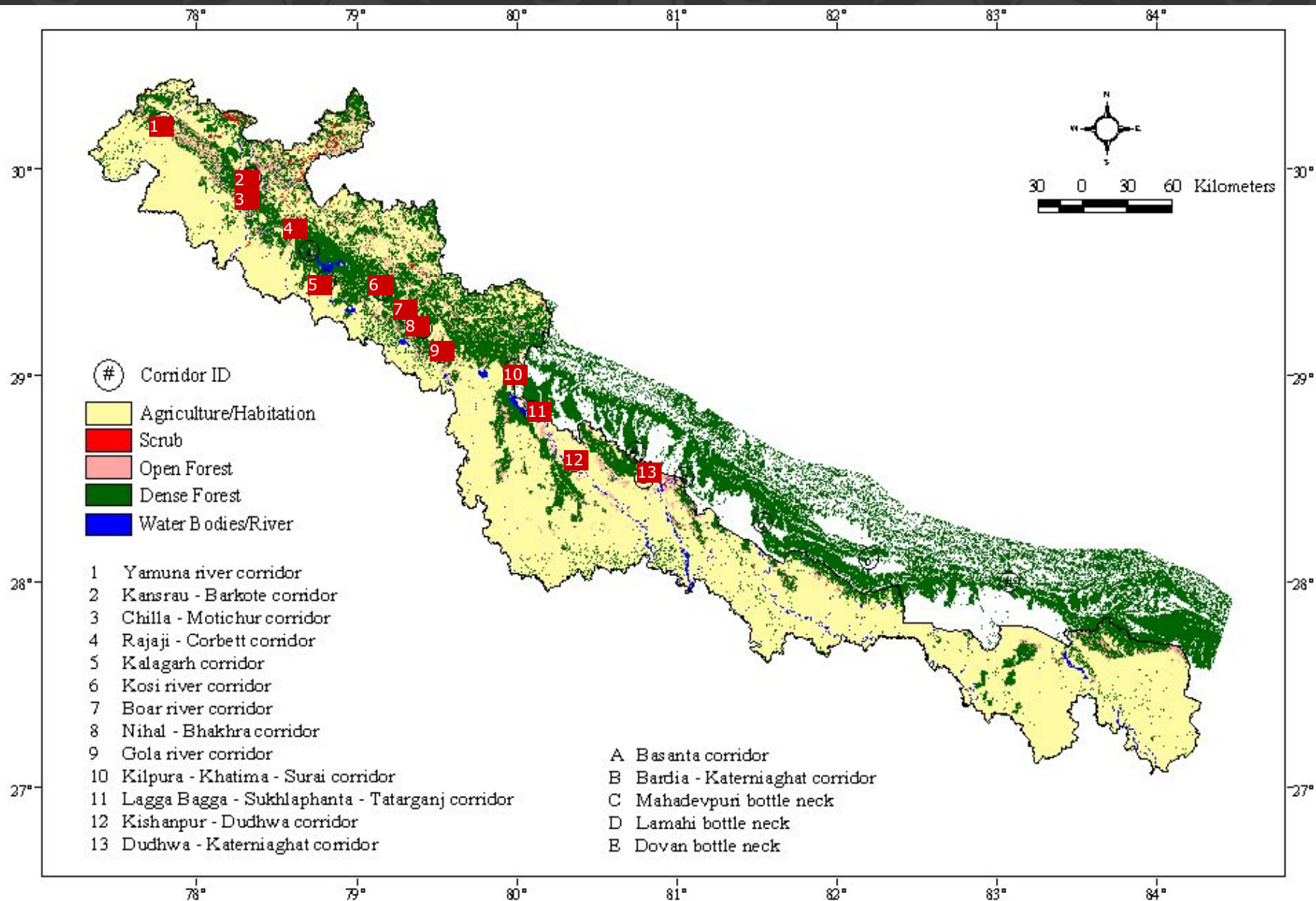
Swamp deer
Hog deer

SHIVALIK TERAI LANDSCAPE TIGER HABITAT BLOCK INDIA



- Simbalbara-Ganges (THB-I)
- Ganges- Gola river (THB-II)
- Gola -Khatima (THB-III)
- Surai (Philibith FD)-South Kheri FD (THB-IV)
- Dudhwa NP (THB-V)
- Katernighat WLS (THB-VI)
- Suhelwa WLS (THB-VII)
- Sohagibarwa (THB-VIII)
- Sohagibarwa-Valmiki TR (THB-IX)
- Shrawasti (NTHB-X)

Corridors



Summary

- **ESU enables management prioritization**
- **Meta-population Dynamics provide basis for management strategy for long-term viability**