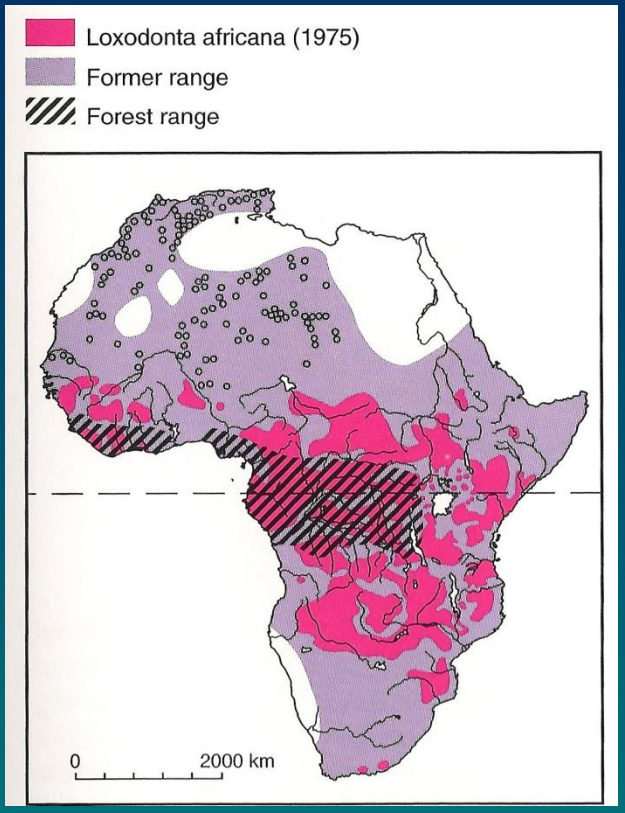
The importance of Protected Areas as refuges for large bodied mammalian species

John G. Robinson & Joe Walston - World Parks Congress 2014

Many of these large bodied species are sources of high value wildlife products, and are the target of illegal hunting, especially for the international trade.

The collapse of the range of Africa's elephants into parks & protected are

1800s



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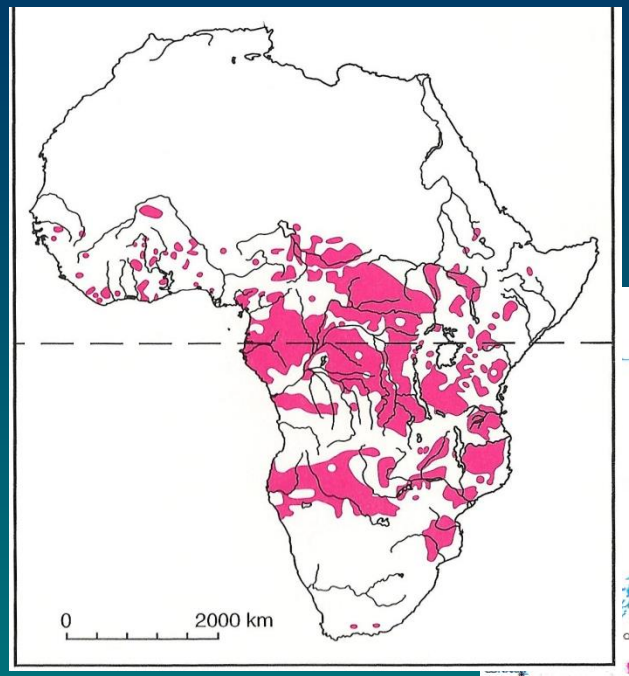

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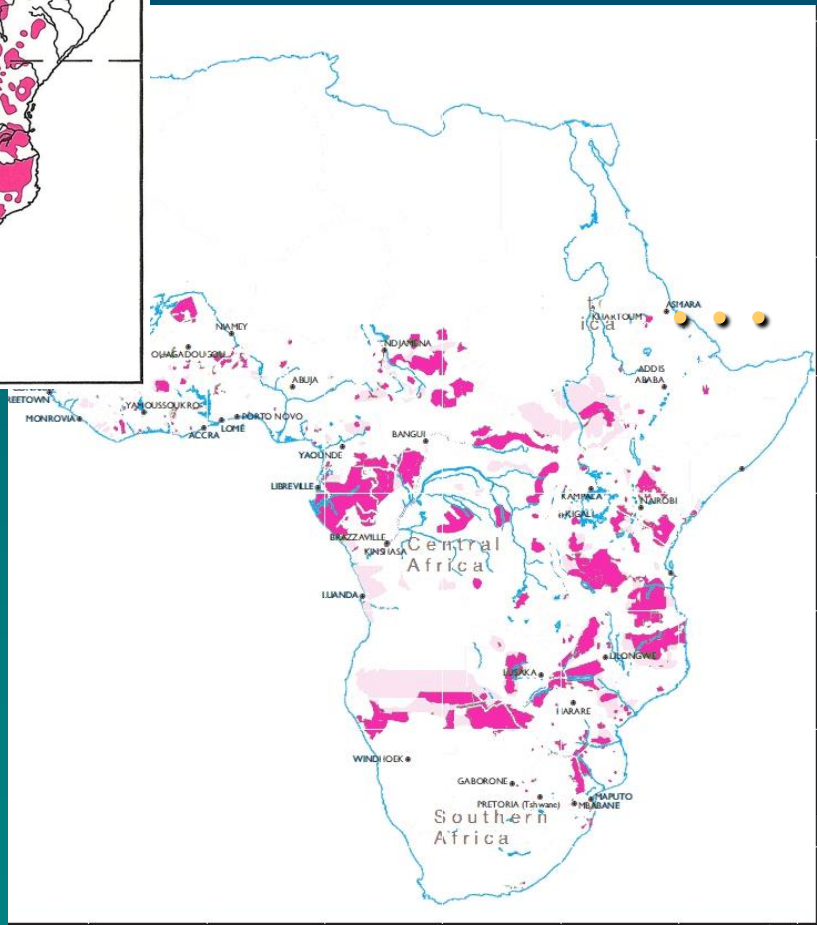
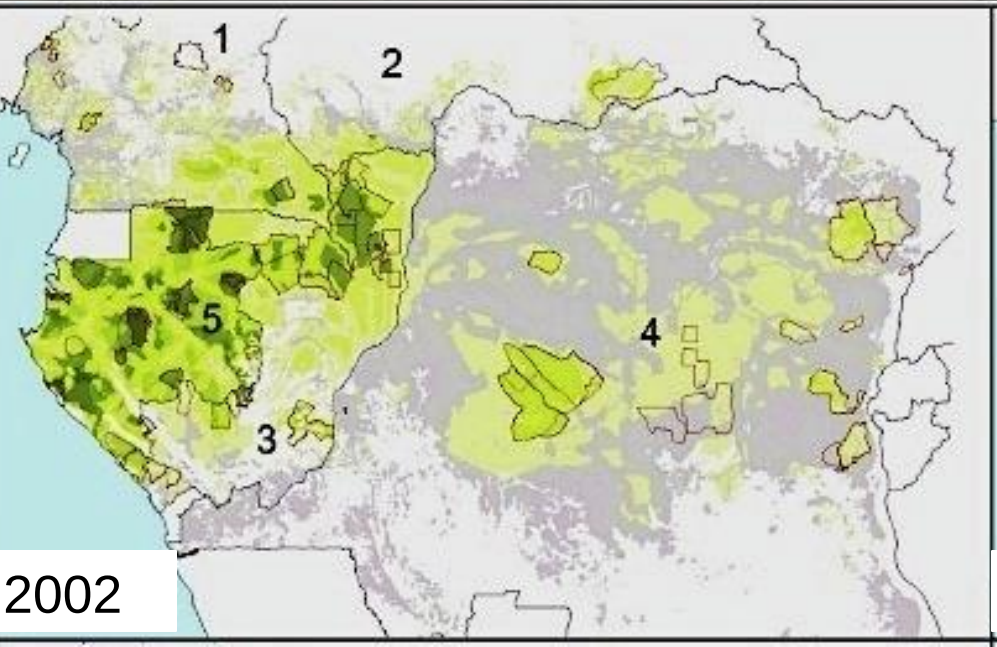


Blanc, J., Barnes, R.F.W., Craig, G.C., Dublin, H.T., Thouless, C.R., Douglas Hamilton, I., Hart, J., 2007. African Elephant Status report 2007: an update from the African Elephant Database, In Occasional Paper Series of the IUCN Species Survival Commission, N° 33. p. vi + 276 pp. IUCN / SSC African Elephant Specialist Group, Gland, Switzerland.

Kingdon, J., 2001. The Kingdon Field Guide to African Mammals. , 2 edn. Academic Press, London.


1
2
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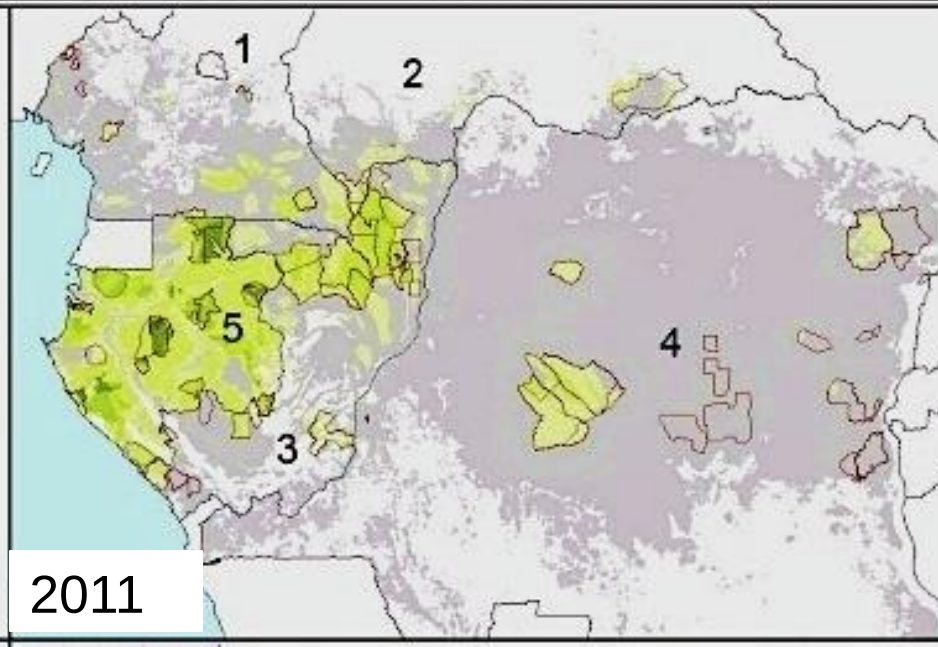
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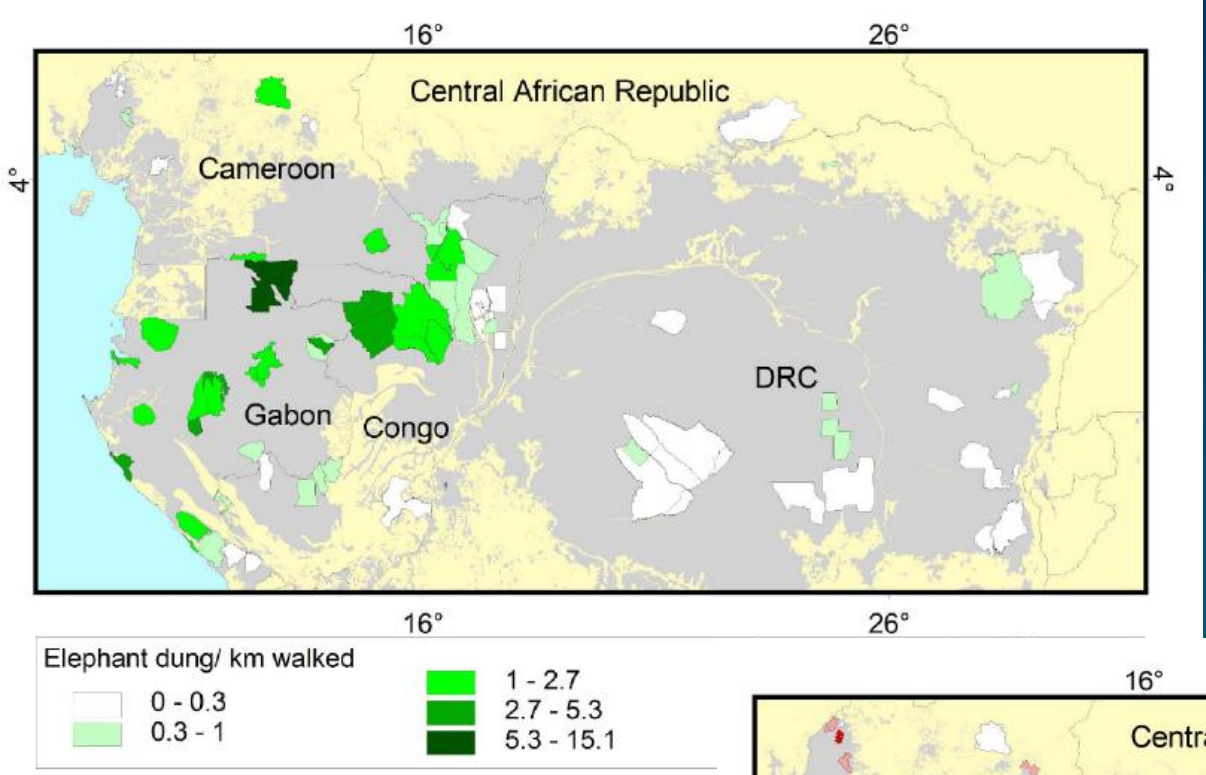
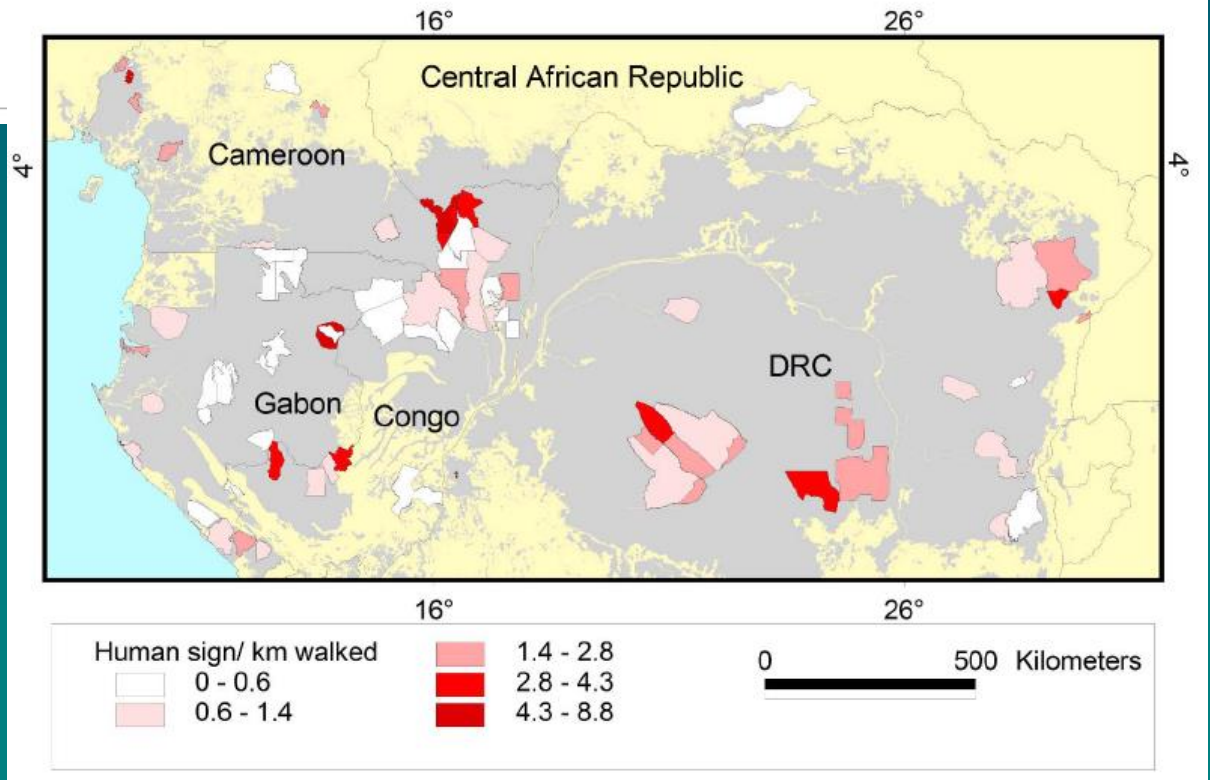
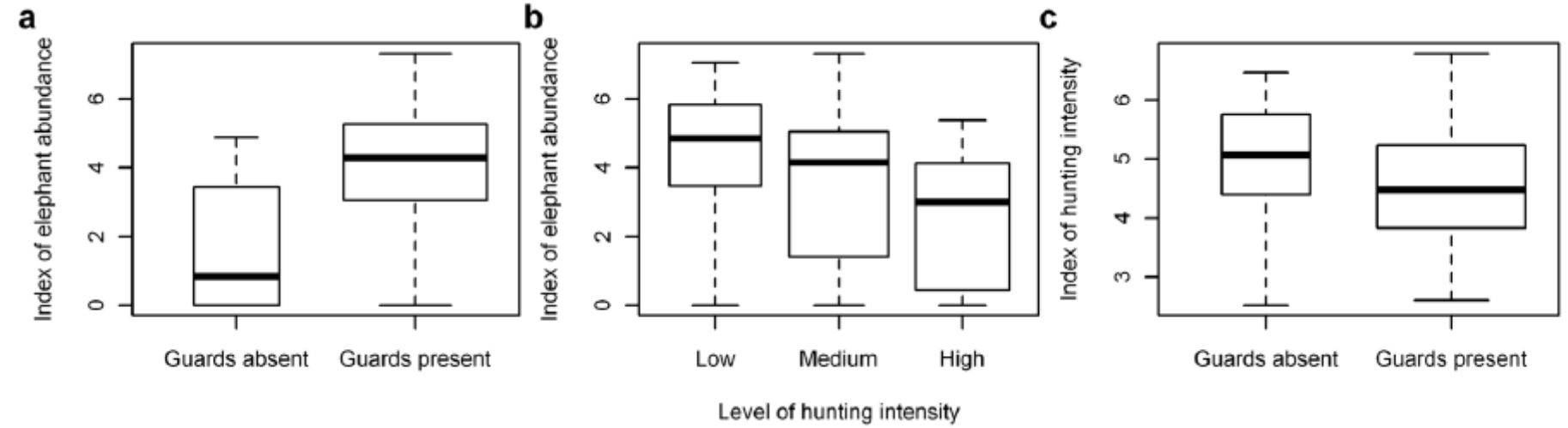


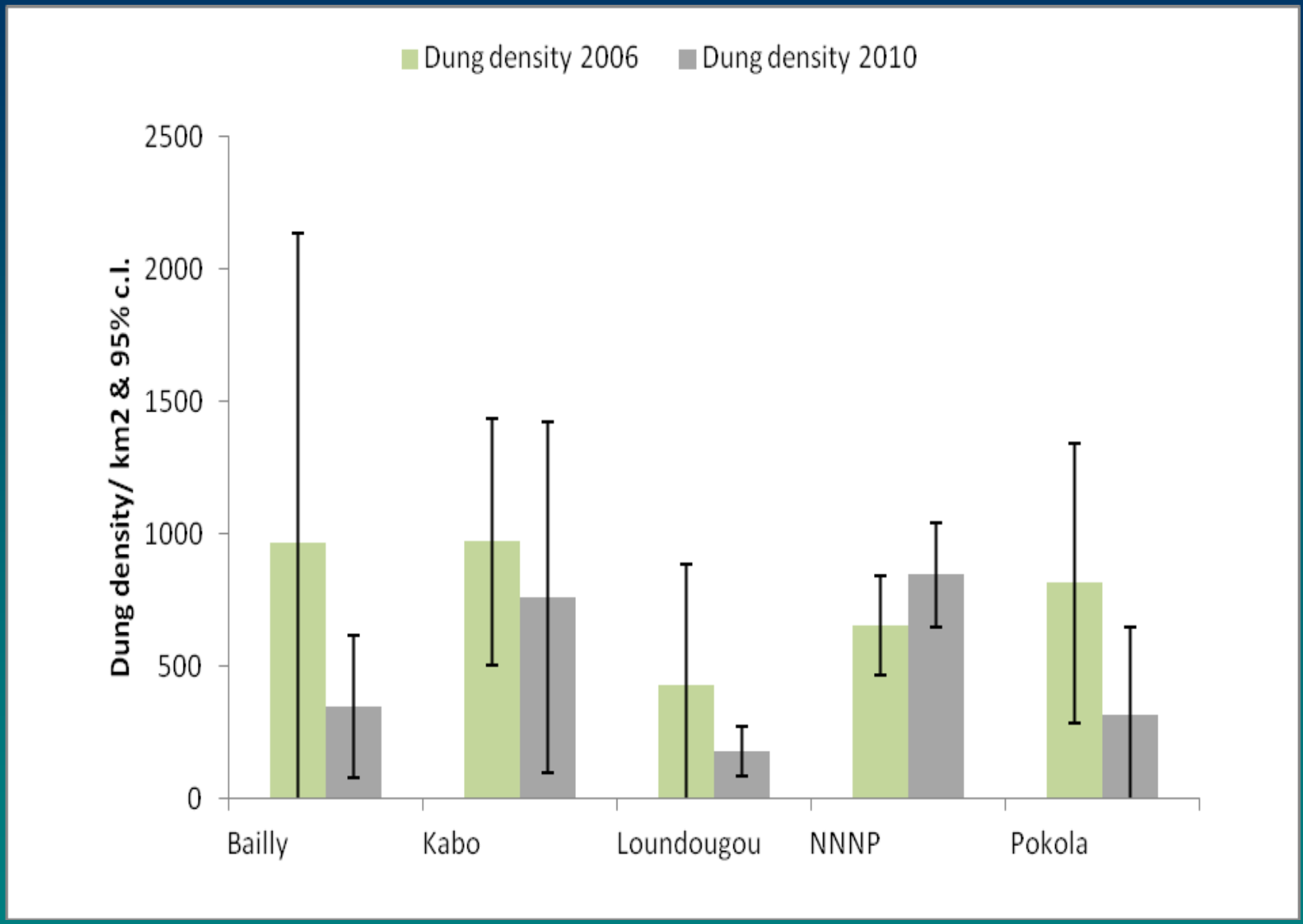
Encounter rate of elephant dung /km transect for 80 survey sites

Maisels et al. 2013. PLoS One 8.



Encounter rate of hunter sign/km transect for 80 survey sites


a
Index of elephant abundance
0
2
4
6
Guards absent
Guards present
b
Index of elephant abundance
0
2
4
6
Low
Medium
High
Level of hunting intensity
c
Index of hunting intensity
3
4
5
6
Guards absent
Guards present



Statistically significant for Kabo and Polola

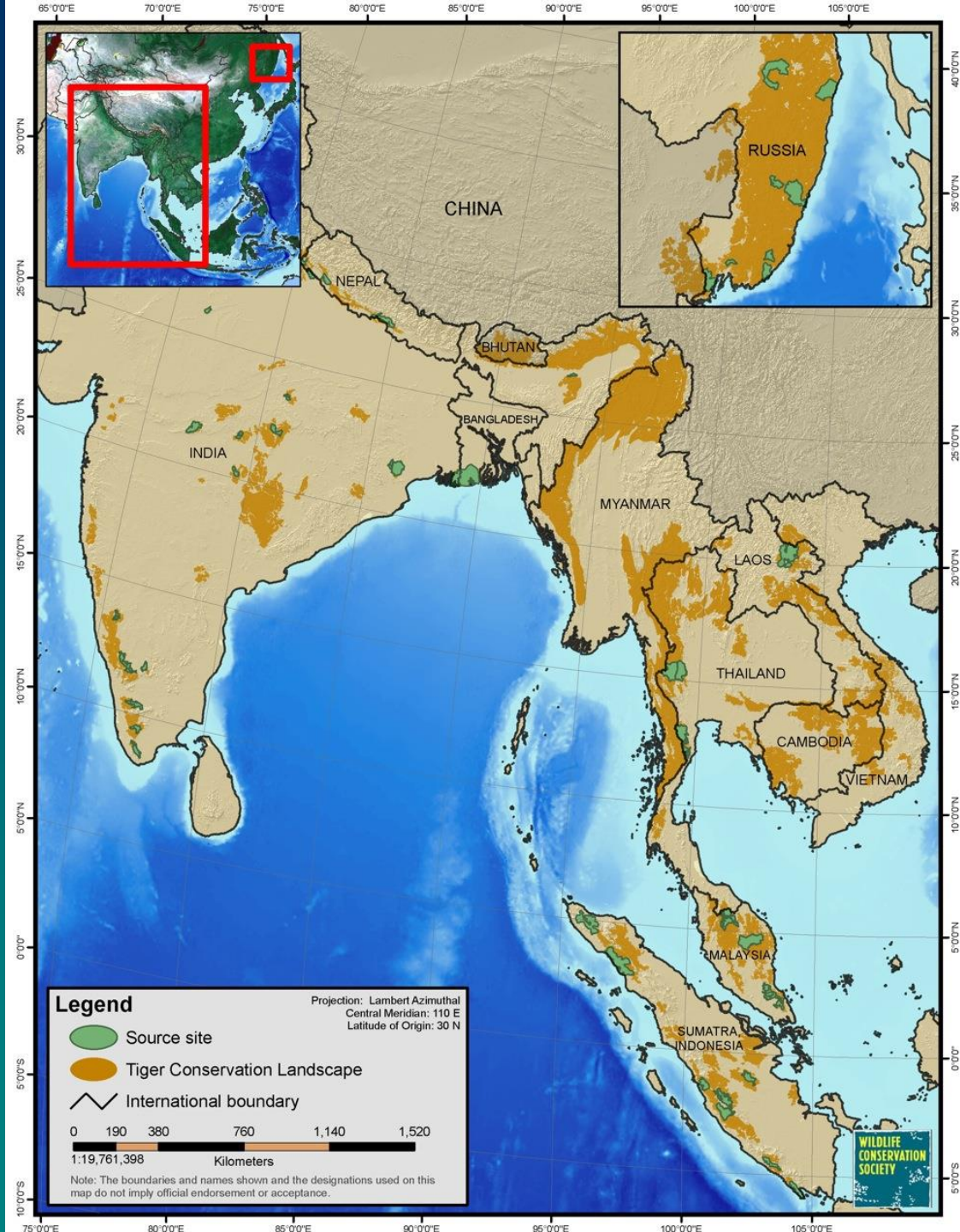
The collapse of the range of the tiger into parks and protected areas.

42 Source Sites across the Tiger's range

- 18 in India
- 8 in Sumatra, Indonesia
- 6 in Russian Far East
- 3 in Malaysia
- 3 in Nepal
- 2 in Thailand
- 1 in Bangladesh
- 1 in Lao PDR

- Bhutan and Myanmar incompletely evaluated

- No Source Sites in Cambodia, China, DPR Korea, or Vietnam



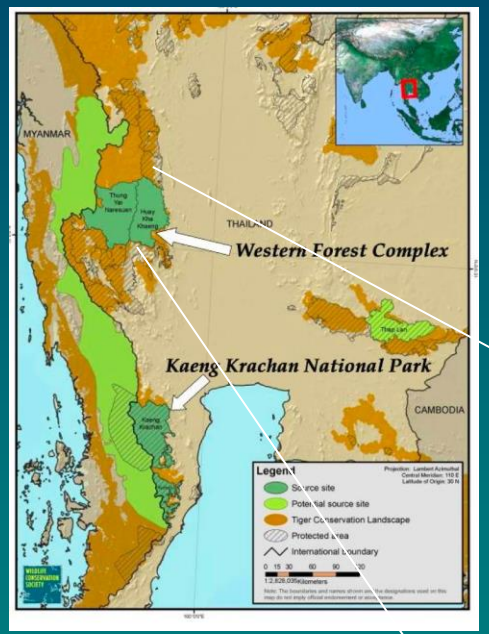
Collectively, Source Sites, mostly parks and protected areas, cover 90,000 km^2 (only 50,000 km^2 is outside of India and Russia).

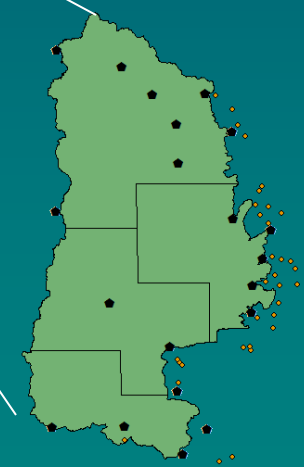
- Less than 0.5% of historical range
- Just 6% of their current distribution.

Source Sites contain 2,200 tigers (which is 70% of all remaining tigers).

Persistence of tigers in Huai Kha Khaeng Wildlife Sanctuary, Thailand: The importance of protection

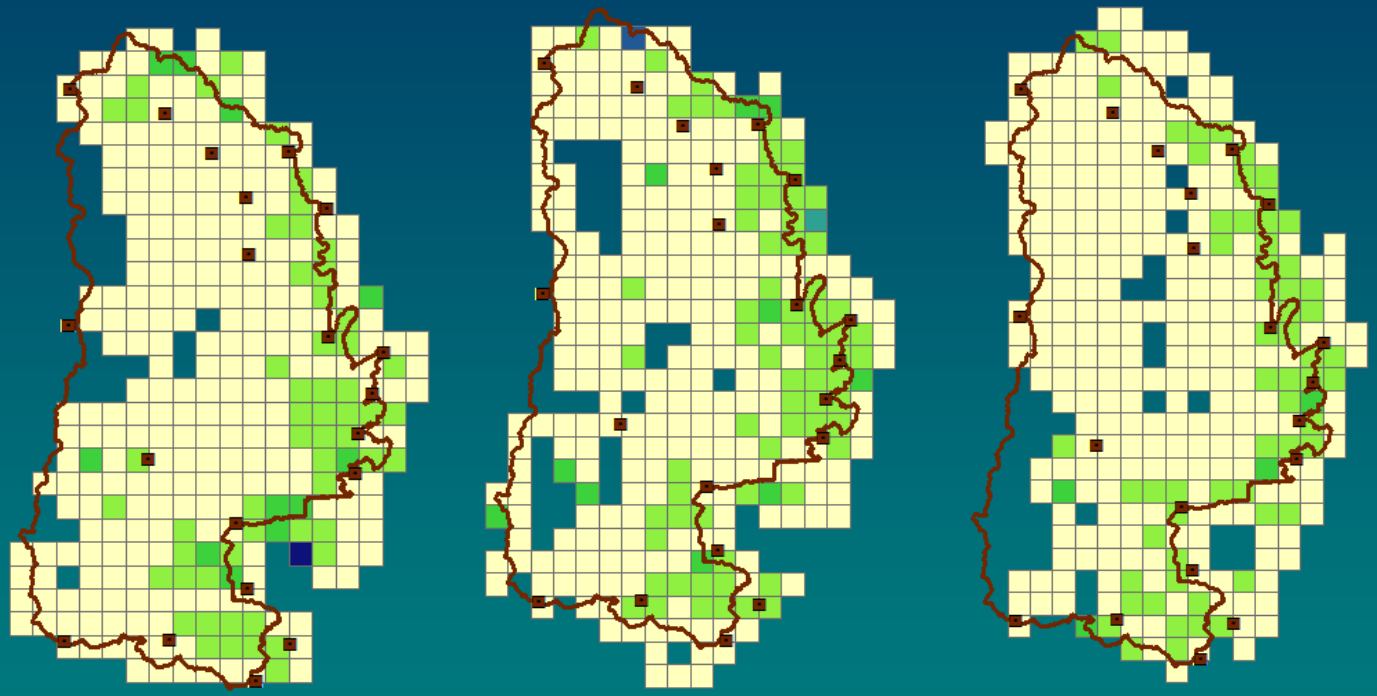
- SMART patrolling system initiated in 2006
- Focus on stopping poaching of prey
- Considerable government investment in patrolling
  - 19 guard posts
  - 150 rangers
- MIST implemented in January 2008





Guard posts

SMART patrolling pushes illegal hunting out to the borders of the park.



2006 2007 2008

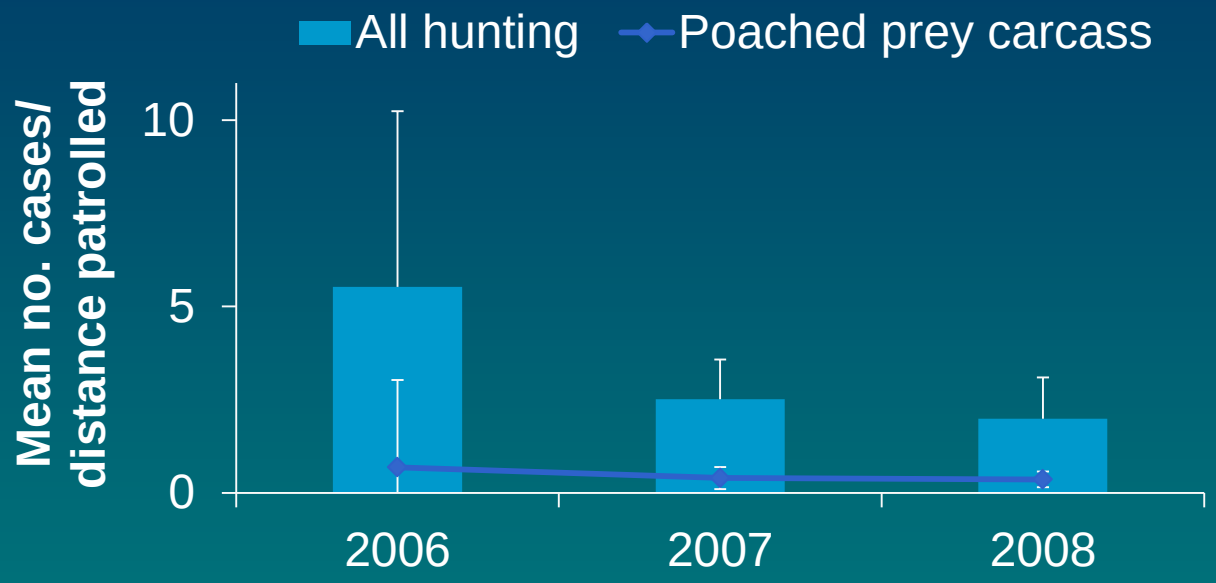
Hunting Index:

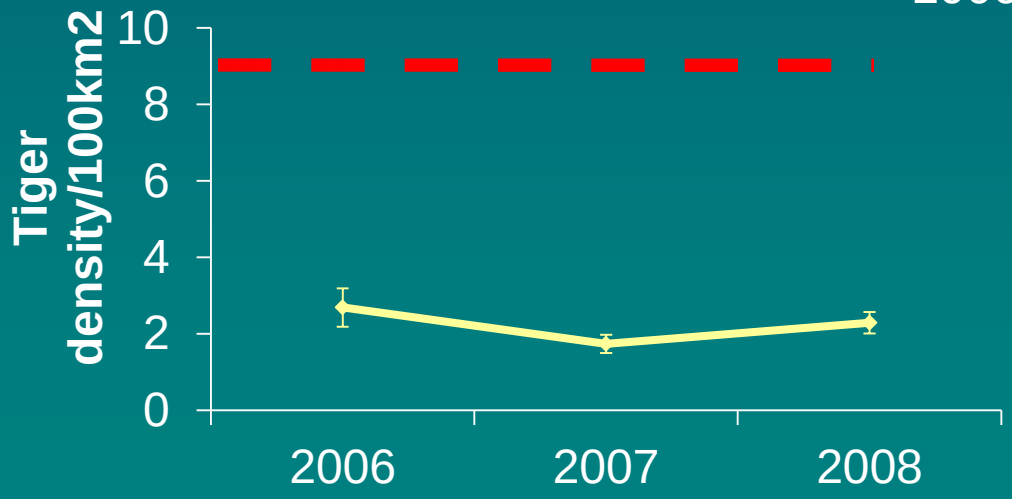
Hunting Events/
Patrol Use/
3.25km2 grid

- 0.00
- 0.01 - 0.50
- 0.51 - 1.00

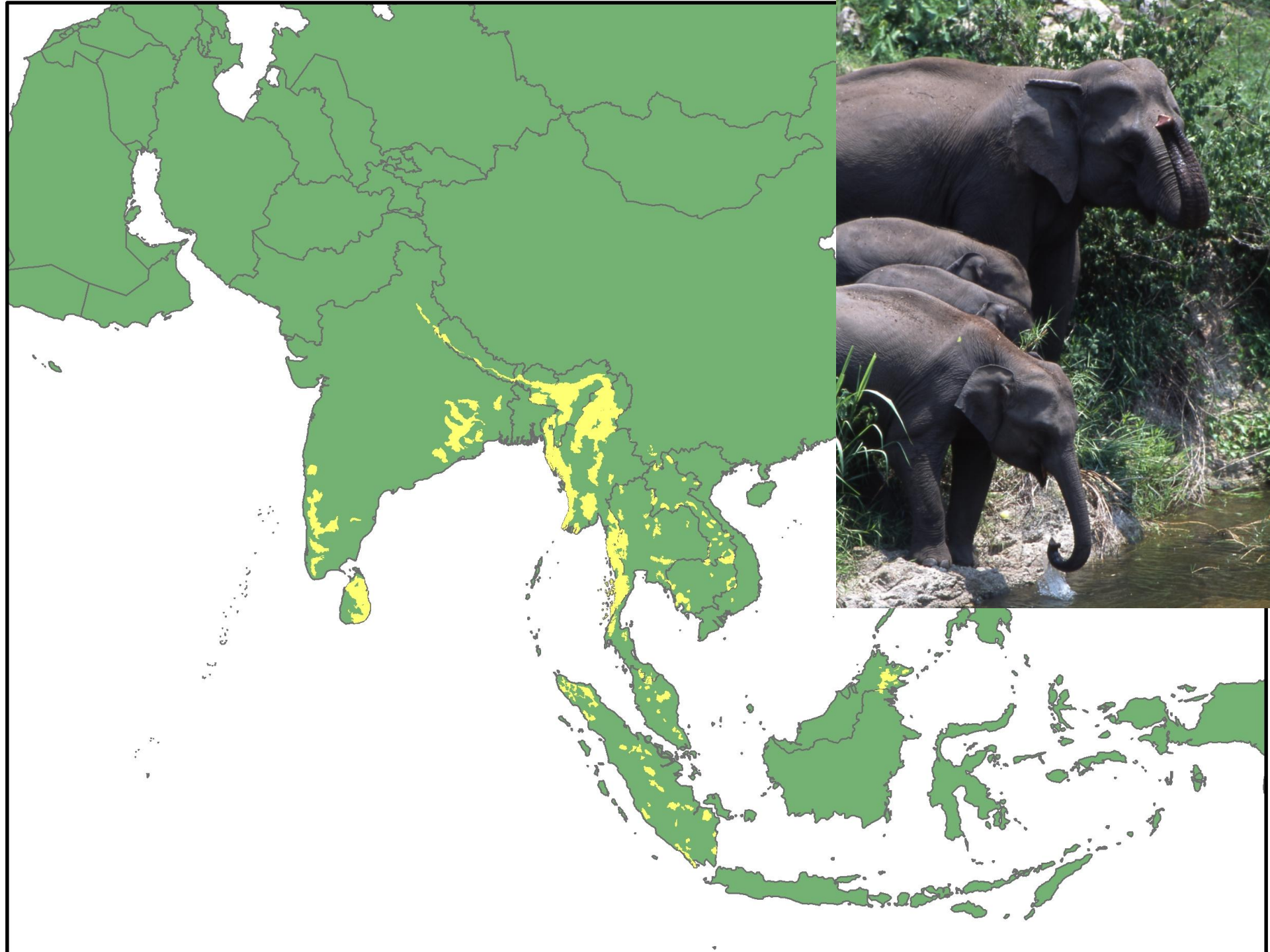
Tiger populations stabilized

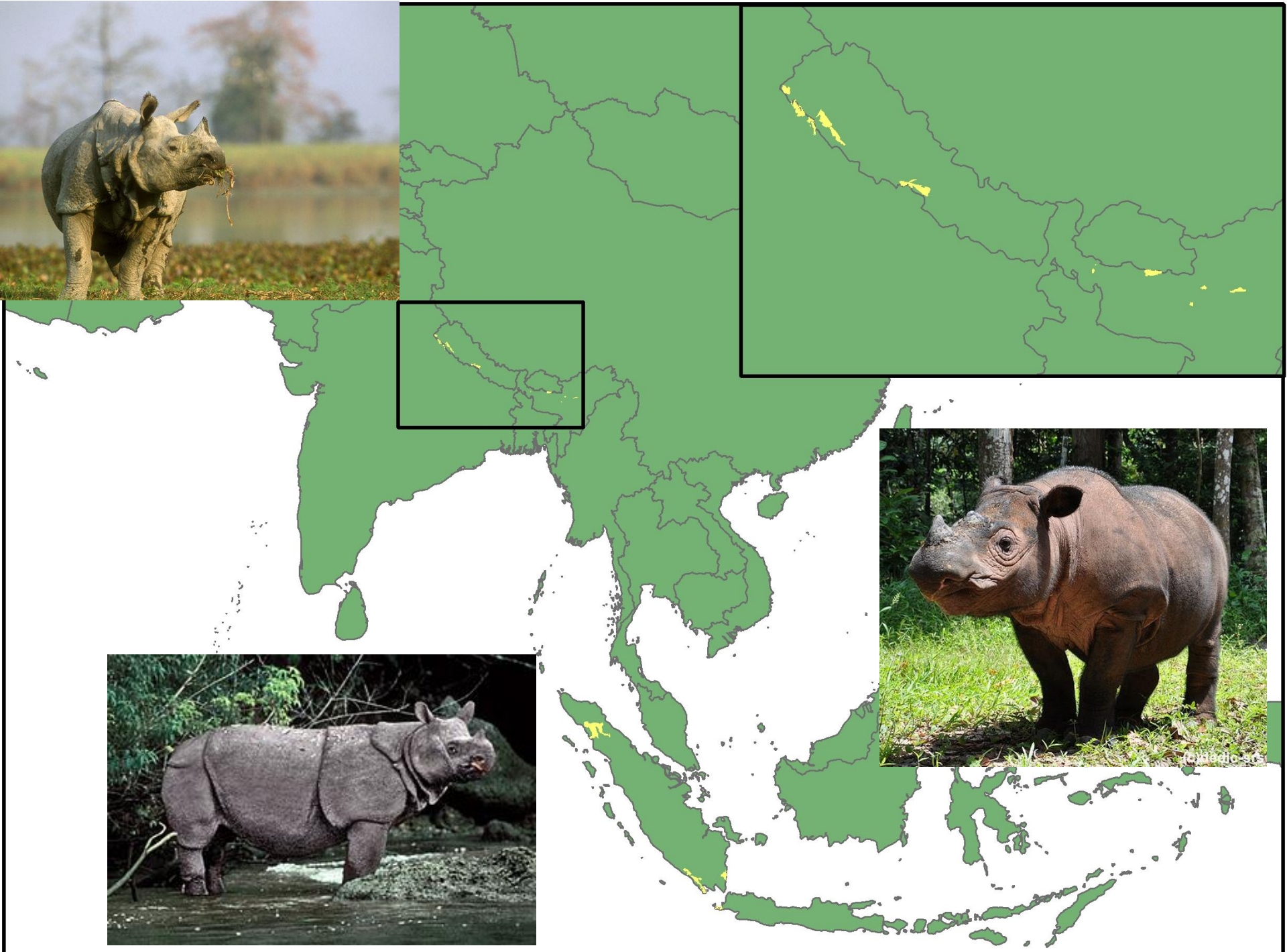
Hunting decreased





Tiger populations stabilized





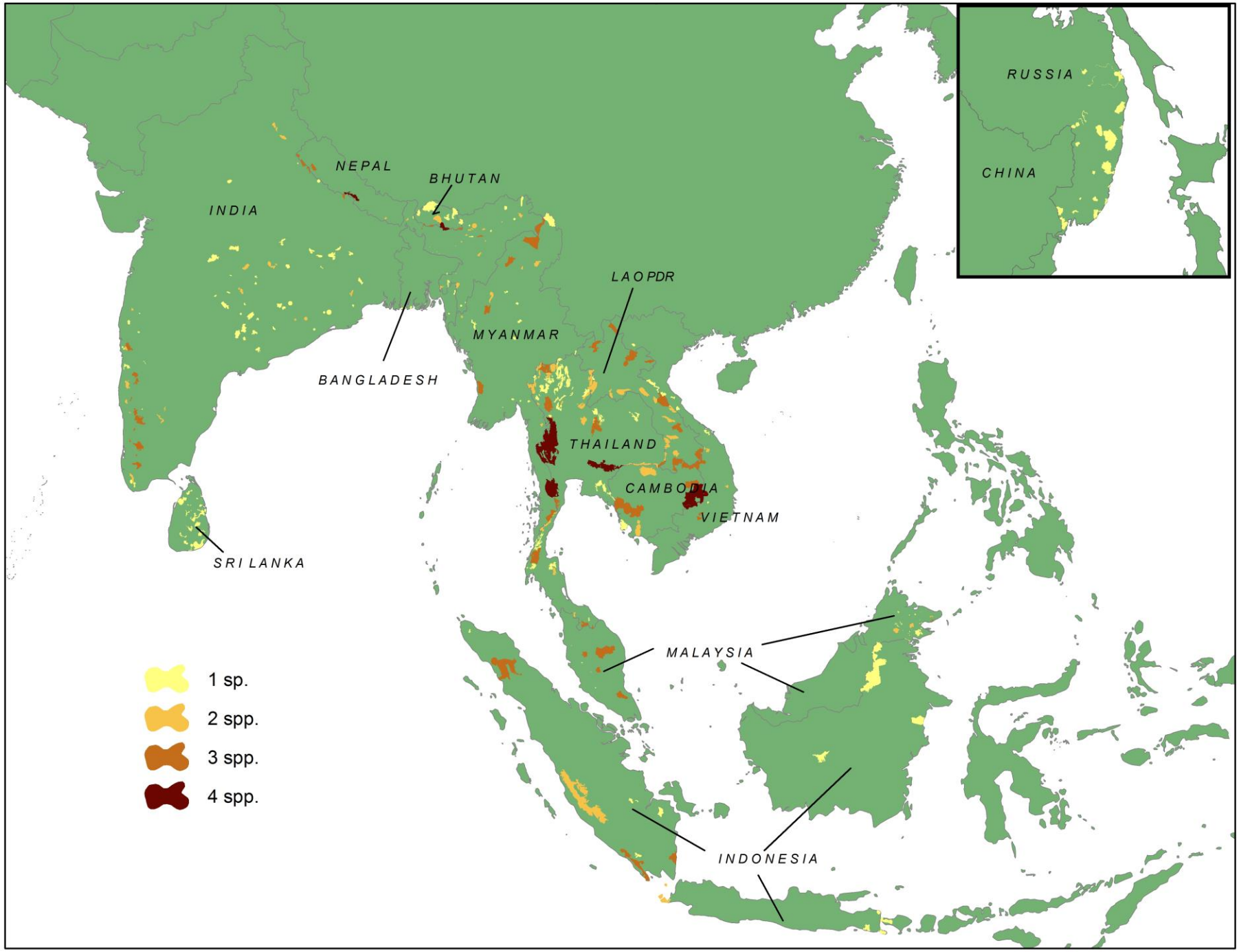
Gaur

Banteng

Proportion of range and total population in Protected Areas

Species	Range Area (sq km)	Range in PAs (sq km)	% range in PAs	% total popn in PAs
Tiger	1,111,101	219,649	20%	73-83%
Asian elephant	926,776	186,339	20%	65-85%
Gaur	778,526	147,250	19%	65-85%
Banteng	190,933	106,180	56%	85-95%
Greater one-horned rhino	5,384	5,200	97%	>98%
Sumatran rhinoceros	25,205	24,650	98%	>98%
Javan rhinoceros	996	996	100%	100%

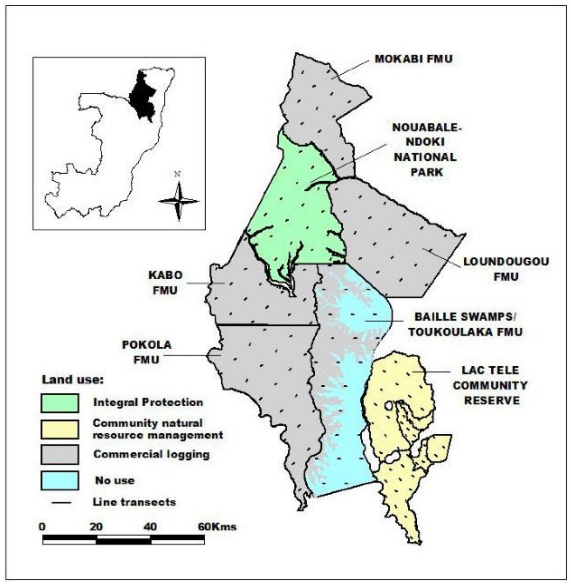
From: Walston, Stokes and Hedges (in press). The importance of Asia's protected areas for safeguarding commercially high value species. In: Protected Areas: Are they safeguarding biodiversity? Ed by Joppa, Robinson and Baillie. Cambridge University Press.

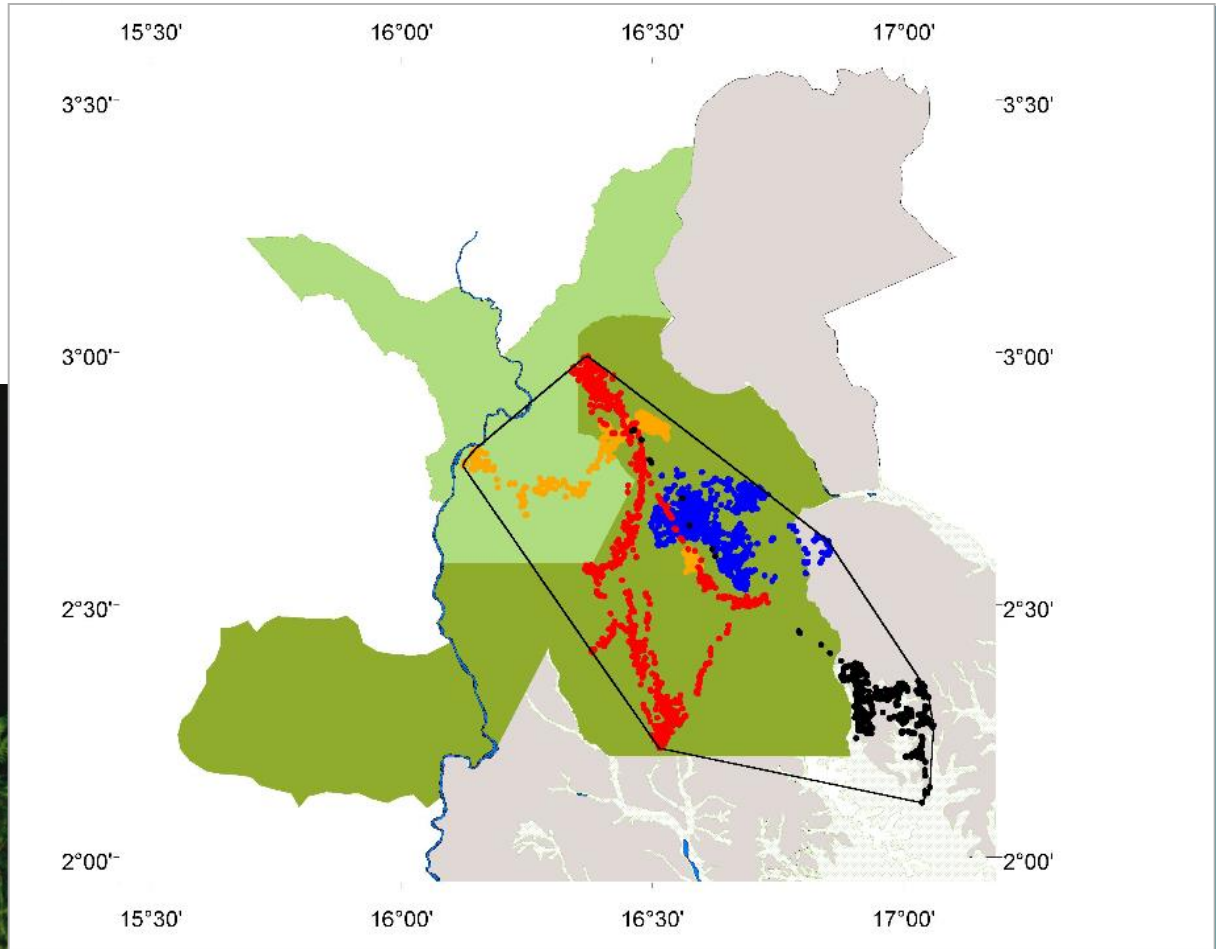

RUSSIA
CHINA
NEPAL
BHUTAN
INDIA
LAO PDR
MYANMAR
BANGLADESH
THAILAND
CAMBODIA
VIETNAM
SRI LANKA
MALAYSIA
INDONESIA
1 sp.
2 spp.
3 spp.
4 spp.

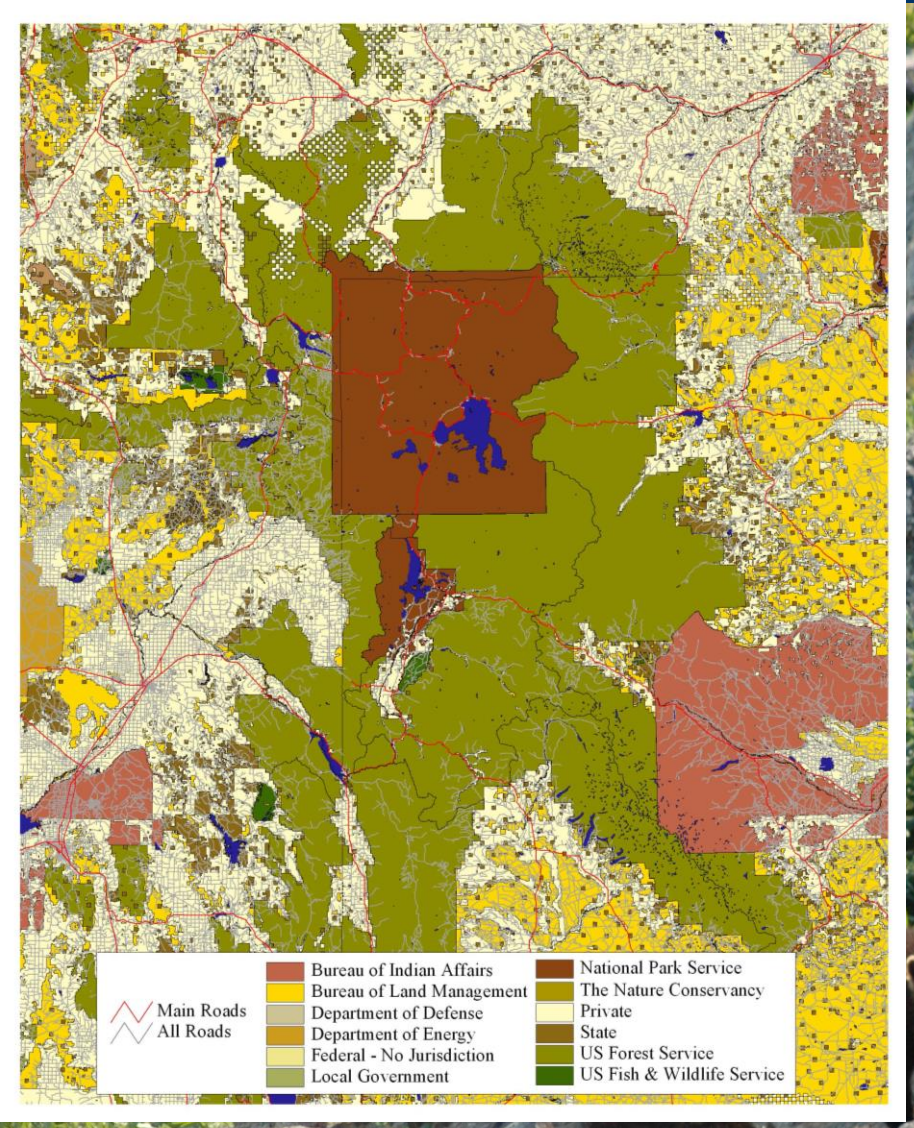
Parks and Protected Areas for Large Mammals

- are necessary
  - to provide protection to wildlife from direct threats like hunting
  - to maintain habitat, food supply, and favorable ecological conditions
- and while they are not sufficiently large for many large bodied and wide ranging species
- they provide a source population to seed animals across the wider landscape.
- Ultimately, effective conservation will depend on both operating at the scale of parks and protected areas and in addition at the landscape scale.

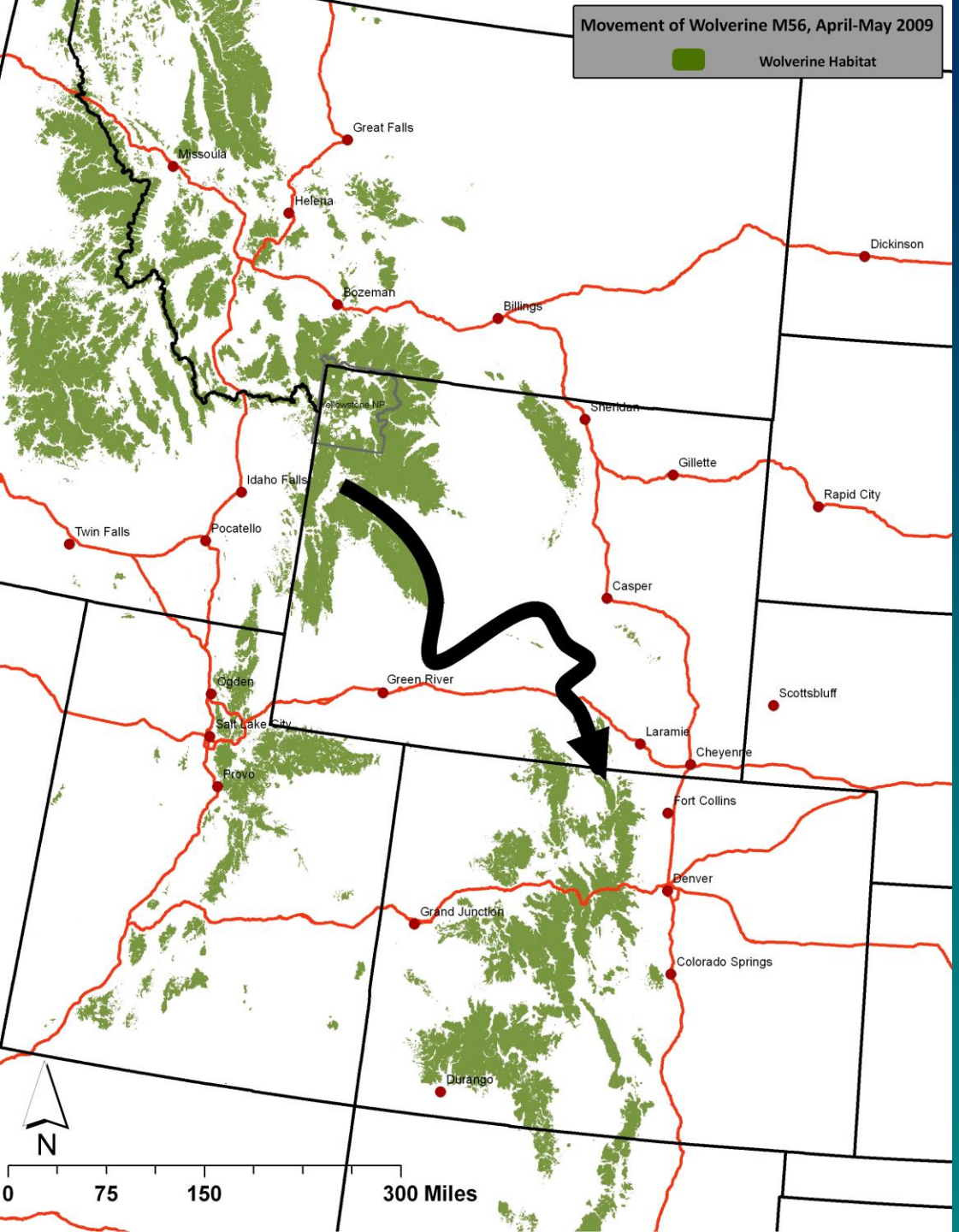
Elephant movement across the Nouabale – Likouala landscape





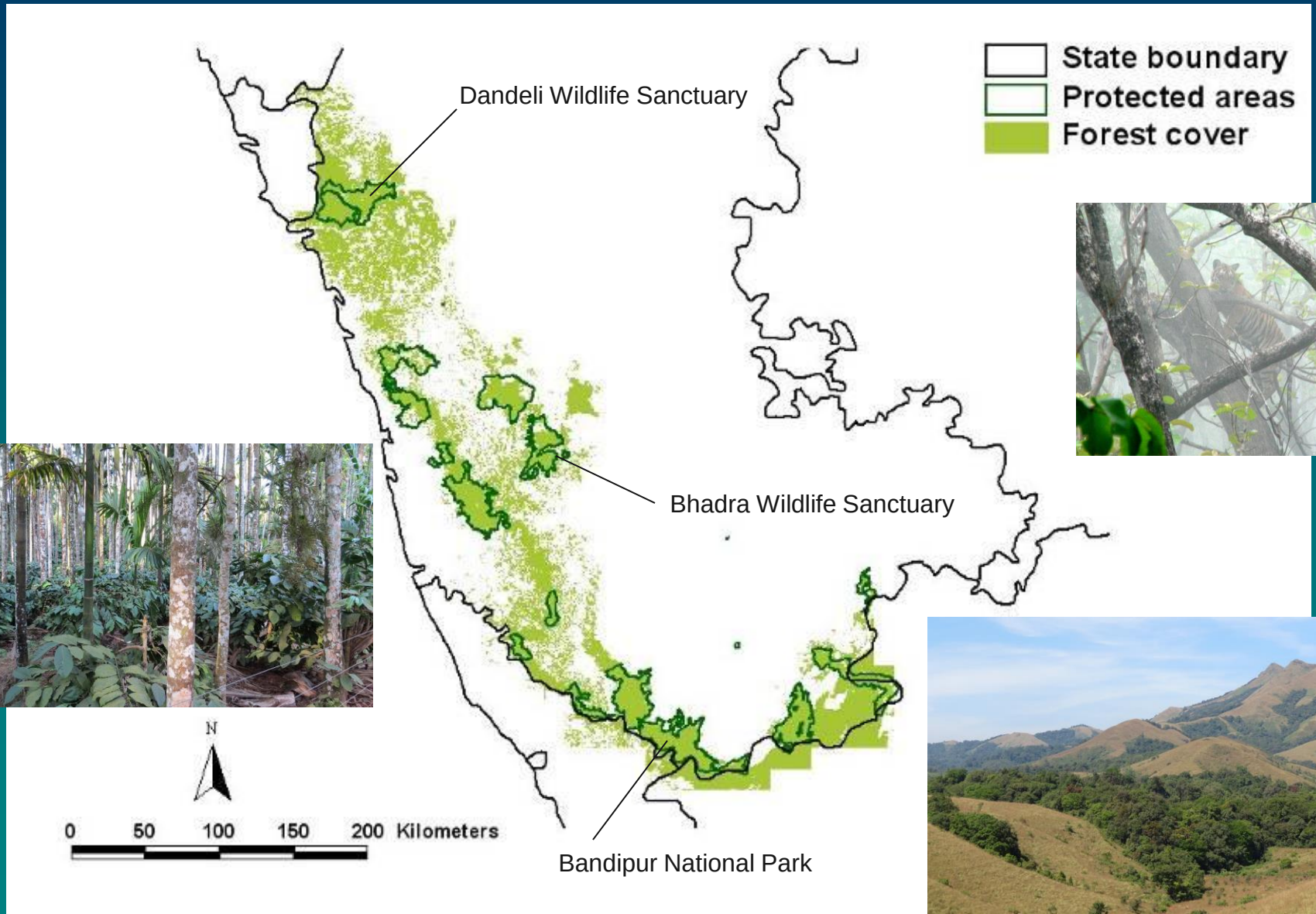


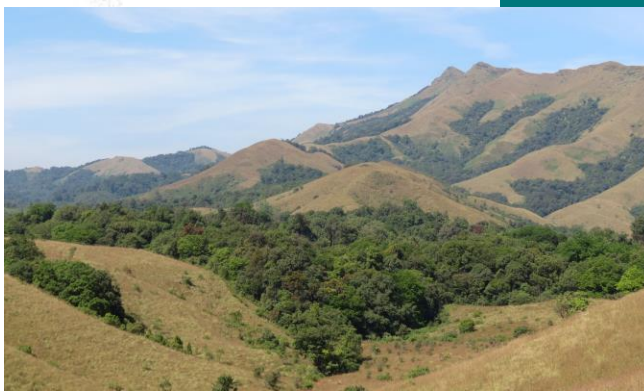
Wolverines in the Greater Yellowstone landscape

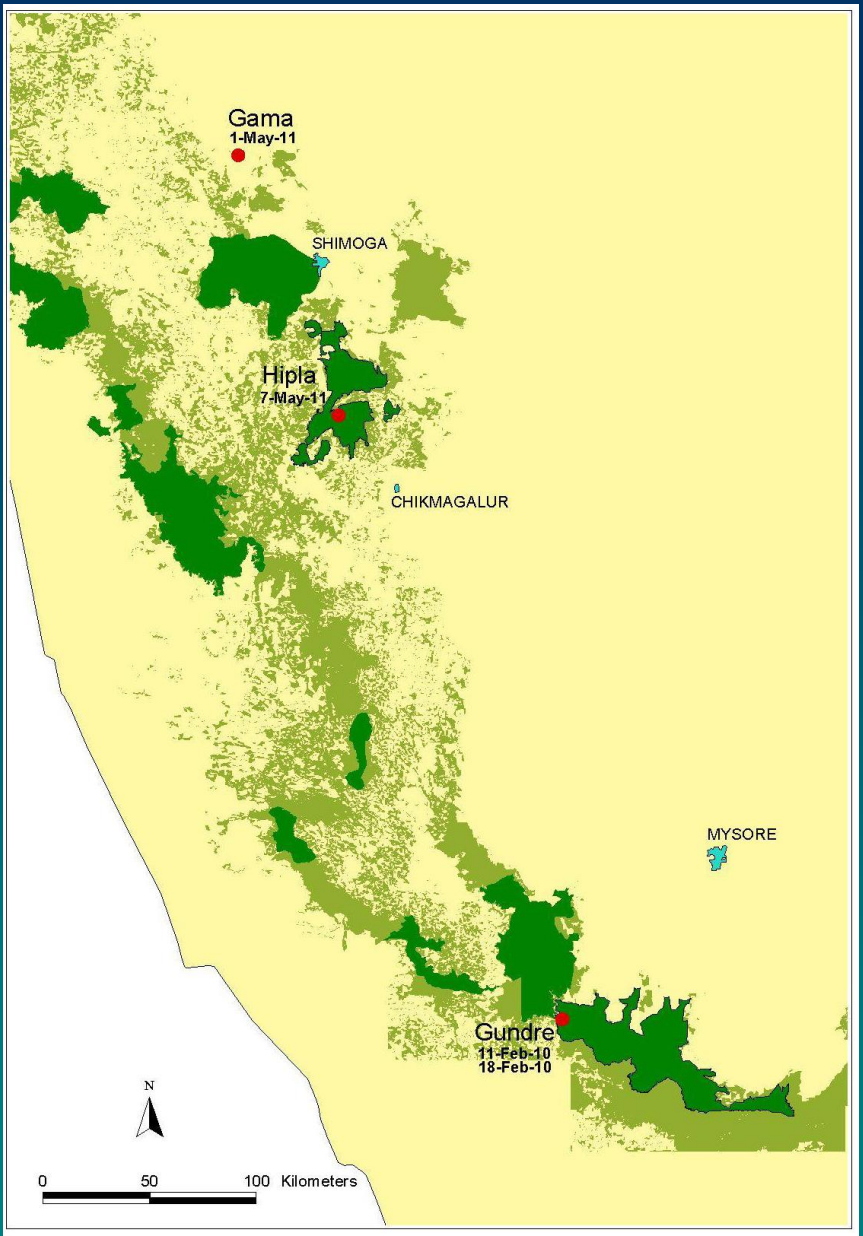


- M56 young male wolverine collared Dec 2008.
- By July 2009, had moved ~600 miles, through 6 National Forests, 3 BLM districts, 1 National Park, and 2 states. Crossed 1 Interstate, 3 US highways, 5 state highways

Tiger Movements across the Malenad-Mysore landscape, Karnataka, India







Tiger BPT-241 Bandipur Tiger Reserve February 2010

Straight line movement of 280 kms

Hipla Hadlu Bhadra Wildlife Sanctuary May 2011

In 2006, Tiger BDT-130 photo in Bhadra, then photo-captured in Dandeli in 2008 and 2009 (197 kms)

Key recommendations

- Recognizing that parks and protected areas are the last sanctuaries of many large bodied, high value species
  - Active patrolling and monitoring (e.g., SMART systems), law enforcement and informant systems will be required in many cases.
  - Often individual animals of these species will require direct protection
- Recognizing that many of these species are wide ranging
  - Maintaining a natural matrix and habitat connectivity will be essential over the long term.

WILDLIFE CONSERVATION SOCIETY

Thank You.

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