



Removing from the **RED List**:

Landscape management targets for biodiversity conservation: A method development

By: Grace Villamor, Ruth Grace Ambal, Charlotte Boyd, Thomas Brooks, Oliver Coroza, Naamal De Silva, Melizar Duya, Rodel Lasco, Goetz Schroth, and Karl Villegas



The Philippine Eagle (*Pithecophaga jefferyi*) is a critically endangered area-demanding species and listed in the IUCN Red List. They either regularly move between sites or naturally occur at low population densities during part or all of their life cycles such that it is difficult to safeguard sites of adequate size. Conservation of key biodiversity areas (KBAs) is insufficient for this threatened species, which require landscape-scale conservation measures beyond the protection of the KBAs where they occur. Under the collaborative project of Conservation International (CI) and World Agroforestry Centre (ICRAF), a method is being developed for identifying landscape level conservation targets, and tested this with the area-demanding Philippine Eagle.

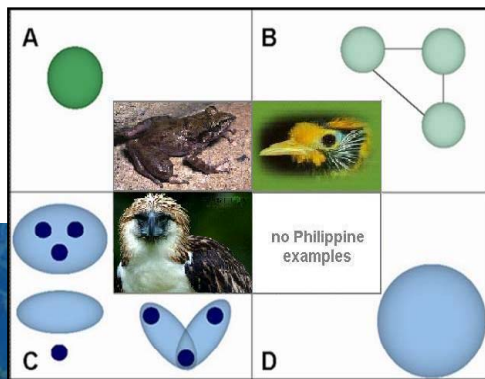
Objective

To develop methods for determining population targets and for mapping area and configuration targets for the landscape management of area-demanding threatened species beyond KBAs.

Framework of the study

(A) Species can be conserved at a single site.

(B) Species can be conserved through a network of sites.



(C) Species requires a combination of sites and conservation action at the landscape scale.

(D) Species requires conservation action at the landscape scale only

Target Configuration

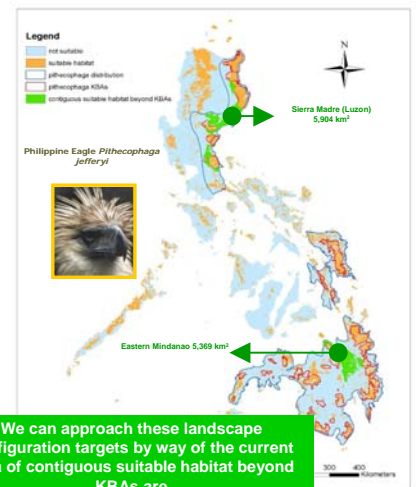
Territory size:
 1 pair (2 individuals) : 25-50 km²
 1,000 individuals : 12,500-25,000 km²
 or (500 multiplied by 25-50km²)

Q: How large are the largest known subpopulations?

A: Total area of adjacent KBAs supporting the two largest subpopulations:
Sierra Madre (Luzon) – 7,882 km²
Eastern Mindanao – 5,977 km²

Subtracting these areas from 12,500-25,000 km² gives area targets beyond KBAs:

Sierra Madre (Luzon)
 4,618 - 17,118 km²
Eastern Mindanao
 6,523 - 19,023 km²



We can approach these landscape configuration targets by way of the current area of contiguous suitable habitat beyond KBAs are
Sierra Madre (Luzon) – 5,904 km²
Eastern Mindanao – 5,369 km²

This strategy reveals that land management modifications to allow the recovery of the species populations to reach maximum population density and occupancy throughout suitable habitats in Eastern Mindanao (11,346 km²) or the Sierra Madre (13,786 km²) would be just sufficient for it to be downlisted from the IUCN Red List.

Technique

The technique was based on the IUCN Red List and on GIS analysis of environmental parameters to derive targets for landscape conservation, focusing on spatially explicit population area and connectivity requirements. We then test these techniques using data from the Philippines to derive landscape conservation targets for an area-demanding species (*P. jefferyi*).



Future directions

With these additionally identified sites, it is a challenge to design an appropriate agroforestry system that will complement to the habitat requirements of this threatened species. Also, human population densities are high and the livelihoods of the poor are highly dependent on natural resources.

This research seeks opportunities to integrate conservation objectives with development and land use strategies that meet the basic needs of human communities.

Overlaying land use maps can assess the potential of agriculture and agroforestry to contribute towards meeting these targets.

