❖ Standard 11: Design ecoregional portfolios/biodiversity visions to best meet goals for all conservation targets/ biodiversity elements, using the principles of efficiency, representation, irreplaceability, and functionality.

Case Study: **Establishing Connectivity in the Southwest Amazon**

From: WWF (2002) Ecoregion Conservation: Securing Living Landscapes through science-based planning and action. A users guide for Ecoregion Conservation through examples from the field. Washington, DC.

Purpose and region of analysis

One of the goals for the selection of priority areas was to propose a landscape for the Southwest Amazon that would ensure that ecological continuity (connectivity) was maintained throughout the ecoregion. The size criterion applied to the selection of priority areas was intended to ensure that core area-blocks were large enough to support sub-populations of area-sensitive species. The goal of the connectivity analysis was to ensure that there would be sufficient gene flow among these sub-populations to maintain functional meta-populations.

Criteria/Methods

In order to help determine where connectivity zones were most feasible, a model was created to analyze the ecoregion with respect to the potential prospects for, or barriers to, connectivity.

The parameters used for the connectivity model were:

- distance between protected areas,
- presence of anthropological barriers such as roads and towns, and
- habitat alteration.

The model assessed the "cost of migration" from one existing protected or priority area to another. To create the model, grid layers were created and valuated for each of the factors, natural and human derived, that influence the connectivity potential among priority areas.

Parameters used in the connectivity model		
Parameter	**Value (explanation)**	**Factor**
Roads	Negative (act as barrier)	2
Population centers	Negative (act as barrier, increased hunting)	2

Deforestation	Negative (habitat discontinuity)	3
Planned Development Areas	Negative (human presence and habitat discontinuity)	1
Type II*	Positive (managed resource use, potential for conservation initiatives)	1
Type III	Positive (managed resource use, potential for conservation initiatives)	1

*In Peru, only Nahua Kagapori is considered to be positive. Other Peruvian Indigenous Territories are considered negative for purposes of connectivity.

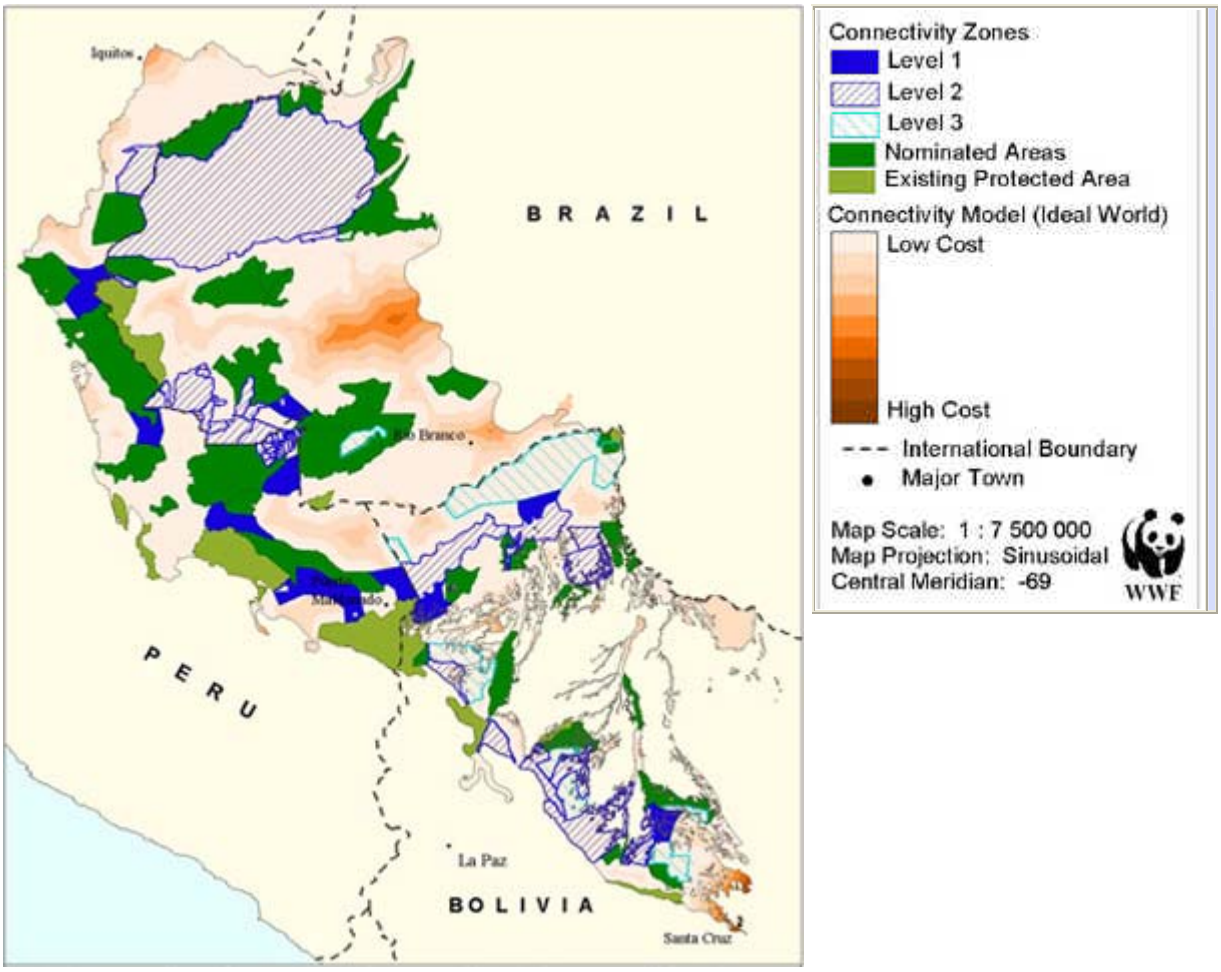
Negative values were assigned to landscape features- such as roads, population centers, and deforested areas- that interrupt connectivity and make migration difficult. Positive values were assigned to features such as protected areas that help to maintain continuity (please see table above). Type II (sustainable non-timber use) and Type III (sustainable timber use) areas were included as positive areas for habitat connectivity on the assumption that, with proper management, these areas have the potential to provide intact forest for migration and movement of populations. Additionally, while the model only considers associations and movements within the ecoregion, it is unrealistic to treat the ecoregion as an island. Therefore, protected areas of IUCN Level I and Level II types located outside of the ecoregional boundaries, but close enough to influence species migrations and habitat intactness, were also considered when analyzing the placement and ecological validity of the priority areas located on the margins of the ecoregion.

Products/Outcomes

The map below (Figure 1) shows the connectivity zones that were proposed as a result of the connectivity analysis. Three types of corridors were identified:

- Level 1 - areas with no current designation. The goal would be to establish these as non-timber extractive reserves.
- Level 2 - areas that are currently indigenous areas. These corridors would need to be established through zoning.
- Level 3 - existing extractive reserves to be registered as certified extractive reserves that had harvest rates that did not disrupt corridor functionality.

Zones with extractive reserve or indigenous territory status (Levels 2 and 3) were considered of highest potential for maintaining ecological connectivity. A cost surface was also created from the model calculating the ecological "cost" to wildlife of moving through each point in the ecoregion.. The Level 1 connectivity zones were identified using this cost surface model.


Iquitos
BRAZIL
Rio Branco
PERU
La Paz
BOLIVIA
Santa Cruz
Connectivity Zones
Level 1
Level 2
Level 3
Nominated Areas
Existing Protected Area
Connectivity Model (Ideal World)
Low Cost
High Cost
International Boundary
Major Town
Map Scale: 1 : 7 500 000
Map Projection: Sinusoidal
Central Meridian: -69
WWF