ECOREGIONAL ASSESSMENT EQUATORIAL PACIFIC: TERRESTRIAL COMPONENT

Tirira, D., Almeida, P., Padilla, D., Cortés, K., Díaz, M., Álvarez, U., Pinos, G., Boada, C., Soria, P. 2004. Evaluación Ecorregional Pacífico Ecuatorial: Componente Terrestre. Alianza Jatun Sacha, CDC – Ecuador, CDC – UNALM, The Nature Conservancy. Quito – Ecuador.

EXECUTIVE SUMMARY

The main objective of the Terrestrial component of this Ecoregional Assessment is to identify priority conservation sites within the terrestrial ecosystems in the Equatorial Pacific region. With this purpose, a portfolio of sites was identified, including information available for decision makers and stake-holders for natural resources, such as biodiversity, soils, vegetation cover and others. The methodology, developed by The Nature Conservancy and successfully applied in other regions, was used as the main basis for the development of the study. Ecoregional assessments are the first step in The Nature Conservancy`s framework for mission success – Conservation by Design – in tat they set the biodiversity priorities for which strategies are developed, action is taken and success is measured in every ecoregion in the world where the Conservancy and it´s partners work.

The executing organizations of the study were Jatun-Sacha / CDC-Ecuador Alliance with strong support of the Peru – Conservation Data Center (CDC) / La Molina University (UNALM). Activities were coordinated with the main Governmental Organizations responsible for the terrestrial resources. Also, the main museums, herbariums, universities and NGOs dedicated to these topics provided support to the project.

Results attained by these organizations propose the protection of about 1’500.000 hectares within the ecoregion, on the basis of scientific studies in ecological and biological fields as well as on the conservation viability of the areas.

The Equatorial Pacific terrestrial ecosystems present an outstanding biological and ecological importance at a global level. Their main ecoregions face one of the highest human impacts registered in Latin America; the ecoregions are: the Ecuadorian Dry Forest, Guayaquil Flooded Grasslands, both endemic to coastal Ecuador, and the Tumbes-Piura Dry Forest in northern Peru and southern Ecuador. These ecoregions cover 13 million hectares. Impacts registered in

these ecoregions are only similar to the ones of Madagascar Dry Forests and other types of dry vegetation in central Brazil.

These ecoregions are unique to South America and if the degradation tendency continues, extinction processes can be faced, starting by the endemic species. These species are not able to seek refuge in other ecoregions surrounding the Equatorial Pacific, such as the Choco humid forest (north), the Andes (east) and the Sechura desert in the south. The Equatorial Pacific ecoregions are in fact isolated from other similar ecoregions.

Another important consideration is the Equatorial Pacific small size compared to other regions in South America. The region includes only the central and southern coastal Ecuador and northern coast of Peru. This makes the Equatorial Pacific region more vulnerable compared to other areas in the continent.

Another important consideration is the size of Equatorial the Pacific region. It includes only the central and southern coastal of Ecuador and northern coast of Peru, and it is equivalent to one reduced part of the South American continent, which puts it in disadvantage with respect to other zones of Latin America, since it can disappear more soon.

In addition, their dry and semi-humid ecosystems are much more vulnerable to the human transformation since its capacity of natural recovery is definitively more loss than the humid forests. In effect, the months of the dry period, June to December in the central zone, limit the natural recovery of the vegetation; the South zone supports prolonged periods of drought.

With the main purpose of providing the necessary elements for the Equatorial Pacific conservation, The Nature Conservancy and local partners developed this study, with the participation of national organizations, community-based organizations, and different social, economic and scientific sectors from Ecuador and Peru.

The Ecoregional Evaluation Methodology was applied, including 4 main steps:

(1) Selection of conservation objects. These are species, group of interacting species or ecological systems presenting an outstanding importance for the ecoregion. Selection is based on the main threats, rarity, endemism and/or the human importance of the objects (useful species, flag-species, others). Geographical distribution of the objects is represented on maps, using Geographic Information Systems.

(2) Viability evaluation. This step evaluates the object's capacity of maintaining their populations or their ecological functionality over the time. The main species or ecosystems' threats are analyzed ("condition" criteria), as well as the population density and/or the area occupied by the conservation objects ("size" criteria). Also the "landscape context" of the objects is evaluated, which is a criteria integrating several aspects, such as "connectivity" within populations and the "integrity" of the main surrounding ecological processes. Among other techniques, advanced Geographic Information Systems and mathematical applications are used for the viability evaluation.

(3) Definition of conservation goals. This part of the study defines what are the minimal proportions or size aspects of a population or ecological system in order to survive in the future. By this means are identified the minimal areas to be protected for a population or an ecosystem to be viable.

(4) Portfolio design. The main purpose of the portfolio of sites is to ensure that most or all viable conservation objects are properly represented within one or more sites of the network. This portfolio is scientifically supported by the previous steps and results, and is also represented in maps for an easy interpretation by conservation decision makers.

Among other important results, the terrestrial team identified 8 high priority sites for biodiversity conservation, adding an area of 1'497,556 hectares, representing 11 % of the whole region. Within these sites, 39 of the 40 Equatorial Pacific ecosystems are represented. These ecological systems were then analyzed in terms of their real conservation opportunities, their viability and functionality for the ecological future of the region.

These sites include from humid and semi-humid ecosystems in the north (close to the Choco ecoregion in Ecuador), to the more arid systems in the south, closer to the Great Sechura desert in coastal Peru.

Within this (vast) variety of ecological systems some of much importance for the region are included, like are the humid forests that are in the high parts of the mountain range of Chongon-Colonche, coastal mountain range of Ecuador. The crests of the mountain range catch the humidity that is condensed to those heights (since 450 msnm.) turning them in zones of humid vegetation, isolated totally of the bordering zones of predominantly dry vegetation.

These higher areas are the main water providers to all of the ecological systems connected to the coastal range and bellow. If the

mist forests disappear, agriculture and cattle ranching over a vast area of coastal Ecuador could face severe droughts for extended periods.

Within the selected ecosystems represented on the portfolio are the mangroves, particularly threatened in the Equatorial Pacific region. This is due to the shrimp industry that has transformed large mangrove areas into shrimp pools and farms. In some places, like the Chone River delta in Ecuador, mangroves have lost up to 90 % of their original area. Mangroves at the Guayas River delta and the Jambelí Archipelago in southern Ecuador are also at risk.

This ecoregional evaluation also shows that the Protected Areas System in coastal Ecuador and Peru are largely insufficient to protect several of the most important ecosystems of the Equatorial Pacific region.

Finally, the evaluation of the Equatorial Pacific terrestrial ecosystems indicates several actions that need to be taken, both at national and bi-national levels, for natural resources management in the two countries. It provides several suggestions, such as continue these kinds of ecoregional evaluations in order to promote conservation management alternatives at local and national levels. Also recommends that bi-national teams of planners, biologists, authorities and other stake-holders work together to save key natural resources for the region’s economic development, such as water, vegetation cover and soils.