Conservation of Biodiversity in Peruvian Amazonia through integrated action

Conservación de Biodiversidad en la Amazonía peruana a través de acciones integradas

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Abstract
The Project Biological Diversity of Peruvian Amazonia is a three-year cooperation project between Peru and Finland. Its overall objective is conservation and sustainable use of biodiversity in Peruvian Amazonia through development of methodologies for sustainable management.

The Project develops tools for management of biodiversity through development of regional biodiversity strategy and action plans and establishment of a biodiversity information system in order to make the information accessible to the scientific community, decision-makers and other information users and producers.

Also, the Project focuses on getting information on and understanding biodiversity patterns in the lowland forest of Peruvian Amazonia through development of methods to assess biodiversity using remote sensing (satellite images) and ground-truthing by using plant and animal groups as indicators of different forest types.

The Project applies the above-mentioned methods locally in the vicinity of city of Iquitos, especially in the context of in situ and ex situ conservation in order to study the possibilities to integrate in situ and ex situ conservation efforts e.g. through joint environmental education and sustainable tourism activities.

Resumen
El Proyecto Diversidad Biológica de la Amazonía Peruana es un proyecto de cooperación técnica entre los gobiernos del Perú y de Finlandia. El objetivo general del Proyecto es la conservación y uso sostenible de biodiversidad en la Amazonía peruana a través del desarrollo de metodologías para manejo sostenible.

El Proyecto desarrolla herramientas para la gestión de diversidad biológica en la Amazonía peruana a través de la finalización de la estrategia regional y los planes de acción de diversidad biológica de la Amazonía peruana y el establecimiento de un sistema de información sobre la biodiversidad amazónica para hacer accesible la información a la comunidad científica, tomadores de decisiones y otros usuarios y generadores de información.

Asimismo, el Proyecto levanta información para entender los patrones de biodiversidad en la selva baja de la Amazonía peruana a través de desarrollo de metodologías de evaluación de biodiversidad utilizando métodos de teledetección (imágenes de satélite) y trabajos de campo, utilizando grupos de indicadores de plantas y animales para identificar diferentes tipos de bosques.

El Proyecto aplica los métodos de gestión y levantamiento de información localmente, en los alrededores de la ciudad de Iquitos, en el contexto de la conservación in situ y ex situ para estudiar las posibilidades de integrar los esfuerzos de conservación in situ y ex situ, por ejemplo a través de actividades compartidas de educación ambiental y turismo sostenible.

Estas acciones diferentes están implementadas para integrar en un solo proyecto metodologías diferentes de conservación y uso sostenible de biodiversidad para ser utilizadas como lineamientos de desarrollo continuo de metodologías de manejo de diversidad biológica en la Amazonía peruana.

Introduction

After the signing of the Convention on Biological Diversity in the United Nations Congress on Environment and Development in Rio de Janeiro in 1992, a number of development projects addressing the theme of biodiversity has considerably increased. Many of these projects have been channeled through the Global Environment Facility (GEF) or other international agencies. Also, many bilateral projects have seen light. In the aftermath of the signing of the Convention the Peruvian Government approached the Finnish Government in 1995 with a proposal of a technical assistance project to assess the biological diversity of Peruvian Amazonia and to assist Peru in developing a national strategy for conservation and sustainable use of biodiversity in that region - a requirement of the Convention. This request was a result of a long-term research engagement between Peru and Finland through institutional cooperation between Peruvian institutions and universities and the University of Turku in Finland. This cooperation had already produced valuable new insights to assessment of biodiversity in Peruvian Amazonia (Kalliola et al. 1993, Tuomisto et al. 1995, Ruokolainen et al. 1997, Kalliola & Flores 1998).

The Peruvian proposal resulted in a three-year cooperation project (1999-2002) between the governments of Peru and Finland called the Biological Diversity of Peruvian Amazonia Project in order to address the requirements of the Parties to the Convention on Biological Diversity.

Current situation of Biodiversity in Peruvian Amazonia

The Project was designed to meet the needs of the environment sector in the conservation and sustainable use of biodiversity in the Amazonian region of Peru. After a careful analysis of the current situation related to biodiversity it became clear that Peru urgently needed to develop a National Strategy on Biological Diversity in order to become eligible for the financing mechanisms of the Convention and in order to make a coherent plan for conservation and sustainable use of biodiversity especially in the diverse Amazonian region where lack of tools for management of region's biodiversity threatens the unique ecosystems present.

The biologically most diverse region, Peruvian Amazonia, has not been subject to a rigorous study procedure in order to have a clear understanding of the biodiversity patterns in the region.

Biodiversity of Peruvian Amazonia is still largely unknown due to the shortage of research and collections. Current conservation activities as well as activities aiming at sustainable use of forest and other biodiversity resources are seriously hampered by the lack of adequate modern remote sensing treatment, ground-truthed by a field documentation program. Recent development in this field has demonstrated that Peruvian Amazonia is a forest mosaic with more than one hundred different forest types, of which every type would need a specific management plan(Tuomisto et al. 1995). Considerably more work is needed to get an adequate picture of the forest types in the region.

Many different institutions, among them universities and research institutions, non-governmental and governmental organizations, store and manage data on Peruvian Amazonia but this information is not available for users. Lack of inter-institutional coordination has so far prevented formation of a truly functional national biodiversity information system and led to unnecessary doubling of efforts and waste of scarce resources. For the existing information to be readily available for the decision-makers and to other users Peru needs an information system on biological diversity that is accessible by many.

In the vicinity of the city of Iquitos there is a newly established protected area, Allpahuayo-Mishana Reserved Zone, which is in need of financial and technical assistance in developing a management plan for the Reserve and accompanying studies to understand the biological diversity of the area. The Reserve is considered to be one of the most important sites for biodiversity conservation in Peruvian Amazonia. This is because of a very diverse plant and animal life and the mosaic nature of the forest.

Ex situ conservation facilities form an important part of biodiversity. There are only a few ex situ conservation facilities in Peru. These facilities become important when animal and plant species are in danger of extinction, the protected areas are threatened and the areas outside protected areas are not protected. Botanical gardens function as keepers of biodiversity and they are urgently needed in Peru to protect the biological diversity of the country. The Botanical Garden-Arboretum El Huayo in the vicinity of Iquitos needs strengthening in order to harbor long-term capacity in research and conservation of biodiversity resources of the region and in order to function as a depository and research facility for the genetic and forest biodiversity of Peruvian Amazonian region.

Project overall objetive and intervention components

The overall objective of the Biological Diversity of Peruvian Amazonia Project is conservation and sustainable use of biological diversity in Peruvian Amazonia through development of methodologies for sustainable management. The Peruvian counterpart responsible for the implementation of the Project is the Peruvian Amazonian Research Institute (Instituto de Investigaciones de la Amazonía Peruana), its headquarters situated in the city of Iquitos in Peruvian Amazonia. The University of Turku and the Finnish environmental consulting company, Biota BD Ltd., form a consortium for the Project implementation as the Finnish counterparts.

The Project is implemented through three intervention components which are linked together under one project. The components are presented below.

Biodiversity regional strategy and action plans and biodiversity information system

The first component develops tools for the management of biological diversity in Peruvian Amazonia bringing the biodiversity information in the reach of the policy makers and giving guidelines to the decision-makers in conservation and sustainable use of the regional

biodiversity. The aim is to finalize the regional biodiversity strategy of Peruvian Amazonia as a part of the Peruvian national process to develop a national biodiversity strategy, as well as to develop action plans for conservation and sustainable use of biodiversity in Peruvian Amazonia. Also, the project helps to design and establish a biodiversity information system of Peruvian Amazonia in order to disseminate information on biodiversity to the scientific community, decision-makers and other information users and producers. Through these actions requirements of the Convention on Biological Diversity, of which Peru and Finland are Parties, can be partly fulfilled.

Regional assessment of biological diversity of Amazonian lowland rain forest

The second component focuses on getting information and understanding biodiversity patterns in the lowland forest of Peruvian Amazonia. As it is recently been confirmed the lowland forest of Peruvian Amazonia is a mosaic of different forest types (Tuomisto et al. 1995, Kalliola & Flores 1998, Vormisto et al. 2000) and an effort is made through the Project to understand the patterns that this heterogeneity takes in the Peruvian Amazonia. The project develops methods to assess Amazonian biodiversity through methods of remote sensing and ground-truthing. These methods can further be used in land use planning and basic biological research. A first mosaic of satellite images of lowland forest of Peruvian Amazonia is produced along with a vegetation map based on the satellite image mosaic by identifying different forest types by using plant and animal groups as indicators of forest types. Recent studies show that some plant groups can be used as indicators of different vegetation types in Peruvian Amazonia (Ruokolainen et al. 1997, Vormisto et al. 2000); these groups are used to study different vegetation types shown on satellite images. Three groups of plants (ferns, palms and plants of the family Melastomataceae) and three groups of animals (birds, three families of frogs and ants) are used to identify different forest types. The use of animals is part of research to investigate if these groups can be used as indicators. If plant and animal groups can be used as indicators it would make it easier to form a picture of the biodiversity patterns as assessment becomes quicker and cheaper. The region is so diverse that studying everything is almost impossible, especially when faced by ever increasing and accelerating threats to biodiversity.

In situ and ex situ conservation of biological diversity

The third component applies the methods developed in the first two components locally in the vicinity of Iquitos, especially in the context of in situ and ex situ conservation. The Project supports the Allpahuayo-Mishana Reserved Zone in helping the process of developing a management plan and in completing baseline studies of the area. The El Huayo Arboretum and Botanical Garden will be scientifically oriented for ex situ conservation of local economically important and endangered plants. Also, one important aim is to study the possibilities to integrate in situ and ex situ conservation efforts in the Province of Loreto and especially in Allpahuayo-Mishana and El Huayo e.g. through joint environmental education and sustainable tourism activities.

Conclusions

In the Biological Diversity of Peruvian Amazonia Project these different actions are implemented in order to integrate in one project different methods of conservation and sustainable use of biodiversity to be used as guidelines for further development of sustainable management methods of biological diversity in Peruvian Amazonia.

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