

The Rio Abiseo National Park, Peru

Resumen

El artículo presenta una visión de uno de los parques de montaña más espectaculares del Perú, en el Río Abiseo. Cuna de culturas preincaicas y sitio de ciudadelas arqueológicas todavía cubiertas por selvas de neblina, el Parque Nacional Río Abiseo ha sido declarado Patrimonio Mundial de la Humanidad. Sin embargo, los riesgos de un mal manejo en las zonas de amortiguamiento y la construcción de caminos se presenta como una amenaza real a la integridad del Parque. Un llamado especial para fomentar la investigación científica, especialmente en lo que se refiere a la fisiología del paisaje se presenta junto con la necesidad de mayores estudios de flora y fauna.

Introduction

The territory of Peru is one of the most diversified within the Neotropical realm. It encompasses littoral and coastal deserts, punas (barren, windswept high-elevation tablelands and basins), highland plateaus, tall mountains, ice-capped volcanoes, and tropical rain forests that extend from the Andean piedmont of the eastern flanks down towards the Amazonian flood plains. In this vast and complex scenery it is easy to find a variety of climatic and physiographic conditions, soils, flora and fauna associations that define montane habitats, as well as numerous mountain ecosystem types that create dynamic landscapes within the ecoregions that follow the longitudinal axis of the Andean cordillera.

According to latitude, Peru is a tropical country; hence, the Andes determine the country's special bioclimatic structure, which is marked by strong contrasts. It is the complexity and altitudinal variation of the relief which allows the high biodiversity so typical of Tropandean landscapes. Biodiversity still thrives despite the ancient influence of humans in montane environments, even after the depredations of recent years. If this trend persists, its consequences will affect the whole of humankind at a

global scale.

The Peruvian Andes are not only a melting pot of biological richness and other natural resources, but are also rich from the standpoint of human history. Here, one of the most important centers of civilization developed, and greatly contributed to the universal quest for technological advancement. It suffices to mention the Inca's architecture, with spectacular designs of irrigation channels, fortresses, and temples that amazed the Spaniards upon their arrival. Today, some ruins

have been discovered and reconstructed as museums (e.g., Macchu Picchu), but there are many ruins that underlie the jungle, hidden by the exuberant growth of the tropical montane forest.

In a geographical and sociohistorical context, we present some background on the Río Abiseo National Park (RANP), one of the most impressive mountain protected areas of Peru, located in the eastern flanks of the Andes, on very steep terrain of the San Martín Department.

Historical Outline of the Park

In the 1960s, after archaeological work in the area provided precise evidence of ancient artifacts and ruins still in place beneath the jungle (in particular of the complexes at the headwaters of the Abiseo River), interest in the area grew rapidly, motivating more scientific expeditions as well as explorations of a different nature: speculative treasure hunting.

Between 1979 and 1981, preliminary studies about the area's fauna and flora were conducted in order to establish a national park, with the name "El Gran Pajatén," covering an area of approximately 574,800 hectares. One year later, the National Agrarian University of La Molina presented another park proposal, this one leaving out the Pajatén river basin, because that area was to be included in a future road construction project to link several towns of the east with the cities of Trujillo and Huamacucho. The rural development priorities of the central govern-

ment determined that the road proposal was approved. So a Supreme Decree of August 11, 1983, created a new, smaller protected area in lieu of the previous Pajatén park. This was Río Abiseo National Park, which covers over 274,500 hectares in the department of San Martín.

Highlights of the Park

The Abiseo River basin has enough natural features to qualify it as one of the more interesting units of the Peruvian Park System from the scientific point of view. It is probably one of the best examples of the cloud forest ecosystem in the Tropandean region of Peru. To the biological richness of the area, proper to the rain forest biome, the addition of spectacular archaeological sites of small pre-Conquest cities ("ciudadelas") adds an immense cultural value to the landscape.

The RANP is located in the district of Huicupungo, in the province of Mariscal Cáceres of the department of San Martín. The RANP ranges from puna (4,200 m elevation) to lowland pluvial forested plains (500 m elevation), in the area known as cloud forest. The Yunga formation of the park encompasses the whole Abiseo River basin, which drains to the Huallamba river on a route to the bigger Huallaga river. The territory is mountainous and very steep, with deep brooks and gorges and inclined slopes, where the sequence of hills and mountains ascend to the páramos of the Cordillera. Altitudinal belts are not

obvious due to a thick continual forest cover that minimizes ecotonal properties.

The most spectacular formation of the cloud forests is the abundance of mosses, that in some cases cover entire trees, where they are supported with other species of the forb community in the "hanging gardens" of epiphytes. The sponge-like function of the "mossy forest" of the Abiseo River is a perpetual water tower that supplies and stores water in permanently saturated water tables, feeding major hydrological collectors in the Montecristo river to the north, and the Abiseo river to the south. In the center of the park, the catchment is collected by the Tamac river that drains to the Abiseo river.

In the park, studies have identified five major tropical life zones, namely:

- Subalpine pluvial páramo;
- Montane pluvial forest;
- Lower montane pluvial forest;
- Pre-montane pluvial forest; and
- Pre-montane rain forest.

Geomorphology is closely linked with orogenic and tectonic events of the Andean cordillera, started in the Tertiary Eo-Palaeocene, or maybe earlier, as supported by some authors. The presence of sandstone and limestone, both of sedimentary origin, tell stories of depositional environments; however, igneous rocks are observed in segments of the river bottom, and metamorphic rocks have been washed downstream.

Importance of the RANP for Conservation

The value and importance of the RANP was signified on December 14, 1990, when UNESCO declared the park as a World Heritage Site. From then on, efforts for its preservation, conservation, and management have been much better, with encouraging results. At present, the RANP is administered by INRENA (Instituto Nacional de Recursos Naturales) and the INC (Instituto Nacional de Cultura) as well as by other collaborating institutions. Because of its extreme fragility, the Park is one of the few areas in Peru yet not open to the public, which is also a direct result of both the difficult access and the lack of infrastructure for administration and protection.

There are several proposals for the use of the park. Tourism use is one of the most appealing. However, in the territory we are describing, any action should follow strict rules from technical recommendations of environmental impact assessments and serious research. It would be also important to consider the sociopolitical and economic advice of cost-benefit analyses. Two of the most important recommendations to preserve the richness of the RANP is to avoid the settlement of population centers around the reserve, as well as the licensing of rights for timber exploitation. Road construction is another risk to the integrity of the RANP. However, the interest in the area should allow the government of Peru and several international development agencies to

succeed in the conservation of relicts of nature and culture in the Tropicandean piedmont of the Peruvian Amazon.

Río Abiseo Flora and Fauna

All visitors are surprised and astonished by both the scenic beauty and the ruins of ancient cultures in the park, as well as by the biological richness and exuberance of mountain jungles. Many species of plants and animals are endemic to the area. Probably the most famous inhabitant of the park is the yellow-tailed monkey (*Lagothrix flavicauda*), an endangered primate (Leo 1995). The entire area of the park is new ground for biological inventories. Also, ecological studies of reciprocal dependency and other attributes that may have application to biotechnology remain to be done. This is important if we consider that the cloud forests are sites of great endemism for life on the planet. They are possibly the last refuges of innovative evolutionary adaptations and unknown life forms to be yet found in Tropicandean landscapes.

Preliminary studies made by the Museum of Natural History of the Universidad Mayor de San Marcos, Lima, and collaborators at the University of Colorado, Boulder, have registered an impressive list of animals. A summary list shows the contribution to science and the important endemic component of the groups: herpetofauna: 21 species, 7 new to science; birds: 132, species, 3 endemic; mammals: 46 species, 6 new

to science; fishes: 3 species, 1 introduced.

Most of these species are to be found in the eastern flank of the Andean crescent and the Amazonian lowlands. Nevertheless, the endemics are a result of individual microclimates and geological history of episodic events in rather isolated hilltops.

Human Occupation of the Area

One of the aspects that offers exceptional historical and cultural value to the RANP is the presence of archaeological small cities (or "ciudadelas") in the upper reaches of the Montecristo river, in the midst of the cloud forest, in an area known by experts as the archaeological complex of "El Gran Pajatén." A closer look to the Pajatén reveals a urban complex built strategically on the summits of hills and in the cliffs of the area, where the access must be through passages along slopes and menacing walls in the gorges ("hoyadas"). All buildings have a circular design, and are made of limestone carved with elaborated fine ornaments in the form of rhomboids and anthropomorphic and zoomorphic figures. They reveal a unique symbolism found in a syncretism of Andean and tropical (i.e., mountain and plains) motifs.

Without a doubt, the monumental signs of past human occupation and the increased modern presence in the area enriches a true perspective to understand Andean civilizations and the important role of the montane

tropical forests of Amazonia. Populations settled there discovered their own pathway of development needs, expressed their means of dominion, land-use and knowledge of appropriate technology for mountain architecture and urban design.

Current debates on sustainable development in the Andes should heed the lessons left us by the inhabitants of the Gran Pajatén complex in the RANP. The whole of the Andean world might have reached the true apex of its development in these mountain societies whose complicated constructions on steep slopes

brought forth—in comparison with the Iberian landscapes of the newcomers—images of the scaffolds (“andenes” for the Spaniards) used to erect the relatively high buildings of Europe. Although the native Quechua name of “Anti” (meaning “copper”) is thought by some scholars to be the origin of the name of the Andes mountains, linguists now recognize the possible origin of the word in “andenes”—that description of impressive hanging gardens, steep fortresses, and irrigated agricultural terraces which can be seen only in such places as Río Abiseo.

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