IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 29 October 2014

Please note: this is an archived Conservation Outlook Assessment for Sangay National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Sangay National Park

SITE INFORMATION

Country:
Ecuador
Inscribed in: 1983
Criteria:
(vii) (viii) (ix) (x)

Site description:

With its outstanding natural beauty and two active volcanoes, the park illustrates the entire spectrum of ecosystems, ranging from tropical rainforests to glaciers, with striking contrasts between the snowcapped peaks and the forests of the plains. Its isolation has encouraged the survival of indigenous species such as the mountain tapir and the Andean condor. © UNESCO

SUMMARY

2014 Conservation Outlook

Significant concern

The conservation outlook for the site's values related to geological processes and geomorphic features is good as these are robust and relatively immune from human intervention. The outlook for values related to its ecological processes, biodiversity, and threatened species is one of some concern. Relative to the large area and isolation of the Park, human impacts from agriculture, livestock and hunting, although increasing, are still minor and have only localized effects on biological diversity and threatened species. Of greater concern is expanding road construction and hydroelectric dams in the vicinity of the park. Protection and management is constrained by the relatively low level of human and financial resources available and the increasing threats will require increasing levels of investment in the future to manage the expected impacts. At the same time, the Park is vulnerable to climate change and more research is required into this.

Current state and trend of VALUES

Low Concern
Trend: Deteriorating

The outstanding natural beauty and the geological features of the site remain relatively intact. Relative to the large area and isolation of the Park, human impacts from agriculture, livestock, hunting and roads, although increasing, are still minor and have only localized effects on biological diversity and threatened species. However, the trend is deteriorating and this will be further exacerbated by climate change.

Overall THREATS

High Threat

Given the large size of the site, Current threats from agriculture, grazing, hunting are relatively minor in extent. Of greater concern is expanding road construction

and hydroelectric dams in the vicinity of the park. Together, these projects are providing first-ever access to many areas of the park. Climate change is already being felt in the Park but is expected to become more pronounced in coming years with effects on the park's páramo ecosystem. The site is also threatened by further hydroelectric developments.

Overall PROTECTION and MANAGEMENT

Some Concern

Protection and management is constrained by the relatively low level of human and financial resources available. Although there has been some increase in the budget recently, it is still insufficient and staff requires additional training and development to be able to address the increasing threats.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Outstanding natural beauty**
  Criterion:(vii)

  With its outstanding natural beauty and two active volcanoes, the Park illustrates the entire spectrum of ecosystems ranging from tropical rainforests to glaciers, with striking contrasts between the snowcapped peaks and the verdant forests of the plains. Spectacular glaciers, waterfalls, and lakes complement the natural beauty of this striking landscape that plunges from the heights of the Andes down to the plains of the Amazon Basin (World Heritage Centre Website, retrieved February 2014)

- **Outstanding examples of on-going geological processes characterized by explosions of steam and ash, and occasional lava flows**
  Criterion:(viii)

  The currently active Sangay and Tungurahua volcanoes are some of the highest volcanoes in the world and provide outstanding examples of on-going geological processes characterized by explosions of steam and ash, and occasional lava flows. The Altar volcano exhibits the characteristics of an extinct volcano with a heavily eroded and glaciated caldera that contains a crater lake. The complex of geomorphic features, from the plains of the Upper Amazon Basin to the glaciers of the highest summits, show the entire complex of geomorphic features of the eastern tropical Andes. (World

Heritage Centre Website, retrieved February 2014).

- **High diversity of vegetation types with altitudinal variations**
  Criterion:(ix)

  The large size and altitudinal variations of the Park provide the natural landscapes for the maintenance of on-going ecological processes typical of the eastern tropical Andes. A high diversity of extensive and extraordinarily well preserved vegetation types are present, ranging from alpine zones of the high paramo to the subtropical rain and wet forests of the upper Amazon Basin. Fauna species distributions correspond with vegetation zones and there is a distinct altitudinal zonation. The principal physical factors influencing vegetation are altitude and rainfall, with more luxuriant vegetation growing on the wetter eastern slopes. Subpáramo has formed at the highest levels below the snowline, and is dominated by lichens and bryophytes. A subalpine rain Páramo zone occurs below this. Montane wet forest is found in valleys to the west. At lower elevations, there is a greater variety of small trees and shrubs. Montane rainforest has developed on the wetter eastern slopes and occurs below 3,750 m. The vegetation of the upper half of this zone attains approximately 5 m. Below 3,000 m, the vegetation develops into forest up to 12 m high; between 2,000 m and 3,000 m lower montane rainforest occurs on steep-sided valleys. Subtropical rainforest occurs below 2,000 m where temperatures range from 18 °C to 24 °C and rainfall may reach 5,000 mm annually. (World Heritage Centre website, retrieved February 2014).

- **High species diversity and important habitats of endangered species**
  Criterion:(x)

  As a consequence of its relative isolation and pronounced altitudinal variation, species diversity is very high, and many species which are threatened elsewhere are found in abundance. Of particular importance are the mountain tapir, spectacled bear, and jaguar. (World Heritage Centre Website, retrieved February 2014)

Other important biodiversity values

► Other international designations

The Park lies within a C.I.-designated Conservation Hotspot, is a WWF Global 200, Freshwater Eco-region, a WWF/IUCN Centre of Plant Diversity, a Vavilov Center of Plants Origin and lies in one of the world's Endemic Bird Areas.

Assessment information

Threats

Current Threats

High Threat

Current threats from agriculture, grazing, hunting are relatively minor in extent. Of greater concern is expanding road construction and hydroelectric dams in the vicinity of the park. Together, these projects are providing first-ever access to many areas of the park.

► Crop production, Livestock Farming / Grazing

Low Threat
Inside site

Local communities on occasion invade a few sectors of the original Park, and are resident in the southern addition to the Park. They clear native vegetation to establish agricultural plots and graze cattle causing deforestation and degradation of páramo grasslands. The problem is exacerbated by lack of signs or markers to indicate the Park's boundaries. Given the extent of the Park, however, encroachment is a relatively minor threat. (Consultation Form 1, 2012; Consultation Form 2, 2012; Consultation Form 3, 2012.)

► Livestock Farming / Grazing

Low Threat

Inside site

Grazing of domestic livestock in the Tungurahua Volcano area. Cattle grazing occurs both within park boundaries and directly adjacent to Sangay Volcano. An estimate of the area influences by human intervention is about 7.40% for Sangay National Park in comparison with 1.67% for El Cajas National Park (SENPLADES, 2010)

► Roads/ Railroads

High Threat
Inside site
Outside site

The Highway of Guamote - Macas crosses the National Park for about 39 km. Of this section, 7.85 km fall within the property and 31.23 km within the widened buffer zone. The SOC report notes that 1.11% or 3004.82 ha of the World Heritage zone lie within the 2km-radius of the road and that 712.92 ha or 0.26% of the natural vegetation in this area of the property has been modified to become pasture or cropland (SOC report, 2008). Construction of the Guamote-Macas Road has opened the area to potential colonization. There is pressure to build other roads in and around the Park, especially in the southern section, including Zula-Pomacocha-Juval-Huangras-San Francisco road with estimated 20 kilometres inside the park (Cañar and Chimborazo province) which will be the first ever road through the entire southern section of the Park (IUCN Consultation, 2014)

► Commercial hunting, Subsistence hunting

Low Threat
Inside site

Illegal hunting is a problem in areas near settlements (Consultation Form 1, 2012; Consultation Form 2, 2012). Considerable progress has been achieved in extending and enhancing patrolling activities within the park and its buffer zone (SOC Report, 2007); however, hunting still occurs in the southern part of the park (IUCN Consultation, 2014).

► Dams/ Water Management or Use

High Threat

Outside site

CELEC EP is the national and public company that is responsible for most of the dams and water capture. In southern Sangay National Park, CELEC EP has constructed the Paute-Integral system of dams on the Paute River (2 dams with generation) and 2 separate generation sites. (See CELEC EP, 2010). None of these projects are inside the park, but all are located 50 to 100 meters from park boundaries.

► Other Biological Resource Use

Low Threat
Inside site

Extensive extraction of yashipa (a bracken fern) and duda (a grass similar to bamboo) for local markets ccurs particularly in southern Sangay National Park. Duda is woven into mats and small baskets and used commonly throughout the Sierra (IUCN Consultation, 2014)

Potential Threats

High Threat

Climate change is already being felt in the Park but is expected to become more pronounced in coming years with effects on the park’s páramo ecosystem. The site is also threatened by further hydroelectric developments.

► Dams/ Water Management or Use

High Threat
Inside site
Outside site

Proyecto PUMA (Proyecto Multipropósito de Agua) is led by SENAGUA (a branch of the Ecuadorian government) and includes construction a dam inside the boundary of southern Sangay National Park. If the dam was to be built, it would flood park lands, private park lands, and critical territory where both the Andean bear and mountain tapir reside according to studies by Fundación Cordillera Tropical (IUCN Consultation, 2014).

► Temperature changes

High Threat

Inside site
Outside site

While some effects of climate change are already apparent (increased temperatures, drier dry seasons, wetter wet seasons) the full effects will be more pronounced. However, the large altitudinal differences in the Park will enable the migration of habitat and species, most of which will be to higher elevations. Lowland forest is expected to become much drier and prone to fire, giving way to dry savannahs within the next 100 years. (Vuille, et al, 2003; Urruita, 2009).

Protection and management

Assessing Protection and Management

► Staff training and development

Serious Concern

Staff training and development has been restricted to low cost local initiatives. (Consultation Form 1, 2012) In 2014 the park had a larger budget than in previous years, which has allowed it to hire park guards and buy equipment. However, park staff require further training to address the pressing threats. There exists exceptionally high turn-over among staff and a bureaucratic structure that impedes work on the ground (IUCN Consultation, 2014).

► Sustainable use

Mostly Effective

Park resources are being used for agriculture, livestock grazing and tourism in only a few limited areas. (Consultation Form 1, 2012).

► Education and interpretation programs

Mostly Effective

Fundación Cordillera Tropical’s Don Oso program in southern Sangay National Park has been a successful initiative carried out for nearly 4 years.

Other initiatives are ad-hoc and short-lived (IUCN Consultation, 2014).

▶ Integration into regional and national planning systems

Some Concern

While the Park is well integrated into national plans, it is not well integrated into regional development plans. (Consultation Form 1, 2012).

▶ Sustainable finance

Serious Concern

Though funding is available from the government budget and from the National Protected Areas Fund (FAN), financing is still not adequate for effective management. (Consultation Form 1, 2012)
Currently, the main source of funding for Sangay comes from the Fondo Ambiental Nacional’s protected area trust fund. Sangay received $80,000 in 2014 in the three regions combined. There are also some funds from the Proyecto SNAP for emergency projects (IUCN Consultation, 2014).

▶ Relationships with local people

Some Concern

Local governments, communities, and the private sector are in general open to working with the Park on conservation issues. Local NGOs work with the Park to solve conservation problems. A lack of knowledge of the benefits of the Park among local people makes it difficult to work with communities in the buffer zone. Conflicts over land ownership have soured relationships with local people in key areas.

▶ Legal framework and enforcement

Mostly Effective

The legal framework for the Park is clear (Consultation Form 1, 2012).

▶ Management system

Mostly Effective

Management of the Park is divided into three different districts overseen by the national office. The three local coordinators report to a national coordinator who also oversees 5 other parks as well, and is unable to

dedicate sufficient time to managing Sangay National Park. A new management plan is currently being prepared for the park (IUCN Consultation, 2014).

► Management effectiveness

Mostly Effective

A 2008 study of management effectiveness found that threats to the Park were limited, and that the Park's conservation targets were generally in good shape. This is due to the relative isolation of the Park but it is noted that human and financial resources, and staff training are inadequate to deal with future threats (Consultation Form 1, 2012).

► Implementation of Committee decisions and recommendations

Highly Effective

Committee decisions have been implemented, which was acknowledged when the Property was taken off the In Danger List. (32COM.Sangay.SOC)

► Boundaries

Some Concern

The boundaries recognized on the ground, those on maps, and those inscribed on the Federal Register are inconsistent. There is pressure to reclaim lands from the Park, and there is little knowledge or capacity to solve land conflicts (Consultation Form 1, 2012)

► Tourism and interpretation

Some Concern

Tourism to the Park is limited, and not well organized or regulated. While the potential for tourism is very high, tourism facilities are lacking. (Consultation Form 1, 2012)

► Monitoring

Serious Concern

While some monitoring of different species is taking place through individual research projects, a long-term monitoring program does not exist.

(Consultation Form 1, 2012)

▶ **Research**

Mostly Effective

A number of individual projects are undertaken by outside researchers, but an overall research program is needed (Consultation Form 1, 2012). A new project led by WCS in cooperation with national biodiversity officials started in 2014 and aims to monitor Andean bear in corridor between Sangay and Llanganates.

Overall assessment of protection and management

Some Concern

Protection and management is constrained by the relatively low level of human and financial resources available. Although there has been some increase in the budget recently, it is still insufficient and staff requires additional training and development to be able to address the increasing threats.

▶ **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Some Concern

Given the limited human and financial resources for management, there is only limited capacity to address threats outside the site.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Outstanding natural beauty**

Good
Trend:Stable

The site’s natural phenomena and exceptional natural beauty remain

relatively intact over most of the Park. (Consultation Form1, 2012).

▶ Outstanding examples of on-going geological processes characterized by explosions of steam and ash, and occasional lava flows

Good
Trend:Stable

The geological features of the site are well preserved. (Consultation Form1, 2012)

▶ High diversity of vegetation types with altitudinal variations

Low Concern
Trend:Stable

Relative to the large area and isolation of the Park, human impacts from agriculture, livestock, hunting and roads, although increasing, are still minor and have only localized effects on biological diversity and threatened species. (Consultation Form1, 2012; Urrutia, 2009).

▶ High species diversity and important habitats of endangered species

High Concern
Trend:Deteriorating

Relative to the large area and isolation of the Park, human impacts from agriculture, livestock, hunting and roads, although increasing, are still minor and have only localized effects on biological diversity and threatened species. (Consultation Form1, 2012; Urrutia, 2009). A study by Fundación Cordillera Tropical has shown that southern Sangay National Park potentially supports a low-density population of Andean bears; however, their numbers are lower than initially believed.

Other important biodiversity values

▶ Other international designations

The Park lies within a C.I.-designated Conservation Hotspot, is a WWF Global 200, Freshwater Eco-region, a WWF/IUCN Centre of Plant Diversity, a Vavilov Center of Plants Origin and lies in one of the world’s Endemic Bird Areas.

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**

Low Concern

Trend: Deteriorating

The outstanding natural beauty and the geological features of the site remain relatively intact. Relative to the large area and isolation of the Park, human impacts from agriculture, livestock, hunting and roads, although increasing, are still minor and have only localized effects on biological diversity and threatened species. However, the trend is deteriorating and this will be further exacerbated by climate change.

Additional information

Key conservation issues

▶ **Impacts of communities in and around the Park**

Local

Human settlements in and around the Park create localized impacts through the opening of new agricultural lands, livestock grazing, hunting, and road construction, though the scale is currently small in comparison to the size of the Park.

▶ **Climate change**

Global

While some effects of climate change are already apparent (increased temperatures, drier dry seasons, wetter wet seasons) the full effects will be more pronounced. Lowland forest is expected to become much drier and prone to fire, giving way to dry savannahs within the next 100 years. (Vuille, et al, 2003; Urruita, 2009).

▶ **Dams**

National

Further hydroelectric developments in the region might have serious impacts on the site's integrity and values.

Benefits

Understanding Benefits

▶ **Is the protected area valued for its nature conservation?**

By definition, the Sangay World Heritage Site is considered to be of outstanding universal value for the full range of natural values recognized by the Convention.

▶ **Legal subsistence hunting of wild game, Collection of wild plants and mushrooms, Livestock grazing areas**

The southern section of the Park includes a population estimated to be between 3,000 and 4,000 people who derive their livelihoods from, livestock grazing and occasional hunting. Many other landowners own sections of southern Sangay National Park, but most of them live outside the park at lower elevations. In the Cañar, Chimborazo and Morona Santiago provinces, occasional incursions into the Park from surrounding settlements also occur from time to time for livestock grazing and hunting.

▶ **Outdoor recreation and tourism**

Though tourism to the Park related to mountain climbing, and visits to its many lakes and forests is currently at a low level, the potential is large.

Summary of benefits

Conservation is far and away the largest benefit of the Property. Subsistence farming, livestock grazing, and hunting provide benefits a limited number of families, and tourism, though currently a minor activity, has potential for

considerable expansion in the future.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Wildlife Conservation Society, Ecuador		Andean Bear Conservation in the Sangay/Llangantes Corredor
2	Fundación Cordillera Tropical		Research, Environmental Education, Park Delimitation, Cadastre production, park guard training in southern Sangay National Park (Cañar Province)
3	Aves & Conservación		Important Bird Areas, working in the corridor Llanganates - Sangay
4	FAP (the national protected areas fund) managed by the Fondo Ambiental Nacional (FAN)		KfW created a conservation trust fund called FAP valued at $28M and managed by the Fondo Ambiental Nacional. Interest from this fund is invested in 28 parks annually. Sangay National Park has received approximately $80,000/year over the past few years.
5	Tapir Fund		Research on Mountain Tapir

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	N.A.	Training and equipping of Park staff	
2	N.A.	Climate Change related studies	
3	N.A.	Development of a comprehensive monitoring system for the property.	

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