Darién National Park

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Panama
Inscribed in: 1981
Criteria: (vii) (ix) (x)

Forming a bridge between the two continents of the New World, Darién National Park contains an exceptional variety of habitats – sandy beaches, rocky coasts, mangroves, swamps, and lowland and upland tropical forests containing remarkable wildlife. Two Indian tribes live in the park. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 02 Dec 2020

Darién National Park continues to be one of the largest and most important protected areas and contiguous forest blocks in the sub-region. The conservation values are extraordinary in terms of the biogeographic position and biodiversity at all levels and the high degree of endemism across numerous taxonomic groups. The establishment of such a large park in a relatively small country, the explicit exclusion of mining, a specific fund dedicated to the World Heritage site, its contiguity with another World Heritage site in Colombia are all encouraging elements of the history of the site. At the same time, the site has been facing strong and increasing threats, both from the outside and in terms of its governance and management. Large tracts of the surrounding landscape in both Panama and Colombia have been subject to high rates of forest loss and degradation. The agricultural frontier has much advanced and, while the World Heritage site has undoubtedly contributed to halting or at least slowing the advance, it is not immune to it. Inside the site, indigenous peoples and other local communities run the risk of overusing the natural resources and there are economic incentives to be involved in illegal resource extraction and illicit trade. The management response has not been adequate to resolve the dilemma, leaving a grey area in terms of rights and duties of the inhabitants of the national park. The major overarching concerns are the anticipated effects of climate change and the more tangible threats of possible infrastructure development, namely in the form of the expansion of the Pan-American Highway and a proposed power transmission corridor. While both projects do not appear to be imminent, are politically sensitive and would face major challenges, both may still eventually materialize. In all likelihood, major infrastructure would result in fundamental changes to the entire bi-national Darién Gap region. The improving security situation in Colombia is widely considered to be present opportunities for consolidating the coordination and cooperation between the two contiguous World Heritage properties in Panama and Colombia, respectively – perhaps with the eventual formalization of a transboundary World Heritage site as originally intended decades ago.
FULL ASSESSMENT

Description of values

Values

World Heritage values

➤ Scenic beauty of natural landscape patterns and geomorphological features

Darién National Park, one of the most diverse landscapes of Central America featuring remote and unspolied coasts and coastal plains, hills and high mountain chains, several types of tropical forests, wetlands, mangroves and important rivers, such as Tuira, Chucunaque, Jaque, Sambú and Balsas. The landforms of the Darien Gap were influenced by fluctuations in the sea level related to climate changes and glaciations during the Pleistocene period (World Heritage Committee, 2014).

➤ Biological bridge between North and South America

Biogeographically speaking, the location at the southernmost end of the geologically young land bridge connecting South America and Central America is a unique, ecologically and scientifically fascinating setting. Following earlier separation, the formation of a land bridge connecting the Americas has resulted in ongoing ecological exchange between North and South America (State Party of Panama, 1981). Darién National Park is within the area of first contact and interchange between two major, previously isolated landmasses, which is reflected in its biodiversity. The property is within the Southern limit of Mesoamerican elements of flora and fauna while also being influenced by elements of South American rainforests, a link between Central and South America all the way to the Amazon. The property contains the most extensive lowland tropical forest on the Pacific coast of Central America, permitting the conservation and continuation of ecological and evolutionary processes at a large scale. The uninterrupted altitudinal transition of different forest types from the coastal lowlands to the mountains allows the migration, of many species, an increasingly rare large-scale setting and interaction between different ecosystems which contributes to resilience in the face of anticipated climate change (World Heritage Committee, 2014).

➤ Exceptional biological diversity and high degree of endemism

The World Heritage site is large enough for the continuation of evolutionary processes. Unlike in smaller, more or less isolated forest patches of the Central American subregion, the prospects for conserving viable populations of species requiring large ranges are good due to the large scale of the site. The degree of endemism is high for both vertebrates and invertebrates and includes even mammals, for example the Darien pocket gopher (Orthogeomys dariensis, LC) (World Heritage Committee, 2013, UNEP-WCMC, 2011). There are also several endemic tree species among the more than 40 recorded endemic plants. But with detailed research still scarce, there is an almost certain potential for further discoveries, especially in the poorly known and isolated cloud forests in higher elevations (World Heritage Committee, 2013).

➤ Large mammals

Biota Panama (2007) noted 168 mammals species in Darién National Park. Noteworthy species include top predators, such as the near-threatened jaguar (Panthera onca) and the puma (Puma concolor, LC). Other large mammals include the endangered Baird’s tapir (Tapirus bairdii), the vulnerable white-lipped peccary (Tayassu pecari), and collared peccary (Pecari tajacu, LC), the critically endangered brown-headed spider monkey, the vulnerable giant anteater and near-threatened species like bush dog. The many other charismatic species include ocelot, margay and jaguarundi (World Heritage Committee,
Rich avifauna

The bird diversity epitomizes the extraordinary biological wealth, with 533 recorded species. Noteworthy species include the endangered great green macaw, the vulnerable great curassow and a major population of the near-threatened harpy eagle (Harpia harpyja) (World Heritage Committee, 2013).

Other important biodiversity values

Karst forms

The site boasts noteworthy karst features (Kueny et al., 2002).

Assessment information

Threats

Current Threats

There is external demand for natural resources which - jointly with the livelihood needs of a growing population in and near the World Heritage site - increases the pressure on the national park and its exceptional conservation values. Loss and degradation of forests for agriculture, livestock activities, oil palm agriculture, ranching, timber extraction, as well as unsustainable use of wild biodiversity put strong and increasing pressure on the site. From last outlook assessment to 2020, the threats are increasing and there are limited capacities to reduce impacts in the short term.

Temperature extremes

Climate change is an overarching concern. Reporting from neighboring Los Katíos National Park on the Colombian side of the Darién Gap suggests that the region has already been negatively impacted by increasingly frequent and severe extreme weather events (State Party of Colombia, 2016).

Logging/ Wood Harvesting

While the exact current status is beyond the scope of this assessment, there is consistent documentation of expanding and poorly planned and controlled land and resource in and around the World Heritage site (BirdLife International, 2017c; World Heritage Committee, 2013; UNEP-WCMC, 2011; ANAM et al., 2008 and 2007). Ever-expanding cattle ranching, swidden agriculture, logging, fishing and hunting inside and outside the World Heritage site have direct and indirect effects on the ecosystems and conservation values.

Although the rate of deforestation fell nationwide in the 1992-2000 period, compared to the previous 1986-1992 period, certain parts of the country are pressured today by both selective and indiscriminate extraction of hardwood species and/or by the removal of vegetation cover for agricultural purposes. These pressures are more common in the forested areas of Bocas del Toro, Darién and the Ngöbe-Buglé Comarca, including in buffer zones around protected areas (CBD country profile, n.d.). Authorities estimate that in 2015, 90% of timber felling in Darien is illegal.

In September 2020, MiAmbiente officially communicated the decision to not grant forest concession permissions for one year in all country. This based on the evidence of the reduction of forest in Darién, Bocas del Toro and Panamá Este.
Logging/ Wood Harvesting, Other Biological Resource Use
(Unsustainable natural resources management and use)

Directly related to the above, indigenous peoples and local communities inside and outside the World Heritage site depend on a wide range of agriculture, livestock husbandry and use of wild biodiversity. While such use is legitimate per se, there are strong concern about the sustainability of such use in its current form (BirdLife International, 2017c; World Heritage Committee, 2013; UNEP-WCMC, 2011; ANAM et al., 2008 and 2007). As is common in comparable settings, it is often difficult to draw a line between subsistence and commercial activities. Oil palm plantations are still a commercial activity that are seriously increasing environmental risks in the surroundings of Darién National Park, such in Alto Darién Protected Forrest or Pinogana.

Changes in traditional ways of life and knowledge systems that result in negative impact, identity/social cohesion/changes in local population and community that result in negative impact
(Erosion of indigenous lifestyles and knowledge and effects of nearby armed conflicts)

As elsewhere in the region, indigenous livelihood systems have been subject to external pressure for a long time and, in the case of Darién National Park, suffer from the effects of security issues related to the longstanding conflict in nearby Colombia (Trab Nielsen, 2006; Daniels, 2002). Additional to this, there is a big concern about the increase in livestock activity in the indigenous region of Emberá Wounaan, which borders the Darién National Park, as well as in Punta Garachiné (IUCN Consultation, 2020). The livestock activity, oil palm, land tenure conflicts and armed conflicts are seriously affecting local traditional livelihoods.

Potential Threats

While not imminent and politically sensitive at the national and bi-lateral levels, both the possible expansion of the Pan-American Highway and a proposed power transmission corridor between Colombia and Panama through the Darién Gap pose high direct and indirect threats to the World Heritage site. The overarching concerns about the anticipated effects of climate change add further urgency to the need to conserve the vast forest ecosystems as both an adaptation measure and a contribution to mitigation.

Roads/ Railroads
(Proposed extension of the Pan-American Highway)

Completion of the missing link of the Pan-American Highway between Colombia and Panama has been debated for decades, raising well documented concern for both Darién and Los Katíos National Parks (Covich, 2015; UNEP-WCMC, 2011, ANAM, 2007; Suman, 2007; Nelson et al., 2004). While opening up Los Katiós National Park in Colombia would face challenges at the level of the Constitution (State Party of Colombia, 2016), the situation is less clear in Panama. The World Heritage site in Panama is much larger than Los Katiós National Park and, jointly with indigenous lands on the Atlantic coast extends from coast to coast of the narrow isthmus. In other words, any route of the Pan-American Highway in the Panamanian part of the Darién Gap would either have to cross the World Heritage site or indigenous lands. The project is politically complex in both involved countries and even more complex at the bi-national and broader international level and not actively being promoted at this stage. Nevertheless, due to fundamental change it would bring to the still vast roadless areas of the Darién Gap it is ranked as a high threat.

Utility / Service Lines
(Power transmission infrastructure linking Panama and Colombia ("Inteconexion Electrica"))

Known as the “Inteconexion Electrica” in Panama and Colombia (ICP), power transmission infrastructure
connecting Colombian energy supply to Panama has been discussed for years. There are major concerns about direct and indirect environmental impacts the project could cause in both the property and Los Katios National Park in Colombia. Comparable to the proposed extension of the Pan-American Highway, the project is politically very complex and would face challenges at various levels. In Panama, the infrastructure would inevitably have to cross either the World Heritage site or indigenous lands. At this stage a definitive route has not been decided and the project development does not appear to be advancing. Nevertheless, and for the same reasons as above, the project is a ranked as a high potential threats due to the major change it might bring to hitherto almost inaccessible areas (IUCN, 2015).

**Overall assessment of threats**

The combination of permanent pressure from conversion of forests and overuse of wild biodiversity is advancing. The agricultural frontier drives ecosystem degradation, but there are many other, more subtle pressures. While not imminent and facing political complexity and many other challenges, any major infrastructure project, such as the expansion of the Pan-American Highway and power transmission corridors would in all likelihood result in fundamental changes to the entire bi-national Darién Gap region.

**Protection and management**

**Assessing Protection and Management**

- **Management system**

  Building upon the first management plans in the late 1980s, management is guided by a overarching management plans and Annual Operations Plans. However, information is inadequate to guide management decisions with respect to critical ecosystems, species, and cultural values. The Park has an administrative office in El Real de Santa María and four ranger stations. The rangers are provided with training and basic equipment for protection and the enforcement of regulations. Temporarily, security concerns compromised the effectiveness and even the presence of management (UNEP-WCMC, 2011; ANAM et al., 2008 and 2007; Trab Nielsen, 2006). Once more, the border setting deserves to mentioned, as it adds complexity to the management system, which is in essence interrupted at the border from an ecosystem management perspective.

  The Darién National Park management plan was approved in 2004. In 2007, the Environmental National Authority of Panama, adopted the partial update for its operation trough resolution No. AG-0451-2009 (ANAM, 2014).

  Although in this resolution it is recommend the creation of a Committee for the implementation, no local representatives are included. Also, the resolution extended the management plan until 2008.

- **Effectiveness of management system**

  While the property is in a better position in the country and region, human and financial resources are insufficient to implement the management plan. An evaluation of management effectiveness carried out in 2007 suggests roughly 50% compliance against the management plan (ANAM et al., 2007).

  Before 2007 an assessment on the progress of protected areas management (“Tracking tool”, World Bank and WWF) was implemented in Darién National Park (ANAM et al., 2007). These results were key to develop the Update for the Operation of the Darién National Park Management.

  Currently, the administrative staff is not enough to attend efficiently the implementation of the management plan.
Boundaries

Due to the sheer size and remoteness of the World Heritage site the boundary configuration is somewhat secondary compared to most other protected areas in the Central American subregion. While recent efforts to propose a formal Minor Boundary Modification (State Party of Panama, 2015 and 2014) have not yet been met with approval, they indicate the governmental readiness to re-visit the boundaries more than 35 years after the creation of the national park. As noted in other sections, part of the Darien National Park boundary borders the much smaller Los Katios National Park in Colombia (UNEP-WCMC, 2011; ANAM et al., 2007; TNC, n.d.). While the meeting of the two national parks and World Heritage sites results in mutual de facto buffering in that area, the World Heritage site is vulnerable to land use changes along the much longer boundary with Colombia which does not coincide with protected areas in the neighboring country.

Integration into regional and national planning systems

The area is comparatively well integrated into provincial and national layers of planning, including the National Protected Area System (SINAP). It is also important to recall that the national park boundaries partially coincide with an international border, which is why the national park is also considered by other national strategic planning (UNEP-WCMC, 2011; ANAM et al., 2007, 2006). The international border to Colombia to the East implies limited coordination despite the Darien Gap being one coherent system shared by two countries.

Relationships with local people

A Park Management Committee, several community outreach projects, and environmental education all serve to develop sound working relationships with local stakeholders and rights-holders. The common dilemma between formal conservation objectives and local livelihoods remains largely unresolved. Current mechanisms to enable indigenous peoples and local communities to take part in decision-making regarding park management are in their infancy (UNEP-WCMC, 2011; ANAM et al., 2008, 2007, 2006).

The partial update for the operation of the Darién National Park management plan (ANAM, 2007) proposed the establishment of 4 management programs, one of them: "Community management and environmental education". This is aimed at improving social participation, capacity building, stakeholders synergies and decision making. However despite social-environment conflicts in the area, there is no updated information on the implementation of this program.

The Darién Biosphere Reserve (where the Darién National Park is included) has a Darien National Park Supporting Network with the formal participation of governmental institutions, civil society organizations and others. It seems that this governance platform has worked but it is not specific to the World Heritage site.

Legal framework

The national park was established by Executive Decree in 1980. International recognition as a World Heritage property (1981) and the slightly larger biosphere reserve (1983) add important layers of protection and visibility. Martin et al. (2003) reported the legal framework as such to be excellent. The same source points out a Presidential Decree to eliminate mineral extraction from the national park.

Law enforcement

Law enforcement is unable to adequately respond to uncontrolled and unsustainable resource use (UNEP-WCMC, 2011).

Implementation of Committee decisions and recommendations

The proposals for Minor Boundary Modifications were twice referred (World Heritage Committee, 2015...
and 2014) following technical recommendations (IUCN, 2015 and 2014). Both World Heritage Committee decisions encourage follow-up while also encouraging enhance cooperation with Colombia. The current status of follow-up is not known, follow-up on both issues is highly encouraged.

**Sustainable use**

Overall, the uncontrolled use of natural resources by native communities and colonists is the major challenge for Park management. Programmes, financed by the Darien Conservation Fund, are being developed to work with local communities to achieve sustainable use of local resources. However, In 2009, only 6 of the 33 communities in the Park were benefitting from the programme (Vergara, 2009; ANAM, 2007).

**Sustainable finance**

Darién National Park is a privileged high profile protected areas benefitting from a special Conservation Trust Fund established through a debt-for-nature swap between Panama and the United States of America and considerable addition external support (ANAM et al., 2008). While some have suggested that the level of finance may still be inadequate in light of the scale of both the park and the threats it is facing (UNEP-WCMC, 2011; Trab Nielsen, 2006) funding does not appear to constitute a main bottleneck.


From 2013 to 2016 the Darién National Park was included into the Strategic Plan Implementation of the Darién Fund, strategic line #1: Contribution to the sustainable community development in Darién National Park and its buffer zone. This was focused on the productive activities and livelihoods improvement of the local people.

**Staff capacity, training, and development**

Capacity-development is facilitated via the Darien Fund (UNEP-WCMC, 2011; ANAM et al., 2007). ANAM et al. (2012) establish ambitious objectives in this regard. However, no systematic information on compliance appears to be available.

**Education and interpretation programs**

Environmental education programmes are in place, but are "not well planned and sporadic" (IUCN, 2014). An environmental education centre was established at El Real and radio programs and programmes for students and volunteers (UNEP-WCMC, 2001; ANAM et al., 2008 and 2007). The exact status is beyond the scope of this assessment.

The partial update for the operation of the Darién National Park management plan (ANAM, 2007) proposed the establishment of a "Community management and environmental education" program. No information of its implementation was found.

**Tourism and visitation management**

A low level of ecotourism, especially highly specialized bird watching, is provided by mostly private tour operators (UNEP-WCMC, 2011; ANAM et al., 2007). Development of sustainable tourism initiatives is hindered by the remoteness and poor infrastructure, as well as the perception of security challenges in the Darien Gap region.

According to the Environmental National Report Geo Panamá 2014, there the percentage of visits to national parks increased by 36%, but Darién National Park is reported as one of the parks with the lowest visitation (ANAM, 2014).

The Strategic Plan for the Darién National Park (2013-2016) includes a Community Tourism sub-component and a Diagnosis of the tourism situation in prioritized areas.
Monitoring

A monitoring system has been developed for the national park, but is not systematically being used to inform decision-making and management. While there are selected monitoring projects, for example of the avifauna in some areas the current situation does not amount to a coherent approach and effort (UNEP-WCMC, 2011; ANAM et al., 2008 and 2007).

The monitoring efforts detailed in the Strategic Plan (strategy #2) include conservation objectives of the Management Plan. However, these monitoring efforts do not appear to be specific for the World Heritage Values.

Research

The enormous scientific potential of the World Heritage site is undisputed but remains to be systematically realized (UNEP-WCMC, 2011; ANAM et al., 2007). Reasons include the remoteness and poor infrastructure which, however, adds to the attractiveness of the area for ecosystem research on the other hand. It can reasonably be assumed that perceived and actual security concerns have contributed to the relative paucity of systematic research.

Overall assessment of protection and management

The threats and the challenges in addressing them in Darién National Park are well-known in the sub-region. Due to the size, remoteness and minimal infrastructure, the management is in a comparatively privileged position. While considerable progress has been made over time and the World Heritage site has received substantial and ongoing external support, protection and management are not compatible with the challenges. Human and financial resources are scarce despite the noteworthy establishment of a fund, while capacity development leaves room for improvement. Factors beyond control of the government include the border setting. Recent improvements of the security situation in neighboring Colombia imply a promising point in time to enhance coordination and cooperation. One fundamental, insufficiently addressed question mark is the presence of communities inside the national park. While the presence as such cannot and should not be challenged, there continues to be lack of a clear governance and management approach in terms of the role, rights and duties of indigenous peoples and local communities (ANAM et al., 2007).

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

The size, location and limited infrastructure of the World Heritage site all contribute to its comparatively low vulnerability to edge effects. Due to the border setting, the site is exposed to developments beyond national control. Some of the environmental and social effects of the longstanding conflict in Colombia swept the border (Trab Nielsen, 2006). Despite considerable improvements, there continue to be concerns about the security situation and its possible volatility. Somewhat paradoxically, the improved security situation in Colombia might lead to new land use pressures near the border.

Best practice examples

There are joint efforts between the Biosphere Reserve and the National Park authorities to integrate a common participatory platform for decision making (UNESCO-MAB, 2016).

State and trend of values
Assessing the current state and trend of values

World Heritage values

▶ Scenic beauty of natural landscape patterns and geomorphological features

High Concern
Trend: Deteriorating

While the geomorphological particularities of the national park are not threatened by human activities, the scenic beauty is starting to be affected by increasing human resource use, resulting in visible loss and degradation of forests in some parts of the property (UNEP-WCMC, 2011; ANAM et al., 2007).

▶ Biological bridge between North and South America

High Concern
Trend: Deteriorating

The function of the World Heritage site as the largest protected area with a comparatively high degree of naturalness within the meeting point of the previously separate fauna and flora of North and South America is compromised by the same mix of factors listed above (UNEP-WCMC, 2011; ANAM et al., 2007; Trab Nielsen, 2006). A broader concern beyond individual protected areas is that both Darién and Los Katiós National Park are increasingly isolated in a landscape suffering loss and degradation of its forest and other ecosystems.

▶ Exceptional biological diversity and high degree of endemism

High Concern
Trend: Deteriorating

Uncontrolled natural resource use by communities and a growing human population in and around the property are exercising increasing pressure which results in degradation of natural habitats. This in turn threatens many of the species, many of which are under additional pressure from hunting, poaching and trade in wildlife and wild plant. Combined with the overarching scenario of climate change the still exceptional biodiversity of the World Heritage site is deteriorating and raising high concerns (Birdlife International, 2017; UNEP-WCMC, 2011; ANAM et al. 2007; Trab Nielsen, 2006).

▶ Large mammals

Data Deficient
Trend: Data Deficient

Not updated information was fund.

▶ Rich avifauna

Data Deficient
Trend: Data Deficient

Not updated information was fund.

Summary of the Values

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

High Concern
Trend: Deteriorating

The World Heritage site continues to be a major conservation gem in the Mesoamerican subregion, not only as one of the largest protected areas and contiguous blocks of forest, but also due to its exceptional biogeographic position and ongoing role at the meeting point of the Americas. The fact that mineral extraction was excluded by Presidential Decree early on and the absence of major road infrastructure to this day have prevented the intensity of human pressure known from the majority of protected areas in the subregion. The site is also privileged through a longstanding fund dedicated exclusively to Darién National Park. Nevertheless, the still extraordinary nature conservation values, and in particular the biodiversity values, have been suffering from a mix of pressures caused by a growing population, an advancing agricultural frontier and uncontrolled resource use. While collection of wild biodiversity, hunting and poaching are fundamental parts of local livelihood systems, its uncontrolled and excessive use threatens many conservation values while also casting shadows over the future productivity and use options. Despite important
management efforts there continues to be a lack of conceptual clarity about the governance and management of natural resource use in a park that has been inhabited and used at all times.

Assessment of the current state and trend of other important biodiversity values

Specific information on the status of karst features within the site is beyond the scope of this assessment.

Additional information

Benefits

Understanding Benefits

Collection of medicinal resources for local use,
Outdoor recreation and tourism,
Natural beauty and scenery

Local communities and indigenous peoples of the remote, largely roadless national park and its surroundings depend on wild biodiversity products for their health (UNEP-WCMC, 2011). The scenic beauty and rich biodiversity attract visitors despite the limited infrastructure.

The Management plan of the Darién National Park includes a subcomponent on Communitarian Tourism, which includes the promotion of the park for ecotourism. This is being implemented jointly with the Biosphere Reserve, but no information was found specifically for the World Heritage site, which is the core of the Biosphere Reserve (UNESCO-MAB, 2016).

There remaing economic, regulatory and institutional gaps to fully implement sustainable tourism programmes in the National Park and its surroundings.

Legal subsistence hunting of wild game,
Collection of wild plants and mushrooms,
Fishing areas and conservation of fish stocks,
Traditional agriculture,
Livestock grazing areas

The forests, wetlands, coasts, rivers and creeks provide subsistence livelihoods for indigenous communities within and around the World Heritage site. Regardless of the legal situation indigenous peoples are engaged in - and depend on - a broad range of agricultural, hunting and gathering activities (UNEP-WCMC, 2011).

Access to drinking water

The World Heritage site protects a substantial part of the watersheds of Panama's Darien Province (IUCN, 2014).

The National Park supplies drinkable water and hydroelectric energy to local consumption, even for communities that don`t have access to this ecosystem service, such as La Palma (ANAM-CBD, 2014).
Carbon sequestration, Soil stabilisation, Coastal protection, Flood prevention, Water provision (importance for water quantity and quality), Pollination

The tropical forests of the World Heritage site, one of the largest remaining in the Central American subregions, deliver a full range of forest environmental services (ANAM et al., 2007).

According to the Fifth National Biodiversity Report for the CBD, the Darién National Park has the highest economic value of the environmental services of all Panama protected areas (approx. 75.00.000 balboas per year) (ANAM-CBD, 2014).

Importance for research, Collection of genetic material

Though little research has been carried out in the national park, it is of invaluable scientific interest, with its high and only partially documented biodiversity being an irreplaceable genetic treasure (UNEP-WCMC, 2011).

History and tradition, Wilderness and iconic features, Sacred natural sites or landscapes, Sacred or symbolic plants or animals, Cultural identity and sense of belonging

The World Heritage site is home to several indigenous peoples who have a longstanding relationship with the landscape at the livelihood level, as well as at the cultural and spiritual levels (ANAM et al., 2006; Herlihy, 2003; Daniels, 2002).

Factors negatively affecting provision of this benefit:
- Habitat change: Impact level - Moderate, Trend - Continuing

Because the socio economic conditions and the external pressures, the local population of Darién National Park and its surroundings, are increasing their participation in deforestation activities. This affects their traditional livelihoods, their relationship with nature, and their culture.

Collection of timber, e.g. fuelwood, Sustainable extraction of materials (e.g. coral, shells, resin, rubber, grass, rattan, etc)

Local communities and indigenous peoples use a broad range of non-timber forest products for food, medicine, construction etc. (UNEP-WCMC, 2011; ANAM et al., 2006; Herlihy, 2003; Daniels, 2002).

Tourism-related income, Provision of jobs

While direct generation of employment and income related to park management and tourism is modest, the long-term potential is high, especially for tourism (ANAM et al., 2007).

Summary of benefits

Beyond the obvious benefits of the national park in terms of conserving extraordinary diverse and highly endemic array of life forms at all levels, the World Heritage site is the home of indigenous peoples and communities who derive their livelihoods from local natural resources and depend on the forests for their cultural and spiritual survival. Watershed protection benefits are likewise high, as are the well-documented multiple environmental services associated with large intact forests.
## Projects

### Compilation of active conservation projects

<table>
<thead>
<tr>
<th>№</th>
<th>Organization</th>
<th>Brief description of Active Projects</th>
<th>Website</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Wildlife Conservation Society / U.S. Fish and Wildlife Service</td>
<td>The Central American Megaflyover is described as a plane-based survey to gauge the influence of humans and their livestock on the 5 largest remaining forests in Central America. Darién is among these top 5 forest areas in all of Central America.</td>
<td><a href="https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/8606/Central-American-Megaflyover-to-Measure-Impacts-of-Humans-Cows-in-Largest-Remaining-Rainforests.aspx">https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/8606/Central-American-Megaflyover-to-Measure-Impacts-of-Humans-Cows-in-Largest-Remaining-Rainforests.aspx</a></td>
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<tr>
<td>2</td>
<td>Fundación Natura</td>
<td>The Darién Fund was established through a deb- for-nature swap between the governments of Panama and the United States of America, with contributions from environmental NG The Nature Conservancy (TNC). The fund is to facilitate the management of the national park according to three strategic lines: sustainable community development inside and around the national park; highlighting and conserving ecological values and ecosystem services; and financila and administrative consolidation of the national park.</td>
<td><a href="http://naturapanama.org/fondo-darien/">http://naturapanama.org/fondo-darien/</a></td>
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<tr>
<td>3</td>
<td>Fundación Natura, TNC</td>
<td>The FIDECO Fund (Fideicomiso Ecológico de Panamá) was established in 1995 based on a a contract between the Government of Panama and non-governmental conservation organization TNC. The fund has been a longstanding and major funding source for conservation projects across Panama, including several in Darién National Park.</td>
<td><a href="http://naturapanama.org/fondo-fideco/">http://naturapanama.org/fondo-fideco/</a></td>
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<td>4</td>
<td>SINAP</td>
<td>Proyecto Conservación del SINAP</td>
<td><a href="https://docplayer.es/7088759-Las-reservas-de-biosfera-y-el-proyecto-bresep.html">https://docplayer.es/7088759-Las-reservas-de-biosfera-y-el-proyecto-bresep.html</a></td>
</tr>
<tr>
<td>5</td>
<td>MAB Programme of UNESCO</td>
<td>BRESEP Project: This was a regional project (Panamá, Chile, Colombia, Ecuador and Perú) implemented from 2014 to 2017 with the financial support of the government of Belgium. The goals were support local capacities and the diversification of sustainable economic opportunities for residents, environmental education and awareness in the Biosphere Reserves. One of the additional results of this project, was de decision of Panama Government to expand the Biosphere Reserve of Darien, also benefiting the World Heritage Site located in its core.</td>
<td><a href="http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/BRESEP_leaflet_es.pdf">http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/BRESEP_leaflet_es.pdf</a></td>
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<td>6</td>
<td>MiAmbiente, WWF.</td>
<td>Forestry Governance Project in Tropical Forest of the Darién, Panamá: The main objective is to strengthen governance and governability mechanisms as political frameworks to value ecosystem services from natural forests, to improve local sustainable livelihoods reducing forest degradation in the Darien region of Panama. Currently being implemented.</td>
<td><a href="https://www.alianzaporelmiillon.org/?p=7513">https://www.alianzaporelmiillon.org/?p=7513</a></td>
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<td>7</td>
<td>MiAmbiente, WWF.</td>
<td>Strengthening management capacities to reduce illegal forest trade through monitoring and control mechanisms: the main objective is to strengthen the capacity of the Ministry of the Environment to develop effective and efficient forest management. Currently being implemented.</td>
<td><a href="https://www.alianzaporelmiillon.org/?p=7511">https://www.alianzaporelmiillon.org/?p=7511</a></td>
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## REFERENCES

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