IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 08 November 2017

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

Area de Conservación Guanacaste

SITE INFORMATION

Country:
Costa Rica
Inscribed in: 1999
Criteria:
(ix) (x)

Site description:
The Area de Conservación Guanacaste (inscribed in 1999), was extended with the addition of a 15,000 ha private property, St Elena. It contains important natural habitats for the conservation of biological diversity, including the best dry forest habitats from Central America to northern Mexico and key habitats for endangered or rare plant and animal species. The site demonstrates significant ecological processes in both its terrestrial and marine-coastal environments. © UNESCO

SUMMARY

2017 Conservation Outlook

Significant concern

The property is facing numerous threats, including illegal resource extraction (illegal hunting, fishing, collection of sea turtle eggs and capture of some species for pet trade), fires and pressures from the surrounding agricultural areas, including pollution by agrochemicals. While no systematic information is available about the impacts on populations of key species, the combination of these factors raises serious concerns. While potential impacts of the geothermal energy project close to the boundaries of the property at the Rincón de la Vieja sector have been assessed by the State Party as low, further consideration should be given to potential indirect and cumulative impacts. Climate change will have further significant impacts on both the marine part of the property, with increasing impacts on its coral ecosystems, and its terrestrial areas which are already vulnerable to fires. At the time, the capacity of site management to address these numerous threats has been limited by the lack of financial and human resources.

Current state and trend of VALUES

High Concern
Trend: Deteriorating

While no systematic data is available to evaluate the current conservation status of key habitats and species that make up the property’s OUV, studies on populations of certain species provide some indicators in this regard. Given the increasing pressures on the property from illegal hunting, fishing and other resource extraction, it is likely that populations of many species are being significantly affected.
The important successes in restoration of the dry forest are, unfortunately, being offset by the increasingly apparent impacts of climate change, especially with respect to wetland, cloud forest, and Atlantic rainforest species. Coral bleaching has been observed with the coral reefs of the property in recent years and work

is ongoing to identify corals which have been most resilient.

Overall THREATS

High Threat

The property is facing numerous threats, including illegal resource extraction (illegal hunting, fishing, collection of sea turtle eggs and capture of some species for pet trade), fires and pressures from the surrounding agricultural areas, including pollution by agrochemicals. While no systematic information is available about the impacts on populations of key species, the combination of these factors raises serious concerns. While potential impacts of the geothermal energy project close to the boundaries of the property at the Rincón de la Vieja sector have been assessed by the State Party as low, further consideration should be given to potential indirect and cumulative impacts. Climate change will have further significant impacts on both the marine part of the property, with increasing impacts on its coral ecosystems, and its terrestrial areas which are already vulnerable to fires. The plans for the development of a “Canal Seco” transportation corridor (Interoceanic Dry Canal) which would connect the Pacific coast with the Caribbean coast raise serious concerns. However, no information is available about the current status of these plans.

Overall PROTECTION and MANAGEMENT

Some Concern

Even though the Area de Conservación Guanacaste is one of the iconic and well-known protected areas in Costa Rica and while effective management programmes are in place (including the 2014 Integrated Management Plan), the property faces a number of challenges. One of the main causes is the lack of financial and human resources which hinders effective implementation of the management programmes and effective law enforcement in the face of numerous and increasing threats, including illegal hunting, fishing and collection of sea turtle eggs, as well as fires.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► Complex ecological processes and interactions at all levels of biodiversity

Criterion:(ix)

A striking feature of Area de Conservación Guanacaste is the wealth of ecosystem and habitat diversity, all connected through an uninterrupted gradient from the Pacific Ocean across the highest peaks to the lowlands on the Caribbean side. The many landscape and forest types include mangrove, lowland rainforest, premontane and montane humid forest, cloud forest, as well as oak forest and savannah with evergreen gallery forest along the many water courses. Along the transect, the property allows migration, genetic exchange and complex ecological processes and interactions at all levels of biodiversity, including between land and sea. The vast dry forest is a rare feature of enormous conservation value, as most dry forests elsewhere in the region have become small fragmented remnants. Conservation has allowed the natural restoration of previously degraded forest ecosystems, currently serving again as a safe haven for the many species depending on this threatened ecosystem. Major nutrient-rich cold upwelling currents offshore result in a high marine productivity and are the foundation of a diverse coastal-marine ecosystem containing important coral reefs, algae beds, estuaries, mangroves, sandy and cobble beaches, shore dunes and wetlands (SoOUV, 2013).

► Globally important site for conservation of the tropical biodiversity

Criterion:(x)

The Site is globally important for in situ conservation of the tropical biological diversity as it constitutes the only example in the Neotropics of a climatic and altitudinal transect, continuous and well protected, through a series of marine and terrestrial ecosystems that include dry, cloud and rain forests. In addition it allows the restoration and conservation of the largest, best preserved and most representative sample of species characteristic of the Neotropical dry forest, a highly vulnerable and currently endangered ecosystem. The variations in elevation, soils, and climatic conditions favour the existence of a high diversity of habitats with approximately 335,000 terrestrial species, which represent 67% of the species described for Costa Rica and an estimated 2.6% of the world biodiversity, in an area of only 147,000 ha. This outstanding variety of coastal-marine and terrestrial species, both residents and migratory, include some rare, endemic or endangered species. Thus, in the Property more than 7,000 species of plants coexist, among which some of the best-conserved Central American populations of mahogany (Swietenia macrophylla), royal guayacan (Guaiacum sanctum), and several agave and cactus species. Likewise, a remarkable diversity of Lepidoptera (more than 10,000 species) and 942 vertebrate species, many of these vulnerable or endangered such as the jaguar (Panthera onca), the wild pig (Tayassu pecari), the yellow-naped parrot (Amazona auropalliata), the spider monkey (Ateles geoffroyi) and the olive Ridley sea turtle (Lepidochelys olivacea), which find suitable and viable habitats for their conservation in the Site. Charismatic and representative reptiles include the vulnerable American Crocodile (Crocodylus acutus) and the spectacled caiman (Caiman crocodilus). Several species of sea turtles breed and nest in the property, such as the critically endangered leatherback turtle (Dermochelys coriacea) and a massive breeding population of the vulnerable olive Ridley turtle. Invertebrate diversity is extraordinary, with an estimated 20,000 species of beetles, 13,000 species of ants, bees and wasps, and 8,000 species of butterflies and moths (SoOUV, 2013).

Other important biodiversity values

► Other international designations

The Area lies within a Conservation International-designated Conservation

Hotspot, a WWF Global 200 Eco-region and encloses two small Ramsar wetland sites

Assessment information

Threats

Current Threats

High Threat

The property is facing numerous threats, including illegal resource extraction (illegal hunting, fishing, collection of sea turtle eggs and capture of some species for pet trade), fires and pressures from the surrounding agricultural areas, including pollution by agrochemicals. While no systematic information is available about the impacts on populations of key species, the combination of these factors raises serious concerns.

▶ **Fishing / Harvesting Aquatic Resources**

Low Threat
Inside site, scattered(5-15%)
Outside site

Commercial fishing for shrimp in the areas surrounding the marine component of the property and artisanal fishing for snappers and crabs combine to alter the very rich marine ecosystems (UNEP-WCMC, 2011). Fishing of reef fish is also occurring at Area de Conservación Guanacaste (Cortés et al., 2010). Illegal fishing also occurs within the property (UNESCO, 2017).

▶ **Hunting (commercial/subsistence), Poaching**

High Threat
Inside site, extent of threat not known

Illegal hunting has been reported to occur in the property, including for commercial and recreational purposes (UNESCO, 2017). While no impacts of these activities on the populations of target species have been estimated, it

can have potentially significant negative impacts.

▶ Fire/ Fire Suppression

High Threat
Inside site, scattered(5-15%)
Outside site

The area is vulnerable to fires caused by farming and ranching in the surrounding areas, as well as illegal hunting within the property. The important dry forests are particularly vulnerable (UNESCO, 2017).

▶ Other Biological Resource Use

High Threat
Inside site, extent of threat not known

Illegal collection of sea turtle eggs for their assumed medicinal purposes has been reported (UNESCO, 2017). This threat is particularly worrying given the reported declines in the mass nestings (arribadas) of the Olive Ridley turtle at Playa Nancite within the property (UNESCO, 2017).

▶ Water Pollution

Low Threat
Outside site

Issues with pollution brought to the property by marine currents is of important concern (IUCN Consultation, 2014).

▶ Temperature extremes

Very High Threat
Inside site, throughout(>50%)
Outside site

On-going climate change results in a warmer and drier climate and has increased fire potential, not only in the dry forest, but now also increasingly in moist forests. Habitat shifts to higher elevations are now being detected in terrestrial areas. Altitudinal migration from the dry forest to the mountains of some species has been noted over the last 15 years due to effects of climate change (https://www.acguanacaste.ac.cr/acg, accessed 11 September 2017). Other effects on the terrestrial environments include droughts, increased risks of fires and decreasing water availability (Various media sources,

https://www.ameliarueda.com/nota/cambio-climatico-guanacaste-desertificacion-alerta-SINAC, accessed 11 September 2017). Coral reefs in the Pacific areas of Costa Rica have been significantly affected in the last two decades due to El Niño (Cortés et al., 2010). Coral bleaching has been observed with the coral reefs of the property in recent years and work is ongoing to identify corals which have been most resilient (Area de Conservación Guanacaste, 2017 - https://www.acguanacaste.ac.cr/38-espanol/noticias/noticias-programa-de-investigacion/3859-buscando-corales-sobrevivientes-de-blanqueamiento-en-el-sector-marino, accessed 11 September 2017).

▶ Crops

High Threat
Outside site

Agricultural areas outside the property are affecting it in a number of ways, including through pollution by agrochemicals (UNESCO, 2017).

Potential Threats

High Threat

While potential impacts of the geothermal energy project close to the boundaries of the property at the Rincón de la Vieja sector have been assessed by the State Party as low, further consideration should be given to potential indirect and cumulative impacts. Climate change will have further significant impacts on both the marine part of the property, with increasing impacts on its coral ecosystems, and its terrestrial areas which are already vulnerable to fires. The plans for the development of a “Canal Seco” transportation corridor (Interoceanic Dry Canal) which would connect the Pacific coast with the Caribbean coast raise serious concerns. However, no information is available about the current status of these plans.

▶ Renewable Energy

Low Threat
Outside site

A geothermal energy project has been approved with geothermal generation installations to be located at the Rincon de la Vieja volcano and potentially

impacting on one of the components of this serial site (Various news sources, 2014). The project includes several phases with some geothermal facilities already in place and further ones being planned. The potential impacts of the project have recently been assessed as low (State Party of Costa Rica, 2016) and the previously discussed plans to excise 1,056 ha from the protected area to facilitate the project have now been abandoned. All geothermal infrastructure would be located outside the boundaries of the property and a project is currently being implemented to assess potential impacts on biodiversity (State Party of Costa Rica, 2016). While the confirmation that no geothermal facilities would be located within the property is reassuring, the fact that the project site is just outside the boundaries of the property raises concerns. Furthermore, more consideration should be given to indirect and cumulative impacts of the project and other activities and development (UNESCO, 2017).

► Temperature extremes

Very High Threat
Inside site, throughout(>50%)
Outside site

As the rate of climate change increases, habitat shifts will be accelerated, a number of cloud forest species will die out, the chances of fire in moist and wet forests will increase dramatically, and fire incursions from private properties in the buffer zone will increase (Science Daily, 07.17.08; Global Post, 10.01.10).

► Shipping Lanes, Roads/ Railroads

Very High Threat
Inside site, extent of threat not known
Outside site

There exist plans to develop an Interoceanic Dry Canal (Canal Seco) which connect the Pacific Coast with the Caribbean coast through a combination of transport infrastructure (ports, highways, railways), primarily for cargo transport (Various media sources, see for example https://www.crhoy.com/nacionales/2017-el-ano-del-canal-seco-interoceanico/, accessed 11 September 2017). Given that the infrastructure would need to go through areas in close vicinity of the property or even through it due to its geographic location (http://www.nacion.com/nacional/infraestructura/Area-

Conservacion-Guanacaste-afectaria-protegida_0_1597840303.html), potential impacts on the property would be extremely high. However, no detailed information is available about the current status of these plans.

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

Decades of work with local communities, hiring of local workers, inclusion of local people on the Area's Management Committee, and long-term environmental education efforts, have resulted in relatively good relationships with most local people (WCMC Data Sheet, 2011; IUCN Consultation, 2010). However, despite these efforts, concerns remain and the increasing pressures on the property from illegal hunting and fires indicate potential conflicts with the surrounding communities (IUCN Consultation, 2017). Additional efforts are also required to work more closely with the surrounding ranches in order to prevent any potential human-wildlife conflicts. Working more closely with local communities, building support and developing cooperation and partnerships would also help to some extend mitigate the scarce resource available for the management of the property and even reduce some threats (IUCN Consultation, 2017).

► Legal framework

Highly Effective

The legal framework is based on comprehensive national legislation.

► Enforcement

Some Concern

Enforcement presents many challenges, including in the marine and coastal parts of the property. Illegal hunting and accidental and intentional fires still occur (UNESCO, 2017). The capacity to ensure effective law enforcement is limited by the lack of human and financial resources.

▶ Integration into regional and national planning systems

Some Concern

The Guanacaste Conservation Area is a regional system, but as of 2006, no planning system was in place at the regional level, and overall strategic plans at the national level were heavily criticized (Bermudez Acuña, 2006). No recent information is available on this matter, but concerns have been expressed that the property finds itself isolated within the surrounding agricultural landscape with the associated pressures (UNESCO, 2017). Cooperation with Nicaragua appears to be very limited despite the close location next to the international border (IUCN Consultation, 2017).

▶ Management system

Mostly Effective

Good management system is in place with a new Integrated Management Plan (IMP) elaborated in 2014 (State Party of Costa Rica, 2017). However, effective implementation of management programmes is hindered by the lack of human and financial resources.

▶ Management effectiveness

Some Concern

Lack of financial and human resources significantly affect the capacity of site management to fully implement its management programmes and to address the numerous threats that the property is facing (UNESCO, 2017).

▶ Implementation of Committee decisions and recommendations

Data Deficient

There most recent World Heritage Committee Decision (2017) included a number of requests to the State Party; however, it is too early to assess effectiveness of their implementation.

▶ Boundaries

Mostly Effective

The property consists of different sectors and includes both marine and terrestrial areas which contributes to its high diversity of habitats and the

conservation of the uninterrupted gradient from the Pacific Ocean across the highest peaks to the lowlands on the Caribbean side (World Heritage Committee, 2013).

▶ Sustainable finance

Some Concern

A Trust Fund for the management of the property has been in place since the late 1980s, and provides the property with long-term funding that is complemented by government finance, and user fees (WCMC, 2011). The Guanacaste Dry Forest Conservation Fund (http://www.gdfcf.org) invests about USD 1,000,000 annually in supporting 26% of the 150 ACG staff members (IUCN Consultation, 2013). However, the property is not sustainable financially without this external funding (IUCN Consultation, 2017). Lack of financial resources has been reported as a significant constraint (UNESCO, 2017).

▶ Staff training and development

Some Concern

Lack of human resources has been reported as a significant constraint (UNESCO, 2017). Moreover, the limited personnel has to devote a significant amount of time and efforts to tourism management and the capacity and expertise for wildlife monitoring and management is limited (IUCN Consultation, 2017).

▶ Sustainable use

Highly Effective

The major uses permitted in the property are tourism, education and research, and all are carried out on a sustainable basis (UNEP-WCMC, 2011).

▶ Education and interpretation programs

Mostly Effective

On-going education and interpretation programs for local communities and schools have been part of the management programs; however, no up-to-date information is available on this matter.

▶ Tourism and visitation management

Mostly Effective

A visitor center in Santa Rosa National Park provides information to visitors on restoration of the dry forest ecosystem, biodiversity in general, available activities, and the historic significance of the Casona historic site (UNEP-WCMC, 2011).

▶ Monitoring

Some Concern

No recent information is available on this matter; however, given the overall lack of financial and human resources (UNESCO, 2017), the large territory of the property and the diversity of its habitats and species, the capacity of site management to undertake comprehensive monitoring of key species and habitats is most likely limited.

▶ Research

Highly Effective

There are 5 research stations distributed throughout the property, and about 100 new scientific papers are published every year. Research programs include forest ecology, fauna, savanna succession, effects of fire, and the behavior and ecology of vertebrate fauna, notably the olive Ridley turtle. (UNEP-WCMC, 2011).

Overall assessment of protection and management

Some Concern

Even though the Area de Conservación Guanacaste is one of the iconic and well-known protected areas in Costa Rica and while effective management programmes are in place (including the 2014 Integrated Management Plan), the property faces a number of challenges. One of the main causes is the lack of financial and human resources which hinders effective implementation of the management programmes and effective law enforcement in the face of numerous and increasing threats, including illegal hunting, fishing and

collection of sea turtle eggs, as well as fires.

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

Data deficient

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Complex ecological processes and interactions at all levels of biodiversity**
Critical
Trend:Deteriorating

On-going recuperation of the dry forest habitat is one of the success stories of conservation of this property. At the same time, the impacts of climate change on ecological processes in both marine and terrestrial environments are already evident, causing significant and measureable impacts on vulnerable species. The uninterrupted natural gradients of the property from sea-level to mountain tops, and the variations in elevation soils and climate facilitate the shifting of lowland and lower montane habitats upwards, but cloud forest habitats and rain forest habitats are less able to adapt and are suffering the greatest impacts (UNEP-WCMC, 2011).

▶ **Globally important site for conservation of the tropical biodiversity**
High Concern
Trend:Stable

While no systematic data is available to evaluate the current conservation status of key habitats and species that make up the property’s OUV, studies on populations of certain species provide some indicators in this regard.
A recent study estimating abundancy of some feline species in Santa Rosa National Park, which forms part of the property, found an increase in the

numbers of the jaguar (Panthera onca) between 2001 and 2011 and a decrease in the number of cougars during the same period; the number of ocelots remained stable (Guadamuz et al., 2015).
Given the increasing pressures on the property from illegal hunting, fishing and other resource extraction, it is likely that populations of many species are being significantly affected.
Concerns remain regarding the decline of mass nestings (arribadas) of the Olive Ridley turtle on the Playa Nancite within the property (State Party of Costa Rica, 2016).
The coral reefs within the property had been impacted by the effects of El Niño in the past (Cortés, 2010). Coral bleaching has been observed with the coral reefs of the property in recent years and work is ongoing to identify corals which have been most resilient (Area de Conservación Guanacaste, 2017 - https://www.acguanacaste.ac.cr/38-espanol/noticias/noticias-programa-de-investigacion/3859-buscando-corales-sobrevivientes-de-blanqueamiento-en-el-sector-marino, accessed 11 September 2017).

Summary of the Values

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

High Concern

Trend: Deteriorating

While no systematic data is available to evaluate the current conservation status of key habitats and species that make up the property's OUV, studies on populations of certain species provide some indicators in this regard.
Given the increasing pressures on the property from illegal hunting, fishing and other resource extraction, it is likely that populations of many species are being significantly affected.
The important successes in restoration of the dry forest are, unfortunately, being offset by the increasingly apparent impacts of climate change, especially with respect to wetland, cloud forest, and Atlantic rainforest species. Coral bleaching has been observed with the coral reefs of the property in recent years and work is ongoing to identify corals which have been most resilient.

Additional information

Benefits

Understanding Benefits

► Importance for research

Research work at the 5 research stations, distributed throughout the property, generate about 100 scientific papers every year. Research programs include forest ecology, fauna, savanna succession, the effects of fire, and the behavior and ecology of vertebrate fauna, notably the olive Ridley turtle. The inventory of vertebrates, insects and aquatic biota in the area has been ongoing since 1973 although the biota of the serpentine barrens is yet to be thoroughly studied. More than two million labelled insects from the property are deposited in the collections of the National Institute of Biodiversity (WCMC Data Sheet, 2011; Personal Communication, 2010; Molina, 1999).

► Access to drinking water

Area de Conservación Guanacaste is important for water provision and water regulation services (https://www.acguanacaste.ac.cr/acg).

Summary of benefits

The Site is globally important for biodiversity conservation as it constitutes a well-documented example of a continuous and well conserved and protected climatic and altitudinal transect in the Neotropics, through a series of marine and terrestrial ecosystems that include dry, cloud and rain forests. In addition, it allows the restoration of the largest, best-preserved and most representative sample of species characteristic of the Neotropical dry forest, a highly vulnerable ecosystem. The variations in elevation, soils, and climatic conditions favor the existence of a high diversity of habitats. Research work at the 5

research stations, distributed throughout the property, generates about 100 scientific papers every year.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	National Parks Foundation		Trust Fund for management of the Conservation Area
2	Guanacaste Dry Forest Conservation Fund		http://www.gdfcf.org

REFERENCES

№	References
1	Bermudez Acuna, Fernando. 2006. Resultados de la evaluacion de la efectividad de manejo de 25 areas silvestres protegidas de Costa Rica. Centro Cientifico Tropical. http://www.sinac.go.cr/libreria/efectividad_%20de_%20manejo…
2	Colette, Agustin. 2007. Case studies on Climate Change and World Heritage. World Heritage Center.
3	Cortés, J., Jiménez, C.E., Fonseca, A.C., Alvarado, J.J. 2010. Status and conservation or coral reefs in Costa Rica. Rev. Biol. Trop. (Int. J. Trop. Biol. ISSN-0034-7744) Vol. 58 (Suppl. 1): 33-50, May 2010
4	Eco-index. Projects in Guanacaste, Costa Rica. Rainforest Alliance. http://www.eco-index.org/search/results.cfm?ProjectID=658
5	Guadamuz, V., Bolaños, C., Carvajal, S., Jiménez, E. 2015. Abundancia del jaguar (Panthera onca), otros felinos y sus presas potenciales en el Parque Nacional Santa Rosa, Costa Rica. Cuadernos de Investigación UNED (ISSN: 1659-4266) Vol. 7(2): 305-311, Diciembre, 2015
6	Moline, Angie. 1999. Tropical dry forest restoration in the Guanacaste Conservation Area, Costa Rica. Restoration and Reclamation Review. Student on-line journal. 4.4.99. Univ. of Minn.
7	Science Daily, 17.07.08. Could Climate Change Impact Costa Rica. New Study says “Yes”. www.sciencedaily.com/releases/2008/07/080710200232.htm
8	State Party of Costa Rica (2016). Report of the State Party to the World Heritage Convention on the state of conservation of Area de Conservación Guanacaste (Costa Rica). Accessed 11 September 2017.
9	UNEP-WCMC Data Sheet, 2011
10	UNESCO (2017). Report on the State of Conservation of Area de Conservación Guanacaste. State of Conservation Information System of the World Heritage Centre. Accessed 11 September 2017.
11	http://www.acguanacaste.ac.cr/1997/manejo_admin/estr_adming…