IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 14 November 2014

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

2014 Conservation Outlook

Significant concern

The physical diversity of the Property from deep sea to mountain tops; the variation of terrestrial ecosystems with respect to elevation, soils, and climate; and the considerable success in managing and protecting the Property, especially with respect to restoration of dry forest habitats, are all important positive factors. Unfortunately, at the same time, climate change is having a negative impact on both marine and terrestrial ecosystems, especially with respect to wetlands, cloud forests, and rain forests, and the key species associated with them. A number of other current and potential threats can also have significant impacts on the site's values.

Current state and trend of VALUES

High Concern
Trend: Deteriorating

While the current state of World Heritage values is relatively positive, the trend is negative. 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.

Overall THREATS

High Threat

While the overall number of threats is low, the effects of climate change are serious; the warming of ocean waters threaten the marine environment, and warming and drying of terrestrial environments is causing habitat shifts and increasing susceptibility to fire in moist forests; overfishing and pollution in the marine environment are also of concern. Climate change could have significant impacts on the site's values. A new geothermal energy project could potentially

affect one of the componet protected areas of this serial site - Rincon de la Vieja National Park.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Protection and management are carried out with relative effectiveness, well above national and regional standards, though concerns exist with respect to management planning and staff training. The Trust Fund for management of the Area has been in place since the late ‘80s, and provides the Area with long-term finance.

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. Beyond the distinction into land and sea, the many landscape and forest types comprise mangroves, lowland rainforest, premontane and montane humid forest, cloud forest, as well as oak forests and savannahs with evergreen gallery forests along the many water courses. Along the extraordinary 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 are fragmented remnants only. Conservation has permitted the natural restoration of the previously degraded forest ecosystem, today serving again as a safe haven for the many species depending on this acutely 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, algal 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 which include the 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 ecosystem and currently endangered to disappear. The variations in elevation, soils, and present climatic conditions favor the existence of a high diversity of habitats with approximately 335,000 land species, which represent a 67% of the species described for Costa Rica and a 2.6% of the world biodiversity, in an area of only 147,000 ha. This outstanding variety of coastal-marine and land species, both residents as migratory, include some rare, endemic or endangered to extinction. Thus, in the Property coexist more than 7,000 species of plants, among which outstand mahogany (Swietenia macrophylla), royal guayacan (Guaiacum sanctum), several species of agaves and cactus with the best conserved populations of Central America. Likewise, a remarkable diversity of Lepidoptera (more than 10,000 species) and 942 vertebrate species, many of these vulnerable or endangered to extinction 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 in the Site suitable and viable habitats for their conservation in perpetuity. Charismatic representatives of reptiles include the vulnerable American Crocodile and the Spectacled Caiman. Several species of sea turtles occur in the property, with the critically endangered Leatherback nesting and a massive breeding population of the vulnerable Olive Ridley. 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

While the overall number of threats is low, the effects of climate change are serious; the warming of ocean waters threaten the marine environment, and warming and drying of terrestrial environments is causing habitat shifts and increasing susceptibility to fire in moist forests; overfishing is an on-going, though treatable problem in the marine environment.

► Temperature changes

High Threat
Inside site
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 increasingly in moist forests. Habitat shifts to higher elevations are now being detected in terrestrial areas, and corals are experiencing disease and dieback in the marine section of the Area. Warmer temperatures are also affecting crocodiles. Sex ratios are determined by egg temperatures while in the nest, and with higher temperatures fewer females are being born (Science Daily, 07.17.08; Global Post, 10.01.10; Colette, 2007)

► Water Pollution

High Threat
Outside site

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

► Fishing / Harvesting Aquatic Resources

High Threat
Inside site
Outside site

Commercial fishing for shrimp and artisanal fishing for snappers and crabs combine to alter the very rich marine ecosystems. (WCMC Data Sheet, 2011)

Potential Threats

High Threat

Climate change could have significant impacts on the site's values. A new geothermal energy project could potentially affect one of the componet protected areas of this serial site - Rincon de la Vieja National Park.

► Renewable Energy

High Threat
Outside site

A new geothermal energy project has recently 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).

► Temperature changes

High Threat
Inside site
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)

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

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; Confidential Consultation, 2010).

► Legal framework and enforcement

Highly Effective

The legal framework is based on comprehensive national legislation and enforcement within the Conservation Area is considered among the best within the National Protected Area System.(Bermuda Acuña, 2006)

► 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 (Bermuda Acuña, 2006)

► Management system

Mostly Effective

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► Management effectiveness

Mostly Effective

The Santa Rosa and Rincon de la Vieja National Parks, major components of the Guanacaste Conservation Area, are some of the best managed in Costa Rica according to studies of management effectiveness. The success of dry forest restoration efforts is particularly noteworthy (WCMC Data Sheet, 2011; Bermudez Acuña, 2006).

▶ Implementation of Committee decisions and recommendations

Highly Effective

There are no recent Committee decisions regarding this site.

▶ Boundaries

Some Concern

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▶ Staff training and development

Some Concern

About 80% of staff are locals, so training and development is important. The Trust Fund finances staff participation in local, regional, and national training events, but an evaluation of management effectiveness indicates that more work needs to be done to systematize and maintain training efforts year by year. (WCMC Data Sheet, 2011; Confidential consultation, 2010; Bermudez Acuña, 2006).

▶ Sustainable use

Highly Effective

The major uses permitted in the Conservation Area are tourism and research, and both are carried out on a sustainable basis. (WCMC Data Sheet, 2011).

▶ Education and interpretation programs

Highly Effective

On-going education and interpretation programs for local communities and schools are given high priority and are seen as key elements of resource management programs. These programs have been key to changing local

community attitudes towards conservation (WCMC data Sheet, 2011)

▶ Tourism and interpretation

Mostly Effective

Tourism is a minor activity in the Conservation Area. A visitor center at the Casona Historic Site within Santa Rosa National Park provides information to visitors on restoration of the dry forest ecosystem, biodiversity in general, potential visitor activities, and the historic significance of the Casona (WCMC Data Sheet, 2011)

▶ Monitoring

Highly Effective

Monitoring of native flora and fauna is on-going and is supported by the Area's 5 research stations. (WCMC, Data Sheet, 2011; Confidential consultation, 2010)

▶ Research

Highly Effective

There are 5 research stations distributed throughout the Conservation Area, and about 100 new scientific papers on the area are published each year. Research programs include, among others, forest ecology, the local 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 labeled insects from
the area are deposited in the collections of the National Institute of Biodiversity (WCMC Data Sheet, 2011; Confidential consultation, 2010; Molina, 1999)

▶ Sustainable finance

Mostly Effective

A Trust Fund for management of the Area has been in place since the late '80s, and provides the Area with long-term finance that is complemented by government finance, and user fees. (WCMC, 2011) the Guanacaste Dry

Forest Conservation Fund (http://www.gdfcf.org) that invests about $1 m annually in supporting 26% of the 150 ACG staff members (IUCN Consultation, 2013).

Overall assessment of protection and management

Mostly Effective

Protection and management are carried out with relative effectiveness, well above national and regional standards, though concerns exist with respect to management planning and staff training. The Trust Fund for management of the Area has been in place since the late ‘80s, and provides the Area with long-term finance.

▶ **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**

High Concern
Trend:Deteriorating

On-going recuperation of the dry forest habitat is one of the success stories of conservation. At the same time, the impacts of climate change on ecological processes in both marine and terrestrial environments are already evident, causing measureable impacts on particularly vulnerable species. The uninterrupted natural gradients of the Conservation Area from sea-level to mountain tops, and the variations in elevation soils and climate facilitate the shifting upwards of lowland and lower montane habitats, but cloud forest

habitats and rain forest habitats are less able to adapt and are receiving the greatest impacts (WCMC Data Sheet, 2011; Science Daily, 17.07.08; Colette, 2007).

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

The effects of climate change, which alter ecological and biological processes in both marine and terrestrial environments, play out in the loss of biological diversity and particularly vulnerable threatened species. (WCMC Data Sheet, 2011; Science Daily, 17.07.08; Colette, 2007).

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

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**
High Concern
Trend: Deteriorating

While the current state of World Heritage values is relatively positive, the trend is negative. 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.

Additional information

Key conservation issues

► Climate change

Global

By far the most important negative conservation issue for this Property is climate change. While altitudinal diversity of the Property will be a positive factor in allowing habitats to shift in response to climate change, it will not be able to ameliorate negative effects on wetlands, cloud forests, and rain forests and associated species. (Science Daily, 07.17.08; Global Post, 10.01.10; Colette, 2007)

Benefits

Understanding Benefits

► Is the protected area valued for its nature conservation?

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 which include the 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 ecosystem and currently endangered. The variations in elevation, soils, and present climatic conditions favor the existence of a high diversity of habitats with approximately 335,000 land species, which represent a 67% of the species described for Costa Rica and a 2.6% of the world biodiversity, in an area of only 147,000 ha. This outstanding variety of coastal-marine and land species, both residents as migratory, include some rare, endemic or endangered to extinction. Thus, in the Property coexist more than 6,000 species of plants. (SOUV)

► Importance for research

Research work at the 5 research stations, distributed throughout the Conservation Area, generate about 100 new scientific papers on the area which are published each year. Research programs include, among others,

forest ecology, the local 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 labeled insects from the area are deposited in the collections of the National Institute of Biodiversity (WCMC Data Sheet, 2011; Personal Communication, 2010; Molina, 1999)

Summary of benefits

The Site is globally important for biodiversity conservation 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 which include the 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 present climatic conditions favor the existence of a high diversity of habitats. Research work at the 5 research stations, distributed throughout the Conservation Area, generates about 100 new scientific papers on the area, which are published each 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	Eco-index. Projects in Guanacaste, Costa Rica. Rainforest Alliance. http://www.eco-index.org/search/results.cfm?ProjectID=658
4	Moline, Angie. 1999. Tropical dry forest restoration in teh Guanacaste Conservation Area, Costa Rica. Restoration and Reclamation Review. Student on-line journal. 4.4.99. Univ. of Minn.
5	Science Daily, 17.07.08. Could Climate Change Impact Costa Rica. New Study says “Yes”. www.sciencedaily.com/releases/2008/07/080710200232.htm
6	UNEP-WCMC Data Sheet, 2011
7	http://www.acguanacaste.ac.cr/1997/manejo_admin/estr_adming…