IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 27 October 2014

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

Cocos Island National Park

SITE INFORMATION

Country:
Costa Rica
Inscribed in: 1997
Criteria:
(ix) (x)

Site description:
Cocos Island National Park, located 550 km off the Pacific coast of Costa Rica, is the only island in the tropical eastern Pacific with a tropical rainforest. Its position as the first point of contact with the northern equatorial counter-current, and the myriad interactions between the island and the surrounding marine ecosystem, make the area an ideal laboratory for the study of biological processes. The underwater world of the national park has become famous due to the attraction it holds for divers, who rate it as one of the best places in the world to view large pelagic species such as sharks, rays, tuna and dolphins. © UNESCO

SUMMARY

2014 Conservation Outlook

Significant concern

The conservation outlook for Cocos Island is of significant concern due to the degree of threat to marine ecosystems from commercial and sport fishing, climate change (ocean acidification and temperature spikes), and physical damage to reefs (divers and anchors), as well as the continuing impacts of exotic species on terrestrial ecosystems. Even if level of individual threats might be not very high, they remain important threats that will become more significant if they continue to increase and/or when combined with natural climate variations and oscillations. Inadequate levels of staffing and financing render management programs ineffective in dealing with the key threats.

Current state and trend of VALUES

High Concern
Trend: Data Deficient

On-going ecological and biological processes, biodiversity, and the habitats of threatened species are all currently threatened by degradation of marine ecosystems through illegal commercial and sport fishing and multiple impacts on coral reef formations (periodic elevations in ocean temperatures, ocean acidification, and diver and anchorage damage), as well as by threats to terrestrial ecosystemscaused by introduced species. The level of threat remains static due to the inadequacy of human and financial resource for management

Overall THREATS

High Threat

Threats to the Property are significant. The greatest immediate threats are illegal commercial and sport fishing and introduced species, but the effects of climate change on coral reefs (ocean acidification and temperature spike), and reef damage by recreational divers are also continuing concerns. Ocean acidification

can be expected to have major impacts on near shore environments because it will impede the up-take of calcium carbonate by corals and shells.

Overall PROTECTION and MANAGEMENT

Some Concern

Current levels of staffing and finance are low and make it difficult to implement the management plan for the Property. Of greatest concern are the inadequacy of marine equipment and personnel in support of law enforcement, and the lack of programs to eliminate exotic terrestrial species.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Outstanding and complex mosaic of marine environments**
  Criterion:(ix)

  The Property includes an outstanding and complex mosaic of land and marine environments in an area of only 202100 ha including estuaries, bays, waterfalls, sandy and rocky beaches, forests, mountains, rivers, rocky cliffs, coral reefs and pelagic environments. It also has the most diverse and extensive coral reefs of the entire Tropical Eastern Pacific. The existence of an oceanic emerged elevation, isolated for more than 500 Km from the continent, occupied in its most part by a rain tropical forest ecosystem, and on its highest point (above 500 m) by a cloud forest ecosystem, has allowed the biological and evolutionary processes in the Cocos Island National Park to be unique and irreplaceable, giving origin to countless endemic species in the most diverse taxonomic groups. Furthermore, its location at the point of contact of the North Equator counter current and the ecological interactions between the island and the surrounding marine ecosystems, make this place an exceptional natural laboratory for the study of marine biological processes, the Site also being an important cleaning station working as a mingling point of several migratory pelagic species, and at the same time, as a dispersion center of marine species larvae coming from the entire Pacific. On another hand, the small jutting and surrounding rocks around the island give support to nesting colonies and provide resting places for different bird species, both migratory and resident (draft retrospective SOUV).

► Remarkable diversity of endemic species

Criterion:(x)

In its land component, the Property supports the only tropical forest ecosystems (rainy and cloudy) located on an oceanic island of the Tropical Eastern Pacific. This special condition allows shelter to a remarkable diversity of endemic species, including five endemic land vertebrate species: two reptiles (Norops townsendii and Sphaerodactylus pacificus) and three birds (Pinaroloxias inornata, Coccyzus ferrugineus and Nesotriccus ridgwayi). On its side, the plant species present an endemic level close to 30%, outstanding three endemic species: steel tree (Sacoglottis holdridgei), guarumo (Cecropia pittieri) and coconut palm tree (Rooseveltia frankliana). The Cocos Island National Park is the main site in the Tropical Eastern Pacific destined for the protection of the great migratory pelagic species, among them different species of sharks such as the silky shark (Carcharhinus falciformis), the Galapagos shark (Carcharhinus galapaguensis), the white-tip shark (Carcharhinus albimarginatus), the black-tip shark (Carcharhinus limbatus) and the emblematic hammerhead shark (Sphyrna lewini) (draft retrospective SOUV).

Other important biodiversity values

► Other international designations

It is a distribution centre for the larvae of marine species and it lies within a Conservation International-designated Conservation Hotspot, is a BirdLife-designated Endemic Bird Area and a Ramsar wetland.

Assessment information

Threats

Current Threats

High Threat

Impacts from illegal commercial and sport fishing, climate change (spikes in ocean temperatures), exotic species, and reef damage by recreational divers pose significant threats to the conservation of both marine and terrestrial ecosystems

▶ Erosion and Siltation/ Deposition

Low Threat
Inside site

Careless divers have damaged coral reefs through anchor damage and through physical contact with corals (Chasqui Velasco, 2007).

▶ Other

High Threat

Overall, introduced species make up 27% of the flora of the island. Introduced fauna, such as the pig, cat, rat, and goat have had major impacts native species, though data are deficient with respect to specifics (WDPA Data Sheet, 2011; Cubero Campos, 2010; Onca Natural, 2007)

▶ Temperature changes

High Threat
Inside site
Outside site

The biggest documented impacts from climate change so far have been limited to the die-off of reefs during years in which the El Nino current brings warmer waters to the island; there may also be impacts from ocean acidification, and on the cloud forest habitat, but this has not been documented. (WDPA Data Sheet, 2011; Onca Natural,2007)

▶ Fishing / Harvesting Aquatic Resources

Very High Threat

Inside site
Outside site

Illegal fishing of tuna and sharks within the protected area is seriously compromising its fauna and ecosystems, as well as the capacity to maintain reproduction levels and productivity. Sport fishing and extracting lobsters and seabass, which are endemic to the site add to the thrat (UNEP-WCMC Data Sheet, 2011; Cubero Campos, 2010; Onca Natural, 2007; Bolivar et al, 2000; Informe final, 2012).

Potential Threats

High Threat

Ocean acidification can be expected to have major impacts on near shore environments because it will impede the up-take of calcium carbonate by corals and shells.

► Chemical changes in oceanic waters

High Threat
Outside site

Globally, ocean acidification is progressing much faster than had been previously been expected. This will potentially affect the marine components of the Park by impeding the uptake of calcium carbonate for coral and shell formation, which would in turn have a particular impact on near shore marine environments. (Zimmer, 2010).

Protection and management

Assessing Protection and Management

► Tourism and interpretation

Some Concern

A number of interpretive materials, including brochures and videos, are available for the visitors.

▶ Relationships with local people

Data Deficient

Not applicable

▶ Integration into regional and national planning systems

Highly Effective

The Park is well integrated into regional and national planning systems (Onca Natural, 2007)

▶ Management system

Some Concern

Management of the Property is guided by 6 year general management and public use plans, developed in 2007, and annual operational plans. A 2010 review of the management plan concluded that it could not be implemented because of inadequate human and financial resources. For example, the current staff level is 21 vs. the 33 contemplated in the management plan. (WDPA, 2011; Cubero Campos, 2010; Onca Natrual, 2007; Bolivar et al, 2000).

▶ Implementation of Committee decisions and recommendations

Data Deficient

Not applicable

▶ Boundaries

Data Deficient

Marine boundaries are established as coordinates and are unambiguous. (Onca Natural, 2007; Cubero Campos, 2010

▶ Education and interpretation programs

Some Concern

While sporadic efforts to develop interpretive programs have been developed, there is no long-term program in place mainly due to financial and staff limitations. (Cubero Campos, 2010)

► Monitoring

Some Concern

Some monitoring programmes exist, however, a comprehensive monitoring system is lacking, mainly due to the lack of financial and human resources.

► Legal framework and enforcement

Some Concern

While the legal framework is strong, enforcement is insufficient because of inadequate financial and human resources, and the distance from the mainland (Onca Natural, 2007). However, some progress in improving the situation has been achieved, e.g. a new radar system is planned to be installed by the end of 2014 (IUCN Consultation, 2014).

► Sustainable use

Mostly Effective

Research and tourism are the only permitted uses, but both areas would benefit from improved management (Onca Natural, 2007; Cubero Campos, 2010

► Research

Mostly Effective

Research has included studies of land birds, terrestrial flora, the biogeographic affinities of insects, and the impacts of introduced pigs and tourism. Benthic biodiversity assessments, seafloor mapping, electronic tagging and remote sensing technologies have been developed by the Tagging of Pacific Pelagics project. (Cuberos Campos, 2010) The National Park also collaborates with national universities. Research areas include fish biomass, coral reef coverage, new species identification, oceanography, plankton biology, benthic fauna, algae, etc.

► Management effectiveness

Serious Concern

The limited availability and poor maintenance of patrol craft is a constant problem that limits management effectiveness; marine patrols are carried

out on a cooperative basis by the park staff and the coast guard. (Cubero Campos, 2010; Bolivar et al, 2000).

► Staff training and development

Mostly Effective

A number of training and capacity needs have been identified (Onca Natural, 2007; Cubero Campos, 2010; Bolivar et al, 2000). Since 2012a local NGO Misión Tiburón has been carrying out capacity development with international financial support from UNESCO and with support from FAICO and BIOMARCC. The objectives of the programme include development of staff capacity in the fields of marine ecology and conservation of marine species, as well as biological monitoring.

► Sustainable finance

Some Concern

Finance for the Property is neither sustained nor adequate. The Central Government contributes about 30% of the annual budget for park protection and management. Entrance fees are collected but revert back to the central treasury. The Friends of Cocos Island Foundation, (FAICO) created in 1994, is an independent organization committed to the long-term management, protection and conservation of the island’s National Marine Park. It focuses on developing projects and obtaining funds (Onca Natural, 2007; Cubero Campos, 2010; Bolivar et al, 2000). Conservation International and Forever Costa Rica are investing nearly 2million dollars to provide the island with a radar system and develop the management plan of a new MPA that buffers Cocos Island NP (IUCN Consultation, 2014).

Overall assessment of protection and management

Some Concern

Current levels of staffing and finance are low and make it difficult to implement the management plan for the Property. Of greatest concern are the inadequacy of marine equipment and personnel in support of law enforcement, and the lack of programs to eliminate exotic terrestrial species.

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

Some Concern

Addressing threats originating from outside the site is limited by the lack of financial and human resources; however, some progress has been made in improving legal enforcement.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► Outstanding and complex mosaic of marine environments

High Concern
Trend:Data Deficient

Commercial and sport fishing activities, introduced terrestrial species and multiple impacts on coral reef formations (periodic elevations in ocean temperatures, ocean acidification, and diver and anchorage damage) represent major threats to on-going ecological and biological processes for both terrestrial and marine ecosystems. The level of threat continues due to inadequate human and financial resources for protection and management. (UNEP-WCMC, 2011; Onca Natural, 2007; Cubero Campos, 2010; Bolivar et al, 2000)

► Remarkable diversity of endemic species

High Concern
Trend:Data Deficient

Biodiversity, and the habitats of threatened species are all currently threatened by degradation of marine ecosystems through illegal commercial and sport fishing and multiple impacts on coral reef formations (periodic elevations in ocean temperatures, ocean acidification, and diver and anchorage damage), as well as by threats to terrestrial ecosystems caused by introduced species. The level of threat remains static due to inadequate

human and financial resources for protection and management (Onca Natural, 2007; Cubero Campos, 2010; Bolivar et al, 2000)

Other important biodiversity values

▶ Other international designations

It is a distribution centre for the larvae of marine species and it lies within a Conservation International-designated Conservation Hotspot, is a BirdLife-designated Endemic Bird Area and a Ramsar wetland.

Summary of the Values

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

High Concern

Trend: Data Deficient

On-going ecological and biological processes, biodiversity, and the habitats of threatened species are all currently threatened by degradation of marine ecosystems through illegal commercial and sport fishing and multiple impacts on coral reef formations (periodic elevations in ocean temperatures, ocean acidification, and diver and anchorage damage), as well as by threats to terrestrial ecosystemscaused by introduced species. The level of threat remains static due to the inadequacy of human and financial resource for management

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

High Concern

Trend: Data Deficient

The values associated with being designated a CI Conservation Hotepot, a BirdLife Endemic Bird Area, and a Ramsar Wetland, are threatened by the same factors affecting ecological processes and habitats of threatened species; that is, degradation of marine ecosystems by commercial sport fishing, ocean temperature changes and acidification, and physical damage to coral reefs by divers and anchors; and degradation of terrestrial ecosystems caused by introduced species. The level of threat remains static

due to inadequate human and financial resources for protection and management

Additional information

Key conservation issues

▶ Illegal commercial and sport fishing

Local

Illegal fishing of tuna and sharks within the protected area is seriously compromising its fauna and ecosystems, as well as the capacity to maintain reproduction levels and productivity. Sport fishing and extracting lobsters and seabass, which are endemic to the site add to the thrat (UNEP-WCMC Data Sheet, 2011; Cubero Campos, 2010; Onca Natural, 2007; Bolivar et al, 2000; Informe final, 2012).

▶ Introduced species

Local

Overall, introduced species make up 27% of the flora of the island. Introduced fauna, such as the pig, cat, rat, and goat have had major impacts native species, though data are deficient with respect to specifics (WDPA Data Sheet, 2011; Cubero Campos, 2010; Onca Natural, 2007)

▶ Reef damage by recreational divers

Local

Careless divers have damaged coral reefs through anchor damage and through physical contact with corals (Chasqui Velasco, 2007).

Benefits

Understanding Benefits

► Is the protected area valued for its nature conservation?

Conservation of endemic and threatened species, and protection of regional marine processes and productivity are of regional and global importance.

► Outdoor recreation and tourism

The site is recognized globally as the second most important dive site globally, and supports tourism development of the Pacific coast of Costa Rica.

► Importance for research

The outstanding universal values of the Property make it an important site for research, especially with respect to regional marine processes, and endemic terrestrial species.

Summary of benefits

Benefits from the conservation and protection of the property include conservation (especially of endemic and threatened species); economic development through diving tourism; and the generation of knowledge regarding regional marine processes and endemic terrestrial species.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Misión Tiburón		Misión Tiburón está realizando dos proyectos con los funcionarios: 1- Fortalecimiento del programa de Control y Vigilancia, a través de la capacitación del personal y compra de equipos para agilizar la colecta de línea ilegal; 2- Monitoreo de las poblaciones de tiburones de arrecifes en las principales bahías de la Isla. Gracias a estos proyectos, los funcionarios han publicado dos artículos científicos en Revista Biología Tropical, y otros dos fueron recientemente sometido a evaluación.

№	Organization/ individuals	Project duration	Brief description of Active Projects
2	Conservation International, Forever Costa Rica, ACMIC, MINAE, Coastguad, ICE		A project to deploy a new radar system on Cocos island is ongoing and set to be concluded and operational by the end of 2014
3	CIMAR, Universidad de Costa Rica		Marine research and monitoring

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Enhanced enforcement of fishing ban	Increases in staffing and marine patrol vessels, accompanied by improved maintenance.	
2	Elimination of introduced terrestrial species	Study of impacts of introduced species to determine which are the greatest threat, and then introduction of control programs to eliminate those threats using the most cost-effective and efficient methods.	

REFERENCES

№	References
1	Bolivar, Antonio et. al. 2000. LA PESCA EN LA ISLA DEL COCO, Estudio integral para el mejoramiento del control pesquero en la zona de influencia del Area de Conservación Marina y Terrestre Isla del Coco. Fundación de la Isla del Coco y Area De Conservacion Marina Isla del Coco.
2	Chasqui Velasco, Luis. 2007. Plan de Monitoreo del Impacto de Turismo Marino en el Parque Nacional Isla del Coco. MINAET
3	Cubero Campos, Yamileth. 2010 Evaluación Rápida del Plan de Manejo, Parque Nacional Isla de Coco. Práctica Professional Supervisada. Universidad Nacional, , Escuela de Ciencias Biologicas.
4	Eco-index. Projects in Cocos Island National Park, Costa Rica. Rainforest Alliance. http://www.eco-index.org/search/results.cfm?ProjectID=658
5	Onca Natural, 2007. Plan de Manejo del Parque Nacional Isla del Coco. MINAET.
6	Onca Natural, 2007. Plan de Uso Publico, Parque Nacional Isla del Coco. MINAET.
7	UNEP-WCMC Data Sheet, 2011
8	Zimmer, Carl. 15.02.10. An ominous warning on the effects of ocean acidification. Yale Environment 360. http://e360.yale.edu/feature/an_ominous_warning_on_the__eff...