IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 26 May 2014

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

Socotra Archipelago

SITE INFORMATION

Country:
Yemen
Inscribed in: 2008
Criteria:
(x)

Site description:
Socotra Archipelago, in the northwest Indian Ocean near the Gulf of Aden, is 250 km long and comprises four islands and two rocky islets which appear as a prolongation of the Horn of Africa. The site is of universal importance because of its biodiversity with rich and distinct flora and fauna: 37% of Socotra's 825 plant species, 90% of its reptile species and 95% of its land snail species do not occur anywhere else in the world. The site also supports globally significant populations of land and sea birds (192 bird species, 44 of which breed on the islands while 85 are regular migrants), including a number of threatened species. The marine life of Socotra is also very diverse, with 253 species of reef-building corals, 730 species of coastal fish and 300 species of crab, lobster and shrimp. © UNESCO

SUMMARY

2014 Conservation Outlook

Significant concern

Socotra's values are exceptional on a global scale and have been comparatively well preserved until very recently. Therefore, much is at stake currently, as the island is undergoing rapid development that brings about unprecedented pressures and threats. Current and potential threats to Socotra's value are increasing rapidly. Infrastructure development, tourism and unsustainable natural resource management (following the breakdown of traditional management) are already affecting the island. The management regime of Socotra needs to be strengthened (in terms of legislative basis, cross-sector mainstreaming, capacity, science-based decision making and use of traditional knowledge), in order to ensure sustainable development, and control pressures and threats.

Current state and trend of VALUES

High Concern
Trend: Deteriorating

Most of the existing key values have enjoyed a stable and satisfactory conservation status until the late 20th Century (mainly due to Socotra's isolation). The status of some values, particularly ecosystems and endemic flora, has begun to deteriorate since, with further deterioration predicted, following rapid ongoing socio-economic changes. The conservation status of reptiles and invertebrates is Data Deficient.

Overall THREATS

High Threat

Current and potential threats to Socotra's value are increasing rapidly. Infrastructure development, tourism and unsustainable natural resource management (following the breakdown of traditional management) are already

affecting the island. Additional future threats include further invasive species and climate change.

Overall PROTECTION and MANAGEMENT

Some Concern

A management framework for Socotra’s values is under development, taking in consideration institutional arrangements to facilitate the process of the implementation of management and conservation measures effectively. It should be improved to deal with the rapidly increasing pressures and threats to the archipelago’s values, including projected further increases in tourism, infrastructure development, and unsustainable natural resource use. Priority areas include the creation of an Island Wide Authority, visitor management and the participation of local people in management, including schemes to promote sustainable natural resource use where possible.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Complex assemblage of unique ecosystems**
Criterion:(x)

“The Galapagos of the Indian Ocean”: eight unique main types of vegetation/ecosystems with rich endemic biota. Part of the CI global biodiversity hotspot “Horn of Africa” (CI, 2013) and of the WWF Global 200 priority eco-region “Socotra Island Desert” (WWF, 2013).

▶ **Endemic flora and vegetation**
Criterion:(x)

308 endemic plant species (37%), 15 endemic genera. Global Centre of Plant Diversity (WWF & IUCN, 1994).

▶ **Endemic reptiles with their habitats**
Criterion:(x)

26 endemic reptile species, rich overall herpetofauna (Roesler & Wranik, 2004).

▶ **Endemic and endangered birds with their habitats**
Criterion:(x)

6 endemic and additional globally threatened bird species and 11 endemic subsoecies (BirdLife International, 2013a). Endemic Bird Area (BirdLife International, 2013a) and 19 Important Bird Areas (BirdLife International,

2013b).

▶ **Endemic invertebrates with their habitats**
Criterion:(x)

High endemism in terrestrial molluscs (95%), isopods (73%) and arachnids (ca. 60%) (SoOUV, 2008).

▶ **Coastal/marine biodiversity and habitats**
Criterion:(x)

High marine diversity and some regional endemism, 253 species of coral, 730 species of fish, 2 nesting species of sea turtle, many whale and dolphin species in vicinity (SoOUV, 2008).

Assessment information

Threats

Current Threats

High Threat

Having been relatively well-protected by its isolation until the beginning of the 21st Century, Socotra is now undergoing rapid development, which is resulting in high threats from increased natural resource use and infrastructure (particularly road) construction, as well as growing threats related to agriculture/horticulture.

▶ **Other**
Low Threat

Use of insecticide Temephos in anti-malaria campaigns since 2000. Localised effects on invertebrate fauna observed (Van Damme & Banfield, 2011). No effects beyond affected areas observed to date.

► Fishing / Harvesting Aquatic Resources

High Threat
Inside site
Outside site

Localized illegal hunting of sea turtles, collection of sea cucumbers, lobsters and shark fins on recently reported. Some collection of endemic plants and reptiles for international trade (Van Damme & Banfield, 2011).

► Livestock Farming / Grazing

Low Threat
Inside site
Outside site

Increasing number of home-garden projects for food (locally concentrated). Increased water demand, biocide pollution, exotic plant import, habitat loss to garden creation and fragmentation (Van Damme & Banfield, 2011).

► Roads/ Railroads

High Threat
Inside site
Outside site

> 900 km of roads constructed since 2001 (Van Damme & Banfield, 2011). Decree to sustainably manage road construction 2008 and political crisis since 2011 has temporarily reduced this pressure. Road construction may resume in the future (Abulhawa & Abdulhalim, 2013). Indirect effects include habitat and hydrological fragmentation, potentially wildlife mortality, waste and invasive species dispersal, disturbance, and enhanced access for natural resource use (Van Damme & Banfield, 2011).

Potential Threats

Very High Threat

In addition to a further aggravation of current threats, continued and extended development in the future are likely to lead to habitat destruction for construction of tourism infrastructure particularly in areas of high scenic and biodiversity value, a dramatically increased risk of invasive alien species, and increased waste production. The potential threat from climate change to the

property’s values is still difficult to predict.

► Tourism/ Recreation Areas

High Threat
Inside site
Outside site

Tourist number increased > 30-fold since 2000 but absolute numbers still low (ca. 5,000 in 2009) (Van Damme & Banfield, 2011). Lack of tourism development planning, concentration of tourists at high natural value sites, increase in road/infrastructure development, water and timber demand, accelerated breakdown of traditional land management, increased risk of invasive species (Abulhawa & Abdulhalim, 2013). Accelerating trend, strong international investor interest, and likely secondary threats related to infrastructure development in absence of strong regulatory framework, warrant classification has high potential threat in spite of current low overall tourism numbers.

► Solid Waste

Low Threat

25% increase in macro-waste production estimated until 2015 (Van Damme & Banfield, 2011).

► Droughts

Data Deficient
Inside site
Outside site

Increasingly dry conditions expected, but exact predictions still impossible (Attore et al., 2007). Coastal areas sensitive to sea level rise.

► Invasive Non-Native/ Alien Species

Very High Threat
Inside site
Outside site

87 exotic (mostly non-invasive) plant species found (80% since 2000), still mostly restricted to home gardens and requiring active cultivation. Several invasive species also introduced (Van Damme & Banfield, 2011). All mammal

and freshwater fish species alien (but not threatening current values), two introduced reptiles' reportedly displacing endemic species (Van Damme & Banfield, 2011). Invasive Indian House Crow eradicated in 2009 (Suleiman et al., 2010). Also potential threat from Qat cultivation in the future. Considering the example of other island ecosystems, this is considered a very high potential threat.

Protection and management

Assessing Protection and Management

► Management effectiveness

Some Concern

No systematic management effectiveness assessments of component PAs of property published, but reportedly still insufficient capacity for effective management and steep reduction of management staff on-site between 2008 and 2012 (Abulhawa & Abdulhalim, 2013).

► Implementation of Committee decisions and recommendations

Data Deficient

Not applicable

► Boundaries

Mostly Effective

Boundaries and buffer zones as in Conservation Zoning Plan (CZP) adequate but not always respected. Revision of CZP planned for 2011 but delayed.

► Education and interpretation programs

Serious Concern

Education and interpretation activities and materials virtually missing and World Heritage status of property not appropriately communicated.

► Monitoring

Serious Concern

Ad-hoc observation of conservation status of the site but currently no systematic planned monitoring of state of values, pressures, threats and management effectiveness (Abulhawa and Abdulhalim, 2013).

► Research

Some Concern

Knowledge on conservation status of values satisfactory for plants and birds, lacking for most reptiles and invertebrates, some plants. Need for more management-orientated knowledge. Limited application and erosion of traditional knowledge about environmental management among local population.

► Relationships with local people

Serious Concern

Insufficient mainstreaming of sustainable development among all stakeholders (e.g. local people and traditional users, line ministries, tourism industry) a main obstacle to effective conservation management (Abulhawa and Abdulhalim, 2013). Intense involvement of national and international scientists in demarcation and management planning. Local stakeholders, who have been stewards and managers of the area for centuries, do not benefit sufficiently, e.g. from tourism development.

► Legal framework and enforcement

Serious Concern

Basic framework in place, but need for strengthening of legal framework and enforcement capacity noted in Decision 32COM 8 B.5. Conservation and Zoning Plan (CZP, 2000) and 2008 Cabinet Decrees No. 45-49 set the legal framework for the protection, management, and sustainable development of the Archipelago. Unclear responsibility for CZP implementation (both EPA and Ministry of Public Works and Roads). Legal status of Socotra Administration itself (no archipelago wide conservation authority) a major obstacle to conservation enforcement (Abulhawa & Abdulhalim, 2013; Van Damme & Banfield, 2011). Creation of authority planned, but overall decrease of conservation staff by 50% since termination of UNDP Socotra Conservation and Development Program in 2008, which further reduces enforcement

capacity (Abulhawa & Abdulhalim, 2013).

▶ Integration into regional and national planning systems

Data Deficient

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▶ Management system

Some Concern

CZP approved 2000, revision planned for 2011, but delayed. 5 component PAs of the site implement management plans as of April 2011, 1 plan prepared but not being implemented yet, 2 in preparation. Buffer zone management not sufficiently aligned with core zone management. Capacity of EPA representation at Socotra to manage site limited.

▶ Sustainable finance

Some Concern

Financing still largely donor dependent, with several donors (UNDP, GIZ, Italian Development Cooperation) committed to continue financial support for the coming years, to varying degrees. Sustainable long-term financing from State budget or other long-term sources beyond this period not secured. No sustainable financing strategy/business plan in place. Socotra Conservation Fund established 2002, small contribution to conservation funding. No clear understanding of potential economic benefits of sustainable tourism among local stakeholders.

▶ Staff training and development

Some Concern

Staff of EPA have received consiberable capacity building support, but practical applicability and implementation reportedly not always effective. Reduction of staff after discontinuation of UNDP SCDP also a challenge.

▶ Tourism and interpretation

Serious Concern

Limited local visitor management at places of particular interest has lead to damage. Lack of overall tourism and visitor management planning a major

future challenge if rapid increase of tourism, which currently is completely unregulated, continues after normalization of political situation.

► Sustainable use

Serious Concern

Grazing and fodder use throughout property appears unsustainable and a threat to native flora although not systematic studies are available, as provisions to deal with the overgrazing challenge in the 2008 decree on the property are not being implemented (Abulhawa & Abdulhalim, 2013). The same is true for marine resources use including inside marine core areas. Some small scale positive examples regarding bee-keeping (Abulhawa & Abdulhalim, 2013).

Overall assessment of protection and management

Some Concern

A management framework for Socotra’s values is under development, taking in consideration institutional arrangements to facilitate the process of the implementation of management and conservation measures effectively. It should be improved to deal with the rapidly increasing pressures and threats to the archipelago’s values, including projected further increases in tourism, infrastructure development, and unsustainable natural resource use. Priority areas include the creation of an Island Wide Authority, visitor management and the participation of local people in management, including schemes to promote sustainable natural resource use where possible.

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

Some Concern

Need for improved management of external pressures from resource use (including of marine resources outside the property), tourism development and road/infrastructure development, and particularly port/airport controls for IAS (Van Damme & Banfield, 2011).

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Complex assemblage of unique ecosystems

High Concern
Trend:Deteriorating

Relatively pristine in comparison to other islands, butincreasingly affected by degradation of vegetation and soil erosion through overgrazing, fragmentation (Abulhawa & Abdulhalim, 2013).

▶ Endemic flora and vegetation

High Concern
Trend:Deteriorating

Possibly four species lost over 20th century, some key species declining (e.g. Draceana cinnabari), 157 plant species listed as critically endangered, endangered or vulnerable(UNEP-WCMC, 2011).

▶ Endemic reptiles with their habitats

Data Deficient
Trend:Data Deficient

No species lost over 20th century apparently. Conservation status of most species not assessed by IUCN, and only poorly known (Rösler & Wranik, 2004).

▶ Endemic and endangered birds with their habitats

Low Concern
Trend:Deteriorating

No species lost over 20th century. 2 endemic species classed as vulnerable, 1 as near-threatened, 3 as least concern by IUCN (IUCN, 2013).

▶ Endemic invertebrates with their habitats

Data Deficient
Trend:Data Deficient

No endemic mollusk species lost over 20th century. Conservation status of invertebrates in general not assessed (except dragonflies, freshwater crabs) and poorly understood (e.g. Riservato et al., 2013).

▶ **Coastal/marine biodiversity and habitats**
Low Concern
Trend:Deteriorating

Marine communities reportedly still comparably healthy. Increasingly affected by unsustainable use in some areas (Van Damme and Banfield, 2011).

Summary of the Values

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

Most of the existing key values have enjoyed a stable and satisfactory conservation status until the late 20th Century (mainly due to Socotra's isolation). The status of some values, particularly ecosystems and endemic flora, has begun to deteriorate since, with further deterioration predicted, following rapid ongoing socio-economic changes. The conservation status of reptiles and invertebrates is Data Deficient.

Additional information

Key conservation issues

▶ **Lack of active participation and ownership among local population of conservation and sustainable use of natural resources at the property.**
Local

Need to enhance local participation in conservation management and ensure equitable sharing of benefits from resource use – including tourism – with the population of Socotra. Need for participatory natural resources management

(e.g. grazing, marine resources). Potential scope for PA co-management or community based management.

▶ **Inadequate grazing management.**
Local

Insufficient cooperation with traditional pastoralists on Socotra to jointly develop a sustainable grazing regime that is informed by studies of carrying capacities, and builds on the traditional knowledge on livestock management systems, which have ensured a relatively stable coexistence of humans and nature over centuries.

▶ **Insufficient financing, particularly long-term sustainable financing.**
National

Unsustainable financing regime for nature protection and sustainable development at the archipelago for the medium-term, when international donor support may recede. Need to mobilize funding from the State Budget, from sustainable natural resource use including tourism, and other sources to achieve financial sustainability.

▶ **Lack of systematic monitoring of key elements of the OUV of the property.**
Local

Continue research (including international research cooperation) into and establish monitoring of marine and terrestrial natural values of Socotra, particularly regarding reptiles, invertebrates. The same is true for research and monitoring relevant to practical conservation management and sustainable natural resource use.

▶ **Lack of effective border controls to prevent import of IAS and export of specimens of wild fauna and flora**
National

IAS and specimen trade as important threats to the OUV of the property would need to be controlled through effective controls at airports and ports, which are currently not in place.

Benefits

Understanding Benefits

► Livestock grazing areas

Strong traditional livestock economy based on goats, as well as cattle and sheep to a lesser extent (Morris, 2002), with a strong contribution to local livelihoods.

► Collection of genetic material

The rich endemic biota of the property offer the opportunity to exploit genetic materials of potential economic use.

► Is the protected area valued for its nature conservation?

The manifold nature conservation values of the property are reflected by its designation as a World Heritage site in 2008, the existence of a Ramsar site within its boundaries (Wetlands International, 2013), and the designation of various protected areas there.

► Does management of the site provide jobs (e.g. for managers or rangers)?

Although staff numbers have decreased by 75% since 2008, the property provides ca. 25 jobs for its management (Abulhawa & Abdulhalim, 2013). In addition, there is a potential for a significant number of additional jobs (hundreds to thousands of jobs in tourism) to indirectly benefit from the attractiveness of the OUV and biodiversity of the property.

► Fishing areas and conservation of fish stocks

The coastal waters around Socotra contribute greatly to the diet and livelihood of the local population and have the potential to support a considerable sustainable fishing industry, if managed wisely (Cheung & DeVantier, 2006).

► Importance for research

The site has contributed to traditional knowledge, the scientific understanding of island biogeography, conservation biology, climate change and other subject areas, and continues to support relevant scientific research and publications (UNEP-WCMC, 2011).

► Sacred natural sites or landscapes

Although the limited accessibility and unfavorable framework conditions have precluded strong tourism development in the past, the iconic wilderness values and unique biota of the island have great potential benefits, including for tourism.

Summary of benefits

Apart from its tremendous global conservation value, the Socotra archipelago also supports significant traditional natural resource based economies and has great potential for further knowledge generation and wilderness based, responsible tourism.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	UNDP		Socotra Governance and Biodiversity Project with a wide portfolio of biodiversity related activities (discontinued or to be discontinued in 2013)
2	Friends of Socotra society		Various small research and conservation projects, past and ongoing
3	GIZ		Conservation and sustainable use of biodiversity in Yemen, with one focus on co-management of natural resources around protected areas on Socotra (2011-2016)

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	.	Action Plan development, resourcing and implementation to implement 2008 decrees on biodiversity conservation at Socotra	
2	.	Organizational development of relevant nature conservation institutions, including archipelago-wide authority	
3	.	Road impact remediation programme	
4	.	World Heritage communication and interpretation programme	
5	.	Sustainable financing for biodiversity conservation on Socotra	
6	.	Biodiversity monitoring system, with a particular focus on an early warning system for alien invasive species	
7	.	Sustainable tourism development strategy	
8	.	Empowerment and capacity building for local communities to co-manage natural resources and protected areas	

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