

Ramsar and World Heritage Conventions: Converging towards success

Case study

Aerial view of Red mangrove (*Rhizophora mangle*) coastal lagoon, Sian Ka'an, Mexico (Credit: Nature Picture Library / Alamy Stock Photo)

Sian Ka'an, Mexico

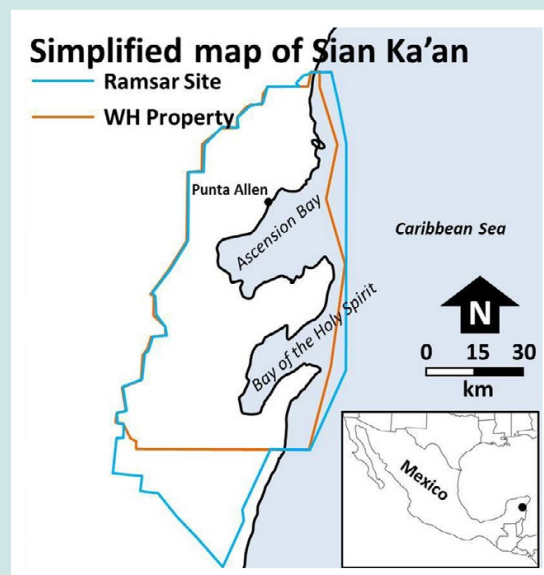
Summary

Located on the east coast of the Yucatán peninsula, Sian Ka'an contains tropical forests, mangroves and marshes, as well as a large marine area intersected by a barrier reef. It provides a habitat for a rich flora and a fauna comprising more than 300 bird species, as well as a large number of the region's characteristic terrestrial vertebrates, which cohabit in the diverse environment formed by its complex hydrological system.

The Ramsar Site covers 652,193 ha and includes the barrier reef, two large shallow bays, swamps, marshes, mangroves, low flooded forests and a unique interconnected subterranean freshwater system. The Site supports a range of threatened and endemic species including more than 300 bird, 100 mammal and 40 amphibian and reptile species. The ecological character of the Ramsar Site includes the rich Mayan cultural and archaeological elements.

Based on natural criteria, the World Heritage property covers a slightly smaller area of 528,000 ha and with a roughly equal split between one third tropical forest, one third marshes and mangroves and one third coastal lagoons and reefs. The diversity of life is exceptional, with the property providing a home for numerous charismatic species such as jaguar, puma, ocelot, Central American tapir and manatee. Noteworthy and rare natural phenomena include the "Cenotes", water-filled natural sinkholes hosting specialised communities and the "Petenes", tree islands emerging from the swamps. Both of these systems are connected by the extensive underground freshwater system providing significant contributions to *in situ* conservation.

Both site designations acknowledge the cultural values of the site and especially the linkages to the indigenous Mayan culture, buildings and land management practices.



Site Description

Located on the eastern Caribbean coast of the Yucatan peninsula in Quintana Roo, Mexico, Sian Ka'an is one of the largest complexes of wetland habitats in Central America. The site comprises a mosaic of barrier reef, lagoons, bays, dunes, sinkholes, swamps, marshes, mangroves and an extensive underground river system. The area is also the setting for the ancient Mayan culture and contains remains of 25 Mayan buildings, temples and shrines; it is the centre for the indigenous communities known as the Santa Cruz Mayas. In the language of the Mayan peoples, Sian Ka'an means 'Origin of the sky' or 'Where the sky is born'.

World Heritage and Ramsar designations

The property was inscribed on the World Heritage List in 1987. The area had previously been declared a Biosphere Reserve by the Federal Government in 1986 and almost the entire site is under the land ownership of the Federal Government. The site was considered for inclusion on the World Heritage List as it is one of the most continuous and important expanses of wetland in Mesoamerica, with no direct comparator in the region. The relatively undisturbed character of the interface between the sea and the land along the coastline contributes to the overall aesthetics and beauty of Sian Ka'an. The complexity and juxtaposition of various wetland habitats create a variety of shapes, forms and colours providing fascinating land and seascapes (Criterion vii). The scale and diversity of the site contributes to the conservation of a variety of habitats and species of Outstanding Universal Value. Noteworthy and rare natural phenomena include the "Cenotes", water-filled natural sinkholes hosting animal communities adapted to these demanding conditions, and the "Petenes", which are tree-topped islands which emerge from the swamps. Both these rare systems are connected by a network of underground freshwater systems, jointly forming an invaluable and significant complexity of habitats (Criterion x). However, despite the diversity of the cultural heritage, at the time of inscription it was noted that, notwithstanding the importance of the cultural elements, the Mayan sites present would be unlikely to qualify in their own right under the Convention.

Sian Ka'an qualifies for designation as a Wetland of International Importance on the basis of three criteria. The presence of the diverse natural wetland types, including freshwater swamps, mangroves and coral reefs, many of which are the only representative examples in the region, qualify the site for designation under Criterion 1. The site supports numerous plant and animal species that are vulnerable and critically endangered, including mammals such as the jaguar, puma, ocelot, tapir and manatee, and reptiles such as the loggerhead, hawksbill and leatherback turtles (Criterion 2). The site is known to support more than 850 vascular plants, some 339 bird species, of which over 200 are breeding species, over 1,700 terrestrial and aquatic invertebrates, of which 20 species of insect are new

to science, and over 400 species of fish. This abundance of wetland life clearly demonstrates the importance of the area for maintaining the biological diversity of the region (Criterion 3). The 23 Mayan archaeological sites within its boundary, including the shrines at Xamach, San Miguel, San Juan, Xlahpak or Vigía del Lago and Tupak, form part of the ecological character of the Ramsar Site. In addition the traditional fisheries, especially for the Caribbean spiny lobster, and the use of forest resources are considered important elements of the social and cultural value of the site.

The role of cultural values, practices and traditions in wetland conservation

There is evidence that the area has been occupied by human settlements for more than 2,300 years. The Mayan sites registered in the reserve mostly date from the late post-classical period (1200 – 1500 CE). In the reserve area the Maya developed a self-sustained shifting agriculture and a system of irrigation canals. The agricultural practices were complemented by harvesting from the forests and wetlands, a practice still continued by several communities today. The people traditionally made use of some 185 forest and wetland plants for over 300 different uses in food, chewing gum resin, medicine, clothing, dyes, thatch palm leaves and all types of building materials. Conservation initiatives have encouraged the use of traditional skills and the development of economic activities, including embroidery, furniture carving, medicinal plant use and honey making, in order to help the Mayan culture to survive whilst developing sustainable alternative livelihoods. Community-owned and regulated fisheries, especially for the spiny lobster, involve some 70% of the residents living in the protected areas, such as the long-established Mayan fishing co-operative at Punta Allen. Through self-imposed zonation of no-fishing areas and seasonal catch restrictions, the lobster fisheries in Sian Ka'an are recognised through international certification from the Marine Stewardship Council for their sustainable practices.

Pursuing a sustainable approach to wetland management has enhanced the opportunities to secure the traditional land management practices of the Mayan communities. Many local residents have become allies in the management of the area as they have understood the competitive advantages of sustainable development and natural resource use. The maintenance of traditional practices is considered necessary for both the reserve and the local Mayan communities to thrive.

Future outlook

The area has a management plan which integrates the three protected areas (Ramsar Site, World Heritage property and Biosphere Reserve) and provides a platform for cooperation across government and non-government stakeholders. The plan sets out approaches to regulate certain activities such as fishing, tourism services and infrastructure development. The management plan has also introduced zoning of areas



Mayan ruins at Chunyaxché (Muyil) near Tulum, Yucatan Peninsula, Quintana Roo, Mexico (Credit: Witold Skrypczak / Alamy Stock Photo)

within the reserve in order to strengthen the sustainable use of natural resources. The presence of such a plan provides a robust framework in order to facilitate delivery of the objectives of the multiple designations. Evaluation of the management plan is due in 2020 (Schaaf and Clamote Rodrigues, 2016).

Notwithstanding the positive approach to site management, Sian Ka'an still faces challenges. The coastal area of the Yucatan peninsula is prone to frequent and severe tropical storms. However, the barrier reef serves as a breakwater which reduces wave energy and prevents beach erosion. Elsewhere in the region the destruction of the reef has also been accompanied by ensuing dramatic beach erosion (Mazzotti et al., 2005). The protection of the barrier reef provides a positive lesson of how conservation of habitats can contribute to disaster preparedness and risk reduction. Anthropogenic threats stem primarily from tourism and over-fishing, especially of spiny lobster, and, to a lesser extent, agricultural pollution, forest fires and invasive species.

As the popularity of the region has increased, pressures from tourism have grown. This has not only led to conflicts over natural resource exploitation, but it has exacerbated conflict between the Mayan traditional culture, conservation sponsored by major international NGOs and UNDP, and increasingly intrusive but, for some, profitable tourism. Whilst some groups favour small-scale, low-impact, community-based tourism, others, such as large-scale tour operators, are primarily interested in maximising profits. Increasing tourism can also result in social and cultural shifts in local communities and an abandoning of traditional practices in favour of more commercial practices. Many Maya have lent or leased their community-owned forest lands to timber companies, allowing the younger generation to abandon their traditional land in order to secure jobs as

building workers in the tourist resorts on the Riviera Maya coast, which has been growing at a rate of some 20% per year. Therefore, to mitigate the negative impacts of tourism, the management of the protected area needs to consider not just conservation management but also destination management. This requires a sophisticated approach to zonation, visitor access and regulation as well as addressing non-environmental factors relating to socio-economic changes in local communities.

Lessons learned

Sian Ka'an is rich in biological diversity and is culturally important for the Mayan people. The following key lessons can be derived from Sian Ka'an:

- Having a clear management plan that explicitly integrates the multiple designations and provides a robust framework to ensure that potentially damaging activities are regulated and that the overall area is zoned to ensure any development is sustainable.
- Management needs to ensure that the fringing barrier reef, and to a lesser extent the mangroves, are maintained not only for their biological diversity but also for the role they play in protecting natural and cultural heritage from tropical storms.
- There is a symbiotic relationship between the long-term protection of the natural heritage and the future of the traditional management practices, such as that exemplified by sustainable lobster fisheries. The one cannot thrive without the other.
- As tourism expands so does the potential for conflict, environmental degradation and social and cultural shifts in local communities. Therefore, future mitigation needs to consider not just conservation management but also "destination management" and a sophisticated approach to zonation, visitor access and regulation.