

Ramsar Information Sheet (RIS) Evaluation
Belize – Crooked Tree Wildlife Sanctuary

1. 6 September 2000
2. Belize
3. Crooked Tree Wildlife Sanctuary (CTWS)
4. Geographical coordinates: Lat. 17 Deg. 45' N – Long. 88 Deg. 32' West Firstly
Lat. 17 Deg. 43' N – Long. 88 Deg. 25' West Secondly
5. CTWS is generally flat with elevations ranging from 10 – 45 ft (3-15m) AMSL
6. 6,637 ha
7. Overview:
The Crooked Tree wildlife sanctuary comprises a series of subtropical freshwater wetland complexes situated in a transition zone where broken pine savannah meets coastal lowlands. The site is located approximately 28 km west of the Caribbean Sea and is used by resident and migratory water birds as well as by a few communities – one located within the site itself.
8. Inland: N – Seasonal/intermittent/irregular rivers/streams/creeks
9. Ramsar Criteria: 2 : A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
10. Map of area.
11. John Pinelo
Protected Areas Officer
Conservation Division,
Forest Department
Belmopan City
Belize
12. The Justification to designate Crooked Tree Wildlife Sanctuary as a Ramsar Site was based on the realization by the government of Belize that the area is home to a number of local water birds – some of which are internationally protected. Similarly, the site is used by numerous transient species of water birds that come from North America and winter in Central and South America. Additionally, it was realized that some communities utilize the area for subsistence uses and this

could have a negative effect on the wildlife if it continues unmanaged. The Government of Belize chose to become a party to the Ramsar convention in hopes that they could receive support and guidance in developing and managing the area for both benefit of the wildlife as well as the human component.

13. General location:

The Crooked Tree wildlife Sanctuary is located approximately 40 km from Belize City at a bearing of 315 Degrees. Belize City, located in the district of Belize, is the commercial hub of the country with an estimated population of 70,000 (1998 estimates). It is located 53 road km from Belize City along the Northern Highway.

14. Physical Features: It has often been said that Belizean geology is a study in limestone. The Northern half of Belize, which includes CTWS, rests on the Yucatan Platform, a tectonically stable limestone shelf. The limestone of Belize range in age from 135 million to less than 2 million years old. They have been laid down like shelf-like layers. Limestone formation is still taking place in the shallow waters of the Caribbean coast. CTWS has alluvial deposits of siliceous sand and beds of impermeable clay. Crooked Tree island sits in the middle of a large lagoon in the wet season; the lagoon dries into alternating dry and swampy areas in the dry season. These swamps are waterlogged lands and their only agricultural value is as dry season cattle pasture.

15. Hydrological Features: Northern Belize is drained by four river systems, one of which is the Belize River tributary system of Crooked Tree. Because of the area's flat terrain, it is impossible to completely delineate watershed boundaries. The Crooked Tree watershed covers about 96 square miles (370 km sq.). CTWS has a complex hydrological scheme encompassing shallow lagoons, creeks, marshes and other wetland categories. There are two wetland groups that make CTWS: 1) Revenge, Western, Crooked Tree (Northern) and Southern Lagoons, all of which eventually drains south into the Belize River via either Black Creek or Spanish Creek, and 2) a secondary group of about 1400 acres (567ha), east of the Northern Highway, which is comprised of Jones and Mexican Lagoons. These lagoons drain into the Belize River via Mexico Creek. During the rainy season (June – September) the Crooked Tree (Northern Lagoon) shows its greatest depth of 8.2 feet (2.5 m). By May, this area can be completely dried out. It should be noted that there area virtually no hydrological data on the Crooked Tree Wildlife Sanctuary system other than the recently initiated one site depth measurements taken at the Visitor's Center.

16. Ecological Features: The forest cover of the C.T. W. S. region falls into the "subtropical moist" zone. This zone is drier than the true rainforest or "tropical wet" further south in Belize where warmth and rain are more consistent. The subtropical moist forest has also been classified as "deciduous seasonal". Four main types are broadleaf forest, cohune palm forest or cohune ridge, freshwater

marsh forest and pine forest savannah or pine ridge. While not a forest type, “rush sedge” plants are an important vegetative cover in the lagoon.

CTWS sustains a diverse resident and transient wildlife population but to date there has been no scientific research done to properly categorize the different types of wildlife and the habitats they use in the lagoon.

17. Noteworthy flora: Logwood (*Haematoxylon campechianum*), Cashew (*Anacardium occidentale*), mango (*Mangifera indica*) coconut palms (*Cocos nucifera*), mahogany (*Swietenia macrophylla*), cedar (*Cedrela mexicana*), Santa Maria (*Calophyllum brasiliense*), sapodilla (*Manilkara zapota*), allspice (*Pimenta dioica*), cojotone (*Stemmadenia donnell-smithii*), figs (*Ficus spp.*), Craboo (*Bysomia crassifolia*), Caribbean pine (*Pinus caribaea*), palmetto palms (*Acoelorrhapha wrightii*),

18. Noteworthy fauna: CTWS sustains a diverse resident and transient wildlife population, but there have been no systematically or scientifically gathered wildlife data. CTWS is an outstanding site for both migratory and resident bird populations. The shallow water systems are vital for wading bird species. During the dry season, thousands of birds have been counted in the lagoons; up to 1000 snowy egrets (*Egretta thula*) at one time. CTWS supports apparently healthy breeding populations of snail kites (*Rostrhamus sociabilis*) great egrets (*Egretta alba*), tricolored herons (*Hydranasa tricolor*), Black-crowned night herons (*Nycticorax*) and limpkins (*Amazon xantholora*), boat-billed heron (*Cochearius*) and northern jacanas (*Jacana spinosa*). Additionally, about 260 of the approximately 392 resident Belize bird species have been reported in CTWS, as have many migrant species.
In addition to its prolific bird life, CTWS and the vicinity have populations of Baird’s tapir (*Tapirus bairdii*), jaguars (*Panthera onca*), and Morlet’s crocodile (*Crocodylus moreleti*) all of which are listed by the Convention of International Trade in Endangered Species (CITES) as “seriously endangered.” Other mammals include collared peccary (*Dicotyles tajacu*), paca or gibbon (*Agouti paca*), Pine Ridge Squirrel (*Sciurus yucatanensis*), coati (*Nasua narica*), opossum (*Didelphis marsupialis*), white-tailed deer (*Odocoileus virginiana*), brocket deer (*Mazana americana*), kinkajou (*Poto flavus*), many species of bats, armadillo (*Dasypus novemcinctus*), otter or waterdog (*Lutra longicaudis*) and black howler monkeys (*Alouatta pigra*).
Reptiles include iguana (Iguana) coral snake (*Micrurus diastoma*), fer-de-lance (*Bothrops asper*), boa constrictor and Central American river turtle (*Dermaatemys mawii*). The list of animals mentioned above is noteworthy because of the economic and ecological benefits they provide to this CTWS. All of the species mentioned provide attraction for the tourism sector of the village, which is one of the largest income providers in this area. Additionally, a number of these species are hunted for subsistence use in a controlled manner that requires a hunting permit from the Forest Department. These provide supplementary diet for the people in the community.

19. Social and cultural values: Villagers rely on a variety of activities for their livelihoods. Many of these activities are seasonal, and include subsistence farming, livestock raising, fishing, logging and charcoal production. Fishing and hunting provide important supplement food source for many households. Crooked Tree is also famous throughout Belize for its “cashew” products such as roasted cashew seeds and cashew wines. Additionally, tourism is becoming an alternative income generator since the area is world renowned for water birds and is a Wildlife Sanctuary designated by Belizean law. All of these activities with the exception of tourism, require extraction of materials from the wild or from stocks grown or raised by people in the community. The growing of livestock does put a demand on the natural vegetation since these animals feed on natural vegetation in and around the area although they might be kept in an enclosure. The use of fruits from the Cashew tree is sometimes supplemented by trees that have been planted on farms but many people still harvest the fruits from the wild since the trees grow in abundance in this area.
20. Crooked Tree lagoon and some of its flood plains were declared a Wildlife Sanctuary by Government of Belize (GoB) in December 1994. A Wildlife Sanctuary is a protected area designation of the National Parks System of 1981 – Statutory Instrument No. 95 of 1984. At the request of the GoB the Belize Audubon Society was given management of the site and later a Co-management agreement was signed where both parties would jointly manage the area. Belize Audubon Society is a non-government organization whose objectives include protected areas management, environmental activities and conservation, promotion of the sustainable use and preservation of our natural resources in order to maintain a balance people and the environment. To date BAS co-manages 8 different protected areas. The implementation of National Parks System Act (1981) and the Wildlife Protection Act (1981) is the responsibility of the Forest Department, Ministry of Natural Resources, Environment and Industry. Crooked Tree Village is located within the Ramsar site. Some residents have freehold ownership of lands while others hold leases within the area for residential lands as well as farm and grazing lands within the site. However, they have agreed with the management agencies (Belize Audubon Society/Forest Department) to manage their areas as best as possible to minimize impacts on the lagoon.

Surrounding Area: The lagoon itself is the Ramsar site as well as the Wildlife Sanctuary and under Belizean laws, the lagoon is publicly owned. The surrounding area makes up a part of the site but does consist of some privately owned lands.

21. Current land use: Site- The Crooked Tree Lagoon and its tributaries are used by the villagers for subsistence fishing although this practice is not recommended. The lagoon is also used by tour guides for bird watching and recreation, and ranchers who own livestock use the lagoon as a source of water. The residents of

CTWS do not use the lagoon as a source of drinking water but rather receive potable water from the distribution system that also feeds Belize City and surrounding areas. The village of Crooked Tree has approximately 800 residents.

Surrounding areas: The surrounding areas (terrestrial) are used for tourism, farming, ranching and logging. Additionally, the area is abundant with “cashew” trees, which produce a fruit and nut used by the locals to produce wine and roasted nuts respectively. Some collection of herbal plants also occurs.

22. Current Land Use: The Designation of Wildlife Sanctuary does not allow for extraction, agriculture, grazing, or residence. However, due to the special situation with Crooked Tree village which was established long before the site was designated a wildlife sanctuary, the village was allowed to remain in the site and their traditional practices were allowed to continue although these activities have been modified to minimize the impact on the site. Consequently, ranching, farming, fishing and general extraction continues to occur but in a more sustainable manner. Tourism is also a major activity in the area since tourists come to see the large number of wading birds.
23. Crooked Tree Ramsar Site is also a Wildlife Sanctuary and as such is protected by the regulations of the National Park Systems Act of 1981. However, because the village had been established before the area was designated as a protected area (1984) special conditions were made which allow the villagers to do some subsistence collection and cultivation. However, all national regulations related to the collection and uses of wildlife (animals and plants) under the Wildlife Protection Act of 1981 are effective in the area. The instrument used to regulate the use of wildlife in Belize is the Provisional Game License, which is issued annually for a fee of \$5.00US. The license allows the holder to hunt certain species of wildlife for subsistence use only and provides the dates for closed season on some species. There is also another license called a Dealer’s License, which allows the holder to participate in the trade of wildlife. This license is issued annually for a fee of \$500.00 US. However, due to our commitments with CITES and other conventions which promote the protection of wildlife, the Government of Belize has not issued one such license since 1981. The Dealer’s License is therefore mentioned in this document merely because the Wildlife Protection Act of 1981 allows the issuance of such license.
24. The Belize Audubon Society, which is in charge of day to day operations of the Wildlife Sanctuary/Ramsar Site has prepared a five year management plan for the area and has submitted it to the Forest Department for review and approval. The review of the plans has not yet been done and consequently, approval is yet to be realized. However, the Forest Department realizes that the management must begin and therefore, the Belize Audubon Society has begun instituting the majority of operational and conservation strategies detailed in the management plan for the Crooked Tree Wildlife Sanctuary/Ramsar Site. The plan however, is still considered a draft and must receive approval before it can be considered

official and binding. Tentative plans for conservation measures include preliminary work such as:

- a) Produce a list of biological information gaps
- b) Establish protocols for researchers desirous of conducting work in the Crooked Tree Wildlife Sanctuary
- c) Conduct zoological inventories
- d) Incorporate villagers into a corps of “citizen biologists” to assist in research, identification and quantification of flora and fauna
- e) Create a link between the Crooked Tree Wildlife Sanctuary and the University of Belize

25. At present there exists no research facilities or scientific research occurring in the Crooked Tree Wildlife Sanctuary/Ramsar Site.
26. At present, the Belize Audubon Society uses the Park Office as a multi-purpose building which includes a mini-conservation education display area. This is the only existing facility on-site for conservation education. However, the Forest Department, the Belize Zoo and Tropical Education Center and the Belize Audubon Society all have ongoing environmental educational programs, which are national in scope. The topics and themes are diverse and include education on the protection of wetlands. It is anticipated that a new component will be added to these programs and will address the benefits of the Ramsar Convention to the people and country of Belize.
27. Current recreation and tourism include horseback riding, canoeing and birding. The total number of visitors at Crooked Tree in 1999 was 3,000 visitors and the tourist season in the area is from November to June.
28. The Crooked Tree Wildlife Sanctuary/Ramsar Site is physically located in the Belize Rural North Electoral Division within the Belize District itself. However, the National Parks Systems Act of 1981 assigns total jurisdiction of any area under this Act to the Belize Forest Department. Therefore, regardless of which area of the country the park occurs, the Forest Department is responsible for the management of the area. However, the Forest Department has a Co-management agreement with the Belize Audubon Society to jointly manage the area. The Belize Audubon Society performs the duties of day to day operations and the Forest Department provides technical support as well as supervision and enforcement when needed.
29. The bodies responsible for the direct local management of the wetlands is jointly:

Forest Department
Ministry of Natural Resources, Environment and Industry
Belmopan,
Belize

The Belize Audubon Society
#12 Fort Street
Belize City
Belize

30. List of references:

Belize Wetlands and Coastal Zones Management and Conservation Working Group Final Document, April 2000. Prepared by Wilderness Group Consultants, San Ignacio, Belize

Crooked Tree Wildlife Sanctuary Draft Management Plan, 1998. Belize Audubon Society, Belize City Belize