

Information Sheet on Ramsar Wetlands (RIS)

1. Name and address of the compiler of this form:

Joshua Lichtenstein
PO Box 127 6 Pampana Street,
Punta Gorda Town, Toledo District,
Belize, Central America.
Tel: 501-722-0103; Fax: 501-722-0124;
e-mail: Satiim@Btl.Net

FOR OFFICE USE ONLY.

DD MM YY

--	--	--

Designation date

--	--	--	--	--	--

Site Reference Number

2. Date this sheet was completed:

October 6, 2005

3. Country: Belize

4. Name of the Ramsar site: Sarstoon Temash National Park

5. Map of site included:

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes* -or- *no*

b) **digital (electronic) format** (optional): *yes* -or- *no*

6. Geographical coordinates

The approximate centre of the proposed site is located at: 89° 00' West longitude and 16° 70' North latitude. Further details are provided in Annex I.

7. General location:

The Sarstoon Temash National Park is located in southern Belize, approximately 12 nautical miles south of Punta Gorda Town, in the Toledo District. The southern border of the park, the Sarstoon River, is also the international border with Guatemala. The site is on the Atlantic coast of Central America, on the bi-national Amatique Bay, part of the broader tri-national Gulf of Honduras. The Sarstoon Temash National Park forms part of a broader bi-national wetland with neighboring Guatemala.

8. Elevation:

10 m above sea level, with the exception of a series of hills just inside the northern most boundary point 50 m above sea level. Maximum elevation is recorded as 39 m; minimum elevation recorded is 0 m above sea level.

9. Area: 16,955 hectares (41,898 acres)

10. Overview:

The Sarstoon Temash Nation Park comprises 16,955 ha and encompasses thirteen different terrestrial ecosystem types. The four primary ecosystem types as observed during a rapid regional ecological assessment (April 2003) are: Tropical evergreen broadleaf forest in lowland swamp permanently waterlogged; Tropical evergreen broadleaf lowland swamp forest, seasonally waterlogged; Tropical evergreen broadleaf lowland swamp forest *Manicaria* variant; and Tropical evergreen lowland peat shrub-land with sphagnum. The lowland sphagnum moss bog is located in the approximate center of the park and comprises some 1100 ha. The area is also traversed by the two largest rivers in southern Belize, the Temash River rising near Coban Guatemala, and the Sarstoon River, rising in the Sierra mountains in western Guatemala. The wetland includes an inland lagoon important in flood control (Temash lagoon). This area consists of 9600 ha of saline swamps that support a diversity of organisms. It also represents a transition between upland, high velocity, freshwater, riverine ecosystems; to moderate velocity, eutrophic, palustrine ecosystems; and finally to

sluggish, saline, estuarine ecosystems. The area is also home to large stands of mangrove forest of four types: Basin mangrove forest; Coastal fringe *Rhizophora mangle*-dominated forest; Riverine mangrove forest and Mixed mangrove scrub.

11. Ramsar Criteria: 1, 2 & 4

12. Justification for the application of each Criterion listed in 11. above:

Criteria 1:

The Sarstoon Temash National Park contains the most undisturbed and largest stand of red mangrove in Belize, and the only stands of Comfra Palm (*Manicaria saccifera*) in Belize. It also contains a unique ecosystem unrepresented elsewhere in Central America: a lowland sphagnum moss bog.

Criteria 2:

The Sarstoon Temash Institute for Indigenous Studies (SATHIM) has identified several threatened species in the Sarstoon Temash National Park including: the Black Howler Monkey (*Alouatta pigra*), the Hickatee turtle (*Dermatemys mawii*), the Tapir (*Tapirus bairdii*), a vulnerable species- the West Indian Manatee (*Trichechus manatus*), and a conservation dependant species, Morelett's Crocodile (*Crocodylus moreletti*), and the near threatened Jaguar (*Panthera onca*).

Criteria 4:

The mangrove ecosystem serves as nursery and feeding grounds for many marine species.

13. Biogeography

a) biogeographic region: The Sarstoon Temash National Park includes two distinct biogeographical regions: Peten-Veracruz Moist Forest (NT0154) and Bahamian Mangroves (NT1403).

b) biogeographic regionalisation scheme: Following the World Wildlife Fund's Ecoregions classification system, the following terrestrial biogeographic regions were found (see reference):

Peten-Veracruz Moist Forests (NT0154):

wwfus.org/wildworld/profiles/terrestrial/NT/NT0154_full.html and

Bahamian Mangroves (NT1403):

wwfus.org/wildworld/profiles/terrestrial/NT/NT1403_full.html

14. Physical features of the site:

Seasonal water balance: The STNP shows extreme differences in the amount of precipitation received in the wet and dry seasons. Although no recent data exist that would enable determination of the temporal distribution of precipitation, empirical evidence suggest that approximately 85% of the annual precipitation is received during the wet season (June-December). This underscores the importance of wetlands in attenuating floods and making water available during the dry season (January-May).

Inflow: The only source of water to the watershed is in the form of rainfall. Using the U.S. Natural Resources Conservation Service (NRSC) curve number method runoff depth was estimated between 90.7 and 168.4 cm for the various sites within the watershed. This represents volumes of 6.10 E7 m³ and 4.26 E8 m³, respectively.

Outflow: Discharge to the sea from the two major rivers that cross the STNP are $171 \text{ m}^3\text{sec}^{-1}$ and $700 \text{ m}^3\text{sec}^{-1}$ for the Temash and Sarstoon Rivers, respectively. Therefore the estimated monthly discharge for the month of July is $4.59 \text{ E}8$ and $1.87 \text{ E}9 \text{ m}^3$.

Depth fluctuation: There is significant variation in water levels between flood stage and the dry season stage. It is not uncommon for river stages to vary as much as 10 m. However, these extreme floods are usually localized and last only a few days.

Permanence of water: The STNP consist of two major rivers (Sarstoon and Temash) along with several miles of permanent streams. There are also ephemeral streams in the high elevation areas that would dry during an extensive dry season. The area considered “saline swamps” is mostly inundated during the wet season. In the dry season the water table falls just below the soil surface.

Catchment area: The area of the STNP is approximately 43,200 ha. However, the watershed extends beyond the boundaries of the STNP and into the neighboring country of Guatemala.

Downstream area: The area considered “saline swamps” is approximately 9,600 hectares. This is the discharge area for the watershed.

Annual rainfall: The total depth of rainfall for the month of July was measured at 1.02 m. However it has been reported that annual rainfall for the entire Toledo District is 4.56 m.

Average temperature range: The average minimum and maximum temperatures for July as recorded at the Agriculture Department are 26.3°C and 32.5°C respectively.

Distinct seasons: The Dry Season lasts from January to May while the Wet Season is from June to December. During the hurricane season (June-November) there are very intense rainstorm events.

15. Physical features of the catchment area:

In the area surrounding the Sarstoon Temash National Park, two soil formations can be identified. First the Toledo formation predominates in over 85% of the region, comprised of sands and clays, and second, the Campur formation, comprised of white limestone, limited to the hills in the northern section of the park. There is notable mineralization in the northern sections of the park, hydrothermal alteration leading to the formation of kaolinite clays and quartz veins. Oil seeps (oil reaching the surface) have been identified and mapped near the community of Crique Sarco, village access road to Conejo Creek, north of Midway village, and near a road construction quarry in between the Moho and Temash Rivers.

The surface and sub-soils of the region are highly acidic, with pH values recorded as low as 4.1 and only as high as 5.7. The acidity of soils is directly related to type of soil parent material and the amount of soil leaching as a result of large amounts of precipitation. The problems caused by highly acidic soils are: nutrients are bound to insoluble compounds; very little magnesium and calcium (essential components for plant growth); low levels of nitrogen; toxic levels of aluminum, iron and manganese. All of these problems cause low soil fertility: poor plant / crop growth; low survival of transplanted cacao seedlings; very low crop yields; high amounts of soil leaching and erosion. This is an increasing problem for areas in the buffer zone of the protected area. Land previously cleared for shifting cultivation are the areas most prone to erosion. As a result of high amounts of precipitation, surface soil is being washed away (not green vegetation to stabilize soil particles) exposing the subsoil, plant re-growth is hindered because soil is removed. The erosion of the surface soils increases turbidity in creeks and rivers. The ecological impacts of increased soil erosion are loss of terrestrial and riverine habitat, suffocation of aquatic plants (used as spawning grounds for fish), and increased sediment plume at rivers mouths.

16. Hydrological values:

The extensive drainage network of the STNP serves as a reservoir for the large volume of runoff. Flooding is therefore significantly reduced. The Temash lagoon serves as a sink for the large deposits of nutrients and sediments that are then slowly released to the coastal areas. This slow release of water also ensures that in the dry season the conveyance network is fed by groundwater. In general the Temash lagoon and extensive saline swamps attenuates coastal erosion and maintains an acceptable water quality.

17. Wetland Types**a) presence:**

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • **Zk(c)**

b) dominance:

Xf Seasonally Flooded Forest, in this case: Tropical Evergreen Swamp Forest- seasonally waterlogged

Tp, Flooded Forest, in this case: Tropical Evergreen Swamp Forest: permanently waterlogged

Ts Tropical Evergreen Broadleaf Lowland Swamp forest- *Manicaria* variant.

U, Non-forested peatlands, in this case: Tropical evergreen lowland peat shrubland with Sphagnum

I, Intertidal forested wetlands: in this case: Coastal fringe *Rhizophora mangle* dominated forest, Basin mangrove forest, Riverine mangrove forest and mixed mangrove scrub

M, permanent rivers, streams and creeks: in the case the Sarstoon and Temash Rivers and numerous creeks.

Q, Saline/brackish inland lagoon in the case: the Temash Lagoon

18. General ecological features:

Thirteen different terrestrial eco-system types have been identified in the park, including two which are rare for Belize (Meerman, J. et al., 2003). These are:

1. Basin mangrove forest (UNESCO code: I.A.5.b.(1).(f).)
2. Coastal fringe *Rhizophora mangle*-dominated forest (UNESCO Code I.A..5.b.(1).(d).)
3. Riverine mangrove forest (UNESCO Code I.A..5.b.(1).(e).)
4. Mixed mangrove scrub (UNESCO Code I.A.5.b.(1).(c).)
5. Deciduous broad-leaved lowland disturbed shrubland (UNESCO Code III.B.1.b.(a).2.)
6. Tropical evergreen broadleaf lowland forest over calcium rich alluvium (UNESCO Code I.A.1.f.(2).(a).)
7. Tropical evergreen broadleaf lowland forest over poor or sandy soils (UNESCO Code I.A.1.a.(1).P)
8. Tropical evergreen broadleaf lowland forest over steep calcareous hills (UNESCO Code I.A.1.a.(1).(a).K-s)
9. Tropical evergreen broadleaf lowland hill forest: *Calophyllum* variant (UNESCO Code I.A.1.a.(1).(a).C)

10. Tropical evergreen broadleaf lowland swamp forest: seasonally waterlogged (UNESCO Code I.A.1.g.(1).(a).)
11. Tropical evergreen broadleaf lowland swamp forest: permanently waterlogged (UNESCO Code I.A.1.g.(1).(b).)
12. Tropical evergreen broadleaf lowland swamp forest: *Manicaria* variant (UNESCO Code I.A.1.g.(2).(b).M)
13. Tropical evergreen lowland peat shrubland with sphagnum (UNESCO Code III.A.1.f.)

19. Noteworthy flora:

(1) Comfra Palm Forest (*Manicaria saccifera*)

This unique and handsome palm has a deeply ringed stem from 10-15 feet high. The leaves are very large, entire, rigid, furrowed, and often over 30 feet long and over 4-5 feet wide. The Comfra supposedly has the largest entire leaves of any of the known palm species, and as a result they are the best and most durable form of thatching for roofs. A well-made thatch of Comfra leaves could last 10-12 years before it needs to be maintained. The species has a rather wide distribution, occurring in much of the Amazon Basin and in much of Central America. Belize marks the northernmost limit of its distribution. Although the species is by no means rare, within Belize, it is a very unusual species, and is only located within the far south of the country, and what's more, the known distribution falls virtually within the boundaries of the Sarstoon Temash National Park. Outside of the park boundaries there are only two known stands within 1-3 miles north of the northern limit of the protected area.

(2) Tropical Evergreen Lowland Peat Shrub-land with Sphagnum

A new ecosystem identified in Belize. Described as Sphagnum moss (*Sphagnum subsecundum*) this species is rare in Belize, and has only been previously identified at the higher elevations of the Mountain Pine Ridge and Victoria Peak. The discovery of a large extent of sphagnum bog at sea level was surprising. The area was very difficult to traverse, and only the outer perimeter of the ecosystem, however it is estimated that if the area is uniform it could be no less than 2700 acres (1100 ha) in extent, accounting for approximately 6.51% of the total area encompassed inside the national park. Sphagnum is a species that is intolerant of nutrients, limestone, salt and drought conditions, therefore it would only be found in those areas that are fed completely by rainwater. In the case of the Sphagnum found in Sarstoon Temash, this means that the area would not receive any overflow from either the rivers or their tributaries (Meerman, J. et al., 2003).

20. Noteworthy fauna:

The Sarstoon Temash National Park is rich in biodiversity, among the species noted are:

Invertebrates

- The Red Rump Tarantula spider (*Brachypelma vegans*). It is often found in open, disturbed areas at low elevations.
- A common insect identified in the sphagnum swamp areas was the Stick Insect (*Phasimidae*). This represents a yet unidentified species and was extremely common in all of the sphagnum sites.
- Forty six species of Lepidoptera. The most interesting was the *Morpho theseus* (does not have a common name, but could be called the Brown Morpho Butterfly). Normally this species is rare elsewhere in Belize.

Fishes

- Forty two identified fish species. Twenty five identified marine fish species. This is not surprising considering the coastal location of the park, and the presence of two large rivers penetrating deep into the area. While freshwater output during the rainy season is high, during the 4 month dry season, saltwater penetrates far up the rivers allowing marine fish to

reach a falls above the village of Crique Sarco approximately 25 miles up stream from the bar mouth.

Reptiles

- Twenty two recorded species. None of the recorded species are unique to the area. Commonly identified species were Green Iguana (*Iguana iguana*); Crocodile (*Crocodylus moreletti*); and the Hickatee Turtle (*Dermatemys mawii*).

Avifauna (Birds)

- Two hundred and thirty one species of birds identified. Twenty two of these species were identified over 80% of the observation time: Great Tinamou (*Tinamus major*); Olive Throated Parakeet (*Aratinga nana*); Little Hermit (*Pygmornis longuemareus*); Slaty-tail Trogon (*Trogon massena*); Black-faced Anttrush (*Ormicariius analis*); Tropical Kingbird (*Tryannus melancholicus*); Spot-breasted Wren (*Thyrothorus maculipectus*); Montezuma Oropendula (*Psarocolius montezuma*); Turkey Vulture (*Cathartes aura*); Brown-hooded parrot (*Pionopsitta haematotis*); Rufous-tailed Hummingbird (*Amazilia tzacatl*); Golden-fronted Woodpecker (*Melanerpes aurifrons*); Dusky-capped Flycatcher (*Myiarchus tyrannulus*); Northern Bentbill (*Oncostoma cinereigulare*); White-breasted Wood Wren (*Henicorbina leucosticta*); Short-billed Pigeon (*Columba nigrirostris*); Red-ored Parrot (*Amazona autumnalis*); Black-headed Trogon (*Trogon melanocephalus*); Ivory-billed Woodcreeper (*Xiphorynchus flavigaster*); Great Kiskadee (*Pitangus sulphuratus*); Brown Jay (*Cyanocorax morio*); Red-throated Ant-tanager (*Habia fuscicauda*); White-necked Jacobin (*Forisuga mellivora*).

Mammals

- Twenty four identified species. These include: Black Howler Monkey (*Alouatta pigra*); White-lipped Peccary (*Tayassu pecari*); Jaguar (*Panthera onca*); Agouti (*Dasyprocta punctata*); Jaguarundi (*Herpailurus yagouaroundi*); Gibut (Paca) (*Agouti paca*); Collared Peccary (*Pecari tajacu*); Tapir (*Tapirus bairdii*); River Otter (*Lontra longicaudis*); White Tailed Deer (*Odocoileus virginianus*); West-Indian Manatee (*Trichechus manatus*).

21. Social and cultural values:

The buffer zone of the park is home to the indigenous Kekchi Maya and Garifuna people. Both groups have a long residency history in the area, and prior to the declaration of the area as a protected area, residents used areas of the park for resource extraction, farming, hunting, fishing, construction materials, and transportation. The land has an intrinsic value to the Q'eqchi Maya, and the sea and coastal environment are of high cultural importance to the Garifuna people. The sea provides both the food for the highest value of thanksgiving, cleansing after mourning, and part of the spiritual bath for protection.

22. Land tenure/ownership:

(a) within the Ramsar site:

The Sarstoon Temash National Park falls under a co-management agreement between the Government of Belize (Ministry of Natural Resources Environment and Industry, as represented through the Forest Department) and the SATIIM.

(b) in the surrounding area:

The surrounding communities have a mix of private land holdings (house-lots and a few farms); Central Government leased land, and squatter's rights to National Land.

23. Current land (including water) use:

(a) within the Ramsar site:

Currently five indigenous communities have rights to sustainably extract a variety of plants for personal subsistence use within the multiple use and indigenous use zones inside the national park under a new permit system being established by SATHIM and the Forest Department. In addition there are regular SATHIM Park Ranger patrols and community biodiversity monitoring. Some illegal extraction and logging still continues.

(b) in the surroundings/catchment:

The surrounding area is used primarily for subsistence farming, hunting, and fishing.

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

(a) within the Ramsar site:

A small section of the STNP was previously used as agricultural land by neighbouring villages. Stands of commercially valuable mahogany, cedar and rosewood remain in the park and are targets for illegal logging efforts by neighboring Guatemalans. Other current threats include illegal hunting (poaching), fishing and collection of wild animals for trade.

(b) in the surrounding area:

The principal watershed management issue in the buffer zone area around the STNP is deforestation related to the establishment of farms and pasture land. This has affected the water balance as transpiration is reduced, while runoff and erosion rates have increased. The deterioration of water quality as a result of agricultural activities is also a significant issue because it will degrade aquatic habitats and significantly reduce biodiversity. Contamination of the water supply from agricultural activities in Guatemala and from human waste in Belize and Guatemala has reduced water quality.

25. Conservation measures taken:

The wetland is part of the Belize National Protected Areas System, and was declared a national park in 1994. In the past three years SATHIM has undertaken extensive baseline data collection to document the biodiversity in the park, has trained over seventy five community residents in data collection techniques and implemented a program of environmental education with both adults and school aged children. SATHIM is also currently implementing a sustainable alternative livelihoods program to address issues of unsustainable land use activities, e.g. shifting cultivation (milpa farming).

26. Conservation measures proposed but not yet implemented:

The first management plan for the park was completed in August of 2004, and is pending approval by the Forestry Department. The STNP management plan proposes a comprehensive set of park management strategies, including: a site protection programme, a biological connectivity programme, an aquatic systems programme, a forest recovery programme, an alternative livelihoods programme and a financial sustainability programme. Implementation of the plan is set to begin in early 2005. The management strategy being proposed for the protected area combines the traditional conservation ethic, but recognizes the need to reconcile traditional resource accessibility and use with the goals and objectives of the Belize national protected areas system plan. SATHIM, in collaboration with Central Government Forest Department, is developing the first 5-year management plan for the park, which will address traditional access right through appropriate zoning.

27. Current scientific research and facilities:

SATHIM has undertaken systematic baseline data collection for the park over the period 2003-2004. A Rapid Ecological Assessment for the terrestrial area was carried out, as well as a soil and geology study, a hydrology assessment, threat mapping of the Temash River, and a rapid ecological assessment of the marine buffer zone in Belizean waters adjacent to the park. Additional studies were carried out to document the relation of the indigenous communities in the buffer zone around the

park including a socio-economic study, a Garifuna traditional knowledge study and a Maya traditional knowledge study. SATIIM recently completed construction of five STNP resource centres in the villages around the park that can be used to house visiting researchers. There is currently no research infrastructure inside the park, but a ranger station at the mouth of the Temash River is planned for this year. Biodiversity monitoring by a group of trained community volunteers began early this year (2005) for mammals, birds and reptiles.

28. Current conservation education:

An environmental and conservation education program has been developed and implemented for the village primary schools, formation of youth groups and related conservation activities (primarily through field trips and study tours), women's focus group discussions, and farmer education. SATIIM is developing a program pertaining to the management, development and conservation of protected areas. With the finalization of the construction of visitor centers, a training program will be enacted with park management staff and interested residents to host tour groups, students, and researchers, including tour guide training. The trail infrastructure in the park has been mapped and will be upgraded this year, including publishing a trail guide and a visitor's guide.

29. Current recreation and tourism:

Tourism in the whole of Toledo District has been limited. In the past geographic isolation and inaccessible villages (attractions) during the rainy season have prevented increasing tourism. Tourists visit Belize for a unique mix of jungle, sun, sand and surf. The Cayo District has had the monopoly on tourist visitation for jungle excursions, and visitation to Toledo has been limited to those persons en route to Guatemala via ferry. SATIIM is part of the Integrated Conservation-based Tourism Initiative which aims to create tourism ventures for protected areas (a plan towards cost recovery for protected areas) by creating simple adventure tours for budget and mid-range travelers. SATIIM has also contracted a consultant to develop a realistic (budget and mid-range) tourist attraction model and pre-feasibility study. Participation in these two programs will enable the park to attract tourists to see its unique environments, but also provide necessary infrastructure for visitor accommodations either inside the protected area or in the nearby buffer communities.

30. Jurisdiction:

The authority with territorial jurisdiction is the Government of Belize, as represented through the Ministry of Natural Resources, Environment and Industry.

The authority with functional jurisdiction is the Government of Belize, through the Ministry of Natural Resources, Environment and Industry, as represented by the Forest Department.

31. Management authority:

Sarstoon Temash Institute for Indigenous Management - SATIIM

PO Box 127

124 Jose Maria Nunez Street

Punta Gorda Town, Toledo District

Belize, Central America

TEL: 501-722-0103

FAX: 501-722-0124

EMAIL: satiim@btl.net

Board of Directors Chairperson: Marion Cayetano

Executive Director: Gregorio Ch'oc

Park Manager: Seleem Chan

32. Bibliographical references (The references from Meerman (2003), US-NRSC and WWF are cited in the text, other references were consulted only).

Cayetano, Marion, Jesten Karper, and Yasmine Frutos. 2003. *Socio-economic assessment and key social and economic indicators of the Sarstoon-Temash region*. Sarstoon Temash Institute for Indigenous Management and RME Consultants Group.

Grandia, Elizabeth. 2004. Kekchi Maya traditional resource knowledge of the Sarstoon Temash National Park and communities of Midway, Conejo Creek, Sunday Wood, and Crique Sarco. Sarstoon Temash Institute for Indigenous Management and University of California at Berkley.

Holland, Brian, Neils Brorsen, and Robert Johnston. 2003. *Review of soils, geology and mineral resources of the Sarstoon Temash National Park and buffer zone*. Sarstoon Temash Institute for Indigenous Management and Consultant Geologists.

Karper, Jesten. 2004. Hot spot impact mapping of Temash River and tributaries. Sarstoon Temash Institute for Indigenous Management and Mobile Mapping Conservation Station.

Meerman, Jan, Augustin Howe, and Peter Herrera. 2003. *Rapid Ecological Assessment of the Sarstoon Temash National Park, Toledo District, Belize*. Sarstoon Temash Institute for Indigenous Management: http://biological-diversity.info/Sarstoon_Temash_Sphagnum.htm

Morgan, Philip. 2003. *SATIIM Hydrology Project – Final Report*. Sarstoon Temash Institute for Indigenous Management.

Morrison, Imani and Ian Morrison. 2003. *Sarstoon Temash National Park: park use policies, zoning plan, and user fees*. Sarstoon Temash Institute for Indigenous Management and Iandi Consultants.

Morrison, Imani and Ian Morrison. 2004. Assessment of eco and ethno tourism in the Sarstoon Temash National Park. Sarstoon Temash Institute for Indigenous Management and Iandi Consultants.

Stepp, John Richard, and Santiago Ruiz. 2004. Garifuna traditional knowledge of the Sarstoon Temash National Park and coastal community of Barranco. Sarstoon Temash Institute for Indigenous Management and University of Florida Department of Anthropology.

U.S. Natural Resources Conservation Service (NRSC): USDA-NRCS. 1986. 210-VI-TR-55 Users Manual, 2nd Edition, June 1986.

World Wildlife Fund's Ecoregions classification system: Ecoregions NT0154 and NT1403: <http://worldwildlife.org/science/ecoregions/neotropic.cfm>

Annex I

As described in Statutory Instrument 22 of 2000, Laws of Belize, amended (to include section for de-reservation) version of Statutory Instrument 42 of 1994:

These points, which form the boundary of the proposed RAMSAR site, converted into geographical coordinates are as follows:

Point	Easting	Northing
1	276000	1760000
2	276000	1764550
3	277260	1764425
4	280375	1763030
5	280825	1767225
6	281150	1767475
7	282425	1767505
8	282400	1769350
9	282940	1769375
10	282950	1770000
11	285000	1770000
12	285000	1773000
13	286000	1773000
14	289695	1775090
15	290925	1774000
16	288000	1771000
17	288000	1769000
18	289000	1767000
19	291000	1767000
20	292000	1768000
21	293245	1768000
22	295175	1759000
23	295350	1758575

Point	Longitude	Latitude
1	-89.0922	15.9090
2	-89.0927	15.9501
3	-89.0020	15.9491
4	-89.0517	15.9368
5	-89.0478	15.9747
6	-89.0448	15.9770
7	-89.0329	15.9774
8	-89.0333	15.9941
9	-89.0325	15.9943
10	-89.0283	16.0000
11	-89.0283	16.0002
12	-89.0091	16.0273
13	-89.0000	16.0274
14	-88.9657	16.0466
15	-88.9541	16.0368
16	-88.9812	16.0095
17	-88.9810	15.9914
18	-88.9715	15.9734
19	-88.9528	15.9736
20	-88.9435	15.9827
21	-88.9319	15.9828
22	-88.9131	15.9017
23	-88.9114	15.8978