
CHAPTER 4

FLORA AND FAUNA

4.1 Scope

The project sites are located in the Spanish Lookout Area in the Cayo District. This area is also comprised of many other collective villages. The area is dominated by agricultural lands being utilized for many related activities, namely grazing or pasturing as it is locally called. Clearly for the Spanish Lookout Area all the original vegetation has been removed to make way for agricultural uses. Only remnants of the original primary vegetation cover are left along the fringes of the villages and along some of the creeks, although there has been a tendency to clear the forest all the way up to waterways.

Most of the area is now under an artificial vegetation cover largely consisting of (introduced) grasses and agricultural activities such as corn, beans and other leguminous plants. The area is dissected by a number of waterways such as creeks and tributaries draining towards the Belize River just south of the proposed project areas. All of the project sites fall within the Belize River watershed. Due to the agricultural nature of the area and the loss of the natural vegetation, the area is not supportive of any flora or fauna species, except for grazing animals and birds. This was indicative of the wildlife survey undertaken by the consultancy. Both past literature and BNE reports were used to complement this assessment.

4.2 Vegetation

The flora of and near of the project sites is consistent with vegetation that has been previously cleared and used for agricultural activities, namely for pasture. This practice is analogous to other smaller villages in the area and the neighboring community of Spanish Lookout that practice similar activities. Presently, the project area is covered by native grass lands that are used for grazing.

The project site is also bordered by a high ridge or fringe of secondary vegetation which includes transitional lowland broad leaf forest that covers sub mountainous areas. This type of forest extends northwards into the Yalbac Hills as can be seen in figure 4.1.

The transitional vegetation is also locally described as 'broken ridge'. It is a low dense type of vegetation usually thoroughly laced together with cutting grass (*Scleria bracteata*). The height of the main (flat) canopy seldom exceeds 10m, but odd emergent trees may go up to 20m. In places, the vegetation is only 5m high. The general classification of vegetation includes:

- Tropical evergreen seasonal broad leaved lowland forest on calcareous soils



Upper left, Pasture land that has been overtaken by native grasses locally known as pasture grass. **Upper right**, cleared grassland left behind by the grazing of cows. **Lower left**, Cohune Palm tree found along the fringes of the cleared land. **Lower right**, borderline high grass forming part of the secondary transition vegetation cover.

Plate B Vegetation of the Development Site

- Tropical evergreen seasonal broadleaf lowland forest over rolling calcareous hills
- Broad-leaved lowland shrubland: Leguminous variant
- Lowland savannah

4.3 Flora Survey

There were obvious signs of agricultural activity near the proposed wells. Grazing pastures were the most common species of flora found at the project sites. This zone extends southwards from the proposed sites to the lowland savannah and is bordered to the north by the previously mentioned transitional secondary vegetation. If agricultural activity is allowed to expand, the transitional broadleaf forest will eventually disappear in this area creating another transitional zone. The grazing area is also transected by a series of forest ridges used to preserve the waterways. These ridges mostly include broadleaf forests. These ridges also take the course of the waterways. The following is a brief summary of the vegetation classification via transects placed on the sites and recorded evidence:

- Tropical evergreen seasonal broad leaved lowland forest on calcareous soils

Common species in this forest type include *Allophylus campostachys*, *Aspidosperma megalocarpon*, *Attalea cohune*, *Brosimum alicastrum*, *Bucida buceras*, *Bursera simaruba*, *Capparis frondosa*, *Cedrela odorata*, *Ceiba pentandra*, *Chamaeodorea pinnatifrons*, *Coccoloba belizensis*, *Cojoba arborea*, *Cupania belizensis*, *Desmoncus orthacanthos*, *Enterolobium cyclocarpum*, *Forchhammeria trifoliata*, *Guazuma ulmifolia*, *Licaria peckii*, *Lonchocarpus castilloi*, *Lonchocarpus guatemalensis*, *Maranta arundinaceae*, *Pimenta dioica*, *Piper amalago*, *Piscidia piscipula*, *Protium copal*, *Sabal mauritiiformis*, *Sapindus saponaria*, *Schizolobium parahybum*, *Spondias mombin*, *Talisia oliviformis*, *Trichilia havanensis* and *Vitex gaumeri*.

- Tropical evergreen seasonal broadleaf lowland forest over rolling calcareous hills

These forests are distinguished by topography because there are distinct differences between the lowland forests in Belize and those covering the hills probably as a result of differences in drainage. These forests display characteristics intermediate between lowland tropical forests and the submontane forests of higher altitudes in the Yalbac Hills. The canopy trees 15-40 m tall. There is a distinct deciduous element.

Common woody plants are; *Acacia dolychostachya*, *Alseis yucatenensis*, *Aspidosperma cruenta*, *Attalea cohune*, *Bourreria oxyphylla*, *Calophyllum brasiliense*, *Casearia bartlettii*, *Cedrela odorata*, *Cupania belizensis*, *Cymbopetalum mayanum*, *Exothea paniculata*, *Guarea glabra*, *Hirtella americana*, *Licaria peckii*, *Manilkara zapota*, *Sideroxylon foetidissimum*, *Matayba oppositifolia*, *Ouratea lucens*, *Pimenta dioica*, *Pouteria durlandii*, *Protium copal*, *Pseudolmedia oxyphyllaria*, *Rehdera penninervia*, *Sebastiana tuerckheimiana*, *Simira salvadorensis*, *Spondias mombin*, *Tabebuia guayacan*, *Trichilia moschata*, *Trophis racemosa*, *Vatairea lundellii*, *Zanthoxyllum procerum*, *Zuleania guidonia* and Myrtaceae. Palms and Rubiaceae are abundant in the shrub layer and lianas are frequent.

- Broad-leaved lowland shrubland: Leguminous variant

This type undergoes extremes of wetting and drying in the course of the year and has a significant complement of deciduous species. The canopy is very level with few or no emergents and only 4-6 m. high. Usually found in association with Tropical evergreen seasonal broadleaf lowland swamp forest.

Frequently encountered species include *Acoelorrhaphe wrightii*, *Ardisia* sp., *Bucida buceras*, *Caesalpinia gaumeri*, *Cameraria latifolia*, *Calophyllum brasiliense*, *Chrysobalanus icaco*, *Coccoloba reflexiflora*, *Erythroxylum guatemalense*, *Eugenia rhombea*, *Gliricidia sepium*, *Gymnopodium floribundum*, *Haematoxylon campechianum*, *Margaritaria nobilis*, *Metopium brownei*, *Myrica cerifera*, *Pithecellobium albicans*, *Plumeria obtusa*, *Rapanea guianensis*, and *Swietenia macrophylla*. Epiphytes are abundant. This forest is known locally as “akalche” or “tintal”.

4.4 Fauna

Due to the current land use practices and approaching urbanization, nearly all the original vegetation has been removed to make way for agricultural uses and urban development. Only remnants of the original vegetation cover are left along scattered over the area. This disturbance has drastically reduced the area’s carrying capacity in terms of the wildlife, especially the fauna, as was witness by TNCE during its field survey.

The agricultural activity has given way to livestock animals that forage on the pasture lands. Any dominant predator that frequented the area in the past, has now been force back, deep into the remaining forests. More so, the ecological balance has been shifted towards the west where undeveloped areas still exist and which eventually merges into the Guatemalan territory.

4.4.1 Avifaunal Survey

Over 573 species of birds have been recorded in Belize. Over 300 are resident species that are present throughout the year; twenty percent are North American migrants that arrive during migration periods. Over 80 species are of special conservation concern, these include colony nesting sea and shore birds, vulnerable to disturbances scattered along the inland areas and coastal zone.

Point counts and transect census few species of birds. The birds were recorded during a (24) hour monitoring period, from the 29th to the 30th January, 2007. The bird census was conducted on the agricultural land and transient secondary vegetation, (table 4.1)

Existing survey lines and the access road was used to conduct census which are located on the western side of the project site. This is the area where the wells explored. The results show few migrants have arrived on the site during this current migration period. The birds use the property and adjacent areas as feeding and roosting grounds.

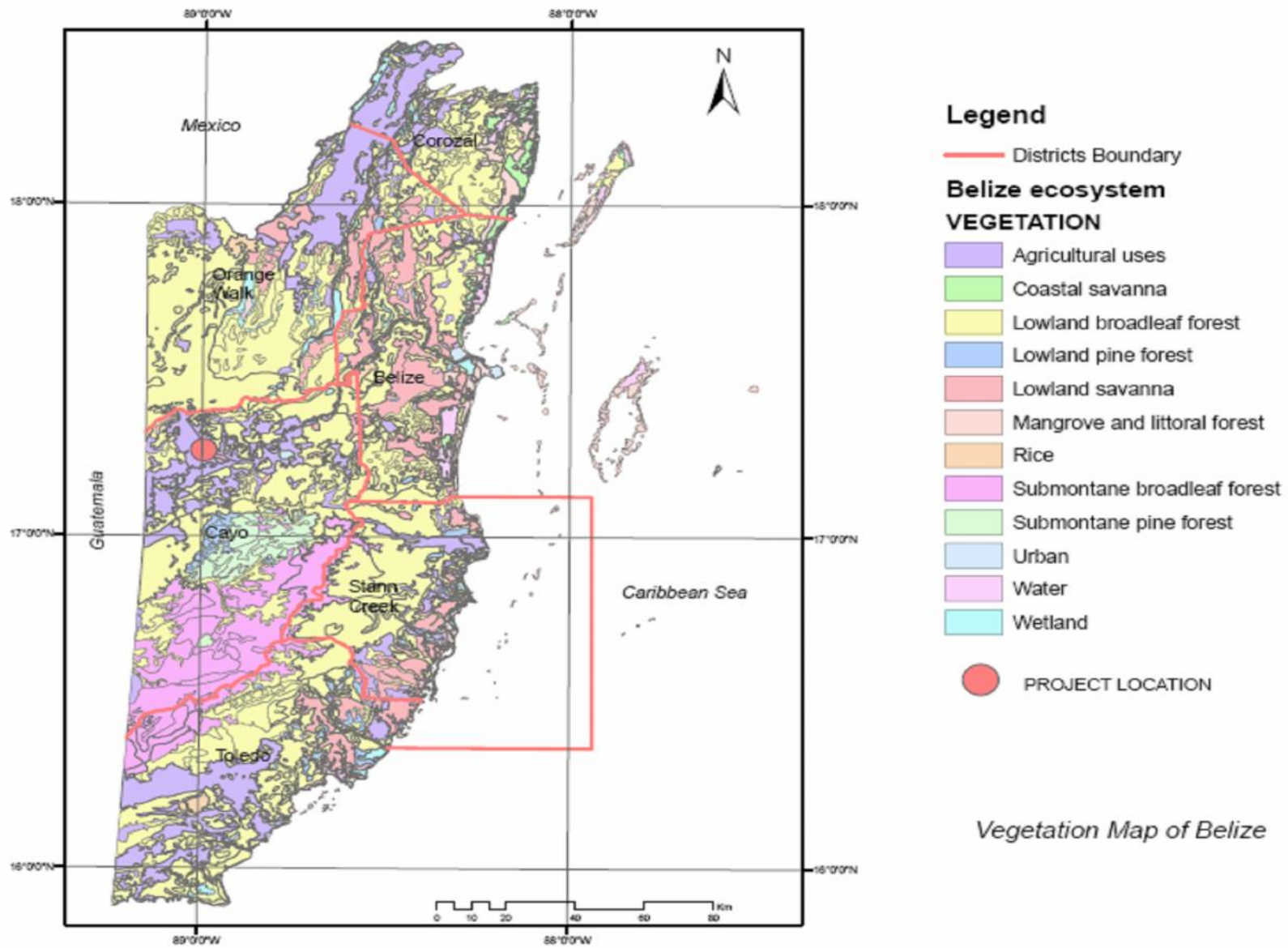


Fig. 4.1 Vegetation Map of Belize and of the project site

The bird list below (table 4.1) is arranged in accordance with the sequence and nomenclature of the American Ornithologist Union. The Key to Symbols for Abundance and Seasonality was adopted from *Checklist of the Birds of Belize* compiled by Lee Jones and A.C. Vallely, 2001

Abundance

v = very common c = common f = fairly common u = uncommon
 r = rare o = occasional l = uncommon locally but absent in other districts

Seasonality

P = permanent resident S = seasonal resident V = visitor T = Transient
 W = winter resident X = Known from only two records.

Table 4.1: List of birds identified on the site and vicinity of BNE

Family Name	Genus Species	English Name	Abundance & Seasonality
Grebes	<i>Tachybaptus dominicus</i>	Least Grebe	l-P
Vultures			
	<i>Cathartes aura</i>	Turkey Vulture	v-P
Rails	<i>Aramides cajanea</i>	Gray Necked Wood Rail	f-P
Plovers	<i>Pluvialis squatarola</i>	Black Belly Plover	f-W
	<i>Charadrius semipalmatus</i>	Semipalmated Plover	f-W
	<i>Chararius vociferus</i>	Killdeer	f-W
Pigeons & Doves	<i>Columba cayennensis</i>	Pale Vented-Pigeon	v-P
	<i>Columba leucocephala</i>	White- Crowned Pigeon	u-P
Woodpeckers	<i>Melanerpes aurifrons</i>	Golden- Fronted Woodpecker	c-P
Wrens	<i>Henicorhina leucosticta</i>	White Breasted Wood Wren	c-P
Thrushes	<i>Catharus ustulatus</i>	Swaison's Thrush	c-W
Seedeaters	<i>Volatina jacarina</i>	Blue Black Grass Quit	v-P
	<i>Sporophilia Americana</i>	Variable Seedeater	v-P
Tanagers	<i>Habia rubica</i>	Red Throated Ant Tanager	f-P
<i>Thraupis episcopus</i>	Blue Gray Tanager	v-P	

Species of Key Conservation Concern

There are no species under conservation.

4.4.2 Reptiles

Spiny Tailed Iguana (*Ctenosauria similes*) Family Iguanidae

Only one specimen was sighted near roadside. This is one of two species found in Belize. The other is the Green Iguana (*Iguana Iguana*). These two species prefer dry environments where they take refuge in holes and trees. The iguana family includes the anoles and basilisks which are also common on the property.

No other reptile found on the site transects. However, there has been recorded evidence of several species of snakes

4.4.4 Mammals

Over 150 mammal species have been recorded for Belize, of these more than eighty are bats. Over 43 species are in some way endangered, threatened, rare and/or hunted throughout their ranges. Thirteen are officially designated as being of international concern and listed in the CITES Appendices, IUCN Red Data Book or under the US Endangered Species Act. Belize is an important country for all these species because they occur in relatively healthy populations.

A survey for mammals was conducted on the existing road sides, field transects and existing survey lines within the proposed areas. Table 4.2 list species that were recorded.

Table 4.2: List of Mammals sighted on property

Scientific Name	Common Name	Location seen	Status & Habitat
<i>Dasyus Novemcinctus</i>	Nine Banded Armadillo	Roadside	Common, Prefers deciduous forest scrubs & savannah.
<i>Orthogeomys hispidus</i>	Hispid Pocket Gopher	Survey lines	Locally common to abundance in forest openings, sandy coastal regions and agriculture areas
<i>Urocyon cinereoargenteus</i>	Gray Fox	San Marcos road side	Common and wide spread in deciduous and semideciduous forest.
<i>Procyon lotor</i>	Northern Raccoon	Tracks seen on survey lines	Wide spread and common in coastal regions, mangroves, towns, and rural areas.
<i>Nasua narica</i>	White – Nosed Coati	Access road	CITES, Wide spread and common where not hunted found in evergreen second growth and arid scrubs.
<i>Didelphis marsupialis</i>	Common Opossum	Survey lines	Common to abundant in a variety of habitats.