

MACHACA HILL LODGE

ECOSYSTEM ASSESSMENT

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A Study commissioned by Machaca Hill Lodge, Toledo District, Belize

Introduction

The Machaca Hill Lodge is located on the shores of the Rio Grande near the town of Punta Gorda in the Toledo District. During July 2006, Jim Scott, Manager of the Lodge expressed interest in a rapid ecological survey of the property. This survey was carried out in the latter half of August of the same year. The study focused on vegetation and ecosystems. Aspects such as ornithology and geology will be addressed in separate studies.

Acknowledgements

The team acknowledges the support of Jim Scott, manager of the Machaca Hill Lodge as well as the entire staff of the lodge which made our work at the property most agreeable.

Methodology

The purpose of the study was to gather information on the property on ecological – ecosystem level. For practical purposes this translates to a study of the flora of the area. Since little time was available for the study, only one field visit could be made (August 18-21, 2006) during which forays were made into the various habitats on the property. No formal transects were prepared but rather trails were chosen that allowed the most efficient access to the various habitats. Locations were established using GPS coordination.

Maps including a topographic map (Map 1) and a 2006 Landsat tm Satellite Image in false color (Map 2) were consulted to establish the different habitats from a remote sensing perspective.

As much as possible, plants were identified in the field. Pictures were taken when required and in some cases specimens were collected for identification at a later stage.

Although the **flora** of the Machaca Hill Lodge was the main focus of the study, other biodiversity aspects were gathered on an opportunistic basis.

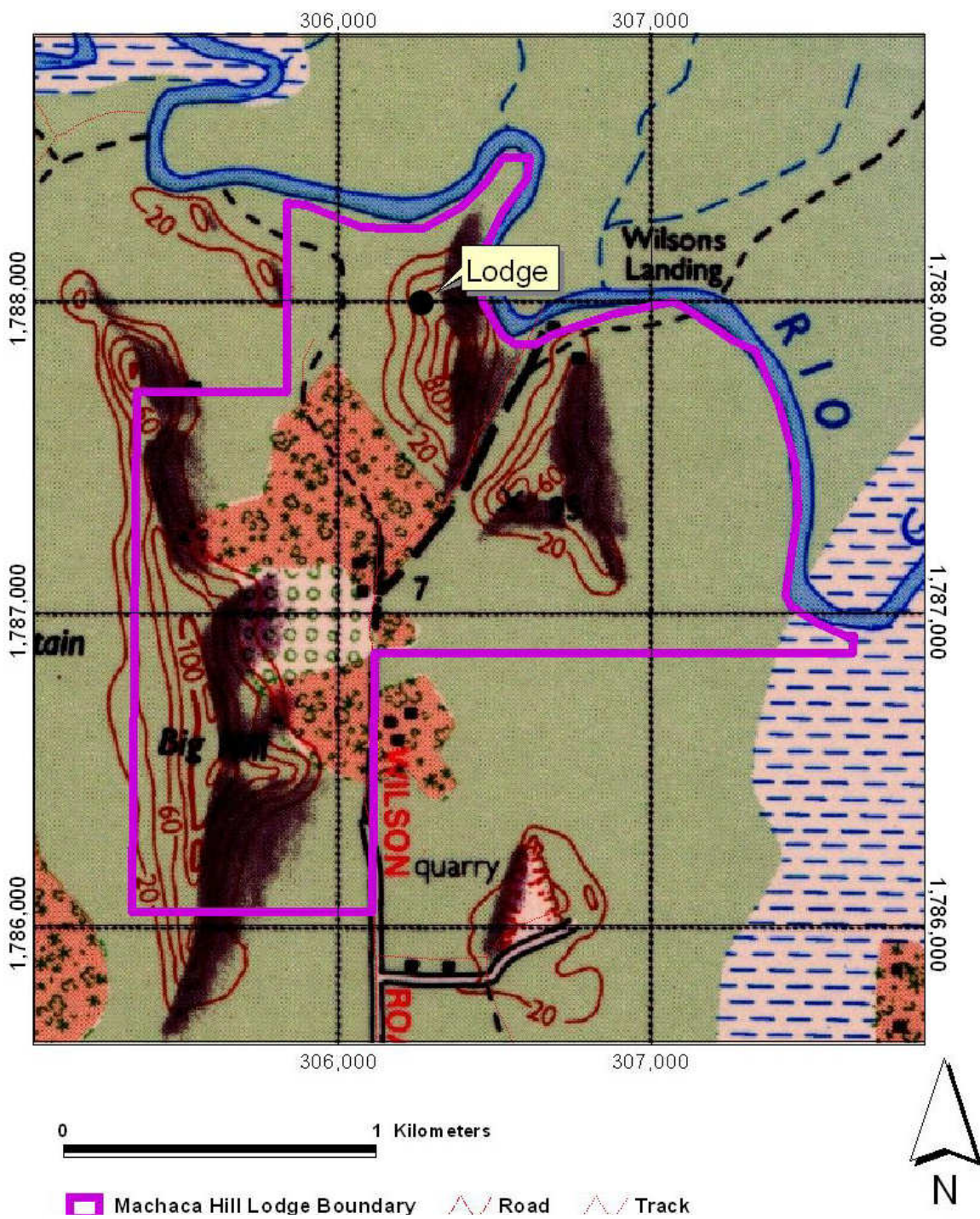
Birds were visually noted only when they were conspicuous or presented particularly interesting species in the experience of the consultants.

Butterflies were collected using a number of traps (6 fruit baited traps and one interception trap) set out throughout the property. In addition some specimens were caught with a hand net as well as visual observations were taken.

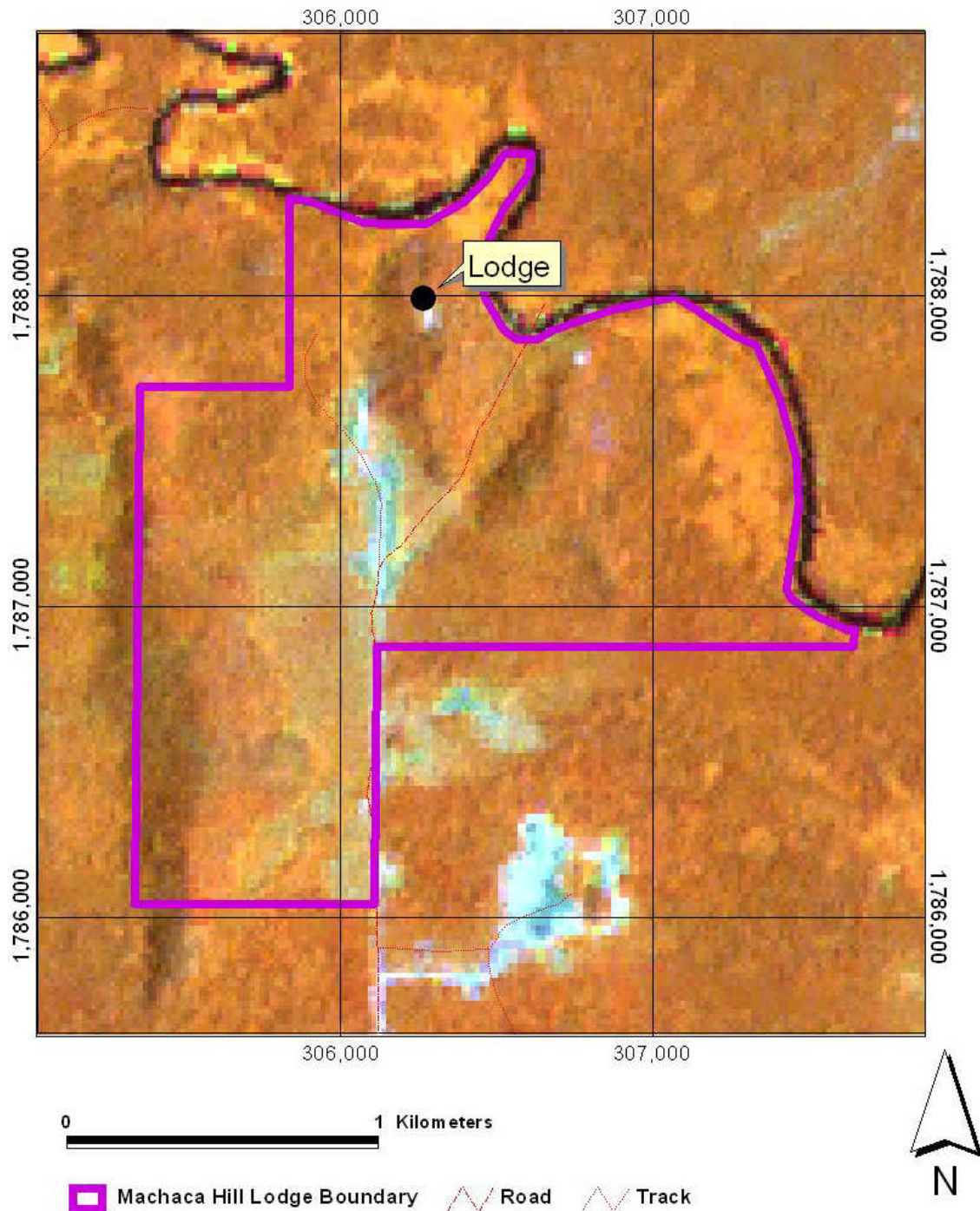
Stick insects were collected during two night-walks over the property.

Mammals, Reptiles and Amphibians data were collected opportunistically both during the day as well as during the night-walks over the property.

Map 1. Topographic map of Machaca Hill Lodge



Map 2.
2006 Landsat tm Satellite Image of the Machaca Hill Lodge terrain. Pixel size is 15 x 15 m.



Results

Much of the terrain shows heavy human impact. Most of the lowlands have been used for agricultural activities at some stage and the only less impacted ecosystems can be found in the more swampy areas along the river and on the hills. On top of this, the entire terrain was heavily impacted during Hurricane Iris in 2001 (Meerman, 2001).

Particularly as a result of the Hurricane impact, much of the vegetation is now in a regeneration phase with abundant secondary growth. This secondary growth goes in phases. Shortly after the hurricane in 2001, the most noticeable secondary growth species was *Carica papaya* (wild Papaya). Only 5 years later, this species is now much more uncommon, but a number of other secondary shrubs and trees now dominate the scene. Most notably these are:

- *Schizolobium parahyba* (Quamwood)
- *Cecropia obtusifolia* (Trumpet Tree)
- *Cecropia peltata* (Trumpet Tree)
- *Ochroma pyramidale* (Balsa)
- *Acalypha diversifolia*
- *Cestrum nocturnum* (Dama de Noche)
- *Trema micrantha* (Capulin)

Interestingly the above species can be found in all habitats on the property. Broadly speaking 4 main ecosystems were recognized (map 3):

1. Tropical Evergreen broad-leaved lowland hill forest on steep karstic terrain
2. Deciduous broad-leaved lowland riparian shrubland of the plains
3. Tropical Evergreen broad-leaved lowland forest on poor or sandy soils
4. Tropical Evergreen broad-leaved lowland swamp forest.

The first ecosystem: **Tropical Evergreen broad-leaved lowland hill forest on steep karstic terrain** is the best defined. It is restricted to the steep limestone hills that form such a distinctive feature of the property. Based on the limited amount of fieldwork conducted, this also appears to be the most bio-diverse. A total of 179 species was identified here (which is a very high number for such a short study)(Appendix 2 & 3). A description of this ecosystem based on Meerman & Sabido (2001) can be found in appendix 1.

Like the rest of the terrain, this ecosystem was heavily impacted during Hurricane Iris in 2001. Typically the western slopes were distinctly more damaged than the eastern slopes. Nevertheless, wherever you go there is a jumble of secondary growth and vines which make access problematic.

The vegetation of the hills was fairly typical becoming more distinct towards the ridges with distinct hilltop species such as *Deheraina smaragdina* and *Forchammeria trifoliata*.

The palm *Chamaedorea tepejilote* (Pacaya) and the palm-like Cyclanthaceae *Carludovica palmata* (Jippi Jappa) were common features along the slopes.

There were some surprises such as *Andira inermis*, *Pterocarpus officinalis* and *Lonchocarpus guatemalensis*. In the experience of the consultants these species are normally lowland species and often riverine in distribution. To find them on hill crests came somewhat as a surprise. Probably the environment in the Machaca Hill Lodge area is so permanently moist as to allow these typical wetness indicators on a well drained hill crest.

The second ecosystem that is reasonably well defined is the **Deciduous broad-leaved lowland riparian shrubland of the plains**. Again, see the description in appendix 1. In the case of the Machaca Hill Lodge, this ecosystem forms a belt along the Rio Grande. At places it is shrubby and herbaceous as in the type description for this ecosystem. However, stands of sizeable trees can be found here with *Cassia grandis* (Bokut), *Pterocarpus officinalis* (Kaway) and *Ficus insipida* (Amate). Smaller trees include *Grias cauliflora* (Bongo Wood), *Bactris major* (Pokenoboy) and *Zygia* sp. (Turtlebone). The biodiversity of this area was not as high as in the hills with only 45 species identified. It should be noted however that the herbaceous component of the ecosystem received very little attention.

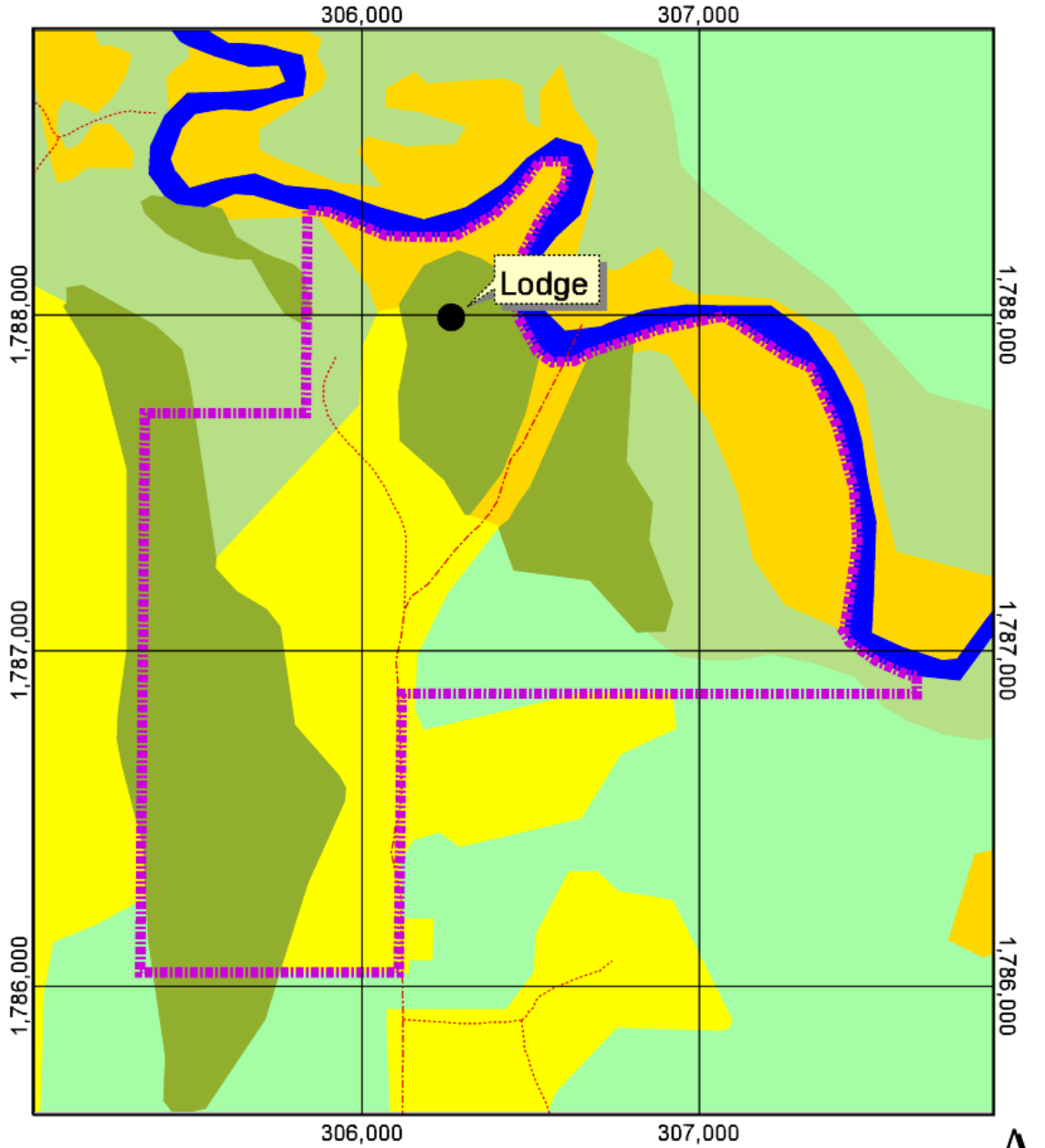
In general this is a very important ecosystem considering the environmental services it provides (shore protection).

The remaining ecosystems: “**Tropical Evergreen broad-leaved lowland forest on poor or sandy soils**” and “**Tropical Evergreen broad-leaved lowland swamp forest**” are less well defined. Actually there is appears to be a very gradual cline from the riparian shrubland through “Tropical Evergreen broad-leaved lowland swamp forest” towards “Tropical Evergreen broad-leaved lowland forest on poor or sandy soils”. Both have suffered under past agricultural activities and little if anything of what was once was “Tropical Evergreen broad-leaved lowland forest on poor or sandy soils” remains. The effects of Hurricane Iris further diffused the distinction between these ecosystems.

Because of the difficulty in distinguishing between these “flatland” type ecosystems they have been lumped in the biodiversity listing in appendix 2.

The total biodiversity count of this lumped ecosystem is 96 species.

Map 3. Generalized Ecosystem Map of Machaca Hill Lodge.



0 1 Kilometers



- Machaca Hill Lodge Boundary
- Road
- Track
- Agriculture: non mechanized agricultural land uses including unimproved pasture
- Deciduous broad-leaved lowland riparian shrubland of the plains
- Tropical evergreen broad-leaved lowland forest on poor or sandy soils
- Tropical evergreen broad-leaved lowland hill forest on steep karstic terrain
- Tropical evergreen broad-leaved lowland swamp forest
- River

Amphibians and Reptiles



A total of 6 amphibian and 4 reptilian species (Appendix 2 &3), were noted. The Rio Grande is reportedly an important stronghold for the threatened *Dermatemys mawii* Turtle (Hickatee) but none were seen.

See picture of *Norops uniformis* to the left

Birds



A total of 13 species was entered into the database. Notable was a flock of 34 Swallow Tailed Kites that was seen circling over the lodge.



Also a pair of Golden-hooded Tanagers was observed in a Balsa

tree. (see picture above). Six species of hummingbird were observed on the hummingbird feeders at the lodge (see picture of Scaly-breasted Hummingbird above).

Mammals

Signs of 6 mammal species were noted. Black Howler Monkeys appear to be common on the property undoubtedly supported by the very large number of *Ficus* sp (Fig) trees that was noted. Encouraging were also very fresh Tapir tracks. This is a species that tends to have a difficult time near human habitation.

Butterflies



A total of 40 species was noted (Appendix 2 & 3). Unfortunately the various traps that were set out were strangely ineffective. Most notable were the common *Morpho theseus* (Brown Morpho) that were patrolling over the canopy of the hill forests. This species is uncommonly recorded.

Picture. *Male Morpho theseus* in flight

Stick Insects




An unusual component of Rapid Ecological Studies, but because of that quite interesting. A total of three species was collected. One species may be an as yet undescribed *Alienobostra* species (see picture to the left).


Literature


- Meerman, J.C. & W. Sabido. 2001. Ecosystems Map of Central America: Belize. 2 vols + map. Programme for Belize.
- Meerman, J. C. 2001. A first Assessment of damage to terrestrial ecosystems in Southern Belize as caused by Hurricane Iris of October 8, 2001. Report prepared for the Belize Forest Department 10 pp.

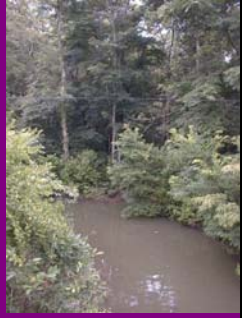

Appendix 1.

Ecosystem descriptions from Meerman & Sabido (2001): Belize Ecosystems Map.

UNESCO Classification code	<u>I.A.1.a.(1).(a).K-s</u>
Name	<u>Tropical evergreen broadleaf lowland forest over steep calcareous hills</u>
Altitude	< 500 m.
Geology and soil	Found in steep terrain over calcareous rocks, often where there is more non-vegetated ground surface, particularly bare rock. Soils may be extremely organic due to the leaching of the mineral soil and the build-up of organic matter in the limestone cracks and fissures.
Water regime	Mostly well drained
Rainfall	Found in the 2500 - 4000 mm annual rainfall areas of southern Belize with a dry season from February through May.
Fire exposure	Fires can do tremendous damage to this ecosystem. The soil at the base of steep limestone hills is often quite fertile and sought after for slash and burn agriculture. Agricultural fires associated with this practice frequently escape and creep up the hills, commonly doing relatively minor damage at the lower elevations but completely destroying the tops of the hills. The vegetation of such hilltops is then replaced by vines such as <i>Bidens squarrosa</i> and <i>Calea</i> sp. or more commonly with the fern <i>Pteridium caudatum</i> .
Description	Altitude is less important than steepness and the vegetation cover is dictated by the seasonal droughtiness. But because of the high rainfall figures in southern Belize, deciduousness is not a conspicuous feature even on these steep hills. Normally the valleys between these steep hills have an ecosystem that should be termed IA1a(1)(a)K-r but the current mapping effort does not allow this type of detail. The canopy tends to reach 25-30 m.
	
Frequent plant species	Distinctive species include: <i>Acalypha</i> sp., <i>Achimenes erecta</i> , <i>Alseis yucatenensis</i> , <i>Aphelandra scabra</i> , <i>Astronium graveolens</i> , <i>Bauhinia divaricata</i> , <i>Bernoullia flammea</i> , <i>Brosimum</i> spp., <i>Bursera simaruba</i> , <i>Ceiba aesculifolia</i> , <i>Clusia</i> sp., <i>Coccoloba acapulcensis</i> , <i>Cryosophila stauracantha</i> , <i>Dendropanax arboreus</i> , <i>Desmoncus orthacanthos</i> , <i>Drypetes brownii</i> , <i>Louteridium donnell-smithii</i> , <i>Manilkara zapota</i> , <i>Malmea depressa</i> , <i>Metopium brownei</i> , <i>Oreopanax obtusifolius</i> , <i>Pimenta dioica</i> , <i>Piper psilorrhachis</i> , <i>Piper</i> spp., <i>Plumeria rubra</i> , <i>Pouteria campechiana</i> , <i>Pouteria reticulata</i> , <i>Protium copal</i> , <i>Pseudobombax ellipticum</i> , <i>Sapindus saponaria</i> , <i>Sebastiania tuerckheimiana</i> , <i>Trichilia minutiflora</i> and <i>Vitex gaumeri</i> .
References	Brokaw & Lloyd-Evans 1987, Iremonger & Sayre 1994, Meerman 1998b, 1999a, 1999c, Hawkins et al. 1998, Schultze and Whitacre 1999, Wright et al. 1959: 2d, 2e (where on hills) Picture: Blue Creek, Toledo district. J. Meerman

UNESCO Classification code	<u>I.A.1.a.(1).(b).P</u>
Name	<u>Tropical evergreen broadleaf lowland forest over poor or sandy soils</u>
Altitude	< 50 m.
Geology and soil	Corresponding to where they occur in lowland areas, soils are acidic and may be dull reddish-brown, brown or gray clays, often mottled and/or stony.
Water regime	Drainage varies. Often ill drained.
Rainfall	Found in the 2500 - 4000 mm annual rainfall areas of southern Belize with a dry season from February through May.
Fire exposure	Where fires have penetrated this system, small patches of scrubby "savanna" occur with associated species such as <i>Byrsonima crassifolia</i> and <i>Pinus caribaea</i> appearing. High rainfall figures in these areas prevent major expansion of these savannas but under a regime of recurring droughts and increased human pressure, these forests may well degenerate towards savanna.
Description	Generally dense forests with a broken canopy.
Frequent plant species	Distinctive species include <i>Acosmium panamense</i> , <i>Acoelorrhaphe wrightii</i> , <i>Aspidosperma cruenta</i> , <i>Attalea cohune</i> , <i>Bactris</i> sp., <i>Calophyllum brasiliense</i> , <i>Chrysobalanus icaco</i> , <i>Clidemia</i> spp., <i>Coccocypselum herbaceum</i> , <i>Dialium guianense</i> , <i>Dicranopteris</i> , <i>Erblichia odorata</i> , <i>Ficus</i> sp., <i>Guarea</i> sp., <i>Guettarda combsii</i> , <i>Licania hypoleuca</i> , <i>Licania platypus</i> , <i>Miconia</i> spp., <i>Mouriri exilis</i> , <i>Mouriri myrtilloides</i> , <i>Pouteria mammosa</i> , <i>Psychotria poeppigiana</i> , <i>Pterocarpus rohrii</i> , <i>Scleria bracteata</i> , <i>Simarouba glauca</i> , <i>Spondias mombin</i> , <i>Symphonia globulifera</i> , <i>Terminalia amazonia</i> , <i>Tetracera volubilis</i> , <i>Tococca</i> sp., <i>Virola koschnyi</i> , <i>Vismia ferruginea</i> , <i>Vochysia hondurensis</i> and <i>Xylopia frutescens</i> .
	
References	Meerman 1999a, Wright et al. 1959: 8, 8a, 8b, 8c, Iremonger and Brokaw 1995: 1.2.1.4. Picture: <i>Simarouba glauca</i> . Mountain Pine Ridge, Cayo district. J. Meerman

UNESCO Classification code	<u>I.A.1.b.(1).K-s</u>
Name	<u>Tropical evergreen broadleaf submontane forest over steep calcareous hills</u>
Altitude	500-1000 m.
Geology and soil	Over calcareous rock.
Water regime	Mostly well drained
Rainfall	Found in the 2500 - 4000 mm annual rainfall areas of southern Belize with a dry season from February through May.
Fire exposure	Not resistant to fire but frequently exposed to fire from uncontrolled slash and burn cultivation activities. Effects most severe on hillcrests.
Description	This forest type is the medium altitude (> 500 m) version of type IA1a(1)(a)K-s. Since travel through this ecosystem is difficult, there is little information available of this forest type.
Frequent plant species	Rich in understory palms and ferns. It appears to be the habitat for the endemic <i>Zamia prasina</i> .
	
References	Brokaw & Lloyd-Evans 1987, Iremonger & Sayre 1994, Wright et al. 1959: 2d, 2e; Iremonger and Brokaw 1995: 1.2.3.2. Picture: <i>Zamia prasina</i> . Columbia River Forest Reserve. Toledo district. J.Meerman

UNESCO Classification code	<u>I.A.1.g.(1).(a)</u>
Name	<u>Tropical evergreen broadleaf lowland swamp forest: Seasonally waterlogged.</u>
Altitude	< 50 m.
Geology and soil	Mostly calcium poor
Water regime	Ill drained, often waterlogged for part of the year.
Rainfall	Found in the 2500 - 4000 mm annual rainfall areas of southern Belize with a dry season from February through May.
Fire exposure	Unknown
Description	Swampy thickets of thin stemmed trees and shrubs without emergents in the high rainfall areas of southern Belize. Some hog-wallow micro-relief exists.
	
Frequent plant species	Frequently encountered plants in these forests are <i>Acosmium panamense</i> , <i>Aspidosperma cruenta</i> , <i>Astrocaryum mexicanum</i> , <i>Attalea cohune</i> , <i>Bactris</i> spp., <i>Bucida buceras</i> , <i>Calyptanthes chytraculia</i> , <i>Clidemia</i> sp., <i>Coccoloba</i> sp., <i>Crysophila stauracantha</i> , <i>Dalbergia cubilquitzensis</i> , <i>Dalbergia stevensonii</i> , <i>Dialium guianense</i> , <i>Dracaena americana</i> , <i>Guettarda combsii</i> , <i>Heliconia vaginalis</i> , <i>Hirtella racemosa</i> , <i>Inga</i> sp., <i>Jacquinia paludicola</i> , <i>Miconia</i> sp., <i>Mouriri exilis</i> , <i>Mouriri myrtilloides</i> , <i>Pachira aquatica</i> , <i>Psychotria glomerulata</i> , <i>Psychotria poeppigiana</i> , <i>Scleria bracteata</i> , <i>Swietenia macrophylla</i> , <i>Symphonia globulifera</i> , <i>Terminalia amazonia</i> , <i>Virola koschnyi</i> , <i>Vismia ferruginea</i> , <i>Vitex kuylenii</i> , <i>Vochysia hondurensis</i> and <i>Xylopia frutescens</i> . On richer soils <i>Pterocarpus officinalis</i> is found; on poorer soils more Melastomataceae and <i>Acoelorrhaphe wrightii</i> . Where this ecosystem comes close to the coast, <i>Anacardium occidentale</i> and <i>Byrsonima crassifolia</i> can be found.
	
References	Meerman 1999a, Wright et al. 1959: 14,14a, 14b, 14c; Iremonger and Brokaw 1995: I.1.1.1.2.1. Picture top: Punta Gorda, Toledo district. J. Meerman Bottom: <i>Heliconia vaginalis</i> . Stann Creek district. J. Meerman

UNESCO Classification code	<u>III.B.1.b.(f).P</u>
Name	<u>Deciduous broadleaf lowland riparian shrubland of the plains</u>
Altitude	< 50 m.
Geology and soil	On alluvial deposits. Outcrops of calcareous rock occur, but generally the alluvial deposits are deep and there is no bedrock visible.
Water regime	Mostly well drained
Rainfall	NA
Fire exposure	Frequently exposed to human induced fires.
Description	Found along riversides where disturbance may be natural, such as the displacement by a river after flooding, or it may be anthropogenic as when land is cleared and left fallow.
Frequent plant species	Tall graminoids (reeds, rushes, and sedges) mix with shrubs, and many types of ruderal communities.
References	Iremonger and Brokaw 1995: II.2.3.

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Species list by principal habitat

Order	Family	Scientific Name	Common Name	Hills	Rivers	Flat
Amphibians	6 species					
	Frogs and Toad	<i>Agalychnis callidryas</i>	Red-eyed Treefrog			1
	Frogs and Toad	<i>Bufo valliceps</i>	Gulf toad			1
	Frogs and Toad	<i>Hyla microcephala</i>				1
	Frogs and Toad	<i>Hyla picta</i>				1
	Frogs and Toad	<i>Leptodactylus melanonotus</i>				1
	Salamanders	<i>Bolitoglossa mexicana</i>				1
Beetle	1 species identified					
	Longhorn beetles	<i>Callipogon (barbatum?, senex?)</i>			1	
Birds	13 species					
	Blackbirds	<i>Psarocolius montezuma</i>	Montezuma oropendola	1		1
	Hummingbirds	<i>Amazilia candida</i>	White-bellied Emerald	1		
	Hummingbirds	<i>Amazilia tzacatl</i>	Rufous-tailed Hummingbird	1		
	Hummingbirds	<i>Phaeochroa cuvierii</i>	Scaly-breasted Hummingbird	1		
	Hummingbirds	<i>Florisuga mellivora</i>	White-necked Jacobin	1		
	Hummingbirds	<i>Phaethornis longirostris</i>	Long-billed Hermit	1		
	Hummingbirds	<i>Phaethornis striigularis</i>	Stripe-throated Hermit		1	
	Nightjars	<i>Nyctidromus albicollis</i>	Pauraque			1
	Owls	<i>Pseudoscops clamator</i>	Striped Owl			1
	Raptors	<i>Elanoides forficatus</i>	Swallow-tailed Kite	1		
	Tanagers	<i>Ramphocelus passerinii</i>	Passerini's Tanager	1		
	Tanagers	<i>Tangara larvata</i>	Golden-hooded Tanager	1		
Toucans	<i>Ramphastos sulfuratus</i>	Keel-billed Toucan	1		1	
Butterflies	40 species					
	Hesperiidae	<i>Achylodes busirus heros</i>		1		
	Hesperiidae	<i>Astrartes alector hopferi</i>		1		
	Hesperiidae	<i>Narcosius parisi helen</i>		1		
	Hesperiidae	<i>Typhedanus ampyx</i>		1		
	Nymphalidae	<i>Adelpha iphicles iphicles</i>		1		
	Nymphalidae	<i>Archaeoprepona amphimachus amphimachus</i>		1		
	Nymphalidae	<i>Caligo memnon memnon</i>	Owl Butterfly	1		
	Nymphalidae	<i>Caligo uranus</i>		1		
	Nymphalidae	<i>Callicore patelina patelina</i>		1		
	Nymphalidae	<i>Chlosyne janais</i>		1		
	Nymphalidae	<i>Colobura dirce</i>		1		
	Nymphalidae	<i>Consul fabius cecrops</i>		1		
	Nymphalidae	<i>Doxocopa laure</i>		1		
	Nymphalidae	<i>Doxocopa pavon</i>		1		
	Nymphalidae	<i>Dryas iulia moderata</i>	Orange Longwing			1
	Nymphalidae	<i>Eueides aliphera gracilis</i>		1		
	Nymphalidae	<i>Heliconius charithonia vazquezae</i>	Zebra Butterfly	1		1
	Nymphalidae	<i>Heliconius cydno galanthus</i>		1		
	Nymphalidae	<i>Heliconius erato petiverana</i>	Postman			1
	Nymphalidae	<i>Heliconius ismenius telchinia</i>		1		
	Nymphalidae	<i>Heliconius sapho leuce</i>				1
	Nymphalidae	<i>Historis odius odius</i>		1		
	Nymphalidae	<i>Morpho peleides montezuma</i>	Blue Morpho			1
	Nymphalidae	<i>Morpho theseus justitiae</i>	Brown Morpho	1		
	Nymphalidae	<i>Myscelia cyaniris cyaniris</i>				1
	Nymphalidae	<i>Opsiphanes cassina fabricii</i>		1		
	Nymphalidae	<i>Opsiphanes quiteria quirinus</i>		1		
	Nymphalidae	<i>Pareuptychia ocirrhoe</i>			1	
	Nymphalidae	<i>Philaethria dido diatonica</i>		1		
Nymphalidae	<i>Pierella luna heracles</i>				1	

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Species list by principal habitat

Order	Family	Scientific Name	Common Name	Hills	Rivers	Flat
	Nymphalidae	<i>Prepona omphale octavia</i>		1		
	Nymphalidae	<i>Pyrrhogyra neaerea hypsenor</i>		1		
	Nymphalidae	<i>Pyrrhogyra otolais neis</i>		1		
	Nymphalidae	<i>Siproeta stelenes biplagiata</i>		1		
	Nymphalidae	<i>Tegosa guatemalena</i>			1	
	Papilionidae	<i>Heraclides androgeus epidaurus</i>				1
	Papilionidae	<i>Heraclides thoas autocles</i>				1
	Papilionidae	<i>Parides sesostris zestos</i>		1		
	Pierids	<i>Eurema albula</i>				1
	Riodinids	<i>Melanis pixe pixe</i>		1		
Flora	188 plant species					
	Acanthaceae	<i>Aphelandra scabra</i>		1		
	Adiantaceae	<i>Pteris grandifolia</i>		1		
	Anacardiaceae	<i>Astronium graveolens</i>	Jobillo	1		
	Anacardiaceae	<i>Spondias mombin</i>	Hog Plum	1		
	Anacardiaceae	<i>Spondias radlkoferi</i>	Hog Plum	1		1
	Annonaceae	<i>Annona scleroderma</i>	Wild Custard Apple			1
	Annonaceae	<i>Cymbopetalum mayanum</i>		1		1
	Annonaceae	<i>Malmea depressa</i>		1		
	Apocynaceae	<i>Aspidosperma cruentum</i>	Mylady			1
	Apocynaceae	<i>Aspidosperma megalocarpon</i>	Mylady	1		
	Apocynaceae	<i>Malouetia guatemalensis</i>			1	
	Apocynaceae	<i>Stemmadenia donnell-smithii</i>	Horse Balls	1		
	Apocynaceae	<i>Tabernaemontana alba</i>				1
	Apocynaceae	<i>Thevetia ahouai</i>		1		
	Araceae	<i>Anthurium pentaphyllum bombacifolium</i>		1		
	Araceae	<i>Anthurium schlechtendalii</i>	Cola de Faisan			1
	Araceae	<i>Dieffenbachia oerstedii</i>	Dumb Cane			1
	Araceae	<i>Montrichardia arborescens</i>			1	
	Araceae	<i>Philodendron radiatum radiatum</i>		1		
	Araceae	<i>Philodendron sp.</i>		1		
	Araceae	<i>Pithecellobium sp.</i>			1	
	Araliaceae	<i>Dendropanax arboreus</i>	White Gumbo-limbo			1
	Araliaceae	<i>Oreopanax obtusifolius</i>		1		
	Arecaceae	<i>Astrocaryum mexicanum</i>	Warree Cohune	1		
	Arecaceae	<i>Attalea cohune</i>	Cohune	1	1	1
	Arecaceae	<i>Bactris major major</i>	Pokenoboy		1	
	Arecaceae	<i>Chamaedorea tepejilote</i>	Pacaya	1		
	Arecaceae	<i>Cryosophila stauracantha</i>	Give and Take	1		1
	Arecaceae	<i>Desmoncus orthacanthos</i>	Basket Tie Tie, Bayal	1		
	Arecaceae	<i>Sabal mauritiiformis</i>	Bayleaf	1		
	Aristolochiaceae	<i>Aristolochia belizensis</i>				1
	Aristolochiaceae	<i>Aristolochia maxima</i>		1		
	Begoniaceae	<i>Begonia sericoneura</i>		1		
	Bignoniaceae	<i>Syngonium sp.</i>			1	
	Bignoniaceae	<i>Tabebuia sp.</i>		1		
	Bombacaceae	<i>Ceiba pentandra</i>	Cotton, Kapok	1		1
	Bombacaceae	<i>Ochroma pyramidale</i>	Balsa	1		
	Bombacaceae	<i>Pachira aquatica</i>	Provision Tree		1	
	Bombacaceae	<i>Pseudobombax ellipticum</i>		1		
	Bombacaceae	<i>Quararibea funebris</i>		1		
	Boraginaceae	<i>Bourreria oxyphylla</i>		1		
	Boraginaceae	<i>Cordia alliodora</i>	Salmwood	1		
	Boraginaceae	<i>Cordia stellifera</i>		1	1	
	Bromeliaceae	<i>Pitcairnia imbricata</i>		1		
	Burseraceae	<i>Bursera simaruba</i>	Gumbo Limbo	1		

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Species list by principal habitat

Order	Family	Scientific Name	Common Name	Hills	Rivers	Flat
	Burseraceae	<i>Protium copal</i>	Copal	1		
	Cabombaceae	<i>Cabomba palaeformis</i>			1	
	Caesalpinioideae	<i>Bauhinia divaricata</i>	Cowfoot	1		
	Caesalpinioideae	<i>Cassia grandis</i>	Bokut		1	
	Caesalpinioideae	<i>Dialium guianense</i>	Ironwood		1	
	Caesalpinioideae	<i>Hymenaea courbaril</i>				1
	Caesalpinioideae	<i>Schizolobium parahyba</i>	Quamwood	1	1	1
	Caesalpinioideae	<i>Senna pendula hemirostrata</i>				1
	Caesalpinioideae	<i>Senna reticulata</i>				1
	Campanulaceae	<i>Hippobroma longiflora</i>		1		
	Capparidaceae	<i>Forchhammeria trifoliata trifoliata</i>		1		
	Caricaceae	<i>Carica papaya</i>	Papaya	1		1
	Cecropiaceae	<i>Cecropia obtusifolia</i>	Trumpet Tree	1		1
	Cecropiaceae	<i>Cecropia peltata</i>	Trumpet Tree	1		1
	Chrysobalanaceae	<i>Hirtella triandra triandra</i>			1	
	Clusiaceae	<i>Calophyllum brasiliense rekoii</i>	Santa Maria		1	
	Clusiaceae	<i>Garcinia intermedia</i>				1
	Clusiaceae	<i>Vismia camparaguey</i>	Ringworm Stick			1
	Combretaceae	<i>Terminalia amazonia</i>	Nargusta	1		1
	Commelinaceae	<i>Tradescantia zanonii</i>		1		
	Costaceae	<i>Costus pictus</i>		1		
	Costaceae	<i>Costus pulverulentus</i>				1
	Cucurbitaceae	<i>Gurania makoyana</i>		1		
	Cucurbitaceae	<i>Psiguria warscewiczii</i>				1
	Cyclanthaceae	<i>Carludovica palmata</i>	Jippy Jappa	1		
	Dioscoreaceae	<i>Dioscorea sp.</i>			1	
	Dracaenaceae	<i>Dracaena americana</i>	Candlewood	1		
	Euphorbiaceae	<i>Acalypha diversifolia</i>		1		1
	Euphorbiaceae	<i>Adelia barbinervis</i>				1
	Euphorbiaceae	<i>Croton billbergianus</i>		1		1
	Euphorbiaceae	<i>Margaritaria nobilis</i>				1
	Euphorbiaceae	<i>Sapium sp.</i>		1		
	Flacourtiaceae	<i>Casearia sp.</i>				1
	Flacourtiaceae	<i>Laetia thamnia</i>		1		
	Flacourtiaceae	<i>Xylosma flexuosa</i>		1		
	Heliconiaceae	<i>Heliconia aurantiaca</i>		1		
	Heliconiaceae	<i>Heliconia bourgaeana</i>				1
	Heliconiaceae	<i>Heliconia latispatha</i>				1
	Heliconiaceae	<i>Heliconia vaginalis mathiasiae</i>				1
	Heliconiaceae	<i>Heliconia wagneriana</i>		1		
	Lauraceae	<i>Licaria peckii</i>	Timbersweet	1		
	Lecythidaceae	<i>Grias cauliflora</i>	Bongo Wood		1	
	Loganiaceae	<i>Strychnos panamensis panamensis</i>	Chicoloro		1	
	Malpighiaceae	<i>Bunchosia sp.</i>				1
	Maranthaceae	<i>Calathea inocephala</i>		1		1
	Maranthaceae	<i>Calathea lutea</i>				1
	Maranthaceae	<i>Stromanthe hjalmarssonii</i>		1		
	Marcgraviaceae	<i>Souroubea sp.</i>		1		
	Melastomataceae	<i>Miconia argentea</i>	Black Maya			1
	Melastomataceae	<i>Miconia impetolaris</i>	Sirin			1
	Melastomataceae	<i>Mouriri myrtilloides parvifolia</i>			1	
	Meliaceae	<i>Cedrela odorata</i>	Cedar	1		
	Meliaceae	<i>Guarea glabra</i>		1		
	Meliaceae	<i>Guarea grandifolia</i>		1		1
	Meliaceae	<i>Trichilia minutiflora</i>		1		
	Meliaceae	<i>Trichilia pallida</i>		1	1	1
	Menispermaceae	<i>Abuta steyermarkii</i>		1		1

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Species list by principal habitat

Order	Family	Scientific Name	Common Name	Hills	Rivers	Flat
	Menispermaceae	<i>Cissampelos pareira</i>		1		
	Menispermaceae	<i>Cissampelos tropaeolifolia</i>		1		
	Menispermaceae	<i>Hyperbaena mexicana</i>		1		
	Mimosoideae	<i>Acacia gentlei</i>	Bullhorn Acacia			1
	Mimosoideae	<i>Acacia glomerosa</i>		1		
	Mimosoideae	<i>Cojoba arborea arborea</i>	Barbajolote	1		
	Mimosoideae	<i>Inga pavoniana</i>		1		
	Mimosoideae	<i>Zygia</i> sp.			1	
	Moraceae	<i>Brosimum alicastrum alicastrum</i>	Ramon, Breadnut	1		1
	Moraceae	<i>Castilla elastica elastica</i>	Rubber	1		1
	Moraceae	<i>Ficus insipida</i>	Amate	1	1	1
	Moraceae	<i>Ficus nymphaeifolia</i>	Matapalo	1		
	Moraceae	<i>Ficus</i> sp.	Matapalo	1		
	Moraceae	<i>Poulsenia armata</i>		1		
	Moraceae	<i>Pseudolmedia</i>	Cherry	1		
	Moraceae	<i>Trophis racemosa</i>	Ramon blanco	1	1	1
	Moringaceae	<i>Moringa oleifera</i>			1	1
	Myristicaceae	<i>Virola koschnyi</i>	Banak	1		
	Myrsinaceae	<i>Ardisia</i> sp.				1
	Myrtaceae	<i>Eugenia capuli</i>				1
	Myrtaceae	<i>Pimenta dioica</i>	Allspice	1		
	Olacaceae	<i>Heisteria media</i>				1
	Orchidaceae	<i>Catasetum integerrimum</i>		1		
	Orchidaceae	<i>Nidema boothii</i>			1	
	Orchidaceae	<i>Oeceoclades maculata</i>		1		
	Papilionoideae	<i>Acosmium panamense</i>	Billy Webb	1		
	Papilionoideae	<i>Andira inermis</i>		1		
	Papilionoideae	<i>Andira inermis</i>		1		
	Papilionoideae	<i>Erythrina folkersii</i>			1	
	Papilionoideae	<i>Lonchocarpus guatemalensis</i>		1		1
	Papilionoideae	<i>Lonchocarpus minimiflorus</i>		1		
	Papilionoideae	<i>Platymiscium dimorphandrum</i>				1
	Papilionoideae	<i>Pterocarpus rohrii</i>	Palo de sangre	1		
	Papilionoideae	<i>Pterocarpus officinalis</i>	Palo de sangre	1	1	
	Papilionoideae	<i>Vatairea lundellii</i>	Danto	1		1
	Passifloraceae	<i>Passiflora biflora</i>		1		
	Passifloraceae	<i>Passiflora choconiana</i>		1		
	Passifloraceae	<i>Passiflora rovirosae</i>		1		1
	Passifloraceae	<i>Passiflora serratifolia</i>		1		
	Piperaceae	<i>Piper aduncum</i>		1		
	Piperaceae	<i>Piper aduncum</i>		1		
	Piperaceae	<i>Piper auritum</i>	Obel	1		
	Piperaceae	<i>Piper jacquemontianum</i>		1		
	Piperaceae	<i>Piper peltatum</i>		1		
	Poaceae	<i>Rottboellia cochinchinensis</i>	Devil-grass	1		1
	Polygalaceae	<i>Securidaca sylvestris</i>	Man vine	1		
	Polygonaceae	<i>Coccoloba hirtella</i>		1		1
	Rhamnaceae	<i>Gouannia</i> sp.		1		
	Rhizophoraceae	<i>Cassipourea guianensis</i>	Waterwood		1	
	Rubiaceae	<i>Alibertia edulis</i>			1	
	Rubiaceae	<i>Amaioua corymbosa</i>				1
	Rubiaceae	<i>Faramea occidentalis</i>			1	
	Rubiaceae	<i>Gonzalagunia panamensis</i>		1		
	Rubiaceae	<i>Guettarda combsii</i>	Glassywood	1		
	Rubiaceae	<i>Hamelia rovirosae</i>				1
	Rubiaceae	<i>Randia</i>			1	
	Rubiaceae	<i>Randia</i> sp.				1

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Species list by principal habitat

Order	Family	Scientific Name	Common Name	Hills	Rivers	Flat
	Rubiaceae	<i>Rinorea</i> sp.		1	1	
	Rubiaceae	<i>Simira salvadorensis</i>	Redwood	1	1	1
	Rutaceae	<i>Zanthoxylum</i> sp.	Prickly yellow	1		1
	Sapindaceae	<i>Cupania belizensis</i>	Grande Betty	1		
	Sapindaceae	<i>Sapindus saponaria</i>	Soapseed	1		
	Sapotaceae	<i>Manilkara chicle</i>	Chiclebull	1		1
	Sapotaceae	<i>Pouteria campechiana</i>		1	1	1
	Sapotaceae	<i>Pouteria reticulata reticulata</i>		1		
	Sapotaceae	<i>Sideroxylon</i> sp.		1		
	Solanaceae	<i>Cestrum nocturnum</i>	Dama de noche	1		1
	Sterculiaceae	<i>Guazuma ulmifolia</i>	Bay-cedar		1	1
	Theophrastaceae	<i>Deherainia smaragdina smaragdina</i>		1		
	Tiliaceae	<i>Luehea speciosa</i>		1		1
	Tiliaceae	<i>Mortonioidendron guatemalense</i>		1		
	Tiliaceae	<i>Trichospermum grewiifolium</i>	Moho	1		
	Tiliaceae	<i>Triumfeta?</i>		1		
	Ulmaceae	<i>Ampelocera hottlei</i>	Luin, Bullhoof	1		
	Ulmaceae	<i>Celtis iguanaea</i>				1
	Ulmaceae	<i>Trema micrantha micrantha</i>	Capulin	1		
	Urticaceae	<i>Myriocarpa obovata</i>		1		
	Verbenaceae	<i>Aegiphila monstrosa</i>		1		
	Verbenaceae	<i>Lantana involucrata</i>				1
	Verbenaceae	<i>Rehdera penninervia</i>	Hingihingi	1		
	Verbenaceae	<i>Stachytarpheta cayennensis</i>		1		
	Verbenaceae	<i>Vitex gaumeri</i>	Fiddlewood	1		
	Verbenaceae	<i>Vitex kuylenii</i>	Fiddlewood	1	1	1
	Vochysiaceae	<i>Vochysia hondurensis</i>	Yemeri		1	1
	Zamiaceae	<i>Zamia variegata</i>		1		
	Zingiberaceae	<i>Renealmia aromatica</i>		1		
Mammal	6 species					
	Deer	<i>Odocoileus virginianus truei</i>	White-tailed Deer		1	
	Primates	<i>Alouatta pigra pigra</i>	Black Howler Monkey	1	1	1
	Rodents	<i>Dasyprocta punctata</i>	Agouti			1
	Rodents	<i>Sciurus yucatanensis</i>	Yucatan squirrel	1		
	Armadillos	<i>Dasyopus novemcinctus</i>	Nine banded Armadillo	1		
	Tapirs	<i>Tapirus bairdii</i>	Bairds Tapir		1	1
Reptiles	4 species					
	snakes	<i>Imantodeds cenchoa</i>	Cat-eyed snake	1		
	Lizards	<i>Basiliscus vittatus</i>	Striped Basilisk	1	1	1
	Lizards	<i>Norops lemurinus</i>		1		
	Lizards	<i>Norops uniformis</i>		1		
Spiders	1 species					
	Orb spiders	<i>Nephila clavipes</i>	Golden orb spider	1	1	1
Stick Insect	3 species					
	Stick Insects	<i>Alienobostra</i> sp. nov.		1		1
	Stick Insects	<i>Hypocyrtus scythrus</i>		1		1
	Stick Insects	<i>Pseudosermyle phalangiphora</i>		1		1
				179	45	96

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Total list of biodiversity entries (August 2006)

Type	Type 2	Scientific Name	Common Name	#	Locality	Notes	Year	Mo	Day
Amphibian	Frogs and Toad	<i>Agalychnis callidryas</i>	Red-eyed Treefrog	20	Machaca Lodge; Road to Wilson Landing		2006	8	20
Amphibian	Frogs and Toad	<i>Bufo valliceps</i>	Gulf toad	4	Machaca Lodge; Flat		2006	8	19
Amphibian	Frogs and Toad	<i>Hyla microcephala</i>		5	Machaca Lodge; Road to Wilson Landing		2006	8	20
Amphibian	Frogs and Toad	<i>Hyla picta</i>		5	Machaca Lodge; Road to Wilson Landing		2006	8	20
Amphibian	Frogs and Toad	<i>Leptodactylus melanonotus</i>		20	Machaca Lodge; Flat		2006	8	19
Amphibian	Salamanders	<i>Bolitoglossa mexicana</i>		1	Machaca Lodge; Road to Wilson Landing		2006	8	20
Beetle	Longhorn beetles	<i>Callipogon (barbatum?, senex?)</i>		1	Riverside	picture	2006	8	19
Birds	Blackbirds	<i>Psarocolius montezuma</i>	Montezuma oropendola	1	Machaca Lodge; Hurricane forest		2006	8	19
Birds	Hummingbirds	<i>Amazilia candida</i>	White-bellied Emerald	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Hummingbirds	<i>Amazilia tzacatl</i>	Rufous-tailed Hummingbird	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Hummingbirds	<i>Phaeochroa cuvierii</i>	Scaly-breasted Hummingbird	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Hummingbirds	<i>Florisuga mellivora</i>	White-necked Jacobin	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Hummingbirds	<i>Phaethornis longirostris</i>	Long-billed Hermit	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Hummingbirds	<i>Phaethornis striigularis</i>	Stripe-throated Hermit	1	Machaca Lodge; Riverside		2006	8	19
Birds	Nightjars	<i>Nyctidromus albicollis</i>	Pauraque	1	Machaca Lodge; Flat		2006	8	19
Birds	Owls	<i>Pseudoscops clamator</i>	Striped Owl	1	Machaca Lodge; Flat		2006	8	19
Birds	Raptors	<i>Elanoides forficatus</i>	Swallow-tailed Kite	34	Machaca Lodge; Hill 1		2006	8	19
Birds	Tanagers	<i>Ramphocelus passerinii</i>	Passerini's Tanager	1	Machaca Lodge; Hill 1		2006	8	19
Birds	Tanagers	<i>Tangara larvata</i>	Golden-hooded Tanager	1	Machaca Lodge; Hill 1	nesting	2006	8	19
Birds	Toucans	<i>Ramphastos sulfuratus</i>	Keel-billed Toucan	1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Hesperiidae	<i>Achylodes busirus heros</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Hesperiidae	<i>Astrartes alector hopferi</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Hesperiidae	<i>Narcosius parisi helen</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Hesperiidae	<i>Typhedanus ampyx</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Adelpha iphiclus iphiclus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Archaeoprepona amphimachus amphimachus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Caligo memnon memnon</i>	Owl Butterfly	3	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Caligo uranus</i>		2	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Callicore patelina patelina</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Chlosyne janais</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Colobura dirce</i>		3	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Consul fabius cecrops</i>		3	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Doxocopa laure</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Doxocopa pavon</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Dryas iulia moderata</i>	Orange Longwing	1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Eueides aliphera gracilis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Heliconius charithonia vazquezae</i>	Zebra Butterfly	1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Heliconius cydno galanthus</i>		1	Machaca Lodge; Hill 1		2006	8	19

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Total list of biodiversity entries (August 2006)

Type	Type 2	Scientific Name	Common Name	#	Locality	Notes	Year	Mo	Day
Butterflies	Nymphalidae	<i>Heliconius erato petiverana</i>	Postman	1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Heliconius ismenius telchinia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Heliconius sapho leuce</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Historis odius odius</i>		2	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Morpho peleides montezuma</i>	Blue Morpho	1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Morpho theseus justitiae</i>	Brown Morpho	5	Machaca Lodge; Hill 1	male	2006	8	19
Butterflies	Nymphalidae	<i>Morpho theseus justitiae</i>	Brown Morpho	2	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Myscelia cyaniris cyaniris</i>		1	Machaca Lodge; Flat		2006	8	19
Butterflies	Nymphalidae	<i>Opsiphanes cassina fabricii</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Opsiphanes quiteria quirinus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Pareuptychia ocirrhoe</i>		1	Machaca Lodge; Riverside		2006	8	19
Butterflies	Nymphalidae	<i>Philaethria dido diatonica</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Pierella luna heracles</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Butterflies	Nymphalidae	<i>Prepona omphale octavia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Pyrrhogyra neaerea hypsenor</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Pyrrhogyra otolais neis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Pyrrhogyra otolais neis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Siproeta stelenes biplagiata</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Nymphalidae	<i>Tegosa guatemalena</i>		1	Machaca Lodge; Riverside		2006	8	19
Butterflies	Papilionidae	<i>Heraclides androgeus epidaurus</i>		1	Machaca Lodge; Flat		2006	8	19
Butterflies	Papilionidae	<i>Heraclides thoas autocles</i>		1	Machaca Lodge; Flat		2006	8	19
Butterflies	Papilionidae	<i>Parides sesostris zestos</i>		1	Machaca Lodge; Hill 1		2006	8	19
Butterflies	Pierids	<i>Eurema albula</i>		1	Machaca Lodge; Flat		2006	8	19
Butterflies	Riodinids	<i>Melanis pixe pixe</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Acanthaceae	<i>Aphelandra scabra</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Adiantacea	<i>Pteris grandifolia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Anacardiaceae	<i>Astronium graveolens</i>	Jobillo	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Anacardiaceae	<i>Spondias mombin</i>	Hog Plum	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Anacardiaceae	<i>Spondias radlkoferi</i>	Hog Plum	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Anacardiaceae	<i>Spondias radlkoferi</i>	Hog Plum	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Annonaceae	<i>Annona scleroderma</i>	Wild Custard Apple	1	Machaca Lodge; Flat		2006	8	19
Flora	Annonaceae	<i>Cymbopetalum mayanum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Annonaceae	<i>Cymbopetalum mayanum</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Annonaceae	<i>Cymbopetalum mayanum</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Annonaceae	<i>Malmea depressa</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Apocynaceae	<i>Aspidosperma cruentum</i>	Mylady	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Apocynaceae	<i>Aspidosperma megalocarpon</i>	Mylady	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Apocynaceae	<i>Aspidosperma megalocarpon</i>	Mylady	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Apocynaceae	<i>Malouetia guatemalensis</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Apocynaceae	<i>Stemmadenia donnell-smithii</i>	Horse Balls	1	Machaca Lodge; Hill 1		2006	8	19

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Flora	Apocynaceae	<i>Tabernaemontana alba</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Apocynaceae	<i>Thevetia ahouai</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Araceae	<i>Anthurium pentaphyllum bombacifolium</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Araceae	<i>Anthurium schlechtendalii</i>	Cola de Faisan	1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Araceae	<i>Dieffenbachia oerstedii</i>	Dumb Cane	1	Machaca Lodge; Flat		2006	8	19
Flora	Araceae	<i>Dieffenbachia oerstedii</i>	Dumb Cane	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Araceae	<i>Montrichardia arborescens</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Araceae	<i>Philodendron radiatum radiatum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Araceae	<i>Philodendron sp.</i>		1	Hill 1		2006	8	19
Flora	Araceae	<i>Pithecellobium sp.</i>		1	Riverside	Picture	2006	8	19
Flora	Araliaceae	<i>Dendropanax arboreus</i>	White Gumbo-limbo	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Araliaceae	<i>Oreopanax obtusifolius</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Arecaceae	<i>Astrocaryum mexicanum</i>	Warree Cohune	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Astrocaryum mexicanum</i>	Warree Cohune	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Arecaceae	<i>Attalea cohune</i>	Cohune	1	Machaca Lodge; Flat		2006	8	19
Flora	Arecaceae	<i>Attalea cohune</i>	Cohune	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Attalea cohune</i>	Cohune	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Arecaceae	<i>Attalea cohune</i>	Cohune	1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Arecaceae	<i>Attalea cohune</i>	Cohune	1	Machaca Lodge; Riverside		2006	8	19
Flora	Arecaceae	<i>Bactris major major</i>	Pokenoboy	1	Machaca Lodge; Riverside		2006	8	19
Flora	Arecaceae	<i>Chamaedorea tepejilote</i>	Pacaya	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Chamaedorea tepejilote</i>	Pacaya	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Arecaceae	<i>Cryosophila stauracantha</i>	Give and Take	1	Machaca Lodge; Flat		2006	8	19
Flora	Arecaceae	<i>Cryosophila stauracantha</i>	Give and Take	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Desmoncus orthacanthos</i>	Basket Tie Tie, Bayal	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Sabal mauritiiformis</i>	Bayleaf	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Arecaceae	<i>Sabal mauritiiformis</i>	Bayleaf	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Arecaceae	<i>Sabal mauritiiformis</i>	Bayleaf	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Aristolochiaceae	<i>Aristolochia belizensis</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Aristolochiaceae	<i>Aristolochia maxima</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Begoniaceae	<i>Begonia sericoneura</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Bignoniaceae	<i>Syngonium sp.</i>		1	Riverside		2006	8	19
Flora	Bignoniaceae	<i>Tabebuia sp.</i>		1	Hill 1		2006	8	19
Flora	Bignoniaceae	<i>Tabebuia sp.</i>		1	Hill 2		2006	8	19
Flora	Bombacaceae	<i>Ceiba pentandra</i>	Cotton, Kapok	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Bombacaceae	<i>Ceiba pentandra</i>	Cotton, Kapok	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Bombacaceae	<i>Ochroma pyramidale</i>	Balsa	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Bombacaceae	<i>Pachira aquatica</i>	Provision Tree	1	Machaca Lodge; Riverside		2006	8	19
Flora	Bombacaceae	<i>Pseudobombax ellipticum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Bombacaceae	<i>Pseudobombax ellipticum</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Bombacaceae	<i>Quararibea funebris</i>		1	Machaca Lodge; Hill 1		2006	8	19

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Flora	Bombacaceae	<i>Quararibea funebris</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Boraginaceae	<i>Bourreria oxyphylla</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Boraginaceae	<i>Cordia alliodora</i>	Salmwood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Boraginaceae	<i>Cordia stellifera</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Boraginaceae	<i>Cordia stellifera</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Bromeliaceae	<i>Pitcairnia imbricata</i>		10	Machaca Lodge; Hill 3		2006	8	18
Flora	Burseraceae	<i>Bursera simaruba</i>	Gumbo Limbo	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Burseraceae	<i>Bursera simaruba</i>	Gumbo Limbo	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Burseraceae	<i>Bursera simaruba</i>	Gumbo Limbo	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Burseraceae	<i>Protium copal</i>	Copal	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Burseraceae	<i>Protium copal</i>	Copal	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Cabombaceae	<i>Cabomba palaeformis</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Caesalpinioideae	<i>Bauhinia divaricata</i>	Cowfoot	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Caesalpinioideae	<i>Cassia grandis</i>	Bokut	1	Machaca Lodge; Riverside		2006	8	19
Flora	Caesalpinioideae	<i>Dialium guianense</i>	Ironwood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Caesalpinioideae	<i>Hymenaea courbaril</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Caesalpinioideae	<i>Schizolobium parahyba</i>	Quamwood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Caesalpinioideae	<i>Schizolobium parahyba</i>	Quamwood	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Caesalpinioideae	<i>Schizolobium parahyba</i>	Quamwood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Caesalpinioideae	<i>Senna pendula hemirostrata</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Caesalpinioideae	<i>Senna reticulata</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Campanulaceae	<i>Hippobroma longiflora</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Capparidaceae	<i>Forchhammeria trifoliata trifoliata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Caricaceae	<i>Carica papaya</i>	Papaya	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Cecropiaceae	<i>Cecropia obtusifolia</i>	Trumpet Tree	1	Machaca Lodge; Flat		2006	8	19
Flora	Cecropiaceae	<i>Cecropia obtusifolia</i>	Trumpet Tree	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Cecropiaceae	<i>Cecropia obtusifolia</i>	Trumpet Tree	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Cecropiaceae	<i>Cecropia obtusifolia</i>	Trumpet Tree	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Cecropiaceae	<i>Cecropia peltata</i>	Trumpet Tree	1	Machaca Lodge; Flat		2006	8	19
Flora	Cecropiaceae	<i>Cecropia peltata</i>	Trumpet Tree	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Chrysobalanaceae	<i>Hirtella triandra triandra</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Clusiaceae	<i>Calophyllum brasiliense rekoi</i>	Santa Maria	1	Machaca Lodge; Riverside		2006	8	19
Flora	Clusiaceae	<i>Garcinia intermedia</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Clusiaceae	<i>Vismia camparaguey</i>	Ringworm Stick	1	Machaca Lodge; Flat		2006	8	19
Flora	Combretaceae	<i>Terminalia amazonia</i>	Nargusta	1	Machaca Lodge; Flat		2006	8	19
Flora	Combretaceae	<i>Terminalia amazonia</i>	Nargusta	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Commelinaceae	<i>Tradescantia zanoniana</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Costaceae	<i>Costus pictus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Costaceae	<i>Costus pulverulentus</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Cucurbitaceae	<i>Gurania makoyana</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Cucurbitaceae	<i>Psiguria warscewiczii</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19

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Flora	Cyclanthaceae	<i>Carludovica palmata</i>	Jippy Jappa	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Cyclanthaceae	<i>Carludovica palmata</i>	Jippy Jappa	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Dioscoreaceae	<i>Dioscorea sp.</i>		1	Riverside		2006	8	19
Flora	Dracaenaceae	<i>Dracaena americana</i>	Candlewood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Dracaenaceae	<i>Dracaena americana</i>	Candlewood	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Euphorbiaceae	<i>Acalypha diversifolia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Euphorbiaceae	<i>Acalypha diversifolia</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Euphorbiaceae	<i>Adelia barbinervis</i>		1	Machaca Lodge; Road to Wilson Landing		2006	8	20
Flora	Euphorbiaceae	<i>Croton billbergianus</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Euphorbiaceae	<i>Croton billbergianus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Euphorbiaceae	<i>Margaritaria nobilis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Euphorbiaceae	<i>Sapium sp.</i>		1	Hill 1		2006	8	19
Flora	Flacourtiaceae	<i>Casearia sp</i>		1	Flat		2006	8	19
Flora	Flacourtiaceae	<i>Laetia thamnina</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Flacourtiaceae	<i>Xylosma flexuosa</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Heliconiaceae	<i>Heliconia aurantiaca</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Heliconiaceae	<i>Heliconia bourgaeana</i>		1	Machaca Lodge; Road to Wilson Landing		2006	8	20
Flora	Heliconiaceae	<i>Heliconia latispatha</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Heliconiaceae	<i>Heliconia vaginalis mathiasiae</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Heliconiaceae	<i>Heliconia wagneriana</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Lauraceae	<i>Licaria peckii</i>	Timbersweet	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Lecythidaceae	<i>Grias cauliflora</i>	Bongo Wood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Loganiaceae	<i>Strychnos panamensis panamensis</i>	Chicoloro	1	Machaca Lodge; Riverside		2006	8	19
Flora	Malpighiaceae	<i>Bunchosia sp.</i>		1	Flat		2006	8	19
Flora	Maranthaceae	<i>Calathea inocephala</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Maranthaceae	<i>Calathea inocephala</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Maranthaceae	<i>Calathea lutea</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Maranthaceae	<i>Stromanthe hjalmarssonii</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Marcgraviaceae	<i>Souroubea sp.</i>		1	Hill 2		2006	8	19
Flora	Melastomataceae	<i>Miconia argentea</i>	Black Maya	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Melastomataceae	<i>Miconia impetolaris</i>	Sirin	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Melastomataceae	<i>Mouriri myrtilloides parvifolia</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Meliaceae	<i>Cedrela odorata</i>	Cedar	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Meliaceae	<i>Cedrela odorata</i>	Cedar	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Meliaceae	<i>Guarea glabra</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Meliaceae	<i>Guarea grandifolia</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Meliaceae	<i>Guarea grandifolia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Meliaceae	<i>Trichilia minutiflora</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Meliaceae	<i>Trichilia pallida</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Meliaceae	<i>Trichilia pallida</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Meliaceae	<i>Trichilia pallida</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19

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Flora	Meliaceae	<i>Trichilia pallida</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Menispermaceae	<i>Abuta steyermarkii</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Menispermaceae	<i>Abuta steyermarkii</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Menispermaceae	<i>Abuta steyermarkii</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Menispermaceae	<i>Cissampelos pareira</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Menispermaceae	<i>Cissampelos tropaeolifolia</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Menispermaceae	<i>Hyperbaena mexicana</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Mimosoideae	<i>Acacia gentlei</i>	Bullhorn Acacia	1	Machaca Lodge; Flat		2006	8	19
Flora	Mimosoideae	<i>Acacia gentlei</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Mimosoideae	<i>Acacia glomerosa</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Mimosoideae	<i>Cojoba arborea arborea</i>	Barbajolote	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Mimosoideae	<i>Inga pavoniana</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Mimosoideae	<i>Zygia sp.</i>		1	Riverside	Picture	2006	8	19
Flora	Moraceae	<i>Brosimum alicastrum alicastrum</i>	Ramon, Breadnut	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Moraceae	<i>Brosimum alicastrum alicastrum</i>	Ramon, Breadnut	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Moraceae	<i>Brosimum alicastrum alicastrum</i>	Ramon, Breadnut	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Moraceae	<i>Brosimum alicastrum alicastrum</i>	Ramon, Breadnut	1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Moraceae	<i>Castilla elastica elastica</i>	Rubber	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Moraceae	<i>Ficus insipida</i>	Amate	1	Machaca Lodge; Flat		2006	8	19
Flora	Moraceae	<i>Ficus insipida</i>	Amate	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Moraceae	<i>Ficus nymphaeifolia</i>	Matapalo	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Moraceae	<i>Ficus sp.</i>	Matapalo	1	Hill 2		2006	8	19
Flora	Moraceae	<i>Poulsenia armata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Moraceae	<i>Pseudolmedia</i>	Cherry	1	Hill 2		2006	8	19
Flora	Moraceae	<i>Trophis racemosa</i>	Ramon blanco	1	Machaca Lodge; Flat		2006	8	19
Flora	Moraceae	<i>Trophis racemosa</i>	Ramon blanco	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Moraceae	<i>Trophis racemosa</i>	Ramon blanco	1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Moraceae	<i>Trophis racemosa</i>	Ramon blanco	1	Machaca Lodge; Riverside		2006	8	19
Flora	Moringaceae	<i>Moringa oleifera</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Moringaceae	<i>Moringa oleifera</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Myristicaceae	<i>Virola koschnyi</i>	Banak	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Myrsinaceae	<i>Ardisia sp.</i>		1	Flat		2006	8	19
Flora	Myrtaceae	<i>Eugenia capuli</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Myrtaceae	<i>Pimenta dioica</i>	Allspice	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Myrtaceae	<i>Pimenta dioica</i>	Allspice	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Olacaceae	<i>Heisteria media</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Orchidaceae	<i>Catasetum integerrimum</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Orchidaceae	<i>Nidema boothii</i>		1	Machaca Lodge; Riverside	picture	2006	8	19
Flora	Orchidaceae	<i>Oeceoclades maculata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Papilionoideae	<i>Acosmium panamense</i>	Billy Webb	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Papilionoideae	<i>Andira inermis</i>		1	Machaca Lodge; Hill 1		2006	8	19

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Flora	Papilionoideae	<i>Andira inermis</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Papilionoideae	<i>Erythrina folkersii</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Papilionoideae	<i>Lonchocarpus guatemalensis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Papilionoideae	<i>Lonchocarpus guatemalensis</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Papilionoideae	<i>Lonchocarpus minimiflorus</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Papilionoideae	<i>Platymiscium dimorphandrum</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Papilionoideae	<i>Pterocarpus rohrii</i>	Palo de sangre	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Papilionoideae	<i>Pterocarpus officinalis</i>	Palo de sangre	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Papilionoideae	<i>Pterocarpus officinalis</i>	Palo de sangre	1	Machaca Lodge; Riverside		2006	8	19
Flora	Papilionoideae	<i>Vatairea lundellii</i>	Danto	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Papilionoideae	<i>Vatairea lundellii</i>	Danto	1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Passifloraceae	<i>Passiflora biflora</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Passifloraceae	<i>Passiflora choconiana</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Passifloraceae	<i>Passiflora rovirosae</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Passifloraceae	<i>Passiflora rovirosae</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Passifloraceae	<i>Passiflora rovirosae</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Passifloraceae	<i>Passiflora serratifolia</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Piperaceae	<i>Piper aduncum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Piperaceae	<i>Piper aduncum</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Piperaceae	<i>Piper auritum</i>	Obel	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Piperaceae	<i>Piper jacquemontianum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Piperaceae	<i>Piper jacquemontianum</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Piperaceae	<i>Piper peltatum</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Poaceae	<i>Rottboellia cochinchinensis</i>	Devil-grass	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Polygalaceae	<i>Securidaca sylvestris</i>	Man vine	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Polygonaceae	<i>Coccoloba hirtella</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Polygonaceae	<i>Coccoloba hirtella</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Rhamnaceae	<i>Gouannia sp.</i>		1	Hill 1		2006	8	19
Flora	Rhizophoraceae	<i>Cassipourea guianensis</i>	Waterwood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Rubiaceae	<i>Alibertia edulis</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Rubiaceae	<i>Amaioua corymbosa</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Rubiaceae	<i>Faramea occidentalis</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Rubiaceae	<i>Gonzalagunia panamensis</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Rubiaceae	<i>Guettarda combsii</i>	Glassywood	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Rubiaceae	<i>Hamelia rovirosae</i>		1	Machaca Lodge; Flat		2006	8	19
Flora	Rubiaceae	<i>Randia</i>		1	Riverside	Big leaves	2006	8	19
Flora	Rubiaceae	<i>Randia sp.</i>		1	Flat		2006	8	19
Flora	Rubiaceae	<i>Rinorea sp.</i>		1	Riverside		2006	8	19
Flora	Rubiaceae	<i>Rinorea sp.</i>		1	Hill 2		2006	8	19
Flora	Rubiaceae	<i>Simira salvadorensis</i>	Redwood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Rubiaceae	<i>Simira salvadorensis</i>	Redwood	1	Machaca Lodge; Hurricane forest		2006	8	19

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Total list of biodiversity entries (August 2006)

Type	Type 2	Scientific Name	Common Name	#	Locality	Notes	Year	Mo	Day
Flora	Rubiaceae	<i>Simira salvadorensis</i>	Redwood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Rutaceae	<i>Zanthoxulum sp.</i>	Prickly yellow	1	Hill 1		2006	8	19
Flora	Rutaceae	<i>Zanthoxulum sp.</i>	Prickly yellow	1	Hurricane forest		2006	8	19
Flora	Sapindaceae	<i>Cupania belizensis</i>	Grande Betty	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Sapindaceae	<i>Cupania belizensis</i>	Grande Betty	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Sapindaceae	<i>Sapindus saponaria</i>	Soapseed	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Sapotaceae	<i>Manilkara chicle</i>	Chiclebull	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Sapotaceae	<i>Manilkara chicle</i>	Chiclebull	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Sapotaceae	<i>Manilkara chicle</i>	Chiclebull	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Sapotaceae	<i>Pouteria campechiana</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Sapotaceae	<i>Pouteria campechiana</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Sapotaceae	<i>Pouteria campechiana</i>		1	Machaca Lodge; Riverside		2006	8	19
Flora	Sapotaceae	<i>Pouteria reticulata reticulata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Sapotaceae	<i>Sideroxylon sp.</i>		1	Hill 1		2006	8	19
Flora	Solanaceae	<i>Cestrum nocturnum</i>	Dama de noche	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Solanaceae	<i>Cestrum nocturnum</i>	Dama de noche	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Solanaceae	<i>Cestrum nocturnum</i>	Dama de noche	1	Machaca Lodge; Road to Wilson Landing		2006	8	20
Flora	Sterculiaceae	<i>Guazuma ulmifolia</i>	Bay-cedar	1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Sterculiaceae	<i>Guazuma ulmifolia</i>	Bay-cedar	1	Machaca Lodge; Riverside		2006	8	19
Flora	Theophrastaceae	<i>Deherainia smaragdina smaragdina</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Tiliaceae	<i>Luehea speciosa</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Tiliaceae	<i>Luehea speciosa</i>		1	Machaca Lodge; Hurricane forest		2006	8	19
Flora	Tiliaceae	<i>Mortoniendron guatemalense</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Tiliaceae	<i>Mortoniendron guatemalense</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Tiliaceae	<i>Trichospermum grewiifolium</i>	Moho	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Tiliaceae	<i>Triumfeta?</i>		1	Hill 1		2006	8	19
Flora	Ulmaceae	<i>Ampelocera hottlei</i>	Luin, Bullhoof	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Ulmaceae	<i>Ampelocera hottlei</i>	Luin, Bullhoof	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Ulmaceae	<i>Celtis iguanaea</i>		1	Machaca Lodge; Lower slope-flat		2006	8	19
Flora	Ulmaceae	<i>Trema micrantha micrantha</i>	Capulin	10	Machaca Lodge; Hill 1		2006	8	19
Flora	Ulmaceae	<i>Trema micrantha micrantha</i>	Capulin	10	Machaca Lodge; Hill 2		2006	8	19
Flora	Ulmaceae	<i>Trema micrantha micrantha</i>	Capulin	10	Machaca Lodge; Hill 3		2006	8	18
Flora	Urticaceae	<i>Myriocarpa obovata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Verbenaceae	<i>Aegiphila monstrosa</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Verbenaceae	<i>Lantana involucrata</i>		1	Machaca Lodge; Road to Wilson Landing		2006	8	19
Flora	Verbenaceae	<i>Rehdera penninervia</i>	Hingihingi	1	Machaca Lodge; Hill 2		2006	8	19
Flora	Verbenaceae	<i>Stachytarpheta cayennensis</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Verbenaceae	<i>Vitex gaumeri</i>	Fiddlewood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Verbenaceae	<i>Vitex kuylenii</i>	Fiddlewood	1	Machaca Lodge; Hill 1		2006	8	19
Flora	Verbenaceae	<i>Vitex kuylenii</i>	Fiddlewood	1	Machaca Lodge; Riverside		2006	8	19
Flora	Vochysiaceae	<i>Vochysia hondurensis</i>	Yemeri	1	Machaca Lodge; Riverside		2006	8	19

Machaca Hill Lodge, Punta Gorda, Toledo, Belize

Total list of biodiversity entries (August 2006)

Type	Type 2	Scientific Name	Common Name	#	Locality	Notes	Year	Mo	Day
Flora	Zamiaceae	<i>Zamia variegata</i>		1	Machaca Lodge; Hill 1		2006	8	19
Flora	Zamiaceae	<i>Zamia variegata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Zamiaceae	<i>Zamia variegata</i>		1	Machaca Lodge; Hill 2		2006	8	19
Flora	Zingiberaceae	<i>Renealmia aromatica</i>		1	Machaca Lodge; Hill 1		2006	8	19
Mammal	Deer	<i>Odocoileus virginianus truei</i>	White-tailed Deer	1	Machaca Lodge; Riverside	tracks	2006	8	19
Mammal	Primates	<i>Alouatta pigra pigra</i>	Black Howler Monkey	1	Machaca Lodge; Hurricane forest		2006	8	19
Mammal	Rodents	<i>Dasyprocta punctata</i>	Agouti	1	Machaca Lodge; Hurricane forest		2006	8	19
Mammal	Rodents	<i>Sciurus yucatanensis</i>	Yucatan squirrel	1	Machaca Lodge; Hill 1		2006	8	19
Mammal	Tapirs	<i>Tapirus bairdii</i>	Bairds Tapir	1	Machaca Lodge; Flat	Tracks	2006	8	19
Mammal	Tapirs	<i>Tapirus bairdii</i>	Bairds Tapir	1	Machaca Lodge; Riverside	Fresh tracks	2006	8	19
Reptile	Lizards	<i>Basiliscus vittatus</i>	Striped Basilisk	1	Machaca Lodge; Riverside		2006	8	19
Reptile	Lizards	<i>Norops lemurinus</i>		1	Machaca Lodge; Hill 1		2006	8	19
Reptile	Lizards	<i>Norops lemurinus</i>		1	Machaca Lodge; Hill 2		2006	8	19
Reptile	Lizards	<i>Norops uniformis</i>		1	Machaca Lodge; Hill 3		2006	8	18
Spider	Orb spiders	<i>Nephila clavipes</i>	Golden orb spider	1	Hill 1		2006	8	19
Stick Insect	Stick Insects	<i>Alienobostra sp. nov.</i>		1	Machaca Lodge; Hill 1		2006	8	19
Stick Insect	Stick Insects	<i>Alienobostra sp. nov.</i>		2	Machaca Lodge; Road to Wilson Landing		2006	8	20
Stick Insect	Stick Insects	<i>Hypocyrtus scythrus</i>		3	Machaca Lodge; Hill 1		2006	8	19
Stick Insect	Stick Insects	<i>Hypocyrtus scythrus</i>		5	Machaca Lodge; Road to Wilson Landing		2006	8	20
Stick Insect	Stick Insects	<i>Pseudosermyle phalangiphora</i>		3	Machaca Lodge; Hill 1		2006	8	19
Stick Insect	Stick Insects	<i>Pseudosermyle phalangiphora</i>		4	Machaca Lodge; Road to Wilson Landing		2006	8	20

Machaca Hill Lodge, Punta Gorda – Toledo - Belize (I)

Quick identification guide for some conspicuous or common native trees and shrubs

Photos by Jan Meerman. © Jan Meerman, Belize Tropical Forest Studies, 2006



Ceiba pentandra
Bombacaceae



Acalypha diversifolia
Euphorbiaceae



Ampelocera hottlei
Ulmaceae



Cedrela odorata
Meliaceae



Castilla elastica
Moraceae



Trema micrantha
Ulmaceae



Bursera simaruba
Burseraceae



Cestrum nocturnum
Solanaceae



Faramea occidentalis
Rubiaceae



Bauhinia divaricata
Caesalpinioideae



Ficus nymphaeifolia
Moraceae



Schizolobium parahyba
Caesalpinioideae



Cecropia peltata
Cecropiaceae



Hamelia rovirosae
Rubiaceae



Ochroma pyramidale
Bombacaceae



Sabal mauritiformis
Areaceae



Bactris major
Areaceae



Attalea cohune
Areaceae



Chamaedorea tepejilote
Areaceae



Carludovica palmate
Cyclanthaceae

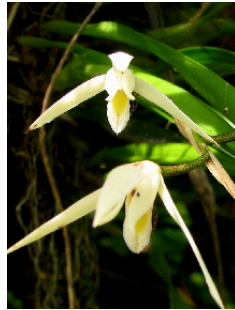
Machaca Hill Lodge, Punta Gorda – Toledo - Belize (II)

Quick identification guide for some conspicuous or common native vines and herbs

Photos by Jan Meerman. © Jan Meerman, Belize Tropical Forest Studies, 2006



**Catasetum
integerrimum**
Orchidaceae



Nidema boothii
Orchidaceae



Oeceoclades maculata
Orchidaceae



**Anthurium
schlechtendalii**, Araceae



Syngonium sp. Araceae



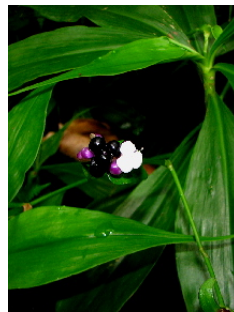
Calathea inocephala
Marantaceae



Dieffenbachia oerstedii
Araceae



Hippobroma longiflora
Campanulaceae



Tradescantia zanonia
Commelinaceae



Crinum sp.
Amaryllidaceae



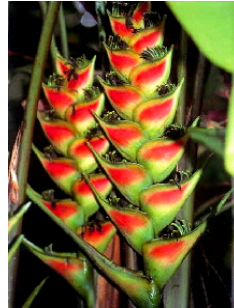
Heliconia bourgaeana
Heliconiaceae



Heliconia latispatha
Heliconiaceae



Heliconia vaginalis
Heliconiaceae



Heliconia wagneriana
Heliconiaceae



Heliconia aurantiaca
Heliconiaceae



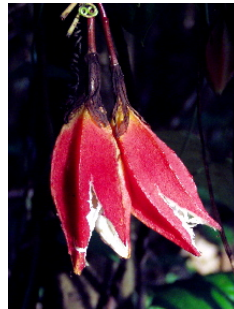
Piper jacquemontianum
Piperaceae



Piper peltatum
Piperaceae



Passiflora choconiana
Passifloraceae



Passiflora rovirosae
Passifloraceae



Passiflora serratifolia
Passifloraceae