

Manabí Dry Forest Conservation Project
Annual Progress Report for the San Diego County Orchid Society

Ceiba Foundation for Tropical Conservation

prepared by

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I. Introduction

A. General Introduction

Ecuador has the second most diverse orchid flora in the world (ca. 4,250 species) with endemism in excess of 70% (Gentry & Dodson 1987), creating a unique opportunity for private lands to contribute substantially to orchid conservation (Meisel & Woodward 2005). The Ceiba Foundation for Tropical Conservation is working to protect orchids and other species using private lands conservation in important habitat areas in Ecuador. This annual report summarizes our activities to date in one of these areas, the coastal deciduous forests of northern Manabí, an ecological transition zone between the wet Chocó region to the north and the very dry forests to the south.

Deciduous and semi-deciduous forests are the most threatened of terrestrial tropical ecosystems. In Ecuador, less than 2% of this habitat remains. Despite the overwhelming human pressure on this ecosystem, it has received disproportionately little attention from the scientific and conservation community, and many plant and animal species endemic to this biome are now vulnerable to extinction. While most orchidists have focused virtually all of their conservation efforts so far on moist forest ecosystems such as rain forests and cloud forests, there are more orchid species and higher rates of endemism in the deciduous forests of western Ecuador (156 spp. below 300 m) than in the Amazon rainforest of eastern Ecuador (138 spp. below 300 m) in the same land area (IUCN/SSC Orchid Specialist Group 1996). Unfortunately, natural populations in this diverse orchid habitat may well disappear before their distribution and ecology are completely understood.

B. Proposal Summary

The Manabí dry forest project seeks to protect the remaining patches of Ecuador's tropical dry forest habitat through a combination of scientific research, environmental education, reforestation and the establishment of forest reserves throughout the region. Although orchids remain a little-studied feature of coastal dry forests, there is substantial evidence of their diversity in this habitat. The Manabí project involves identification of forested sites that harbor rare or endemic species, followed by negotiation of conservation with landowners of these properties. The first such agreement, establishing the Lalo Loor Dry Forest Reserve, was signed in 2004 through between the landowner and Ceiba, to protect the finest primary forest remnant in the region. The proposal funded by SDCOS provided support for several distinct aspects of the overall project:

- a. conduct orchid surveys within the Lalo Loor reserve and Manabí forest remnants
- b. create facilities to receive and educate visitors, volunteers and researchers
- c. develop environmental education programs for the reserve and the region
- d. carry out conservation prioritization survey visits to nearby properties

II. Progress To Date

A. Biological Inventories

1. Orchid Surveys

We conducted a first qualitative assessment of orchid diversity and relative abundance in the Lalo Loor Dry Forest reserve and surrounding areas from March 20-27, 2006 by Dr. Catherine L. Woodward (Ceiba) and Francisco Tobar (Quito Botanical Garden). At BSLL, we searched for orchids along the Pacifico Trail, the southern half of the Perimeter trail, and along the Tillo and Limón streams. Since

limited time and lack of equipment precluded access to the canopy, this inventory was restricted to observations from the ground with binoculars of orchids growing on living tree trunks and branches, inspection of fallen trees and branches, and searches for terrestrial species. We also recorded orchid species observed casually at other sites. The survey covered an elevational range of 50-220 meters and explored approximately half of the reserve's 200 hectares. Higher reaches in the northeastern portion of the reserve (which attains an elevation of 430 m) were not explored, but will be during the next survey.

We found twenty-seven species of orchids in at least 23 genera (see attached Table 1), including three terrestrials that could not be identified definitively to genus. Only a few species were in flower at the time of the survey, making identification to species difficult and in many cases impossible. We were able to collect thirteen of the species from fallen limbs, and these are being housed in an outdoor orchidarium constructed for this purpose at the BSLL biological station (see attached photos, Fig. 5). We recorded the location of each species in order to confirm their identity when they flower.

Dimeranda rimbachii (Fig. 1) is the most abundant epiphytic orchid at BSLL, growing on virtually every large canopy tree, at least within the elevational range we sampled. Other abundant and widespread species include *Notylia* sp., *Catasetum expansum* (Fig. 2), *Oncidium hyphaematicum* (Fig. 3), and *Lockhartia serra*. Some species appeared to be aggregated only in certain areas, in particular the three terrestrials, with "species #1" found only in moist areas near the stream bed and "species #2" and "species #3" found only high up along the southern ridgeline. Other species were found only in low numbers or near the upper extent of our sample, such as *Psychopsis kramerianum* (Fig. 4) and *Huntleya fasciata*. *Cattleya maxima* and *Epidendrum* sp. 2 were found growing at Punta Prieta, a private property about 10 km to the south, but are likely to also occur at BSLL. As our survey becomes more exhaustive, we hope to clarify these distribution patterns further. We also expect that a sampling of the higher elevations will yield additional species, such as the *Lycaste* sp. and *Sobralia* sp. previously found during a survey by the National Herbarium in a forest nearby.

Although the abundance of orchids in deciduous forests is lower than in wetter habitats, our observations in a limited area in the Lalo Llor Dry Forest reserve indicate high species diversity and suggest several areas for further study. First, mature forest trees host several species and many individual orchids (Fig. 6), but mature forest along the coast is increasingly limited. In contrast, areas of young secondary growth have much lower numbers and diversity of orchids. Thus identifying and protecting patches of mature forest remains a high priority for the conservation of the regions orchids. Second, habitat fragmentation is in and of itself a threat to natural orchid populations due to its effects on local microclimate, and potential impacts on pollinator populations and gene flow. We were concerned by the virtual absence of capsules on orchids we observed, and are interested in determining if the reproductive success and survival of orchids is declining in these habitat patches. Third, substantial numbers of additional species are likely to be found in areas that we have not yet sampled, including at higher elevations and in citrus plantations.

Over the next two years, we intend to survey the northeastern corner of the reserve (up to 420 m), the coastal ridge to the east of BSLL (up to 650 m), hilltop forests near Jama (up to ca. 500 meters), forests at the southern end of the climatic gradient, as well as an abandoned citrus grove near BSLL. Lastly, the orchid flora of BSLL (like the bird fauna – see below) contains representatives of both the more humid forests to the north (e.g., *Huntleya fasciata*) and the drier forests to the south (e.g. *Catasetum expansum*). Given that the composition of the orchid community undoubtedly changes along the pronounced moisture gradient from Cerro Pata de Pajaro (Pedernales) at the north end of the conservation corridor to El Paraíso (Jama) at the south end, additional orchid surveys along this gradient will provide new information on the ecological limits of orchid distributions.

2. Bird Surveys

Mist-net bird surveys were conducted in the reserve in March of 2006. Together with contributions from Ceiba and reserve staff, and a variety of visitors, we have assembled a list of more than 170 species (see attached list). The list includes a large number of species of interest, particularly threatened and endangered birds characteristic of the now much-reduced deciduous forest habitat. Mistnet surveys added

several new species to the reserve list, including skulking species not usually seen by casual visitors. In general, our avian survey work indicates that the fauna of the Lalo Loor reserve is more closely associated with the wetter (more northerly) end of the climatic gradient on which we are located. Many of the species recently identified in the reserve have their range centers located well to the north; thus, the Lalo Loor reserve represents a considerable southern range expansion for many wet-forest specialist species. Preliminary surveys in several forest fragments in southern Manabí province suggest that a boundary region between the northern and southern avifaunae may exist somewhere in the vicinity of the town of Jama; additional surveys are planned for this region in late 2006 or early 2007.

Among the newly identified species were Scaly-throated Leaf-tosser, Slaty Antwren, Black-headed Antthrush, Northern Barred-Woodcreeper and Bicolored Antbird; all five species are characteristic of wet forests, the latter two are followers of army ant swarms. Indeed, Bicolored Antbirds (which are obligate ant-followers) were quite abundant, as were ant swarms of *Eciton burchellii* and *Labidus praedator*, together indicating that the Lalo Loor reserve continues to function well as an intact ecosystem, given that the army-ant and ant-follower guild has been documented to break down and disappear in smaller or more heavily impacted forests. Also discovered was the quite rare White-throated Spadebill, previously known in Ecuador from only a few records well to the north (in the much wetter forests of the province of Esmeraldas).

The reserve's threatened species have been documented in previous reports, but include the Gray-backed Hawk and Red-masked Parakeet, both of which are seen at the reserve nearly every day. Rufous-headed Chachalaca is commonly heard, in large numbers, in the reserve, despite their IUCN status as vulnerable. Little Woodstar hummingbirds have been seen routinely, but thus far we have not recorded the presence of the extremely rare Esmeraldas Woodstar; however, more intense surveys of appropriate flowering shrubs may yet yield observations of this critically endangered species. The reserve has several toucans (Pale-mandibled Aracari, Choco Toucan, and Chestnut-mandibled Toucan) with IUCN vulnerable status, as well as the quite common (but vulnerable) Guayaquil Woodpecker. Finally, of great interest has been the discovery of large numbers of Pacific Royal Flycatchers, a stunningly gorgeous bird that is both vulnerable, and highly prized by birdwatching tours. We believe the abundance of this species will help attract birding tours to the reserve.

On the basis of the presence of these vulnerable and endangered species, the reserve (and the surrounding Hacienda Camarones properties, also owned by the Loor family) was identified as one of Ecuador's Important Bird Area (IBA) in the recently published book on South American IBAs produced by BirdLife International. As such, the area will attract greater interest from birdwatching and conservation organizations. It was due in no small part to Ceiba's ongoing programs in the region, financed by SDCOS, that the area was nominated and accepted as an IBA.

3. Site Prioritization Visits

Of immediate concern is the status of the forests closest to the Lalo Loor reserve. To the south lies a large forest that is owned by two members of the Loor family. The smaller eastern portion of this forest is currently suffering heavy losses to logging, at the explicit direction of the land owner, to offset financial losses he has sustained elsewhere. We are working through Lalo Loor to offer this owner alternatives to lumber harvest, and invite him to participate in the regional conservation program. We believe it is most likely that extractive logging will continue for several months; however, it is clear that this owner will not clear the forest, and thus the site will be able to recover from the logging once the skid trails have been allowed to close. The loss of large trees, particularly slow-growing hardwood species, is nonetheless a great disappointment.

The western portion of this southern forest is owned by members of another branch of the Loor family, who have constructed tourist cabins on the family beach and have shown a strong tremendous interest in taking visitors to several sites within his family's land. This property includes the majority of the primary forest to the south of the Lalo Loor reserve, including a number of separate watersheds, which in total may cover as much as 500 ha (1250 acres). Among the sites they wish to visit is a very large *Ceiba trichastandra* tree, so they were pleasantly surprised to find that genus gave its name to the

Foundation. We offered to assist in planning and installing trails to these attractions; in exchange, we will seek a conservation agreement from the landowner. The landowners appeared very pleased with the proposed arrangement, which we expect to formalize within the year. Preliminary visits to this region, made by reserve staff, confirm that the forest is in excellent condition, nearly as pristine as the Lalo Loor reserve. We believe this budding relationship will lead to stronger protection of this extremely important forest, and permit the establishment of a forested connection with the Lalo Loor reserve.

Two forested, coastal properties near the reserve also were investigated. To the northwest of the reserve, lying just behind the town of Tabuga, is a large hill of mostly second forest (approx. 200 ha). Within the last year, new owners began clear-cutting an area of approximately 25 ha, but their efforts laudably were halted by local citizens who complained to the government, forcing them to apply the strict letter of the national forestry law that prohibits all logging not accompanied by a permit. We were pleased that local citizens -- residents of the town, combined with several local hoteliers -- stepped in to prevent this unlawful activity. It has been suggested that the current forest owners may sell the property, now that it has been demonstrated that they cannot manage it according merely to their whims; if the sale is announced, we have sources who will notify us immediately.

A second coastal forest hilltop (approx. 100 ha), also formerly a Loor family property, was sold to developers from Quito who are building a beachside housing community below the hill. According to the Loor family, the new owners have every intention of protecting the hilltop forest, which they may make accessible to their residents by construction of several trails. We are opening negotiations with the owners, mediated by members of the Loor family, to offer to install the trails in exchange for conservation agreements.

Our next priority is to establish reserves in the southern, drier region of the Manabí corridor, and on the highest hilltops. We have had numerous conversations with members of the Cevallos family that owns nearly all significant forests near the town of Jama, and several further to the south. They are generally supportive of efforts to increase ecotourism to the province, offered open access to their properties to staff of Ceiba, and expressed interest in allowing Ceiba to plan and install self-guided trails within their forests. We are continuing to strengthen our relationship with the Cevallos family, and with the municipal government of Jama, where we have and continue to conduct environmental education training of local teachers (see below).

Ceiba staff have visited several of the Cevallos properties, most notably the Cerro de la Nueve, one of the highest points in the province. The forest is of good quality, despite some high-grade logging and continued intrusions by local poachers. The top of the hill is approximately 500 m in elevation, and due to the orographic moisture this elevation generates, exhibits a greater abundance of epiphytic plants than other lower forests in the vicinity. This forest already is well-known to birding tours, and has attracted the attention of the National Herbarium of Ecuador, which has conducted several brief collecting trips to the site. We believe the more moist conditions of the hilltop may provide habitat for orchid species not found at the Lalo Loor reserve, and orchid surveys are planned for this location for late 2006 or early 2007.

B. Community Environmental Education

In 2005, Ceiba initiated a program of environmental education in the northern Manabí region, operating two distinct projects. First, we were invited by the Sub-Secretary of Education to participate in training local school teachers through a program operated by the municipality of Jama. Second, we conducted several environmental education workshops in the schools of the two communities neighboring the Lalo Loor reserve.

In brief, due to poor performance of federally-employed elementary school teachers, the municipality took it upon themselves to hire their own local teachers from within the communities, whom they could more easily supervise, and to provide training to them. These teachers received up to 12 weeks per semester of training in diverse subjects, including a module on environmental education and dry forest ecology.

With SDCOS funds we provided an experienced educator, Ms. Monica Gonzalez, to the Jama teacher training program, who worked with 60 local teachers, representing all 28 of the region's schools, over a period of 5 weeks. The teachers received training in the ecology and biology of the dry forest and its fauna and flora, as well as exposure to a variety of in-class methods for teaching environmental topics to young students. These techniques include a popular and successful methodology, originally developed by the Audubon Society, called In Your Backyard, which takes students out of the classroom and into the environment adjacent to the school where they conduct small field studies designed to teach not only ecology, but also many core academic skills.

The In Your Backyard program was received enthusiastically by the participants in the teacher training program. Most have successfully applied the methodology in their own classrooms, and some have brought their classes to visit the Loor reserve, a component we consider essential to our goals of linking local communities to sustainable and beneficial use of regional forests. Ceiba has been invited by the Jama municipality to continue to assist their teacher training program, and thanks to funding from the British Embassy, Ms. Gonzalez will begin work with the next group of teachers in August 2006. Ceiba staff are working with her to update and expand the teaching materials, specifically by including a more ample section on dry forest ecology, which will include the biology of orchids, the role and adaptations of epiphytic plants, and the conservation issues relevant to the region.

In the second project, Ceiba and Ms. Gonzalez conducted direct environmental education workshops to the two communities nearby the reserve, the towns of Tabuga (to the west) and Camarones (to the southeast). Each community has over 100 school children, but lack of basic supplies, infrastructure and funding. Ms. Gonzalez, along with Ceiba staff and volunteers, worked with each community to train the teachers in the In Your Backyard methodology, and led each group on excursions to the Lalo Loor reserve. There students studied stream vegetation, counted and described orchids and epiphytes, classified soil-surface insects, compared leaf sizes between two habitats, collected and inventoried roadside trash, among other projects. Perhaps the best part of the program was simply showing the students (and their parents) that they could learn and have a great time in the forest, which is viewed by some as a dangerous place for young children.

Ceiba is planning to construct an Environmental Education and Visitor Center at the entrance of the reserve, adjacent to and visible from the main road. The Center will house educational exhibits about the dry forest, orchid and epiphyte ecology, local fauna, regional archaeology, and so forth. It also will provide a much-needed space in which to offer the environmental education programs. The facility will elevate the visibility of the Lalo Loor reserve, and help us meet our goal of educating local people and visitors about dry forest ecology and conservation.

C. Visitor Facilities and Trails

By the end of 2005, a biological station had been constructed within the forest, financed in part by SDCOS funds, and in part by funds provided by the Ceiba Foundation and Jatun Sacha. The building is large enough to house over 20 researchers or volunteers, and has a complete kitchen staffed by a full-time cook. An upgrade to the showers and bathrooms is scheduled for 2006, to improve the quality of the facility and allow us to receive a larger volume of tourists. Provision of electric power is being considered, which would allow for greater visitor comfort (fans and lights), kitchen storage (refrigeration), and greater support for research (power for microscope lights, computers, etc.). We are pricing small solar panels, and investigating a regional grant to subsidize their costs, and matching this information with cost estimates for connection to the municipal system (only some 500 m from the station).

One of the highest priorities at the reserve after construction of the biological station was establishment of a trail system to accommodate a range of visitor demands, from brief and easy loops over level ground to extended hikes that explore the rugged, primary forest terrain. Ceiba staff visited the reserve in mid 2005, and conducted several preliminary planning surveys for a trio of trails. Subsequently, two of these trails have been completed, and the third is currently under way.

The first of the trails is a self-guided trail, commonly called the Mariposa (Butterfly) Trail. Joe Meisel and Daniel King established the initial trail route, and devised the basic set of self-guided signs that would be used to inform visitors about the dry forest. With the invaluable assistance and dedication of a Canada Corps volunteer who spent several months at the reserve, the Mariposa trail has become a reality, complete with over 20 full color, weather-resistant signs. The trail begins at the reserve entrance, passing through the new reforestation zone that is reclaiming several hectares of pasture bordering the El Tillo stream. After crossing the stream, the trail loops through level secondary forest, and offers information on many features of dry forest ecology, including: epiphytes and their adaptations to dry-season conditions, trunk spines that protect trees from herbivores, photosynthetic bark that absorbs sunlight after dry-season leaf drop, natural gap regeneration after tree falls, examples of various fruit types, and so forth. We feel that the self-guided trail offers day visitors the perfect opportunity to explore an easy section of the forest, and learn substantially about the dry tropical forest's unique adaptations.

For visitors seeking a more strenuous hike, we have established the Pacifico Trail, which climbs the ridge behind the biological station, and reaches a lookout where the Pacific ocean can be viewed, along with much of the surrounding countryside. This trail passes through several superb examples of mature dry forest, and is routed past numerous large trees that are brimming with orchids. Just before the overlook, the trail passes a fine example of a large *Ceiba trichastandra* tree, easily recognized by its deep root buttresses and green, photosynthetic bark. Other features of interest include large numbers of spiny terrestrial bromeliads (closely related to the pineapple), terrestrial orchids, and several leks of White-bearded Manakins.

The Pacifico Trail continues beyond the overlook, from which point it is called the Perimeter Trail, and essentially traces the entire forest boundary. This trail was essential to meet the landowner's request that Ceiba and the reserve work to combat poachers who occasionally enter the forest to take deer and other wildlife. We recently made arrangements to have the perimeter trail visited by reserve staff and a local representative of the landowner, on random dates approximately twice per month, to help patrol the back side of the reserve against hunters.

In the upcoming year we plan to install a third trail that Ceiba and reserve staff have designed. The trail will follow the course of the El Tillo stream, which penetrates into the heart of the forest, terminating in several spring-fed waterfalls near the southern of the reserve. Due to the humidity this year-long stream provides, the riparian vegetation of the valley is lush and thick. Terrestrial orchids can be observed here and epiphytes are abundant on the large fig trees located regularly along its banks. These figs provide food for the three to five troops of howler monkeys that live in the reserve, and they are commonly seen here. This trail will access one of the reserves more beautiful areas and create a loop with the Pacifico Trail.

III. Upcoming Priorities and Objectives

Stemming from the activities to date described above, the objectives for the upcoming year (May 2006 – April 2007) are as follows:

1. Conduct orchid inventories in at least one of higher elevation sites: the northeastern corner of the BSLL reserve (up to 420 m), the coastal ridgeline to the east (up to 800 m), or the isolated hill near Jama (up to ca. 500 meters); and coastal citrus grove.
2. Monitor orchids marked during the preliminary survey to confirm taxonomic identifications and assess reproductive success.
3. Sign a conservation agreement to protect the ca. 500 hectare forest patch south of BSLL, a priority site with substantial mature forest and an owner interested in conservation.
4. Continue the teaching training program in environmental education in the communities of Jama, Tabuga and Camarones.

5. Begin construction of the Environmental Education Center to house educational displays on dry forest flora and fauna, ecology and conservation.
6. Continue improvements to the reserve's infrastructure, including the trail systems and biological station.

IV. Use of SDCOS Funds

SDCOS funds for the first year were spent in accordance with our revised proposal budget (attached). Marlon Nuñez's salary as director of the reserve has been supported, along with purchase of supplies and materials for the biological station. Orchid surveys were carried out through use of SDCOS funds, including lodging and transport for Ceiba staff as well as a technical advisor (Francisco Tobar of the Quito Botanical Garden's orchid staff). As indicated in our interim (September 2005) report, we applied funds originally budgeted for displays in the visitor center to the environmental education programs described above. We currently are raising additional funds for these training and education programs, as well as for the construction of an environmental education center at the reserve entrance. Once this structure is completed, we will apply the SDCOS funds as per our original proposal, to the elaboration and installation of exhibits within the center. Detailed accounting of all program funds utilized can be provided upon request.

The Ceiba Foundation has strengthened our commitment to the Manabí dry forest project, which now constitutes our primary interest in Ecuador. Consequently, we have applied a considerable portion of our internal funding to various aspects of the project, including facilities construction, trail building, community relations and environmental education. Additional funding proposals are being prepared for the Liz Claiborne and Art Ortenberg Foundation, the Overbrook Foundation, the Global Environmental Facility, along with other funding sources.

V. Attached Documents

Attached, in digital format, are the following supporting documents (paper copies can be provided on request):

- Lalo Loor Dry Forest Reserve orchid list, and selected photographs
- Lalo Loor Dry Forest Reserve bird list, and selected photographs
- New Manabí Dry Forest Corridor Project maps
- New reserve maps including reserve location, and trail system

VI. References

Gentry, A. and C. Dodson. 1987. Diversity and biogeography of Neotropical vascular epiphytes. *Annals of the Missouri Botanical Garden*, 74:205-233.

Meisel, J.E. and C. Woodward. 2005. Andean orchid conservation and the role of private lands: A case study from Ecuador. *Proceedings of the II International Orchid Conservation Congress*. Marie Selby Botanical Gardens. May 16-23, Sarasota, FL. Selbyana, 26(1,2):49-57.

Pridgeon, A. 1996. *Orchids: Status survey and conservation action plan*. Hagsater, E. and V. Dumont (eds.). IUCN/SSC Orchid Specialist Group.

Photo Gallery of the Lalo Loor Dry Forest Reserve, Ecuador



Reserve entrance sign



Entrance sign with reserve forest in background



Forested hills of reserve (w/ foreground pasture)



Researcher & volunteer station (within forest)



Pacific Pygmy-Owl (*Glaucidium peruanum*)



Oncidium sp. orchid (from nearby forest)

Table 1: Orchids of the Lalo Loor Dry Forest Reserve

A preliminary survey conducted March 2006 by:

Catherine L. Woodward, Ph.D., Ceiba Foundation for Tropical Conservation

Francisco Tobar, Quito Botanical Garden

	Scientific name	Notes	Collected
1	<i>Aspasia psitticina</i> (?)	uncommon; not in flower, could be <i>Brassia</i> sp.	x
2	<i>Campylocentrum micranthum</i>	uncommon; not in flower	x
3	<i>Catasetum expansum</i>	common; flowering 3/06	x
4	<i>Cattleya maxima</i>	at Punta Prieta	
5	<i>Caularthron bilamellatum</i>	rather common; not in flower	x
6	<i>Dimeranda rimbachii</i>	very abundant; not in flower	x
7	<i>Encyclia</i> sp.	uncommon; not in flower	x
8	<i>Epidendrum</i> sp. 1	uncommon; not in flower	
9	<i>Epidendrum</i> sp. 2	at Punta Prieta; white flowers	
10	<i>Huntleya</i> sp.	rare; on QCNE plant list	
11	<i>Lockhartia serra</i>	abundant; not in flower	x
12	<i>Maxillaria</i> sp.	uncommon; not in flower	
13	<i>Mormodes</i> sp.	uncommon; not in flower	
14	<i>Notylia</i> sp.	abundant; not in flower	x
15	<i>Oncidium hyphaematicum</i>	rather common; flowered 8/05	x
17	<i>Palmorchis</i> or <i>Tropidia</i> sp.	uncommon; terrestrial #1 not in flower	
18	<i>Pelexia</i> or <i>Sarcoglottis</i> sp.?	common but patchy; terrestrial #2, not in flower	x
19	<i>Pelexia</i> , <i>Cyclopogon</i> or <i>Sarcoglottis</i> sp.?	patchy; terrestrial #3, not in flower	
20	<i>Prosthechea</i> sp.	abundant; not in flower	x
21	<i>Psychopsis kramerianum</i>	uncommon; flowering along Pacifico trail	
22	<i>Rodriguezia</i> sp.	uncommon; not in flower	
23	<i>Scaphyglottis graminifolia</i> (?)	uncommon; not in flower	
24	<i>Trichocentrum nigrum</i>	common; not in flower	x
25	<i>Trigonidium</i> sp. (?)	uncommon; not in flower	
26	<i>Vainilla planifolia</i>	common; not in flower	x
27	<i>Vainilla pompona</i>	rare (possibly planted?); not in flower	



Figure 1. *Dimeranda rimbachii*



Figure 2. *Catasetum expansum*



Figure 3. *Oncidium hyphaematicum*

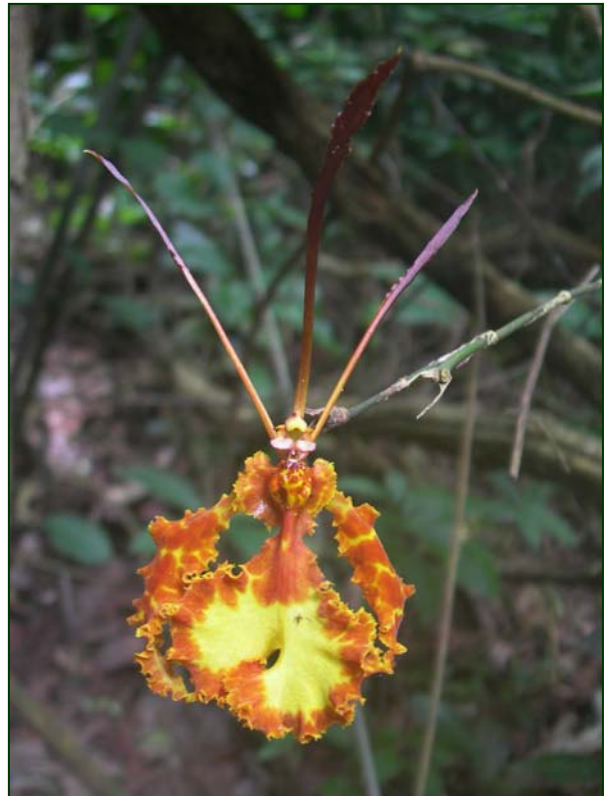


Figure 4. *Psychopsis krameriana*

Ceiba Foundation for Tropical Conservation

Bosque Seco Lalo Loor (BSLL) -- Lalo Loor Dry Forest Reserve

Lista de Aves -- Bird List

updated: 30 March 2006

METADATA

Plate:

Plate and (image) number of species in Birds of Ecuador (English edition).

F-Sort:

Taxonomic order of Family name

Status:

IUCN: critically endangered (**cr**), endangered (**en**), vulnerable (**vu**), near threatened (**nt**), lower classification (**lc**)

LR.EC (Red List, Ecuador): endangered (**en**), vulnerable (**vu**), near threatened (**nt**)

EBA (Endemic Bird Areas): Tumbesion region (**T**), Choco (**CH**), Valle de Marañón (**VM**)

Migr:

Migratory Status: resident (**R**), winter resident (**W**), transient (**T**)

Source:

Ridgely, R.S., and P.J. Greenfield. 2001. The Birds of Ecuador. Cornell University Press

ENGLISH NAME	SPANISH NAME	SCIENTIFIC NAME	FAMILY	Plate	F-Sort	STATUS			
						IUCN	LR.EC	EBA	Migr
Little Tinamou	Tinamú Pequeño	<i>Crypturellus soui</i>	TINAMIDAE	1(8)	1	nt			R
Tinamou sp.	Tinamú sp	<i>Crypturellus sp</i>	TINAMIDAE	1	1				R
Pale-browed Tinamou	Tinamú Cejiblanco	<i>Crypturellus transfasciatus</i>	TINAMIDAE	1(14)	1	nt	vu	T	R
Magnificent Frigatebird	Fragata Magnifica	<i>Fregata magnificens</i>	FREGATIDAE	4(13)	8				R
Brown Pelican	Pelícano Pardo	<i>Pelecanus occidentalis</i>	PELECANIDAE	4(7)	12				R
Great Egret	Garceta Grande	<i>Ardea alba</i>	ARDEIDAE	7(3)	16				R
Cattle Egret	Garceta Bueyera	<i>Bubulcus ibis</i>	ARDEIDAE	6(8)	16				R
Striated Heron	Garcilla Estriada	<i>Butorides striatus</i>	ARDEIDAE	5(2)	16				R
Snowy Egret	Garceta Nívea	<i>Egretta thula</i>	ARDEIDAE	6(1)	16				R
Turkey Vulture	Gallinazo Cabecirrojo	<i>Cathartes aura</i>	CATHARTIDAE	9(4)	19				R
Black Vulture	Gallinazo Negro	<i>Coragyps atratus</i>	CATHARTIDAE	9(5)	19				R
Roadside Hawk	Gavilán Campestre	<i>Buteo magnirostris</i>	ACCIPITRIDAE	13(2)	20				R
Gray Hawk	Gavilán Gris	<i>Buteo nitidus</i>	ACCIPITRIDAE	13(1)	20				R

ENGLISH NAME	SPANISH NAME	SCIENTIFIC NAME	FAMILY	Plate	F-Sort	IUCN	LR	EC	EBA	Migr
Savana Hawk	Gavilán Sabanero	<i>Buteogallus meridionalis</i>	ACCIPITRIDAE	11(4)	20					R
Swallow-tailed Kite	Elanio Tijereta	<i>Elanoides forficatus</i>	ACCIPITRIDAE	10(1)	20					R
White-tailed Kite	Elanio Coliblanco	<i>Elanus leucurus</i>	ACCIPITRIDAE	10(4)	20					R
Pearl Kite	Elanio Perla	<i>Gampsonyx swainsonii</i>	ACCIPITRIDAE	10(7)	20					R
Plumbeous Kite	Elanio Plomizo	<i>Ictinia plumbea</i>	ACCIPITRIDAE	10(2)	20					R
Gray-backed Hawk	Gavilán Dorsigris	<i>Leucopternis occidentalis</i>	ACCIPITRIDAE	12(2)	20	en	en		T	R
Bat Falcon	Halcón Cazamurcielagos	<i>Falco ruficularis</i>	FALCONIDAE	17(5)	21					R
Laughing Falcon	Halcón Reidor	<i>Herpetotheres cachinnans</i>	FALCONIDAE	17(1)	21					R
Collared Forest-Falcon	Halcon Montes Collarejo	<i>Micrastur semitorquatus</i>	FALCONIDAE	15(10)	21					R
Rufous-headed Chachalaca	Chachalaca Cabecirrufa	<i>Ortalis erythroptera</i>	CRACIDAE	18(7)	22	vu	vu		T	R
Rufous-fronted Wood-Quail	Corcovado Frenticolorado	<i>Odontophorus erythrops</i>	ODONTOPHORIDAE	19(2)	23					R
Spotted Sandpiper	Andarrios Coleador	<i>Actitis macularia</i>	SCOLOPACIDAE	24(3)	30					M
Least Sandpiper	Playero Menudo	<i>Calidris minutilla</i>	SCOLOPACIDAE	23(12)	30					M
Whimbrel	Zarapito Trinidador	<i>Numenius phaeopus</i>	SCOLOPACIDAE	22(11)	30					R
Blue Ground-Dove	Tortolita Azul	<i>Claravis pretiosa</i>	COLUMBIDAE	29(8)	39					R
Pale-vented Pigeon	Paloma Ventripálida	<i>Columba cayennensis</i>	COLUMBIDAE	28(6)	39					R
Ruddy Pigeon	Paloma Rojiza	<i>Columba subvinacea</i>	COLUMBIDAE	28(3)	39					R
Ecuadorian Ground-Dove	Tortolita Ecuatoriana	<i>Columbina buckleyi</i>	COLUMBIDAE	29(6)	39	lc			T	R
Croaking Ground-Dove	Tortolita Croante	<i>Columbina cruziana</i>	COLUMBIDAE	29(7)	39					R
Ruddy Quail-dove	Paloma Perdiz Rojiza	<i>Geotrygon montana</i>	COLUMBIDAE	28(11)	39					R
Pallid Dove	Paloma Palida	<i>Leptotila pallida</i>	COLUMBIDAE	29(11)	39					R
White-tipped Dove	Paloma Apical	<i>Leptotila varreauxi</i>	COLUMBIDAE	29(12)	39					R
Red-masked Parakeet	Perico Caretirrojo	<i>Aratinga erythrogenys</i>	PSITTACIDAE	32(3)	40	nt	vu		T	R
Gray-cheeked Parakeet	Perico Cachetigris	<i>Brotogeris pyrrhopterus</i>	PSITTACIDAE	31(7)	40					R
Pacific Parrolet	Periquito del Pacífico	<i>Forpus coelestis</i>	PSITTACIDAE	31(1)	40	lc			T	R
Bronze-winged Parrot	Loro Alibronceado	<i>Pionus chalcopterus</i>	PSITTACIDAE	32(9)	40					R
Blue-headed Parrot	Loro Cabeciazul	<i>Pionus menstruus</i>	PSITTACIDAE	32(6)	40					R
Smooth-billed Ani	Garrapatero Piquiliso	<i>Crotophaga ani</i>	CUCULIDAE	33(10)	41					R
Groove-billed Ani	Garrapatero Piquiestriado	<i>Crotophaga sulcirostris</i>	CUCULIDAE	33(11)	41					R
Squirrel Cuckoo	Cuco Ardilla	<i>Piaya cayana</i>	CUCULIDAE	33(7)	41					R
Little Cuckoo	Cuco Menudo	<i>Piaya minuta</i>	CUCULIDAE	33(6)	41					R
Pacific Pygmy-Owl	Mochuelo del Pacifico	<i>Glaucidium peruanum</i>	STRIGIDAE	35(12)	44					R
Spectacled Owl	Buho Ventribandeado	<i>Pulsatrix melanota</i>	STRIGIDAE	36(4)	44					R
Black-and-white Owl	Buho Blanquinegro	<i>Strix nigrolineata</i>	STRIGIDAE	36(6)	44					R
Common Potoo	Nictibio Comun	<i>Nyctibius griseus</i>	NYCTIBIIDAE	37(4)	46					R
Pauraque	Pauraque	<i>Nyctidromus albicollis</i>	NYCTIBIIDAE	39(1)	46					R
Lesser Nighthawk	Añapero Menor	<i>Chordeiles acutipennis</i>	CAPRIMULGIDAE	38(4)	47					R
Lesser Swallow-tailed Swift	Vencejo Tijereta Menor	<i>Panyptila cayennensis</i>	APODIDAE	40(13)	48					R
White-collared Swift	Vencejo Cuelliblanco	<i>Streptoprocne zonaris</i>	APODIDAE	40(1)	48					R
Amazilla Hummingbird	Amazilla Ventrirrufa	<i>Amazilia amazilia</i>	TROCHILIDAE	44(11)	49					R

ENGLISH NAME	SPANISH NAME	SCIENTIFIC NAME	FAMILY	Plate	F-Sort	IUCN	LR	EC	EBA	Migr
Little Woodstar	Estrellita Chica	<i>Chaetocercus bombus</i>	TROCHILIDAE	42(17)	49	vu		vu		R
Violet-bellied Hummingbird	Colibrí Ventrivioleta	<i>Damophila julie</i>	TROCHILIDAE	44(22)	49					R
Purple-crowned Fairy	Hada Coronipurpura	<i>Heliostyris barroti</i>	TROCHILIDAE	43(5)	49					R
Baron's Hermit	Ermitaño de Baron	<i>Phaethornis baroni</i>	TROCHILIDAE	41(9)	49					R
Stripe-throated Hermit	Ermitaño Golirrayado	<i>Phaethornis striigularis</i>	TROCHILIDAE	41(15)	49					R
Green-crowned Woodnymph	Ninfa Coroniverde	<i>Thalanuria fannyi</i>	TROCHILIDAE	44(19)	49					R
Northern Violaceous Trogon	Trogon Violáceo Norteño	<i>Trogon caligatus</i>	TROGONIDAE	47(9)	50					R
Western White-tailed Trogon	Trogón Coliblanco Transandino	<i>Trogon chionurus</i>	TROGONIDAE	47(6)	50					R
Ecuadorian Trogon	Trogón Ecuatoriano	<i>Trogon mesurus</i>	TROGONIDAE	47(3)	50					R
Green Kingfisher	Martín Pescador Verde	<i>Chloroceryle americana</i>	ALCEDINIDAE	49(4)	51					R
Ringed Kingfisher	Martín Pescador Grande	<i>Megaceryle torquata</i>	ALCEDINIDAE	49(1)	51					R
Rufous Motmot	Momoto Rufo	<i>Baryphthengus martii</i>	MOMOTIDAE	49(8)	52					R
Blue-crowned Motmot	Momoto Coroniazul	<i>Momotus momota</i>	MOMOTIDAE	49(9)	52					R
White-whiskered Puffbird	Buco Bigotiblanco	<i>Malacoptila panamensis</i>	BUCCONIDAE	51(12)	54					R
Orange-fronted Barbet	Barbudo Frentinaranja	<i>Capito squamatus</i>	CAPITONIDAE	50(12)	55	nt		nt	CHO	R
Pale-mandibled Aracari	Arasari Piquipalido	<i>Pteroglossus erythrogygius</i>	RAMPHASTIDAE	52(6)	56			vu		R
Choco Toucan	Tucán del Chocó	<i>Ramphastos brevis</i>	RAMPHASTIDAE	52(18)	56	lc		vu	CHO	R
Chesnut-mandibled Toucan	Tucán de Swainson	<i>Ramphastos swainsonii</i>	RAMPHASTIDAE	52(17)	56			vu		R
Guayaquil Woodpecker	Carpintero Guayaquileño	<i>Campephilus gayaquilensis</i>	PICIDAE	48(3)	57	nt		vu		R
Lineated Woodpecker	Carpintero Lineado	<i>Dryocopus lineatus</i>	PICIDAE	48(1)	57					R
Black-cheeked Woodpecker	Carpintero Carinegro	<i>Melanerpes pucherani</i>	PICIDAE	54(15)	57					R
Golden-olive Woodpecker	Carpintero Olivadorado	<i>Piculus rubiginosus</i>	PICIDAE	53(2)	57					R
Olivaceous Piculet	Picolete Oliváceo	<i>Picumnus olivaceus</i>	PICIDAE	54(3)	57					R
Scarlet-backed Woodpecker	Carpintero Dorsiescarlata	<i>Veniliornis callonotus</i>	PICIDAE	54(14)	57					R
Red-rumped Woodpecker	Carpintero Lomirrojo	<i>Veniliornis kirkii</i>	PICIDAE	54(12)	57					R
Buff-throated Foliage-Gleaner	Rascahojas Golipalida	<i>Automolus ochrolaemus</i>	FURNARIIDAE	58(19)	58					R
Pacific Hornero	Hornero del Pacífico	<i>Furnarius cinnamomeus</i>	FURNARIIDAE	59(4)	58					R
Scaly-throated Leaf-tosser	Tirahojas Goliescamoso	<i>Sclerurus guatemalensis</i>	FURNARIIDAE	59(18)	58					R
Slaty Spinetail	Colaespina Pizarrosa	<i>Synallaxis brachyura</i>	FURNARIIDAE	56(3)	58					R
Plain-brown Woodcreeper	Trepatroncos Pardo	<i>Dendrocincla merula</i>	DENDROCOLAPTIDAE	55(2)	59					R
Northern Barred-Woodcreeper	Trepatroncos Barreteado Norteño	<i>Dendrocolaptes sanctithomae</i>	DENDROCOLAPTIDAE	55(12)	59					R
Streak-headed Woodcreeper	Trepatroncos Cabecirrayado	<i>Lepidocolaptes souleyetii</i>	DENDROCOLAPTIDAE	55(22)	59					R
Olivaceous Woodcreeper	Trepatroncos Oliváceo	<i>Sittasomus griseicapillus</i>	DENDROCOLAPTIDAE	55(7)	59					R
Plain Xenops	Xenops Dorsillano	<i>Xenops minutus</i>	DENDROCOLAPTIDAE	57(19)	59					R
Streaked Xenops	Xenops Rayado	<i>Xenops rutilans</i>	DENDROCOLAPTIDAE	57(18)	59					R
Black-striped Woodcreeper	Trepatroncos Pinto	<i>Xiphorhynchus lacrymosus</i>	DENDROCOLAPTIDAE	55(18)	59					R
Spotted Woodcreeper	Trepatroncos Manchado	<i>Xiphorhynchus erythrogygius</i>	DENDROCOLAPTIDAE	55(19)	59					R
Dusky Antbird	Hormiguero Oscuro	<i>Cercomarca tyrannina</i>	THAMNOPHILIDAE	62(6)	60					R
Plain Antvireo	Batarito Cabecigris	<i>Dysithamnus mentalis</i>	THAMNOPHILIDAE	61(1)	60					R
Bicolored Antbird	Hormiguero Bicolor	<i>Gymnophithys leucaspis aequatoriæ</i>	THAMNOPHILIDAE	63(11)	60					R

ENGLISH NAME	SPANISH NAME	SCIENTIFIC NAME	FAMILY	Plate	F-Sort	IUCN	LR	EC	EBA	Migr
Dot-winged Antwren	Hormiguerito Alipunteado	<i>Microrhopias quixensis</i>	THAMNOPHILIDAE	61(5)	60					R
Chestnut-backed Antbird	Hormiguero Dorsicastaño	<i>Myrmeciza exsul</i>	THAMNOPHILIDAE	63(1)	60					R
Checker-throated Antwren	Hormiguerito Ventrifulvo	<i>Myrmotherula fulviventris</i>	THAMNOPHILIDAE	61(20)	60					R
Slaty Antwren	Hormiguerito Pizarroso	<i>Myrmotherula schisticolor</i>	THAMNOPHILIDAE	61(12)	60					R
White-backed Fire-eye	Ojo-de-Fuego Dorsiblanco	<i>Pyriglena leuconota</i>	THAMNOPHILIDAE	62(10)	60					R
Great Antshrike	Batará Mayor	<i>Taraba major</i>	THAMNOPHILIDAE	60(3)	60					R
Western Slaty-antshrike	Batará Pizarroso Occidental	<i>Thamnophilus atrinucha</i>	THAMNOPHILIDAE	60(14)	60					R
Black-headed Antthrush	Formicario Cabecinegro	<i>Formicarius nigricapillus</i>	FORMICARIIDAE	64(12)	61					R
Southern Beardless-Tyrannulet	Tiranolete Silvadador Sureño	<i>Camplostoma obsoletum</i>	TYRANNIDAE	67(13)	64					R
Tawny-crowned Pygmy-Tyrant	Tirano Enano Frentileonado	<i>Euscarthmus meloryphus</i>	TYRANNIDAE	69(15)	64					R
Masked Water-Tyrant	Tirano de Agua Enmascarado	<i>Fluvicola nengeta</i>	TYRANNIDAE	72(23)	64					R
Piratic Flycatcher	Mosquero Pirata	<i>Legatus leucophaeus</i>	TYRANNIDAE	74(11)	64					R
Scale-crested Pygmy-Tyrant	Cimerillo Crestiescamado	<i>Lophotriccus pileatus</i>	TYRANNIDAE	69(13)	64					R
Boat-billed Flycatcher	Mosquero Picudo	<i>Megarynchus pitanga</i>	TYRANNIDAE	74(22)	64					R
Ochre-bellied Flycatcher	Mosquerito Ventriocráceo	<i>Mionectes oleagineus</i>	TYRANNIDAE	68(1)	64					R
Sooty-crowned Flycatcher	Copetón Coronitizado	<i>Myiarchus phaeocephalus</i>	TYRANNIDAE	73(18)	64	lc			T,VM	R
Dusky-capped Flycatcher	Copetón Crestioscuro	<i>Myiarchus tuberculifer</i>	TYRANNIDAE	73(19)	64					R
Black-tailed Flycatcher	Mosquerito Colinegro	<i>Myiobius atricaudus</i>	TYRANNIDAE	70(6)	64					R
Sulphur-rumped Flycatcher	Mosquerito Lomiazufrado	<i>Myiobius sulphureipygius</i>	TYRANNIDAE	70(4)	64					R
Baird's Flycatcher	Mosquero de Baird	<i>Myiodynastes bairdii</i>	TYRANNIDAE	74(20)	64	lc			T	R
Streaked Flycatcher	Mosquero Rayado	<i>Myiodynastes maculatus</i>	TYRANNIDAE	74(19)	64					R
Greenish Elaenia	Elenita Verdosa	<i>Myiopagis viridicata</i>	TYRANNIDAE	68(14)	64					R
Rusty-margined Flycatcher	Mosquero Alicastaño	<i>Myiozetetes cayanensis</i>	TYRANNIDAE	74(25)	64					R
Social Flycatcher	Mosquero Social	<i>Myiozetetes similis</i>	TYRANNIDAE	74(26)	64					R
Pacific Royal Flycatcher	Mosquero Real del Pacífico	<i>Onychorhynchus occidentalis</i>	TYRANNIDAE	71(15)	64	vu	vu		T	R
Black-and-white Becard	Cabezón Blanquinegro	<i>Pachyramphus albogrisens</i>	TYRANNIDAE	75(8)	64					R
Slaty Becard	Cabezón Pizarroso	<i>Pachyramphus spodiurus</i>	TYRANNIDAE	75(3)	64	en	en		T,VM	R
One-colored Becard	Cabezón Unicolor	<i>Platypsaris homochrous</i>	TYRANNIDAE	75(10)	64					R
White-throated Spadebill	Picochato Goliblanco	<i>Platyrinchus mystaceus</i>	TYRANNIDAE	70(11)	64					R
Vermilion Flycatcher	Mosquero Bermellón	<i>Pyrhocephalus rubinus</i>	TYRANNIDAE	72(10)	64					R
Masked Tityra	Titira Enmascarada	<i>Tityra semifasciata</i>	TYRANNIDAE	75(14)	64					R
Common Tody-Flycatcher	Espatulilla Común	<i>Todirostrum cinereum</i>	TYRANNIDAE	69(5)	64					R
Black-headed Tody-Flycatcher	Espatulilla Cabecinegra	<i>Todirostrum nigriceps</i>	TYRANNIDAE	69(3)	64					R
Yellow-margined Flatbill	Picoancho Alimarginado	<i>Tolmomyias flavotectus</i>	TYRANNIDAE	68(9)	64					R
Yellow-crowned Tyrannulet	Tiranolete Coroniamarillo	<i>Tyrannulus elatus</i>	TYRANNIDAE	67(14)	64					R
Tropical Kingbird	Tirano Tropical	<i>Tyrannus melancholicus</i>	TYRANNIDAE	74(5)	64					R
Snowy-throated Kingbird	Tirano Goliblanco	<i>Tyrannus niveigularis</i>	TYRANNIDAE	74(8)	64					R
White-bearded Manakin	Saltarín Barbiblanco	<i>Manacus manacus</i>	PIPRIDAE	78(9)	66					R
Thrush-like Schiffornis	Chifornis Pardo	<i>Schiffornis turdinus</i>	PIPRIDAE	78(21)	66					R
Rufous-browed Peppershrike	Vireon Cejirrufo	<i>Cyclarhis gujanensis virenticeps</i>	VIREONIDAE	81(9)	68					R

ENGLISH NAME	SPANISH NAME	SCIENTIFIC NAME	FAMILY	Plate	F-Sort	IUCN	LR	EC	EBA	Migr
Lesser Greenlet	Verdillo Menor	<i>Hylophilus decurtatus</i>	VIREONIDAE	81(19)	68					R
Red-eyed Vireo	Vireo Ojirrojo	<i>Vireo olivaceus griseobarbatus</i>	VIREONIDAE	81(12)	68					R
Swainson's Thrush	Zorzal de Swainson	<i>Catharus ustulatus</i>	TURDIDAE	82(7)	69					T
Ecuadorian Thrush	Mirlo Ecuatoriano	<i>Turdus maculirostris</i>	TURDIDAE	82(22)	69	lc			T	R
Blue-and-white Swallow	Golondrina Azuliblanco	<i>Notiochelidon cyanoleuca</i>	HIRUNDINIDAE	79(6)	72					R
Southern Rough-winged Swallow	Golondrina Alirrasposa Sureña	<i>Stelgidopteryx ruficollis</i>	HIRUNDINIDAE	79(12)	72					R
Gray-breasted Martin	Martín Pechigris	<i>Progne chalybea</i>	HIRUNDINIDAE	79(2)	72					R
Band-backed Wren	Soterrey Dorsibandeado	<i>Campylorhynchus zonatus</i>	TROGLODYTIDAE	80(3)	73					R
Southern Nightingale-Wren	Soterrey Ruiseñor Sureño	<i>Microcerculus marginatus</i>	TROGLODYTIDAE	80(23)	73					R
House Wren	Soterrey Criollo	<i>Troglodytes aedon</i>	TROGLODYTIDAE	80(14)	73					R
Tropical Gnatcatcher	Perlita Tropical	<i>Polioptila plumbea bilineata</i>	POLIOPTILIDAE	81(4)	74					R
Long-billed Gnatwren	Soterillo Piquilargo	<i>Ramphocaenus melanurus rufiver.</i>	POLIOPTILIDAE	81(6)	74					R
Orange-billed Sparrow	Saltón Piquinaranja	<i>Arremon aurantirostris</i>	PASSERIDAE	93(14)	76					R
Black-striped Sparrow	Saltón Negrilistado	<i>Arremonops conirostris</i>	PASSERIDAE	93(16)	76					R
Gray-and-gold Warbler	Reinita Grisidorada	<i>Basileuterus fraseri</i>	PARULIDAE	83(28)	76	lc			T	R
Buff-rumped Warbler	Reinita Lomianteadada	<i>Basileuterus fulvicauda</i>	PARULIDAE	83(29)	76					R
Tropical Parula	Parula Tropical	<i>Parula pitiayumi</i>	PARULIDAE	83(4)	76					R
Bananaquit	Mielero Flavó	<i>Coereba flaveola</i>	THRAUPIDAE	84(1)	77					R
Yellow-tufted Dacnis	Dacnis Pechiamarillo	<i>Dacnis egregia</i>	THRAUPIDAE	85(2)	77					R
Thick-billed Euphonia	Eufonia Piquigruesa	<i>Euphonia laniirostris</i>	THRAUPIDAE	85(14)	77					R
Orange-crowned Euphonia	Eufonia Coroninaranja	<i>Euphonia saturata</i>	THRAUPIDAE	85(13)	77					R
Guira Tanager	Tangara Guira	<i>Hemithraupis guira</i>	THRAUPIDAE	86(18)	77					R
Summer Tanager	Piranga Roja	<i>Piranga rubra</i>	THRAUPIDAE	89(15)	77					W
Lemon-rumped Tanager	Tangara Lomilimón	<i>Ramphocelus icteronotus</i>	THRAUPIDAE	89(7)	77					R
White-shouldered Tanager	Tangara Hombrilblanco	<i>Tachyphonus luctuosus</i>	THRAUPIDAE	90(1)	77					R
Bay-headed Tanager	Tangara Cabecibaya	<i>Tangara gyrola</i>	THRAUPIDAE	86(15)	77					R
Blue-gray Tanager	Tangara Azuleja	<i>Thraupis episcopus</i>	THRAUPIDAE	89(1)	77					R
Palm Tanager	Tangara Palmera	<i>Thraupis palmarum</i>	THRAUPIDAE	89(2)	77					R
Blue-black Grosbeak	Picogrueso Negriazulado	<i>Cyanocompsa c. cyanoides</i>	CARDINALIDAE	91(13)	78					R
Buff-throated Saltator	Saltador Golianteadado	<i>Saltator maximus</i>	CARDINALIDAE	91(1)	78					R
Crimson-breasted Finch	Pinzón Pechicarmasí	<i>Rhodospingus cruentus</i>	EMBERIZIDAE	92(27)	79				T	R
Variable Seedeater	Espiguero Variable	<i>Sporophila corvina</i>	EMBERIZIDAE	92(3)	79					R
Blue-black Grassquit	Semillero Negriazul	<i>Volatinia jacarina</i>	EMBERIZIDAE	92(1)	79					R
Yellow-rumped Caci que	Cacique Lomiamarillo	<i>Cacicus cela flavicrissus</i>	ICTERIDAE	94(1)	80					R
Scarlet-rumped Caci que	Cacique Lomiescarlata	<i>Cacicus myrorhynchus</i>	ICTERIDAE	94(4)	80					R
Scrub Blackbird	Negro Matorralero	<i>Dives warszewiczi</i>	ICTERIDAE	95(11)	80					R
Yellow-tailed Oriole	Bolsero Coliamarilla	<i>Icterus mesomelas</i>	ICTERIDAE	95(5)	80					R
Shiny Cowbird	Baquero Brilloso	<i>Molothrus bonariensis</i>	ICTERIDAE	95(12)	80					R
Peruvian Meadowlark	Pastorero Peruano	<i>Sturnella belicosa</i>	ICTERIDAE	95(2)	80					R



Figure 5. An orchidarium was constructed at the biological station to house a collection of the reserve's orchids.

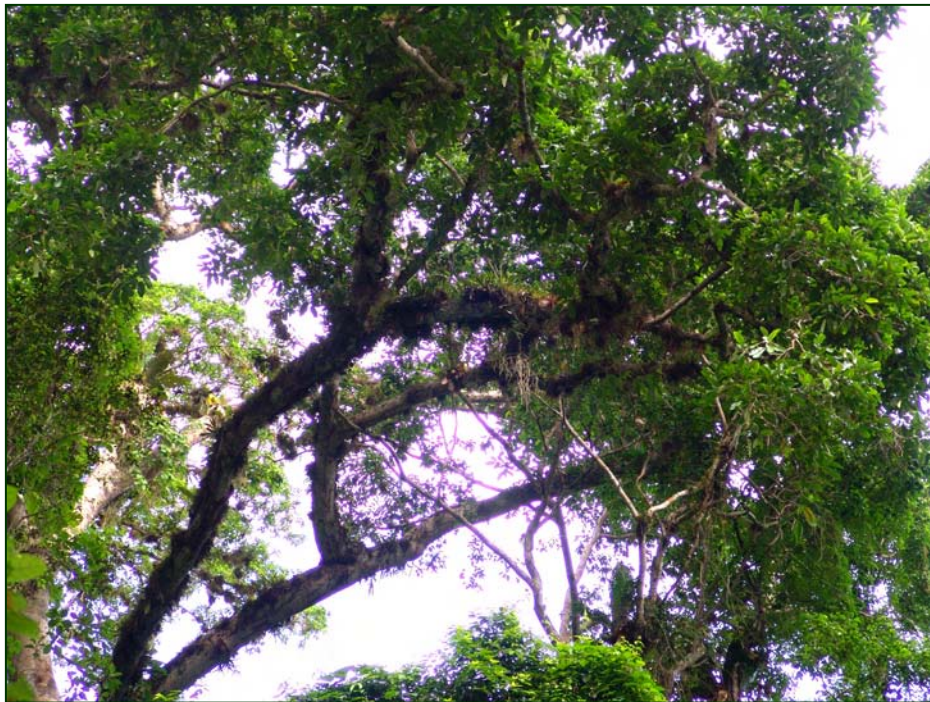
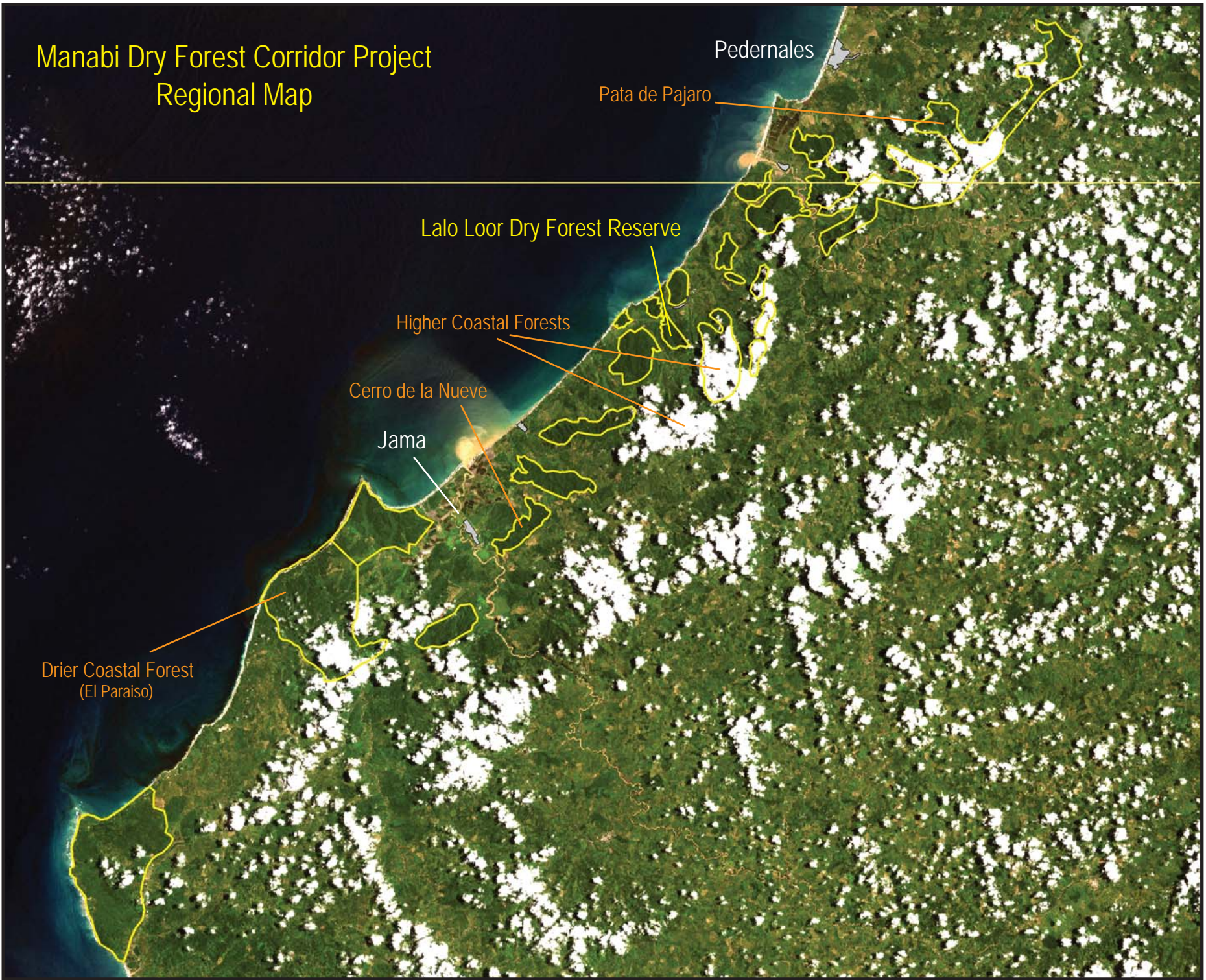


Figure 6. This *Ficus* tree shows typical abundance of epiphytes on mature trees in the Lalo Loor Dry Forest reserve.

Manabi Dry Forest Corridor Project Regional Map



Pedernales

Pata de Pajaro

Lalo Loor Dry Forest Reserve

Higher Coastal Forests

Cerro de la Nieve

Jama

Drier Coastal Forest
(El Paraiso)

Lalo Loor Dry Forest Reserve Maps



