

Expedition to Buena Hora

The expedition to Buena Hora was carried out from September 26 to October 22, 2005. The participants were Alejandro Araujo-Murakami (head of the expedition), Daniel Choque, Angel Fernandez, Vania Torrez and Sandra Paredes (thesis students), additional participants were Dr. Manuel Macía and Ph.D. student Pilar Garagorri. The guides during this expedition were Guzman Jove, Pepe Sevillanos, Juan Mamani, Remberto Jove, Lisandro Molina and Emilia Jove (cook).

Results

Twelve non-permanent plots were installed (0.1 ha each) and 3 permanent plots were established (1 ha each). In total 3.2 ha were inventoried using the two methods. The plots were distributed in three different elevation levels with a range of 480 m from top to bottom (Table 1). A total of 7,624 stems were measured and 809 vouchers (Table 2).

Plot number	Area (ha)	Coordinates	Altitude (m)	# Individuals inventoried
Plot 1	0.1	14°12'22.4"S 68° 39'43.2"W	960	583
Plot 2	0.1	14°12'45"S 68°39'46.3"W	1170	423
Plot 3	0.1	14°12'01.9"S 68°38'38.8"W	1075	569
Plot 4	0.1	14°12'23"S 68°38'28.9"W	873	508
Plot 5	0.1	14°12'51.5"S 68°38'59.8"W	991	635
Plot 6	0.1	14°13'03.7"S 68°38'23.9"W	811	479
Plot 7	0.1	14°12'12.1"S 68°40'04.1"W	881	642
Plot 8	0.1	14°12'11.2"S 68°39'51.3"W	858	323
Plot 9	0.1	14°13'22.4"S 68°38'06.5"W	774	308
Plot 10	0.1	14°13'50.5"S 68°37'14.5"W	724	317
Plot 11	0.1	14°11'51.1"S 68°39'06.8"W	974	349
Plot 12	0.1	14°12'30"S 68°38'50.2"W	798	296
PPM 1	1	14°17'34.8"S 68°32'38.2"W	670	415
PPM 2	1	14°11'58.9"S 68°39'07.8"W	935	1018
PPM 3	1	14°11'55.5"S 68°38'23.4"W	1150	759



Botanist and guides,
(A. Fernandez)

In this expedition data was gathered for two thesis projects. Vania Torrez will be in charge of the analysis of the 12 non-permanent plots for the elaboration of her degree in licenciatura in Biology. Sandra Paredes will work on the data from the three permanent plots for her thesis in Agronomy.

Participant	Collections
Manuel Macía	60
Alejandro Araujo Murakami.	209
Sandra Paredes S.	212
Vania Torrez	334



Measuring trees, left (A. Araujo-M.). Climbing the trees in the dry forest, center (A. Araujo-M.). Inflorescence of *Solanum* sp., right (A. Araujo-M.).

Notes from the expedition

The expedition began September 26, when all the equipment was loaded on the trucks; we left, as always, with a small delay. Our first destination was Apolo approximately 15 hours from La Paz, taking the highway through Charazani.

The long trip was only interrupted for lunch in Achacachi on the high Andean plateau near Lake Titicaca and for dinner in the village of Calzada, a beautiful site in the mountainous areas of Apolobamba. Immediately thereafter we continued to Apolo, arriving at two in the morning, where in spite of the late hour we were welcomed warmly by the sisters of the monastery in Apolo; they run the best hotel in town.

Early on the 27th we continued to Azariamas and arrived without difficulty at 2:00 p.m. The crossing of the Machariapo river was uneventful — this time — the river is normally the main obstacle to the entrance and exit of Azariamas. Along the road we saw many trees of the bright yellow flowered Lulo (*Tabebuia* sp. — Bignoniaceae) in addition to the showy flowers of Tuna Mora (*Pereskia weberiana* — Cactaceae)

We used the rest of the day in Azariamas looking for mules, horses, and mule drivers who would help us transport the equipment, materials, and food into the Buena Hora area. Next morning, once we had organized the load on the mules we left for Buena Hora where we had planned to establish camp.

The trip from Azariamas to Buena Hora, however, takes two days. The night was spent at the Sevillanos family in an area called San Juan. We pushed on to Buena Hora the next day, a five hour walk without major problems.

The social structure of Azariamas is different from what normally is found in Bolivia. The houses are spread out over a large area rather than being grouped close together as is normally seen. The village is dominated by two families, the Jove's and Sevillanos'. The people living closest to the road are mostly interested in developing tourism in the area, while the rest cultivate Cacao as a cash crop. At San Juan the economy is based on cattle ranching, the cattle is grazing extensively in the forest and seek sustenance particularly from the legumes trees.

After setting up camp we made a reconnaissance of the terrain and ecology of Buena Hora, we tried to identify sites where it would be appropriate to establish the different plots. During this rapid assessment we noticed that the forest was in very good state, it was a mature forest with large amount of Mara or Caoba



Mahogany tree (*Swietenia macrophylla*) in well preserved dry forest (D. Choque).

Ajo), *Gallesia integrifolia* (Phytolaccaceae — Ajo Ajo), *Swietenia macrophylla* (Meliaceae — Mara, Caoba), *Ormosia amazónica* (Fabaceae — Wayruru), *Pentaplaris davidsmithii* (Tiliaceae — Batan), *Myroxylon balsamum* (Fabaceae — Resina)..

On the slopes in this area we have a low forest dominated by *Oxandra espintana*, *Phyllostylon rhamnoides* (Ulmaceae — Chaqui Caspi), *Machaerium scleroxylon* (Fabaceae — Karaguayabon, Morado), *Capparis polyantha* (Capparaceae — Casisi), *Myroxylon balsamum*, *Anadenanthera colubrina* (Fabaceae — Willca), *Acacia lorentensis* (Fabaceae — Uchichi), *Astronium urundeuva* (Anacardiaceae — Yuraj Bitaca, Cuchi) *Aspidosperma cylindrocarpum* (Apocynaceae — Nucala) y *Machaerium pilosum* (Fabaceae — Uchichi).

(*Swietenia macrophylla* — Mahogany — Meliaceae), Roble (*Amburana cearensis* — Fabaceae) and walnut (*Juglans boliviana* — Juglandaceae). Finding these untouched forests next to the river was a big surprise. Before initiating the work of laying out the plots we divided ourselves in two groups, the first was composed of Manuel, Vania (thesis student and responsible for data collected), and Daniel, accompanied and helped by the guides Don Juan and Pepe. They would be installing all the 0.1 ha plots throughout the area. The second group was led by Alejandro, while Sandra was the thesis student selected to analyze the data from the three 1 ha plots, and Angel. They were assisted by Guzman, Lisandro, and Remberto. In each group the guides were the source of vernacular names and used of the trees.

The vegetation at Buena Hora show some clear transitions between Amazonian lowland rainforest at the typical dryforest. In the bottom of the valley and close to the river we find several Amazonian elements, which transition into dry forest away from the river and up the slopes, to end in a more humid but still semideciduous forest on the ridges.

In the center of the valley the emergent trees exceeds 35 m, and they are evergreen. The forest this dominated by *Oxandra espintana* (Annonaceae — Sipico), *Ampelocera ruizii* (Ulmaceae — Kellu Batan), *Bougainvillea modesta* (Nyctaginaceae — Kellu Ajo



Emergent evergreen tree of Ochoo (*Hura crepitans*) in the center of the valley. (A. Araujo-M.)

On the ridge tops the vegetation turns a little more humid but still with a strong dominant of the dryforest species such as *Oxandra espiñana*, *Myroxylon balsamum*, *Chrysophyllum* ssp. (Sapotaceae), *Campomanesia aromatica* (Myrtaceae), *Aspidosperma cylindrocarpum*, *Tabebuia* sp. (Bignoniaceae), *Acacia* ssp., and *Brosimum* sp. (Moraceae), and other species of Myrtaceae. It however, important to note that in all topographical situations the understory was dominated by Rutaceae such as: *Erythrochiton fallax*, *Almeidea rubra*, *Amyris* sp. And others from this family.

Only on the ridges do we find *Syagrus sancona* (Arecaceae), a slender and beautiful palm, and the only palm present in this entire vegetation formation. This species along with others indicate an affinity with the precambrium shield of the Chiquitania in Southeastern Bolivia. We found several species flowering that we had found during previous expeditions but then only as sterile vouchers documenting the diversity. We believe that we have found new species of *Chrysophyllum* (Sapotaceae), *Amyris* (Rutaceae) and *Thinouia* (Sapindaceae).

The days passed calmly, both in camp and working in the forest. It was however not a silent place the Cicada made a background music (day and night) that was difficult to ignore, and at night we heard a jaguar (*Pantera onca*) whistling near the camp marking his territory. The days passed working in the forest during the day, consuming a delicious meal consisting of a soup as appetizer and rice with canned sardines or the tough salted and dried meat (Charque) as the main course prepared

by Doña Emilia, and pressing plants until midnight.

The forest at Buena Hora has apparently suffered no or very little human intervention in the resent past. Every thing seems in an exceptional state of conservation, expressed through a high density of animals that normally are very shy or hunted almost to extinction in many areas. We saw tapir (*Tapirus terrestris*), dear (*Odocoileus peruviana*, *Mazama americana*), white lipped peccary (Pecari tajucu), paca (*Cuniculus paca*), and



Dry forest on slopes and ridges, left. *Campomanesia aromatica*, right (A. Araujo-M.).



Amazona aestiva, top left . Venemous snake, top right . Trunk with scrates from Spectabled Bear, bottom left . Large toad, bottom right (A. Araujo-M.).

aguiti (*Dasyprocta punctata*). It was also impossible not to notice the many parrots of the family Psittacidae, particularly the blue-fronted parrot (*Amazona aestiva*). We also had the pleasure to find a few snakes, which always present a danger and alarm us.

We found several trees particularly on the ridges that had been marked either by the Jaguar or by spectacled bear (*Tremarctos ornatus*). We also noted several groups of monkeys like Manechi or black howler monkey (*Alouatta caraya*), Marimonos or Chamek spider monkey (*Ateles chamek*). Everyday we typically was accompanied, on the way back to camp by the noise of the toads.

As soon as we had reached our goals of establishing the 3 permanent plots and the 12 smaller non-permanent



Loading the mules and horses, left. Carrying plants back to Azariamas, right (A. Araujo-M.).

plots we broke camp and returned again to Azariamas and began the 15 hour trip back to La Paz.