

**Summary of Avian Research Results at Las Tangaras July 2008
For Ministry of Environment, Quito, Ecuador**



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June 2009**

Our Life Net team conducted avian community monitoring at Las Tangaras Reserve (Mindó, Pichincha) from July 20 to August 2, 2008. This was our 5th year of developing and repeating avian sampling techniques at this location. Our team of 12 was composed of two Ecuadorian technicians and one Ecuadorian student intern, one American ornithologist (Dr. Becker), and 8 volunteers and students. We conducted bird surveys along transects, made daily bird lists, sampled birds in mist-nets, attracted and observed hummingbirds at sugar-water feeders, and recorded birds seen when hiking from Mindó to the reserve and back. We also made observations of Andean cock-of-the-rock at a lek. What follows is a brief report focusing on the results of this effort.

Surveys and Daily Bird Lists

At the end of the 10 days of fieldwork, our team had recorded 167 bird species in a 100-hectare study area around the Las Tangaras Reserve and along the road to Mindó. Eight species were new for the reserve list: Black-cheeked Woodpecker, Scaled Antpitta, Laughing Falcon, Guira tanager, Crimson-bellied Woodpecker, Streak-capped Treehunter, Hoary Puffleg, and White-bellied Woodstar.

Mist Netting Results

We completed 1,050 net-hours of sampling with mist nets in forest edge, forest interior, and a second growth forest site (Table 1, Figure 1). There was substantial overlap in species among the three habitat types, but 16 species were netted exclusively in the forest. Species netted in the forest but not in edge habitats included: Spillman's Tapaculo, Cloud-forest Pygmy Owl, Andean Cock-of-the-rock, Crimson-rumped Toucanette, Slate-throated Whitestart, Chestnut-capped Brushfinch, Violet-tailed Sylph, Bay Wren, Southern Nightingale Wren, Golden-winged Manakin, Broad-billed Motmot, Scale-crested Pygmy tyrant, Olive Finch, Slaty Antwren, Tawny-breasted Flycatcher, and Stripe-throated Hermit.

Table 1. Birds sampled using mist-nets at Reserva Las Tangaras, July 22-30,2008

Netting Site	Net - hours	Total Number of Birds Netted	Species Richness	Species of Hummingbird
Interior Forest	300	49	21	4
Second Growth	300	90	27	6
Edge	450	180	53	19
Total	1050	319	36	21

Five major families of birds accounted for over 50% of the birds netted at Las Tangaras: Trochilidae (hummingbirds) - 21 species, Thraupidae (tanagers) - 8 species, Dendrocolaptidae (Woodcreepers) - 5 species, Furnaridae (ovenbirds) - 5 species, and Tyrannidae (flycatchers) - 4 species. New species to the reserve captured by use of mist nets included Streak-capped Treehunter, White-bellied Woodstar, and Hoary Puffleg.

Hummingbirds & Flower Abundance

In the area of Mindo, we found evidence of breeding in Andean Emerald (nest found) and Booted Racket-tail (nest found). Flowers used by hummingbirds were more widespread and abundant in July 2008 than during any of our previous expeditions (2004-07).

We assessed the abundance of hummingbird flowers in 5 x 5 m quadrats along 100 meter transects, randomly placed in representative habitats at Las Tangaras, resulting in an estimate of flowers/hectare. Flowers patches were categorized as small (< 20 flowers), medium (>20 and <100 flowers), and large (> 100 flowers). Estimates of flowers per hectare in five distinct habitats at Las Tangaras are shown in Table 2.

Table 2. Estimates of Hummingbird Flowers per hectare at Las Tangaras, July 2008 (M was calculated as 50 and L was calculated as 100 flowers)

Habitat	No. Transects	Small patches	Medium patches	Large patches	Flower Species	Flowers/ha Estimate
Riparian Forest	8	16	26	16	7	5638
Riparian Edge	4	6	3	2	6	2350
Upland Edge	3	39	9	1	4	9500
Interior Forest	6	25	9	6	Unk	5266
Second Growth	4	13	10	8	5	7800

Because of the natural abundance of flowers, visitation rates at hummingbird feeders was low and not representative of the hummingbirds using habitats at the reserve. Rate of visitation by hummingbirds at feeders was inversely proportional to flower abundance (see Table 2). In riparian forest where flowers were estimated to be 5638/ha, hummingbirds made only 0.09 visits/20 min. session. In contrast at riparian edge where flowers were estimated to be much less abundant they made 2.5 visits/20 min.

Comparison of hummingbirds at feeders on the forest edge and interior indicated that more species were also present along the forest edge (N = 6) than inside the forest (N=4). Hummingbirds using feeders on the edge were as follows: Green-crowned Brilliant, Sparkling Violetear, Brown violeteat, Andean Emerald, Purple-bibbed Whitetip, and White-necked Jacobin. In contrast hummingbird species commonly observed inside the forest included only Green-crowned Brilliant, Fawn-breasted Brilliant, White-tailed Hillstar, and Stripe-throated Hermit.

Forest vs. Edge Birds

Fifteen bird species were observed only in the forest during surveys suggesting that they avoid edges and prefer forest interiors: Smoke-colored Peewee, Sickle-winged Guan, Wattled Guan, Piratic Flycatcher, Masked Trogon, Lesser Greenlet, Golden-crowned Flycatcher, Fawn-breasted Tanager, Crested Guan, Crimson-rumped Toucanette, Marble-faced Bristle tyrant, Black-throated Mango, and Tawny-bellied Hermit.

There were 30 species found only in the edge habitats during surveys suggesting comfort with disturbed areas. This group was especially well represented by tanagers (6 spp) and hummingbirds (6 spp).

Riparian Indicator Species

This year (2008) we had no sightings of Torrent Duck or Sunbittern on the Nambillo river. Both of these species are sensitive to degradation of rivers. We suspect that the growth in waterfall tourism and the quantity of floating garbage may be too much disturbance for these sensitive species. We removed 6 large garbage bags of plastic bottles and other floating debris from one river whirlpool on the reserve. More effort to control picnic trash in the river is needed.

Andean Cock-of-the-rock (ACOR) at a Lek

Since 2006 we have observed color-banded male ACOR at a lek located at 1300 m on a north-facing slope adjacent to the Nambillo river. A lek is a gathering of males that display in order to attract females for breeding. The lek at Las Tangaras has been known to be active for at least 30 years according to local people. In 2006 and 07 we made a few visits to the lek to capture and color band males and to observe their behavior. In 2008 collected more targeted data such as the number of males at the lek, time of displays, males seen displaying together, and number of female visits.

ACOR displayed at the lek in both the mornings and afternoons, spending as many as 5-6 hours per day at the lek. Color banded males were often seen displaying at the same areas on the lek and may display with the same partner males. The total number of males on the lek was estimated to range from 4 to 12 and tended to peak at dawn and around 1630 each day. Female visitations were difficult to see and none were recorded during 15 hours of observation. Although we have marked 10 males with distinct colors, only three males were observed at the lek in 2008.

Conclusions

Our studies of flower abundance and feeder use by hummingbirds suggests that trapping hummingbirds at feeders or assessing hummingbird diversity and abundance with feeders is not a reliable method as hummingbirds prefer natural flowers over artificial nectar. Feeder results are probably more representative of hummingbird habitat use in years of low flower availability.

The 49-hectare Reserva Las Tangaras harbors a diverse community of birds representing as many as 250 species. In just a short 10-day visit, 167 species were recorded. Las

Tangaras provides a good setting for comparing bird communities in different habitats allowing for estimates of b-diversity and studies to determine habitat preferences in birds in this part of western Ecuador. Long-term monitoring of the avian community at Las Tangaras is also relevant in light of global climate change and increased tourism and disturbance. Bird species are sensitive to habitat change making them good response variables.

The ACOR lek at Las Tangaras and color-marked birds will continue to allow studies of this unusual forest bird. Very little published information is available on ACOR, so we hope to fill that gap in the near future. We hope that an Ecuadorian graduate student might study the lek in the future and that more students everywhere will consider Las Tangaras as a study site.

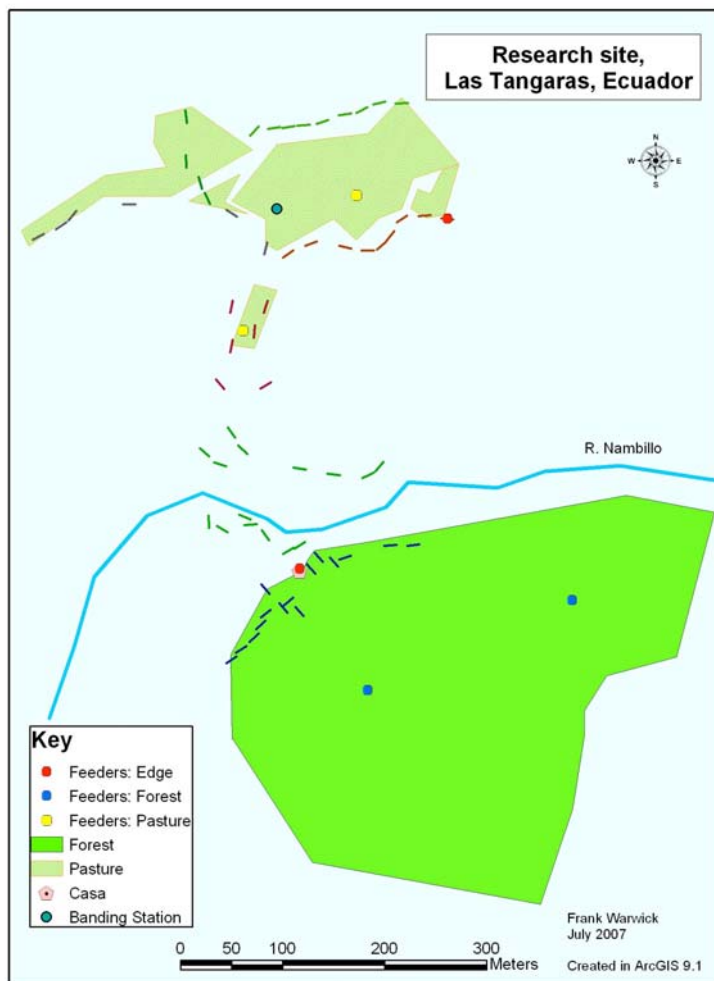


Figure 1. Las Tangaras Reserve (green) and nearby study areas. Small lines indicate mist-net locations during avian community studies. On the north side of the river all the habitat is forest except for the area shown as pasture.

Team Photo 2008.

