

## BIRD RECORDS IN A MONTANE FOREST FRAGMENT OF WESTERN SIERRA DE NEIBA, DOMINICAN REPUBLIC

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**Abstract.**—We surveyed the montane forest bird community at 1800–1900 m elevation in western Sierra de Neiba, Dominican Republic during 6–8 February 2003. We documented a total of 36 species, of which 18 were recorded on point counts and 12 were captured in mist-nets. Observational data revealed that canopy-foraging species were lower in abundance than during our previous visit to the site in November of 1997. We captured 57 individuals in 361.5 net-hours (15.8 birds/100 net-hours). The most abundant species in our mist-net samples were Eastern Chat-Tanager (*Calyptophilus frugivorus*;  $n = 10$ ), Green-tailed Warbler (*Microligea palustris*;  $n = 9$ ), and Rufous-collared Sparrow (*Zonotrichia capensis*;  $n = 8$ ). Noteworthy records included one Antillean Mango (*Anthracothorax dominicus*), 11 Caribbean Martins (*Progne dominicensis*), nine Bicknell's Thrushes (*Catharus bicknelli*), and eight La Selle Thrushes (*Turdus swalesi*). The broadleaf forest, while recovering from past disturbances, appeared to be little changed from 1997, and we believe that prospects for long-term conservation are moderately encouraging.

**Key words:** *Calyptophilus frugivorus*, *Dominican Republic*, *montane forest birds*, *Sierra de Neiba*

**Resumen.**—Estudiamos la comunidad de aves de bosque montaña a los elevaciones de 1800–1900 m en Sierra de Neiba occidental, República Dominicana durante 6–8 febrero 2003. Documentamos un total de 36 especies, de cuales 18 estaba recordados en los conteos por puntos y 12 capturados en las redes. Los datos por observación revalaron que las especies forrajeando en el dosel estaban menos por abundancia que durante nuestra visita al sitio en noviembre de 1997. Capturamos 57 individuos en 361.5 horas de redes (15.8 aves/100 horas de redes). Las especies más abundantes en nuestras muestras de redes fueron Patito Chirri (*Calyptophilus frugivorus*;  $n = 10$ ), Cigueta Colaverde (*Microligea palustris*;  $n = 9$ ), y Sigua de Constanza (*Zonotrichia capensis*;  $n = 8$ ). Observaciones notables incluyeron un Zumbador Grande (*Anthracothorax dominicus*), 11 Golondrinas Grandes (*Progne dominicensis*), nueve Zorzales Migratorios (*Catharus bicknelli*), y ocho Zorzales de la Selle (*Turdus swalesi*). El bosque latifoliado, mientras que recobrando de disturbios pasados, parecieron estar poco diferente de 1997, y creemos que las esperanzas para conservación a largo plazo están moderadamente alentadas.

**Palabras clave:** *aves de bosque montaña*, *Calyptophilus frugivorus*, *República Dominicana*, *Sierra de Neiba*

AS FOLLOW-UP to avian field surveys conducted during November of 1997 (Rimmer *et al.* 1998), the Vermont Institute of Natural Science (VINS) revisited a montane forest site in western Sierra de Neiba of the Dominican Republic during February 2003. Objectives were to conduct focused searches for Bicknell's Thrush (*Catharus bicknelli*), to survey the entire avian community through mist-netting, point counts, and observations, and to reassess the conservation status of the area's threatened forest habitat. This report summarizes our findings.

### STUDY AREA AND METHODS

From 6 to 8 February 2003, we surveyed an area of montane forest 2 to 4 km above "Vuelta de Quince" on the road to Hondo Valle. From a base site on the road (18° 41.51' N, 71° 46.12' W) at 1843 m (6050 ft) elevation, we operated 25 12 x 2.5-m,

36-mm mesh nylon mist-nets from 18:00 to 19:00 EDST on 6 February, 07:00 to 19:00 EDST on 7 February, and 07:00 to 10:30 EDST on 8 February. Seventeen nets were spaced over ca 1.0 km of road, and eight nets were placed over ca 0.5 km of foot trails in the adjacent broadleaf forest. Nets were checked hourly and closed at night. All captured birds were identified, banded, aged, and sexed. A series of morphometric measurements were taken to the nearest 0.1 mm, and weight was recorded to the nearest 0.1 g. We collected 50–150 ml of blood from most individuals by brachial venipuncture, and we stored samples in plastic vials with 1.0 ml Queen's lysis buffer. In addition to mist-netting, we recorded all incidental observations of birds encountered during the three-day visit, and we conducted five unlimited-distance, 10-minute point counts from 07:45 to 08:30 EDST on 8 February. Each point was separated by 150–200 m.

The forest at these elevations of western Sierra de Neiba is characterized as “premontane wet forest” (*sensu* Fisher-Meerow and Judd 1989) or cloud forest (Santana *et al.* 1990, Schubert 1993, Tolentino and Peña 1998). Although Sierra de Neiba was formally designated as a national park in 1995, its landscape has been subject to various degrees of human disturbance in recent decades (Rimmer *et al.* 1998; A. Schubert, pers. comm.). Since 2000, substantial resources of infrastructure and personnel have been invested in the park. The construction and permanent staffing of three ranger stations have greatly reduced human impacts, although an additional three stations are needed to adequately protect the park’s fragile landscape (Secretaría de Medio Ambiente y Recursos Naturales 2001). In our study area, most habitat within 250 m or more of the road consisted of secondary forest in various seral stages, with scattered emergent mature trees. Some cattle grazing was evident within the forest. Only by penetrating >1.0 km away from the road on a foot trail did we reach undisturbed, older growth broadleaf forest, dominated by “palo de viento” (*Schefflera tremula*) trees. We encountered very few stands of Hispaniolan pine (*Pinus occidentalis*), although pines are abundant on northern slopes of the range (A. Schubert, pers. comm.). We suspect that logging and agricultural clearing have greatly reduced the extent of this forest type in western Sierra de Neiba.

#### RESULTS

Our field surveys revealed a typical assemblage of Hispaniolan montane broadleaf forest birds (Table 1). We recorded 36 bird species during our three-day visit to western Sierra de Neiba. All 36 species were seen or heard via incidental observations, whereas 18 species were recorded on point counts, and 12 species were captured in mist-nets (Table 1). We captured 57 individuals in a total of 361.5 net-hours (15.8 birds/100 net-hours). Because the time of year (November versus February), period of observations (three versus two days), and field methods differed from those of our previous visit to this site in 1997 (Rimmer *et al.* 1998), we cannot strictly compare results of the two field trips.

One striking difference was the relative scarcity in 2003 of canopy-foraging flocks that we observed in 1997. Several species were found in lower numbers, or not at all. Among endemics, White-winged Warbler (*Xenoligea montana*), of which we encountered two individuals in 1997, was not recorded. This species is one of the most abundant members of canopy-foraging flocks in undisturbed montane

broadleaf forests of Sierra de Bahoruco (Rimmer *et al.* 1999, Rimmer and Goetz 2001). The apparent absence, or lower density, of this and other species may have reflected seasonal differences in movements due to changes in fruit and insect phenology that typically occur between November and February. For example, *Brunellia comocladifolia*, a common canopy and sub-canopy species in montane broadleaf forests (Fisher-Meerow and Judd 1989, Tolentino and Peña 1998), including those in our study area, appears to fruit much more heavily in November–December than in January–February and is more heavily visited by foraging birds at the earlier time (pers. obs.). Alternatively, the disturbed, regenerating forest above Vuelta de Quince may simply be less attractive to canopy-dwelling species like White-winged Warblers that prefer undisturbed, mature broadleaf forest (Curson *et al.* 1994, pers. obs.).

Observations of several species warrant specific mention:

**Hispaniolan Parrot (*Amazona ventralis*).**—We observed several flocks totaling at least 45 birds flying eastward towards a presumed roosting site during the evening of 7 February. This is nearly three times as many birds as we observed in the same area during November of 1997. Although habitat loss may have concentrated the species in this remnant forest reserve, its numbers appear to be stable at present.

**Antillean Mango (*Anthracothorax dominicus*).**—A male was observed flying across a regenerating open meadow slope on 7 February. Although Keith *et al.* (in press) report that this species is common “well up into the mountains island-wide,” our extensive field experience at high elevations in Sierra de Bahoruco suggests otherwise. We have never recorded it above 1400 m elevation in that mountain range, and, to our knowledge, this is first documented record of Antillean Mango from the montane forest zone of Sierra de Neiba. The occurrence of this species in the Vuelta de Quince area is not unexpected, as Woods and Ottenwalder (1992) suggest that its presence above 1500 m elevation indicates forest that has been degraded.

**Narrow-billed Tody (*Todus angustirostris*).**—We were surprised to record only seven individuals of this species, which is among the most abundant resident birds in montane forests of Sierra de Bahoruco (Latta *et al.* 2003). We encountered eight birds over a smaller area surveyed at this site in November 1997. We suspect the relatively low abundance of the species in roadside forests above Vuelta de

Table 1. Birds observed and mist-netted above Vuelta de Quince, Sierra de Neiba, Dominican Republic, 6–8 February 2003.

Scientific	Name		Total number observed <sup>a</sup>	Number banded	Number in point counts
	English	Spanish			
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Guaraguaito de Sierra	1		
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Guaraguao	2		
<i>Columba squamosa</i>	Scaly-naped Pigeon	Paloma Torcaza	8		2
<i>Columba inornata</i>	Plain Pigeon	Paloma Ceniza	12		1
<i>Zenaida macroura</i>	Mourning Dove	Tórtola	2		1
<i>Aratinga chloroptera</i>	Hispaniolan Parakeet	Perico	17		
<i>Amazona ventralis</i>	Hispaniolan Parrot	Cotorra	45		
<i>Saurothera longirostris</i>	Hispaniolan Lizard-Cuckoo	Pájaro Bobo	2		
<i>Cypseloides niger</i>	Black Swift	Vencejo Negro	3		
<i>Anthracothorax dominicus</i>	Antillean Mango	Zumbador Grande	1		
<i>Chlorostilbon swainsonii</i>	Hispaniolan Emerald	Zumbador Mediano	25	6 <sup>b</sup>	4
<i>Priotelus roseigaster</i>	Hispaniolan Trogon	Papagayo	4		1
<i>Todus angustirostris</i>	Narrow-billed Tody	Chi-cuí	7		4
<i>Melanerpes striatus</i>	Hispaniolan Woodpecker	Carpintero	18		11
<i>Elaenia fallax</i>	Greater Antillean Elaenia	Maroita Canosa	15	3	6
<i>Contopus hispaniolensis</i>	Hispaniolan Pewee	Maroita	4		
<i>Progne dominicensis</i>	Caribbean Martin	Golondrina Grande	11		
<i>Tachycineta euchrysea</i>	Golden Swallow	Golondrina Verde	12		
<i>Corvus palmarum</i>	Palm Crow	Cão	26		
<i>Myadestes genibarbis</i>	Rufous-throated Solitaire	Jilguero	8	3	1
<i>Catharus bicknelli</i>	Bicknell's Thrush	Zorzal Migratorio	10	4 <sup>c</sup>	1
<i>Turdus swalesi</i>	La Selle Thrush	Zorzal de la Selle	9		
<i>Turdus plumbeus</i>	Red-legged Thrush	Chua-chuá	8	3	2
<i>Dendroica caerulescens</i>	Black-throated Blue Warbler	Ciguita Azul	20	5	1
<i>Mniotilta varia</i>	Black-and-white Warbler	Pega Palo	1		
<i>Setophaga ruticilla</i>	American Redstart	Candelita	1		
<i>Microligea palustris</i>	Green-tailed Warbler	Ciguita Colaverde	15	9	2
<i>Coereba flaveola</i>	Bananaquit	Ciguita Común	5	1	2
<i>Euphonia musica</i>	Antillean Euphonia	Jilguerillo	4		3
<i>Spindalis dominicensis</i>	Hispaniolan Spindalis	Cigua Amarilla	12		1
<i>Phaenocophilus palmarum</i>	Black-crowned Palm-Tanager	Cuatro Ojos	3		
<i>Calyptophilus frugivorus</i>	Eastern Chat-Tanager	Patico Chirri	12	10	1
<i>Tiaris bicolor</i>	Black-faced Grassquit	Juana Maruca	8	2	
<i>Loxigilla violacea</i>	Greater Antillean Bullfinch	Gallito Prieto	4	3	
<i>Zonotrichia capensis</i>	Rufous-collared Sparrow	Cigua de Constanza	8	8	2
<i>Carduelis dominicensis</i>	Antillean Siskin	Canario	27		
Total number of individuals			370	57	46

<sup>a</sup>Excludes birds observed during point counts, although some of these individuals were likely encountered outside of point counts and are thus included in these totals.

<sup>b</sup>Tail-clipped, not banded.

<sup>c</sup>Three individuals captured through the use of vocal playback lures, one captured passively.

Quince is due to the predominance of second-growth habitat. The preferred habitat of Narrow-billed Tody throughout Hispaniola appears to be wet, primary broadleaf forests at high elevations (Kepler 1977; Woods and Ottenwalder 1992; Keith *et al.*, in press).

**Caribbean Martin (*Progne dominicensis*).**—We did not record this species in November 1997, but a flock of up to 11 birds was conspicuous during the mornings of 7 and 8 February over a regenerating open meadow with several large standing dead trees. One individual was observed carrying what

appeared to be nesting material on 7 February. This appears to be the highest elevation at which Caribbean Martins have been reported in Hispaniola (Keith *et al.*, in press).

**Golden Swallow (*Tachycineta euchrysea*).**—We recorded 12 individuals of this species in both 1997 and 2003. Most birds in 2003 were observed over the same open meadow slope as the martins, and several investigated apparent cavities in dead standing trees. Golden Swallows are considered at serious risk over their entire Hispaniolan and Jamaican range (Raffaele *et al.* 1998, BirdLife International 2000), but our observations tentatively suggest that populations in Sierra de Neiba, while small, may be stable.

**Bicknell's Thrush (*Catharus bicknelli*).**—We recorded two fewer individuals of this species in 2003 than in 1997, despite covering a larger area over a longer period in our 2003 surveys. Of the four birds we mist-netted, two were yearlings and two were older ( $\geq 2$  year-old) individuals. We believe that habitat segregation of sex, and possibly age, classes of Bicknell's Thrush occurs in the Dominican Republic. Preliminary data collected since 1999 indicate that 24 of 28 (86%) known-sex individuals from primary montane broadleaf forests in Sierra de Bahoruco were male, whereas 13 of 18 (72%) birds from mid-elevation, moderately disturbed forests in the Cordillera Septentrional were female. Data on age segregation are less clear, with similar ratios of yearling to older birds in Sierra de Bahoruco (5 of 28 [18%]) and Cordillera Septentrional (3 of 18 [17%]). The two yearlings captured in our sample of four Bicknell's Thrushes in regenerating forests of western Sierra de Neiba both had relatively small wing chords (89.0 mm and 90.0 mm), suggesting that they were females. Analyses of blood samples will confirm this.

**La Selle Thrush (*Turdus swalesi*).**—Although we did not capture any La Selle Thrushes, they were conspicuously vocal at dawn and dusk. Based on both our 1997 and 2003 surveys, this species appears to occur at fairly high density in the broadleaf forest above Vuelta de Quince.

**Black-throated Blue Warbler (*Dendroica caerulescens*).**—This was the only Nearctic-Neotropical migrant found to be common in either 1997 or 2003. Of the 20 individuals observed in 2003, 15 were females. Our banded sample of five birds included three males and two females. As in other areas of Hispaniola, females appear to predominate in higher elevation, broadleaf forest habitats (Keith *et al.*, in press; Latta *et al.* 2003).

**Hispaniolan Spindalis (*Spindalis dominicensis*).**—This species was notable for its scarcity in 2003 relative to 1997. Although we covered more ground for a longer period in 2003, we encountered only 12 individuals, less than half the 25 recorded in 1997. Whether this reduced number reflected a seasonal shift in movements between our November 1997 and February 2003 observation periods, an actual local population change within the study area, or simply chance is not known.

**Eastern Chat-Tanager (*Calyptophilus frugivorus*).**—This was the most abundant species in our mist-net samples (Table 1) and appeared to be at relatively high density in the study area. Several birds were heard calling, mainly early and late in the day, and at least two individuals were heard singing. Morphometric data and plumage characters revealed handheld birds to be strikingly different from individuals of *C. tertius* mist-netted in Sierra de Bahoruco. On all birds we noted a distinct, although incomplete, pale yellow eye-ring, slightly wider at its extreme posterior edge, with an anterior break between about 2–5 “o'clock.” The extent of complete posterior coverage of this eyering ranged on four birds from 60%, 65%, 75%, to 90%. There was no apparent association with extent of this eyering and body size (i.e., by presumed sex, as *tertius* show marked sexual dimorphism [unpubl. data], though birds in non-breeding condition cannot be confidently sexed). Another prominent distinguishing feature of the two species was the brighter and more extensive orangish-yellow “wrist” and underwing coverts of *frugivorus*. Size differences were also pronounced (Table 2). Comparing the 10 *frugivorus* we banded with 21 individual *tertius* examined from 2001 to 2003 in Sierra de Bahoruco revealed significant differences in five measurements (Table 2; Mann-Whitney U-tests,  $P < 0.001$  for all tests; SYSTAT Version 5.2.1). *Calyptophilus frugivorus* is considered in serious danger of extinction (BirdLife International 2000; Keith *et al.*, in press), and western Sierra de Neiba may represent an important refuge for the species.

#### DISCUSSION

The remnant tract of moist broadleaf forest at Vuelta de Quince, which we estimated to be roughly 25 sq-km in size in 1997, appears to have remained largely intact in the more than six years since our previous visit. We observed no evidence of recent tree-cutting or agriculture. The primary ongoing disturbance involved limited cattle grazing in scattered clearings along and off the road. The Subse-

Table 2. Morphometrics of mist-netted *Calyptophilus frugivorus* in western Sierra de Neiba (February 2003) and *C. tertius* in Sierra de Bahoruco (January and February, 2001–2003), Dominican Republic. Differences between all measurements statistically significant (see text for details).

Measurement	<i>C. frugivorus</i>			<i>C. tertius</i>		
	<i>n</i>	Mean ± SD	Range	<i>n</i>	Mean ± SD	Range
Wing chord <sup>a</sup>	10	75.0 ± 5.45	66.0–82.0	21	91.2 ± 5.88	80.0–102.5
Tail length <sup>b</sup>	10	86.5 ± 5.33	77.0–93.5	19	99.3 ± 7.04	88.5–110.0
Tarsus length <sup>c</sup>	10	29.9 ± 1.36	28.2–31.8	18	35.0 ± 2.01	32.1–39.8
Bill length <sup>d</sup>	10	13.1 ± 0.75	12.2–13.9	19	15.2 ± 0.83	13.6–17.0
Weight <sup>e</sup>	9	32.1 ± 4.51	26.3–38.6	18	49.2 ± 4.86	40.2–55.3

<sup>a</sup> Measured from bend of wing (carpal joint) to tip of longest primary.

<sup>b</sup> Measured from base of feathering to tip of longest rectrix.

<sup>c</sup> Measured from “bend” of toes to outside of tibia adjacent to intertarsal joint.

<sup>d</sup> Measured from anterior edge of nares to bill tip.

<sup>e</sup> Measured with digital Ohaus HS-20 scale.

cretaría de Areas Protegidas y Biodiversidad (formerly known as Dirección Nacional de Parques) has implemented protective measures that include a permanently staffed park headquarters 3 km below Vuelta de Quince, a 2-km interpretive nature trail looping from the international road to Vuelta de Quince, and a sustained community education program (A. Schubert, pers. comm.). Since 2002, the binational Programa Medioambiental Transfronterizo, Haiti–Dominican Republic, has supported the local Dominican communities of Sabana Real and Angel Félix, and the nearby Haitian border community of Nam Palme through training in sustainable agriculture, agro-forestry, community development, and ecotourism. The interpretive trail and a cave with public access will be managed directly by these communities. Agreements with local ranchers have been made to remove all cattle from inside the park boundaries by the end of 2003 (A. Schubert, pers. comm.).

If all agricultural and resource extraction activities cease in the near future, we believe that a carefully planned program of reforestation, in combination with continued education in surrounding communities and enforcement of protective laws, could ensure the long-term viability of this critical reservoir of Hispaniolan biodiversity. The current outlook for conservation of montane broadleaf forests in western Sierra de Neiba appears more promising than it did in 1997, but concerted vigilance and stewardship will be necessary to maintain progress. Eastern sections of Sierra de Neiba, however, remain under severe threat of habitat loss and degradation, as forest habitats are increasingly converted to agriculture

(A. Schubert, pers. comm.). Intensified monitoring and protection must be invested immediately in this part of the park.

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