Notes on breeding, behaviour and distribution of some birds in Ecuador

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The avifauna of Ecuador is reasonably well known in terms of distribution and relative abundance (Ridgely & Greenfield 2001). Geographic patterns are rather well established (e.g. Fjeldså & Krabbe 1990, Ridgely & Greenfield 2001), but breeding biology data for most Neotropical species is poor, and available information general and incomplete. Quantitative and qualitative understanding of breeding biology and ecology is essential for the development of efforts to stop the ongoing loss of biodiversity. I present novel data on the breeding biology and distribution of 48 taxa, including several species considered rare or globally/nationally threatened by Ridgely & Greenfield (2001), Granizo *et al*. (2002) or BirdLife International (2004). Whilst my data are incomplete, the usefulness of such natural history observations is considerably augmented when combined with those of others, permitting us to establish country-wide patterns of reproductive biology and seasonality (Greeney *et al*. 2004).

Material and methods

Information presented herein was obtained between 1990 and 2005 at various localities in the Pacific lowlands, Andean highlands and Amazonian lowlands of Ecuador (Table 1, Fig. 1). Coordinates and elevations were confirmed using the physical map published by the Instituto Geográfico Militar in 2000. Taxonomy, English names and distributional information follow Remsen *et al*. (2006) and Ridgely & Greenfield (2001). I use the following abbreviations: (B) building, (I) incubating, (N) nestlings, (F) dependent fledglings, (AN) active nest at unknown stage, (J) juvenile-plumaged individual and (CM) carrying nesting material but nest unseen.

Species accounts

COMMON PIPING-GUAN *Aburria pipile*

I observed an adult with a chick under its wing, from a canopy tower *c*.30 m above ground, at Tiputini Biodiversity Station, in December 1997. Hilty & Brown (1986) reported females from Colombia in breeding condition in February and laying birds in May. My observation involved the taxon *cumanensis*, considered specifically, as Blue-throated Piping-guan *Aburria* (or *Pipile*) *cumanensis*, by Sibley & Monroe (1990), Rodner *et al*. (2000) and Grau *et al*. (2005).

TABLE 1
Localities mentioned in the text (see Fig. 1).

Loc #	Localities, provinces	Coordinates	Altitude (m)
1	Comuna Nueva Juventud, Sucumbíos	*c*.00º05'S, 76º12'W	*c*.290
2	Cuenca–Loja road, near Saraguro, Loja	*c*.03º36'S, 79º13'W	*c*.2,600
3	Cuicocha Lagoon, Imbabura	00º18'N, 78º22'W	3,100
4	Cumbayá, Pichincha	00º12'S, 78º25'W	2,390
5	Jipijapa–Puerto Lopez road, Manabí	*c*.01º24'S, 80º45'W	0
6	La Joya (Hacienda), Pichincha	00º05'N, 78º59'W	750–800
7	La Merced de Nono (Hacienda), Pichincha	*c*.00º02'S, 78º33'W	3,100–2,750
8	La Perla Protected Forest, Esmeraldas	00º01'N, 79º22'W	150
9	Malacatos, Loja	04º14'S, 79º17'W	*c*.1,500
10	Mashpi Protected Forest, Pichincha	00º09'N, 78º50'W	1,050
11	Río Guajalito Protected Forest, Pichincha	00º14'S, 78º49'W	1,900
12	Río Palenque Scientific Center, Los Ríos	00º35'S, 79º21'W	200
13	San Antonio de Pichincha–Perucho road, Pichincha	*c*.00º02'N, 78º25'W	*c*.2,200
14	Tandayapa, Pichincha	*c*.00º01'S, 78º46'W	*c*.1,700
15	Tinalandia, Pichincha	00º18'S, 79º03'W	740
16	Tiputini Biodiversity Station/ River, Orellana	00º39'S, 76º08'W	190–250
17	Vilcabamba, Loja	04º13'S, 79º15'W	1,600
18	Yuturi Lodge, Orellana	00º33'S, 76º05'W	200
19	Yanacocha, Pichincha	00º10'S, 78º35'W	3,400
20	Papallacta, Napo	00º22'S, 78º13'W	3,600
21	Quito (including Bosque Protector Pichincha and Parque Metropolitano de Quito), Pichincha	00º11'S, 78º29'W	2,800–3,000
22	La Toreadora Lagoon, Parque Nacional Cajas, Azuay	*c*.02º52'S, 79º13'W	3,600
23	La Ciénega (Hacienda), Cotopaxi	00º45'S, 78º40'W	3,000
24	Bosque Protector Pasochoa	00º27'S, 78º29'W	2,900

DARK-BACKED WOOD-QUAIL *Odontophorus melanonotus*
A pair with at least two dependent chicks at Mashpi Protected Forest (18 km north of San Miguel de Los Bancos) on 9 March 2003. When approached the adults fled and began calling vigorously, whilst the chicks quickly took cover under roots or amidst leaf litter, and froze. They were in secondary forest with a dense, tangled understorey and fairly open canopy on steep slopes. In March 2002, a pair with at least three dependent chicks was observed in a road cut covered by dense vegetation, *c*.15 km south (by road) from Río Guajalito Protected Forest. When approached, the entire group hid amidst vegetation. Strewe (2001) noted downy chicks in June 1997 and December 1997, and young in September 1997, January 1997 and January 1998 at La Planada, Colombia, and Greeney & Nunnery (2006) recorded juveniles in May from the Tandayapa area. These observations suggest year-round breeding in north-west Ecuador and south-west Colombia. *O. melanonotus* is classed as Vulnerable in Ecuador and globally (Granizo *et al*. 2002, BirdLife International 2004).

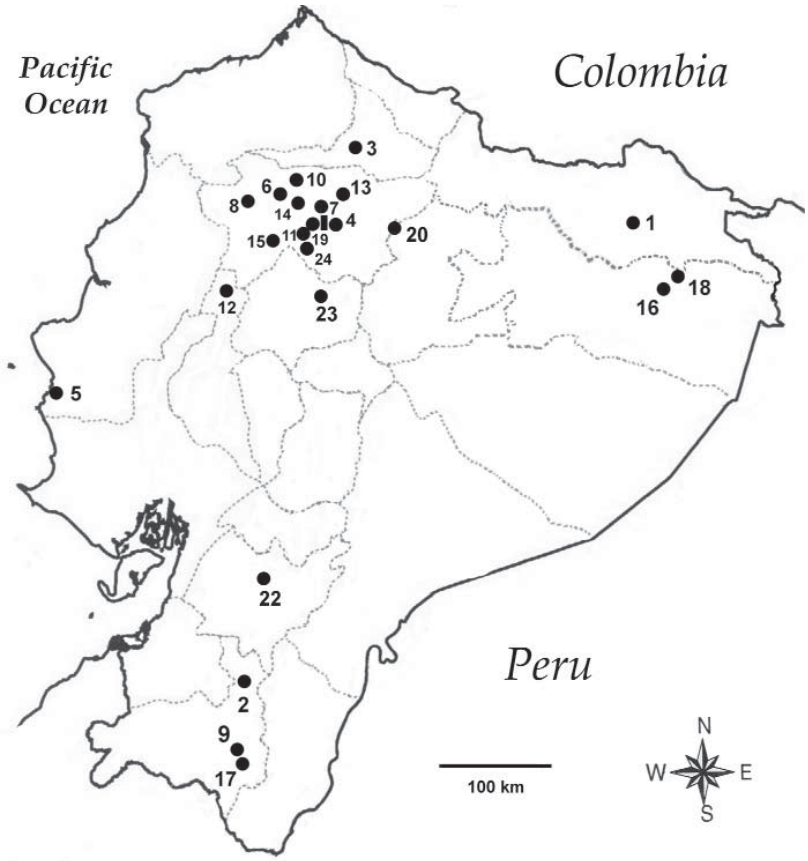

Figure 1. Map of Ecuador showing the study sites; numbers correspond to the localities in Table 1, except for Quito (locality 21) which is represented by a rectangle between localities 4 and 19 for clarity.

PIED-BILLED GREBE *Podilymbus podiceps*

At least six adults at Cuicocha Lagoon (00º18'N, 78º22'W; 3,100 m) on 17 November 2001, including a pair with downy young. Most birds were *c*.30–50 m from the dock of the lagoon, but the pair with chicks was near shore. The species breeds year-round: in Colombia, nests have been reported in January–March, egg-laying peaks in January–March and September–October, and pairs with downy chicks have been recorded in July–August (Hilty & Brown 1986, Fjeldså & Krabbe 1990).

MAGNIFICENT FRIGATEBIRD *Fregata magnificens*
In August 1995 and June 2000, birds were observed in courtship activity in the crowns of trees along the road between Jipijapa and Puerto Lopez. Haase (1997) reported that the courtship season in Ecuador usually commences in September; my records thus precede the normal breeding season by up to three months. However, in September 2005 no evidence of such activity was observed. Haase (1997) suggested that the early start in July 1997 of this species' courtship was influenced by the 1997 El Niño Southern Oscillation (ENSO), but my observations were made in non-El Niño years. Although variations on the courtship season of *F. magnificens* could be related to ENSO or to 'La Niña' (eastern tropical Pacific Ocean cooling), more data are needed to assess direct and indirect effects on the species' breeding biology.

AMERICAN KESTREL *Falco sparverius*
A resident pair at Cumbayá, Universidad San Francisco de Quito campus, constructed a nest within dense ivy on the wall of a building, *c*.12 m above ground. The pair was first observed frequently entering the nest in late July 2004. Chicks were heard in early September. Both sexes were apparently active at all stages of nesting, but nestling provision was by the male alone whilst the female always guarded the nest (similar observations have been reported for *F. rufigularis* by Sick 1993). Several times there were confrontations with Great Thrushes *Turdus fuscater* which attempted to enter the nest. Both sexes engaged in nest defence, but the male was more aggressive and followed the thrushes up to 75 m. The species nests on rock-ledges or in cavities, such as holes in trees, posts, cliffs, embankments or termite nests (Hilty & Brown 1986, Fjeldså & Krabbe 1990, Sick 1993). The ivy had a depth of *c*.15–20 cm and the nest was in a cavity formed by the foliage. Breeding in Ecuador has been reported in June and July (Fjeldså & Krabbe 1990).

ANDEAN / SLATE-COLOURED COOT *Fulica ardesiaca*
At least three nests under construction and another with one egg amongst floating vegetation at Cuicocha Lagoon on 17 November 2001. Breeding has been reported in late February in Nariño, Colombia (Hilty & Brown 1986). Fjeldså & Krabbe (1990) mentioned that egg-laying peaks in July–August, but that clutches may be initiated year-round.

BARN OWL *Tyto alba*
A fledgling at Hacienda La Ciénega, on 25–26 June 2005, amidst the leaves of a large palm tree, *c*.6 m above ground, and attended by one adult at night. Several egragopiles that were collected contained mainly hair and bones of *Mus musculus*, *Rattus rattus* and an unidentified rodent species. Ridgely & Greenfield (2001) reported *T. alba* as recorded mainly below 2,000 m, and that higher records perhaps correspond to wandering birds, citing just one record, from Hacienda La Ciénega. At least two *T. alba* used to live at Parque La Carolina, Quito, at 2,800 m. They were

apparently resident, being noted monthly in 1995–2004. A *T. alba* was periodically recorded at Parque Inglés, Quito, at *c*.3,000 m, and at least two periodically heard near Avenida Occidental, Quito, in 1994–2000. At least one *T. alba* was regularly recorded at Quebrada Ashintaco, Parque Metropolitano de Quito. These records indicate some highland populations of *T. alba* are resident as high as 3,000 m.

SAND-COLOURED NIGHTHAWK *Chordeiles rupestris*
An unsexed adult incubating two eggs at Tiputini Biodiversity Station, August 2000. The nest was a simple depression in the sand, *c*.5 m from the bank of the río Tiputini, almost beneath a broken log. The eggs resembled those described by Hilty & Brown (1986). Nests on sand bars have been reported in July–late September in the Leticia area of Colombia (Hilty & Brown 1986).

WHITE-TIPPED SWIFT *Aeronautes montivagus*
I found a colony beside the San Antonio de Pichincha–Perucho road on 1 October 1994, close to where Marín (1993) observed the species. The colony comprised *c*.40 birds and was located in a vertical road cut (*c*.50 m high). Several flying juveniles were seen at the entrances to nests, confirming breeding.

STRIPE-THROATED HERMIT *Phaethornis striigularis*
An adult feeding a juvenile in a forest gap with low ferns at Mashpi Protected Forest, 18 km north of San Miguel de Los Bancos, on 8 March 2003. The juvenile had the rump and back entirely rufous, unlike the adult, which has the back bronzy-green and the rump rufous.

LITTLE WOODSTAR *Chaetocercus bombus*
A pair observed at Tandayapa Lodge on 20 August 2003. The female was perched on an outer branch of an *Inga* tree whilst the male performed a courtship display consisting of perpendicular flights in front of the female together with high-pitched calls and wing-sounds. The maximum height of the flight above the female was *c*.5 m. This behaviour was observed for almost 20 minutes.

AMAZONIAN WHITE-TAILED TROGON *Trogon viridis*
An adult female excavating a hole in the lower part of an arboreal termite nest, *c*.40 m above ground, at Tiputini Biodiversity Station in July 1999. Due to the position of the nest entrance, I assume the nest was burrowed as depicted by Sick (1993: 353), i.e. the bird creates an upward-sloping tunnel to an incubation chamber in the centre of the nest. A male in breeding condition has been recorded in June in Colombia (Hilty & Brown 1986).

RED-HEADED BARBET *Eubucco bourcierii*
An adult male was carrying food to a cavity *c*.2.5 m high in a 5-m dead stump, in a gap within secondary forest, at Río Palenque Scientific Center, on 10 November 2004. Nestling calls were heard from within. A male Black-cheeked Woodpecker

Figure 2. Palm with nest (lower right) of *Cranioleuca antisiensis*, Mashpi Protected Forest, Pichincha, Ecuador, 8 March 2003. The black arrow points to the leaf to which the nest was attached (Diego F. Cisneros-Heredia)

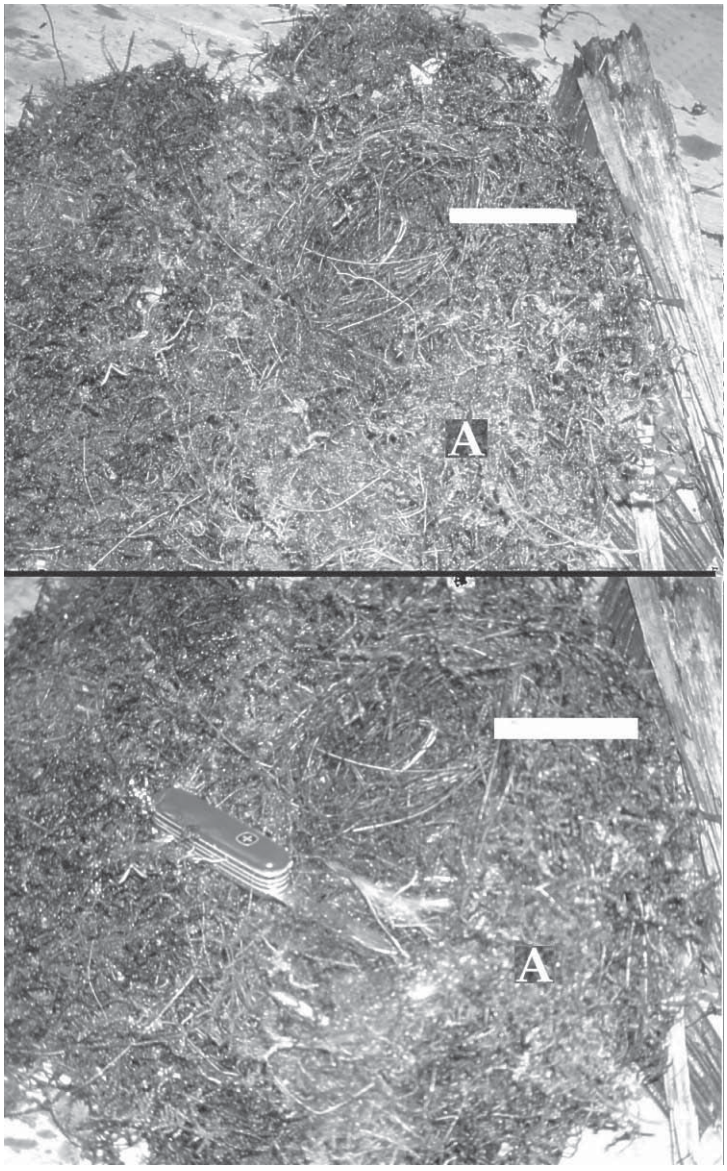

Figure 3. Cross-section of nest of *Cranioleuca antisiensis*, Mashpi Protected Forest, Pichincha, Ecuador, 8 March 2003 (Diego F. Cisneros-Heredia). A = Roof of brood chamber (top). White bar indicates nest entrance (bottom). The roof of the brood chamber is covered by brown hairy Bombacaceae seeds (lower photo).

Melanerpes pucherani was observed inspecting the same hole, *c*.1 hour prior to this observation, but no interactions were observed.

LINE-CHEEKED SPINETAIL *Cranioleuca antisiensis*
A pair of *Cranioleuca* carrying material to a nest at Mashpi Protected Forest, 18 km north of San Miguel de Los Bancos, on 8–9 February 2003. The nest was a bulky structure attached to the backside tip of a lower, outermost leaf of a palm, *c*.10 m above ground. The palm (*c*.15 m high) was surrounded by bushes on a hillside covered in foothill evergreen forest (Fig. 2). Following afternoon rain on 9 February 2003, both birds were carrying moss and palm fibres to the nest (repairing?). On 8 March 2003, the nest was abandoned and contained several fragments of broken eggshell (predation?). The nest coincides with Zyskowski & Prum's (1999) description for a pensile nest. It was a domed structure externally constructed of moss and strips of a cucurbitaceous vine, with palm fibres and dry Lauraceae leaves incorporated within the interior. The inner chamber was oval, wider than tall (height 10 cm, width 15 cm). The nest entrance was an 8-cm downward-sloping tunnel at the bottom of the nest. The brood chamber was lined with rootlets of an epiphyte (Ericaceae) and vines, and the dome covered with hairy seeds of a Bombacaceae (Fig. 3). The plumage of the nesting birds was typical of *C. antisiensis*, which in Ecuador is known only from the south-west: rufous crown, white supercilium and whitish throat, which characters differentiate it from juvenile Red-faced Spinetail *C. erythrops*. Previous reports from north-west Ecuador are regarded as uncertain due to the resemblance of *C. antisiensis* to juvenile *C. erythrops* (Ridgely & Greenfield 2001).

GOLDEN-FACED TYRANNULET *Zimmerius chrysops* /
YELLOW-BROWED TODY-FLYCATCHER *Todirostrum chrysocrotaphum*
A nest of each species was observed, from a canopy tower, in an emergent *Ceiba* sp., *c*.45 m above ground, at Tiputini Biodiversity Station in August 2000. The nests were just *c*.2 m apart and *c*.1 m from a paper wasp (Vespidae) nest. Only one adult was seen at the nest of *T. chrysocrotaphum*, but both at the nest of *Z. chrysops*. No interactions were observed between the two species. Similar observations for nests of *T. chrysocrotaphum* located near a wasp nest were reported by Greeney *et al*. (2004).

CHESTNUT-COLLARED SWALLOW *Petrochelidon rufocollaris*
A large colony (*c*.300 birds) nesting on a church in Malacatos on 31 December 2002. Numerous nests, at various stages of construction, were observed and photographed. Several birds were observed flying over Vilcabamba the same day. The species was not previously recorded from the Malacatos area and its presence supports the suggestion by Ridgely & Greenfield (2001) that the species is increasing.

WHITE-CAPPED DIPPER *Cinclus leucocephalus*
An active nest in a hole within a rock-wall dam of the río Guajalito, in late July–early August 1998, at Río Guajalito Protected Forest. Both sexes entered the nest several times per day, presumably feeding the single chick. The pair used the same nest location in two consecutive years in the same months, but in 1999 two chicks fledged. The pair disappeared in 2001, probably due to a petroleum spill and the release of hundreds of trout by the owner of a commercial open aquaculture, and there were no further observation until at least late 2003.

CASQUED OROPENDOLA *Clypicterus oseryi*
A colony of *c*.30 pairs was discovered high (*c*.30 m) in an emergent tree beside the río Tiputini, at Tiputini Biodiversity Station, in January 1998. In January 1999 the colony was smaller (*c*.15 pairs), but active, and remained so at least until January 2000. The colony was checked in the months of January–March, June–August, and December, and breeding activity noted in March, August and December.

LESSER GOLDFINCH *Carduelis psaltria*
A flock of 11 at Vilcabamba, on 30 December 2003, was photographed as they moved through the canopy of low *Acacia* trees and shrubs in a lodge garden near a ravine. The flock comprised adults of both sexes, and two dependent juveniles whose plumage corresponded to the description in Fjeldsa & Krabbe (1990). In Colombia, birds in breeding condition have been reported in May–October, eggs in May, July, December and January, fledglings in March, May and August, and juveniles in April, May and September (Hilty & Brown 1986, Fjeldså & Krabbe 1990). *C. psaltria* is very local and usually rare in the foothills and subtropical zone on both slopes of the Andes, with only one recent report from Pichincha province (Ridgely & Greenfield 2001). I have the following observations; six at La Merced de Nono, on the Nono–Calacali road, on 1 October 1994; three near Tandayapa on 13 November 1994; and a pair at the Rio Guajalito Protected Forest in August 1998. All observations involved birds foraging in the canopy of trees or tall shrubs.

ORANGE-BELLIED EUPHONIA *Euphonia xanthogaster*
A pair attending nestlings at Hacienda La Joya on 9–10 January 2002. The nest was a globular mossy ball (*c*.15 cm diameter) with a side entrance, as previously described for the species (Hilty & Brown 1986), at the end of a lone branch *c*.1.5 m above a fast-moving rivulet (*c*.6 m wide). Both adults were active dawn to dusk. The male never entered the nest, but was always close by (*c*.50 cm), occasionally vocalising. The female constantly returned at intervals of 0.25–2.0 hours, and remained within the nest for *c*.10–15-minute periods. The adults exhibited a complex behaviour when the female approached (observed more than 15 times on two consecutive days). The female arrived, always on branches higher or lower than the nest, and flew between different branches, from back to front and left to right,

for *c*.1 minute, before pausing at a branch posterior to the nest, whilst the male always perched over the nest. The female swiftly flew to the right, to the nest, whilst the male simultaneously performed an elliptical flight, intersecting with the female just in front of the nest, before returning to its perch. These movements seemed to represent anti-predator behaviour, using distracting movements when the female arrived and confounding it with male flight (a hypothesis also presented by Sargent 1993, who suggested that a mate-guarding component might be involved). The female was never seen carrying food, but both adults were mist-netted and the female regurgitated fruits and seeds, probably mistletoe berries. My observations were made with C. Dingle and G. Castañeda. Such behaviour has been described for several other *Euphonia* (Isler & Isler 1987, Sargent 1993). H. F. Greeney (*in litt*. 2005) has also noted similar behaviour in this species, and for Ochraceous Attila *Attila torridus* (Greeney 2006). *E. xanthogaster* in breeding condition have been reported in February–July and nests in November–April in Colombia (Hilty & Brown 1986).

Other records include: **Andean Guan** *Penelope montagnii*, 29 June 1996, 2 F, La Merced de Nono (with two adults in a forest remnant adjacent to cattle pasture). **Rufescent Tiger-heron** *Tigrisoma lineatum*, 17 July 2000, 1 J, Comuna Nueva Juventud (captured at night in a net placed for bats). **Andean Condor** *Vultur gryphus*, 23 July 1995, 1 J, Papallacta (with an adult male). **White Hawk** *Leucopternis albicollis*, 15 August 1996, 1 AN, Yuturi Lodge (large stick platform nest in crown of an emergent *Ceiba* sp. with one adult in attendance). **Eared Dove** *Zenaida auriculata*, 28 August 2005, 1 AN and 2 F on AN, Centro Cultural Metropolitano de Quito (females attending both nests on a palm tree leaf *c*.10 m above ground). 2 November 2005, 1 AN, Jardín Botánico de Quito (nest *c*.3 m above ground). **Blue-and-yellow Macaw** *Ara ararauna*, 16 August 1996, 1 AN, Yuturi Lodge (on a tall palm stump beside a river). **Hoatzin** *Opisthocomus hoazin*, May 2001, 1 N and 1 AN, Tiputini Biodiversity Station (beside an oxbow lake). **Great Potoo** *Nyctibius grandis*, 27 December 1999, 1 AN, Tiputini Biodiversity Station (nest in crown of an emergent *Ceiba* sp. beside the río Tiputini). **Rufous Potoo** *N. bracteatus*, 28 December 1999, 1 N, Tiputini Biodiversity Station (day roost and nest on stump in forest gap *c*.8 m above ground in lowland evergreen seasonally flooded forest). **Golden-headed Quetzal** *Pharomachrus auriceps*, 21 August 1999, 1 AN, Río Guajalito Protected Forest (female carrying food to hole in trunk *c*.10 m above ground). **Pacific Hornero** *Furnarius cinnamomeus*, 29 June 1996, 1 AN, Hacienda La Joya (nest *c*.25 m above ground). **Blackish Tapaculo** *Scytalopus latrans*, 20 August 1990, 1 J, Bosque Protector Pasochoa. **Tufted Tit-tyrant** *Anairetes parulus*, 9 August 1994, 1 J, Bosque Protector del Pichincha, Quito (mist-netted with two adults, juvenile had yellow rictus). **Tumbesian Tyrannulet** *Phaeomyias tumbezana*, 4 October 2004, 1 F, Universidad San Francisco de Quito, Cumbayá campus (in bushes beside artificial lagoon). **White-tailed Shrike-tyrant** *Agriornis andicola*, 28 December 2002, CM, Cuenca–Loja road, near Saraguro,

Loja (in cattle pasture surrounded by low bushes, pine and eucalyptus). **Masked Water-tyrant** *Fluvicola nengeta*, July 1998, 1 AN, La Perla Protected Forest (adult attending globular nest, 5 m above ground in a 3-m tall bush in a field adjacent to cattle pasture). **Black-crowned Tityra** *Tityra inquisitor*, CM (7 January 1995), AN (until April 1995), Hacienda La Joya (pair with nest in a hole atop a *c*.15 m stump in cattle pasture less than 10 m from a forest fragment). **White-thighed Swallow** *Neochelidon tibialis*, 8 March 2003, 3 F, Mashpi Protected Forest (flock of *c*.15 with two Southern Rough-winged Swallow *Stelgidopteryx ruficollis*). **Great Thrush** *Turdus fuscater*, 2 November 2005, 2 CM, Termas de Papallacta. **Hooded Mountain-tanager** *Buthraupis montana*, 22 June 2005, 2 F, Yanacocha (in subcanopy and understorey as part of a mixed flock). **Cinereous Conebill** *Conirostrum cinereum*, 30 November 2005, 1 CM, Jardín Botánico de Quito. **Tit-like Dacnis** *Xenodacnis parina*, 15 August 1999, F and J, La Toreadora Lagoon (with adults in *Polylepis*/*Gynoxys* forest). **Glossy Flowerpiercer** *Diglossa lafresnayii*, 22 June 2005, 2 F and 1 J, Yanacocha (with adults at hummingbird feeders). **Saffron Finch** *Sicalis flaveola*, 30 December 2003, AN, Vilcabamba (pair occupying abandoned *Furnarius cinnamomeus* nest, *c*.8 m above ground). **Yellow-breasted / Rufous-naped Brush-finch** *Atlapetes latinuchus*, 20 August 1990, 1 I, Bosque Protector Pasochoa. **Russet-crowned Warbler** *Basileuterus coronatus*, 20 August 1990, 1 AN, Bosque Protector Pasochoa. **Hooded Siskin** *Carduelis magellanica*, 8 August 1994, 2 J, Bosque Protector del Pichincha, Quito (mist-netted with an adult female, juveniles had red rictus).

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