

THE BIRDS OF FINCA MERENBERG, HUILA DEPARTMENT, COLOMBIA

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ABSTRACT.—An annotated list of the birds found in a privately owned reserve in the subtropical zone on the eastern slope of Colombia's Central Andes is presented. The list is based on our own observations carried out in 1975-1976, and is amplified by discussion of hitherto unreported collections of birds taken nearby by M. A. Carriker, Jr., in the 1950s. Included are distributional, behavioral, and ecological notes on a number of poorly known species. Important range extensions are noted for four species: *Hapalopsittaca amazonina*, *Anthocephala floriceps*, *Campylorhamphus pucheranii*, and *Atlapetes flaviceps*.

Colombia possesses one of the world's most diverse avifaunas. This is in large part due to the tremendous habitat diversity contained within its borders. Detailed ornithological studies of particular areas are, however, rare, and major recent works on Colombian birds (Meyer de Schauensee 1948-1952, 1964) are not organized so as to present a picture of local avian communities. Chapman (1917) did discuss overall bird distribution, but this was his sole focus; for lack of information he could say little about ecology and behavior, and much of his work is now nomenclaturally or taxonomically obsolete. Our study focuses on the birds of a small area in Moscopán, Department of Huila, Colombia. We report the species present, their abundance, microhabitat preferences and migratory status, and present new data on their ecology, behavior and distribution.

Moscopán was first referred to in the ornithological literature by Meyer de Schauensee (1948) who characterized it as "2,000-2,900 m Huila. The name of a stream and of the general region of the upper Río La Plata Valley, 32 km west of the town of La Plata, 2°20'N." The Río La Plata is a tributary of the Magdalena River draining a portion of the eastern slope of the Central Cordillera of the Andes in the geographically complex region near the Magdalena's source. Previous ornithological studies in this region are virtually nonexistent: Lehmann (1957) did publish notes on a few species he collected in the area in the 1950s. Chapman's (1917) nearest locality was La Candela, situated in a different watershed to the south at 2,000 m. During the 1950s, M. A. Carriker, Jr., collected over 500

specimens at about 2,500 m in Moscopán, but almost none of this material has been reported on in the literature. Major holdings of these collections now reside in several U. S. museums (National Museum of Natural History, Field Museum of Natural History, Yale University's Peabody Museum of Zoology, Carnegie Museum, and Louisiana State University Museum of Zoology) and are discussed below in relation to our own findings.

DESCRIPTION OF THE STUDY AREA

Our principal study site was Finca Merenberg, a privately owned reserve and farm situated 50 km west of La Plata on the Popayán-Neiva highway (2°14'N; 76°8'W). The reserve encompasses 270 ha on the eastern slope of the Central Cordillera at an average elevation of 2,300 m; about 200 m separate the lowest and highest points within the site. It falls within Holdridge's (1967) "lower montane wet forest" zone.

About half of the reserve is forested, mostly the steeper slopes, which contain diverse tree species. The most common genera are *Landerbergia*, *Guarea*, *Cecropia*, *Morus*, *Ficus*, *Hieronyma*, *Billia*, *Turpinia*, *Sapium*, *Nectandra* and *Quercus*. Some individuals of *Ficus* sp. and *Quercus humboldtii* attain a height of 40 m and a diameter at breast height of 1.5 m. In the understory, the tree fern *Dryopteris* and the arborescent shrubs *Miconia* and *Palicourea* are common. Where sunlight reaches the forest floor, the undergrowth is very dense, the bamboo *Chusquea* being a major element. Most trees are covered with vines, orchids, bromeliads, and other epiphytic plants. The remaining, more level, half of the reserve

TABLE 1. Meteorological data from Finca Merenberg.

Month	Temperature (°C)		Rainfall (mm)
	Average daily maximum	Average daily minimum	
January	17.5	11.1	49
February	17.0	11.1	159
March	17.3	11.6	270
April	17.7	11.5	264
May	18.3	11.3	239
June	17.3	11.1	240
July	15.6	10.2	182
August			122
September			93
October			153
November			94
December			76
Total			1,942

consists of pastures of sown grasses, but low intensity grazing has allowed partial recolonization by native plants in some areas. The pastures also contain isolated trees which were not cut during the original clearing.

Meteorological data were not available from the immediate region. We therefore measured precipitation totals and daily maximum and minimum temperatures at Merenberg during most of the study. Rainfall data for 1976 and temperature data for the first seven months of that year are presented in Table 1.

In addition to our observations at Finca Merenberg, we made brief visits to several other upper Magdalena Valley sites. These include: (1) Puracé National Park, 2,700–3,300 m, both slopes Central Cordillera; (2) montane forest above San José de Isnos, 1,900–2,600 m, E slope Central Cordillera; and (3) Cueva de los Guácharos National Park, 1,900–2,000 m, W slope Eastern Cordillera. These visits helped to clarify the distributions of certain species. Figure 1 shows the location of Merenberg, these subsidiary sites and Chapman's (1917) closest localities.

STUDY METHODS

Observations were carried out at Finca Merenberg between 20 December 1975 and 1 August 1976, except for a 10-day period in mid-June when we visited other sites in the region; RSR was present only during parts of May and June. At Merenberg we cut a 1-km trail loop through the forest and designated for study a 1.25-km strip at the forest edge. The forest trail and edge strip were both systematically walked at least twice per week. On encountering a bird we recorded the following data: time of day, its identity, activity, vertical position, and the number and identification of other birds with which it was associated (if any). Whenever the bird was feeding, we attempted to identify the

foods being consumed and to record the foraging style. In the case of large mixed flocks, which were frequent, complete data could not always be recorded for every species. The analysis consisted of compiling both the forest and edge records so as to assemble a picture of the relative abundance of every species and to characterize each in terms of its microhabitat preferences, behavior, diet, and grouping tendencies. Certain small understory species were particularly hard to identify and thus, to complement our observational records, we operated mist-nets in the forest and at the edge for three days in mid-May. All but 2 of the 89 individuals trapped were subsequently released. At the three subsidiary sites we used the same techniques, but mist-netted only at Cueva de los Guácharos National Park.

In the species accounts, five categories of abundance have been used: *abundant*—recorded daily, often in large numbers; *common*—recorded almost daily, but not usually in large numbers; *uncommon*—recorded on 20–60% of days afield, rarely if ever in large numbers; *rare*—recorded only occasionally; and *very rare*—recorded less than five times, some species being vagrants while others were presumably resident but exceptionally rare or inconspicuous. Species marked with an asterisk were collected by Carriker in Moscopán (see below). Taxonomy and nomenclature, with a very few exceptions, follow Meyer de Schauensee (1966, 1970).

SPECIES ACCOUNTS

Coragyps atratus. Black Vulture. Common over clearings.

Elanoides forficatus. Swallow-tailed Kite. Rare over forested and cleared areas, always in small numbers (a maximum of three birds at once), occurring irregularly throughout the year.

Buteo magnirostris. Roadside Hawk.* Several pairs at forest edge and in cleared areas. Once observed unsuccessfully attempting to take a small passerine from a mixed flock in the forest.

Milvago chimachima. Yellow-headed Caracara. Common in pastures and at forest edge. Eats large numbers of Hercules beetles (*Dynastes* sp.) in late May and early June. Although primarily a tropical zone bird, this caracara has taken wide advantage of the new habitat created by deforestation in the subtropics. Miller (1963) also recorded it at San Antonio in the Western Andes, and there is even a specimen from the Bogotá plateau, in the temperate zone (Borrero 1952).

Falco sparverius. American Kestrel.* Several pairs resident around cleared areas. Eats many insects (especially orthopterans), also frogs. Copulation observed 28 April; adult (of another pair) seen feeding a fledged juvenile 21 May.

Ortalis guttata. Speckled Chachalaca. Common at forest edge. Usually seen in pairs, and apparently completely arboreal. Aggressive with *Chamaepetes goudotii*. Ate fruits of *Prunus* sp. and *Cecropia* sp. Loud, harsh, repeated calls given regularly in early morning and in evening. This form, *columbiana*, approaches its upper elevational limit at Merenberg; it may deserve full species status (Meyer de Schauensee 1964).

Chamaepetes goudotii. Sickle-winged Guan.* Common in forest and at edge. Regularly eats *Cecropia* sp. fruit at dusk at forest edge near the farm dwellings, here rather tame and quite habituated to the movements of people. Also eats fruits of *Ficus* spp., *Morus* sp., and *Turpinia paniculata*. Did not vary seasonally in numbers. Wing-whirring display was heard quite regularly at dusk and before dawn. Although both Todd and Carriker (1922) and Miller (1963) suggested that this guan occurs mostly on or near the ground, we, like Johnson and Hilty (1976), found it to be primarily

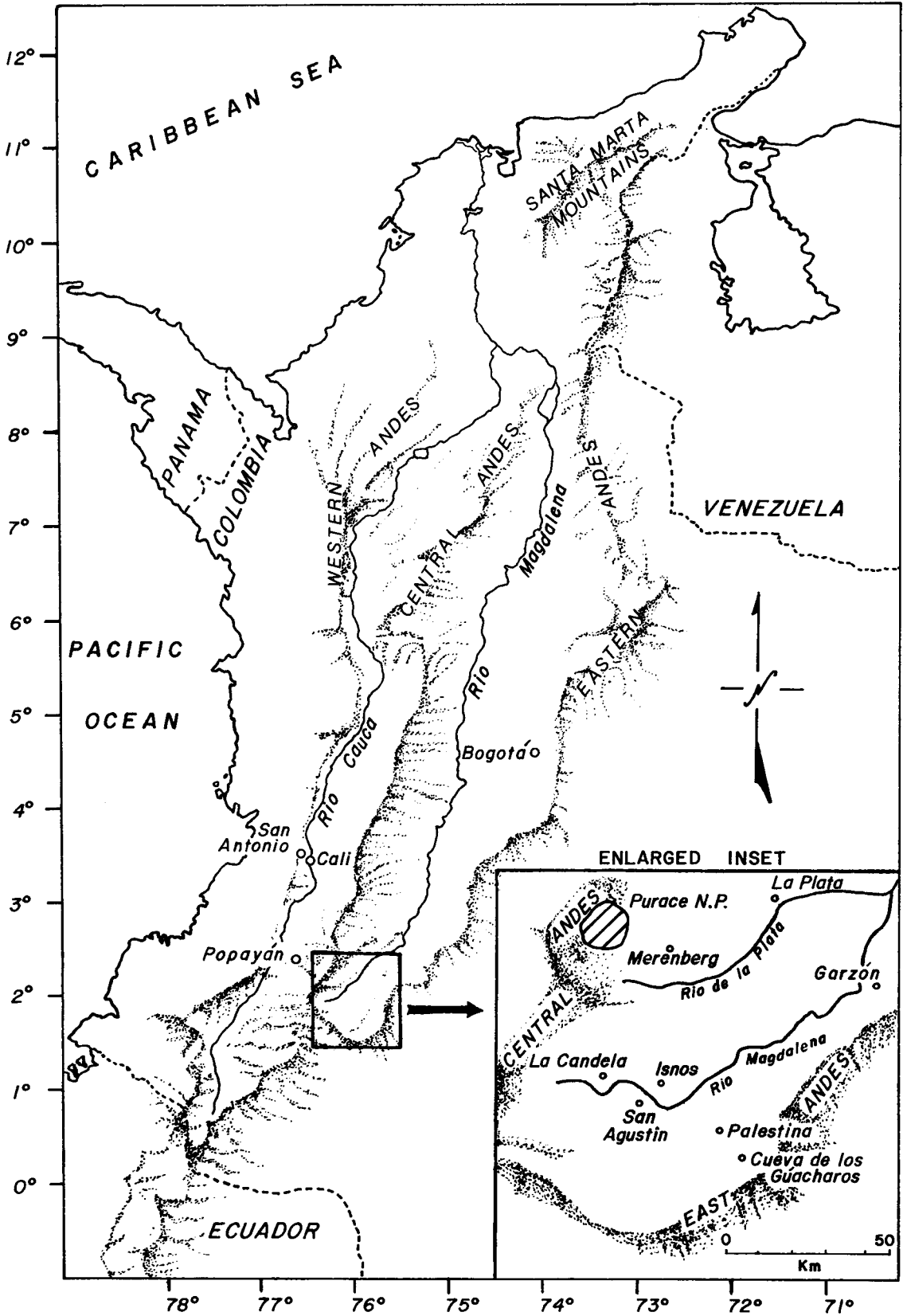


FIGURE 1. Map showing the location of Merenberg, the principal study site, as well as several subsidiary sites and Chapman's (1917) nearest localities.

arboreal. We saw these guans on the ground near a small waterfall on several occasions (perhaps drinking?), and on 27 April an adult and two immatures were flushed from the ground near forest edge.

Aramides cajanea. Gray-necked Wood-Rail. Rare on forest floor and at edge, seen only twice, and heard only infrequently. Possibly only a wanderer from lower elevations, where it is numerous, for example, in the upper Magdalena Valley (Miller 1947). Merenberg appears to be the highest location on record for the species (Ripley 1977).

Vanellus chilensis. Southern Lapwing. At least four pairs were resident around wet areas in pastures. A nest with two eggs was found on 3 January; this failed, but another nest produced two young in February.

Tringa solitaria. Solitary Sandpiper. Rare transient. One was seen 20 March in a wet part of a pasture.

Columba fasciata. Band-tailed Pigeon.* Uncommon in forest canopy and at edge, also perching regularly in tall isolated trees. Usually seen in groups of 5–10. Its abundance varied greatly, with peak numbers in early March when *Brunelia comocladifolia* was in fruit. Also ate fruits of *Morus* sp. and *Ficus cundinimarcensis*. This pigeon is probably an altitudinal migrant from higher elevations, but local residents claim that it nests at Merenberg.

Geotrygon montana. Ruddy Quail-Dove. Very rare on forest floor; possibly overlooked. A single bird was observed 29 July. Although primarily a bird of tropical zone forests, this quail-dove has been recorded to 1,900 m in Venezuela (Meyer de Schauensee and Phelps 1978) and "occasionally" even in the temperate zone in Colombia (Meyer de Schauensee 1964). Merenberg is unquestionably a high elevation for it.

Pyrrhura melanura. Maroon-tailed Parakeet.* Common in forest and at edge, frequently perching in isolated trees. Usually noted in flocks of 8–12 birds, never associating with other parrots. Feeds on fruits of *Miconia theaezans* and other Melastomataceae. Easily the most numerous parrot at Merenberg. Also common and conspicuous at other subtropical sites above the upper Magdalena Valley (e.g., above Isnos and at Cueva de los Guácharos National Park).

Hapalopsittaca amazonina. Rusty-faced Parrot. Very rare; one group of five seen on 14 June. In flight appears obviously smaller than *Pionus* sp., with shallower wing-beats and a proportionately longer tail. The only call heard was an undistinctive, repeated "chek-chek, chek-chek . . ." Not previously recorded from the upper Magdalena Valley, but G. Tudor (pers. comm.) and others observed a probable pair in temperate forest on the E slope of Puracé National Park in April 1973. The nominate race of this species is known only northward from the Bogotá region in the Eastern Andes; *H. a. fuertisi* has not been recorded since the original series was taken in 1911 in Caldas Department in the northern Central Andes, over 300 km N of Merenberg (Chapman 1917, Forshaw 1973). Racial allocation of Merenberg birds is impossible without specimens, but the birds seen did show considerable red on the face, indicating that they were not *H. a. fuertisi*, which has a greenish-yellow face.

Pionus chalcopterus. Bronze-winged Parrot. Rare in forest and at forest edge; usually seen only in flight, infrequently perched, and never observed feeding. Noted only in May, June, and early July, usually alone or in pairs. Calls resemble those of *P. menstruus*, the well-known Blue-headed Parrot of the lowlands. Probably an altitudinal migrant from lower in the subtropical zone: Chapman's (1917) collectors obtained a good number from various sites around the head of the Magdalena Valley, and K. von Sneider collected no less than 18 specimens at La Candela (1,600–1,700 m) in August–September 1942.

Pionus tumultuosus. White-capped Parrot.* We prefer to follow O'Neill and Parker (1977) in considering the northern Andes form, previously given species rank as *P. seniloides*, as conspecific with the southern Andes form, nominate *P. tumultuosus*. An apparent altitudinal migrant from higher elevations; observed only between 15 July and 1 August (when we departed the study site), but then common and conspicuous in groups of 10–20. Eats fruits of *Turpinia paniculata* and an unidentified member of the Clusiaceae. The two Merenberg *Pionus* parrots were never observed to flock together. Primarily a parrot of temperate zone forests, and notably nomadic; Carriker collected four higher in Moscopán.

Amazona mercenaria. Scaly-naped Amazon.* Common in forest; like other parrots, most often observed in flight. Seen in pairs or in groups of up to 4–8 birds. Frequently seen flying high overhead in the early morning (06:30–08:00), readily identifiable by its large size and distinctive shallow wing-beats (like other *Amazona*), even when color could not be ascertained. When flying in a flock, members of a pair remain close together, one bird remaining behind and slightly to one side of the other. Ate fruits of *Ficus* spp., and once seen to eat flesh of baseball-sized fruits of an unidentified vine. No evident seasonal variation in numbers. Apparently the montane replacement of *A. farinosa*, the Mealy Amazon, with similar vocalizations.

Piaya cayana. Squirrel Cuckoo.* Rare in forest and at edge. Generally more numerous at lower elevations, although Carriker collected three specimens even higher in Moscopán.

Crotophaga ani. Smooth-billed Ani. At least one group (six individuals) occurred along the edge of a pasture. Merenberg's elevation is fairly high for this species; as Chapman (1917) and others have pointed out, its numbers in the subtropical and lower temperate zones increased greatly subsequent to widespread deforestation. Copulation observed 11 June.

Ciccaba albitarsus. Rufous-banded Owl. Rare in forest. One was observed for over 2 h on 28 February; never disturbed, it left its day roost, about 4 m up in a *Dryopteris* tree fern, at 18:10. Probably overlooked; unidentified owl calls were heard occasionally.

Streptoprocne zonaris. White-collared Swift. Uncommon, in flight over forests and pastures, usually in dispersed flocks.

Phaethornis symratorphorus. Tawny-bellied Hermit. Very rare in forest understorey; single birds were seen on two occasions, 18 March and 12 May. Merenberg is probably near the species' upper altitudinal limit; it was considerably commoner at Cueva de los Guácharos National Park.

Colibri delphinae. Brown Violetear. Very rare at forest edge; a single bird netted 15 May. Perhaps the highest elevation on record for this widespread but generally rare hummingbird.

Adelomyia melanogenys. Speckled Hummingbird.* Abundant in forest understorey and undergrowth, to a lesser extent also at edge.

Anthocephala floriceps. Blossomcrown. Very rare in forest undergrowth; a male seen 19–20 April feeding at a terrestrial orchid (*Elleanthus* sp.). This observation marks a considerable southward range extension for this little-known hummingbird, in the Central Andes previously reported only from northern Tolima Department (Meyer de Schauensee 1966). Carriker, in the Santa Marta Mountains, also found it feeding in forest undergrowth (Todd and Carriker 1922).

Urostitte benjamini. Whitetip. Very rare in forest undergrowth; a single immature male of this scarce and little-known hummingbird was netted 15 May. The specimen was donated to the Louisiana State University Museum of Zoology (LSUMZ 82900).

Heliodoxa leadbeateri. Violet-fronted Brilliant. Common in forest understory, undergrowth, and at edge. Although numerous here, Merenberg apparently lies very near the species' upper elevational limit; Carriker failed to obtain any, and the species is generally more numerous lower in the subtropical zone (S. Hilty, pers. comm.).

Coeligena coeligena. Bronzy Inca.* Abundant in forest undergrowth and at edge, to a lesser extent also gardens. Nest with two eggs found 19 January inside forest; constructed of mosses, it was 0.7 m above the ground in a crotch of a 1.2-m sapling. The nest failed, the eggs probably being taken by a squirrel, *Sciurus granatensis*.

Coeligena torquata. Collared Inca.* Abundant in forest undergrowth, middle levels, at edge, and to a lesser extent also gardens. The two incas, so strikingly different in appearance, have quite similar habits; they are largely allopatric altitudinally. Chapman (1917) did note that the two were sympatric at a few Andean localities, but whereas *C. coeligena* is essentially a subtropical species, with Merenberg approaching its upper elevational limit, *C. torquata* ranges most commonly in the temperate zone. Higher in Moscopán, Carriker collected 10 *C. torquata* but only one *C. coeligena*, whereas, at Cueva de los Guácharos National Park we found *C. coeligena* still to be common and *C. torquata* apparently absent. Merenberg seems to lie within the narrow band where both are numerous.

Ensifera ensifera. Sword-billed Hummingbird.* Very rare; one netted in a garden 15 May, but never seen otherwise (although it is a very conspicuous hummingbird). This individual was presumably a wanderer from the temperate zone, where it is not uncommon. We found it on several occasions above Isnos and at Puracé National Park, and Carriker collected no less than 10 higher in Moscopán.

Boissonneata flavescens. Buff-tailed Coronet.* Common in middle and upper levels of forest and at edge. Fed at flowers of trees (e.g., *Guarea* sp.) and at arboreal bromeliads (*Guzmania* sp.). Holds its wings up for a second or two after alighting, exposing the prominent rufous under wing coverts; both other coronets (*B. jardini* and *B. matthewsi*) share this characteristic habit.

Heliangelus exortis. Tourmaline Sunangel.* Rare in forest understory and at edge. Primarily a temperate zone species, mainly above 2,500 m (S. Hilty, pers. comm.). Courtship display observed 7 July: a single perched male spread its tail, lowered its head, and emitted a series of high rapid chips.

Haplophaedia aureliae. Greenish Puffleg.* Uncommon in forest undergrowth. Noted feeding at flowers of *Palicourea cuatrecasii*, an understory shrub. At San Antonio in the Western Andes, Miller (1963) found it feeding at *Palicourea lehmanni*.

Ocreatus underwoodii. Booted Racket-tail. Very rare; single males seen on two occasions at forest edge. More numerous at lower elevations in the subtropical zone (S. Hilty, pers. comm.; pers. observ.).

Aglaiocercus kingi. Long-tailed Sylph.* Common and widespread, from forest (in both understory and canopy) and edge to gardens. In forest, feeds at flowers of bromeliads (*Guzmania* sp.) and vines (*Psammisia falcata*), among others. Often sallies for flying insects from an exposed canopy perch, especially from 08:00 to 10:00.

Schistes geoffroyi. Wedge-billed Hummingbird. Rare in forest understory and at edge. More numerous at lower elevations in the subtropical zone, but never seems to be a common hummingbird.

Pharomachrus antisianus. Crested Quetzal.* Rare (though somewhat more numerous than the next species) in middle and upper levels of forest. Seen sin-

gly or in pairs, almost always independent of mixed flocks. Eats fruits of *Ocotea calophylla* and *Ficus* spp., especially *F. cundinimarcensis*. Evidently more numerous at slightly higher elevations in Moscopán, for Carriker obtained a series of 10 (and only two *P. auriceps*).

Pharomachrus auriceps. Golden-headed Quetzal.* Rare in middle and upper levels of forest. Behaves much like *P. antisianus*, eating the same fruits, but never seen to feed simultaneously with that species at Merenberg.

Trogon personatus. Masked Trogon. Common in understory and middle levels of forest. Seen singly or in pairs, regularly accompanying mixed flocks. Feeds on fruits of various Clusiaceae and Piperaceae, and on insects, all snatched in flight. Its call is a steady "kwa, kwa, kwa, kwa . . ." repeated four to eight times, the pitch somewhat higher than the equivalent but shorter song of *T. collaris*, the Collared Trogon. Despite careful checking, no *T. collaris* were noted at Merenberg; that species generally occurs lower in the subtropical zone than *T. personatus*, but the two are sympatric at some localities (e.g., Cueva de los Guácharos National Park). Strangely, Carriker obtained no *T. personatus* higher in Moscopán; elsewhere it is common well up into the temperate zone.

Aulacorhynchus prasinus. Emerald Toucanet.* Common in forest canopy and at edge. Usually seen singly or in pairs, occasionally in small groups. Fed on fruits of *Ficus* spp., *Cecropia telealba*, *Prunus* sp., and *Sourouba* sp.

Andigena nigrirostris. Black-billed Mountain-Toucan.* Common (though somewhat less numerous than *Aulacorhynchus*) in forest canopy and at edge. Usually observed in groups of two to five birds. Fed on fruits of *Ficus* spp., *Prunus* sp., *Billia columbiana*, *Cecropia* sp., and *Turpinia paniculata*. Occasionally ate Hercules beetles (*Dynastes* sp.). Often fed simultaneously with *Chamaepetes* and *Alouatta seniculus*, the Red Howler Monkey. A bill rattle was heard more frequently than the yelping "kree-ánh, kree-ánh . . ." call. As Haffer (1974) suspected, this toucan does not seem to occur together with its congener, *A. hypoglauca*, the Gray-breasted Mountain-Toucan, at least in the Central Andes. *Andigena nigrirostris* occurs in subtropical and lower temperate forests on both slopes (we also found it above Isnos at 2,650 m, and Carriker collected no less than 12 higher in Moscopán). *Andigena hypoglauca* replaces it in higher temperate forests (3,000–3,300 m), apparently only on the W slope.

Picumnus olivaceus. Olivaceous Piculet. Very rare in forest understory and at edge. Found much more commonly in the tropical zone of the upper Magdalena Valley (Miller 1947), and taken by Chapman's (1917) collectors as close as La Candela (2,000 m), but rarely recorded as high as Merenberg.

Piculus rivolii. Crimson-mantled Woodpecker.* Common in forest and at edge. Often forages for insects in epiphytes (e.g., *Guzmania* sp.); once observed to eat the seasonal seeds of *Brunelia comocladifolia*.

Melanerpes formicivorus. Acorn Woodpecker. Common high in forest, at edge, and in isolated trees. Never seen to eat acorns, although these were readily available at some seasons; Miller (1963) recorded finding "acorn stores" at San Antonio in the Western Andes. Occasionally observed sallying after insects from exposed perches.

Veniliornis fumigatus. Smoky-brown Woodpecker.* Rare in forest and at edge. Regularly with mixed flocks, foraging mostly on larger trunks.

Veniliornis dignus. Yellow-vented Woodpecker.* Uncommon in forest understory, less often at higher levels (even to the canopy). Frequently with mixed flocks, foraging mostly on smaller branches.

Phloeocoastes melanoleucos. Crimson-crested Woodpecker.* Rare in forest, foraging mostly on large trunks fairly close to the ground. As Meyer de Schauensee (1964) pointed out, this essentially tropical-zone woodpecker does occur "occasionally" as high as the lower temperate zone. Carriker obtained three specimens even higher in Moscopán, and we once found it at 2,700 m on the E slope of Puracé National Park.

Xiphocolaptes promeropirhynchus. Strong-billed Woodcreeper.* Uncommon in forest and at edge, foraging mostly on larger trunks and branches at all levels. Usually met with singly, and not with mixed flocks. Generally dendrocolaptid-like in its foraging style, but also seen to splinter dead wood. Its unmistakable call is a whistle-like series of four to five pairs of descending notes, the first of each pair being the same pitch or slightly lower than the second of the preceding pair, the whole often initiated with a single higher note. This call is given almost exclusively at dawn and dusk, and is delivered at very long intervals. Three other members of the genus (*X. albicollis*, *X. falcistrostris*, and *X. major*) all give virtually identical calls.

Xiphorhynchus triangularis. Olive-backed Woodcreeper.* Uncommon at middle levels of forest, less often at edge. Only an occasional member of mixed flocks, where its presence was positively correlated with that of *Syndactyla subalaris*.

Lepidocolaptes affinis. Spot-crowned Woodcreeper.* Common at all levels of forest and at edge. A frequent member of mixed species flocks, where its presence was positively correlated with that of *Anabacerthia striaticollis*. Aggressive with *Xiphorhynchus triangularis*.

Synallaxis azarae. Azara's Spinetail.* Abundant in dense vine tangles and in forest undergrowth, especially at openings and edge. Usually in pairs, and not moving with mixed flocks. Not easy to see, but its abundance is revealed by its constantly reiterated "ka-keek, ka-keek . . ."

Cranioleuca curtata. Ash-browed Spinetail. Very rare in forest understory and at middle levels; a single individual 12 July. Somewhat more numerous at Cueva de los Guácharos National Park; Merenberg is probably near the upper elevational limit for the species. A rare bird in Colombia. *Cranioleuca curtata* behaves much like the better-known *C. erythroptus*, the Red-faced Spinetail; it is arboreal, gleaning actively and even acrobatically in foliage and among epiphytes, especially on larger branches. It is frequently found with mixed flocks.

Siptornis striaticollis. Spectacled Prickletail. Very rare in forest understory, on lower branches of larger forest trees, and at edge; seen 27 February and 28 June. Somewhat more numerous at Cueva de los Guácharos National Park. Rare in collections, previously recorded in Colombia only from 1,650 to 2,000 m (Meyer de Schauensee 1950), and so far only from the slopes above the Magdalena Valley. Merenberg is the highest locality on record for the species. *Siptornis* was seen singly, invariably with mixed flocks; it foraged much like a *Xenops*, working along outer branches and on twigs, occasionally even hanging upside-down like a chickadee (*Parus* sp.). We never heard any vocalization.

Premnoplex brunnescens. Spotted Barbtail. Uncommon in forest undergrowth and understory. As Miller (1963) and others have noted, this species forages by creeping over branches and trunks, sometimes using its tail for support as do the woodcreepers. Sometimes associated with mixed flocks of undergrowth birds, but more often occurred alone.

Premnornis guttuligera. Rusty-winged Barbtail.* Common in forest undergrowth and understory. Reg-

ularly associated with mixed flocks. *Premnornis* is like a small foliage-gleaner or *Cranioleuca* spinetail in its behavior, foraging actively along branches and among leaves (often dead). Unlike *Premnoplex*, *Premnornis* rarely if ever actually creeps, nor did we ever see it use its tail as a support. Miller (1963) and S. Hilty (pers. comm.) have likewise never observed this. Furthermore, the tail feathers of *Premnornis* lack the prominent projecting shafts of *Premnoplex*; *Premnornis* is not a "barbtail" at all. As the two are so different in behavior, we believe Vaurie's (1971) merging of the genera *Premnornis* and *Premnoplex* into *Margarornis* is questionable. *Premnoplex* does seem close to *Margarornis* (which acts much like a woodcreeper), but *Premnornis* certainly does not seem similar.

Pseudocolaptes boissonneautii. Streaked Tufted-cheek.* Uncommon in upper and middle levels of forest, occasionally coming lower. Frequently with mixed flocks. Forages especially in large bromeliads, sometimes seeming to almost disappear inside them.

Syndactyla subalaris. Lineated Foliage-Gleaner. Uncommon in forest, foraging at all levels, but least often in the canopy. Regularly with mixed flocks.

Anabacerthia striaticollis. Montane Foliage-Gleaner. Common at all levels of forest and at edge. Usually seen with mixed flocks. Carriker's failure to collect either *Syndactyla* or *Anabacerthia* higher in Moscopán would seem to indicate that Merenberg must be near the upper altitudinal limit for both species.

Xenops rutilans. Streaked Xenops.* Rare at middle and upper levels of forest and at edge. Usually seen with mixed flocks. Forages mostly on smaller branches and twigs, gleaning actively like a chickadee (*Parus* sp.). More numerous lower in the subtropical zone, though Carriker did collect three even higher in Moscopán.

Thamnophilus unicolor. Uniform Antshrike.* Very rare; a male mist-netted 14 May. Though termed in the literature as an "upper tropical and lower subtropical" species (Meyer de Schauensee 1950, 1964, 1970), Carriker obtained four even higher in Moscopán (2,500 m). This antshrike seems everywhere to be a scarce and inconspicuous species (S. Hilty, pers. comm.; pers. observ.).

Terenura callinota. Rufous-rumped Antwren. Uncommon in middle and upper levels of forest. Forages actively with mixed flocks, often exposing its rufous rump as it peers under branches or briefly hangs upside-down. Merenberg appears to be the highest locality on record for the species (Meyer de Schauensee 1950, Meyer de Schauensee and Phelps 1978). Its small size and habit of foraging well above the ground probably account for its relative rarity in collections; locally it can actually be fairly common.

Grallaria ruficapilla. Chestnut-crowned Antpitta. Common on or near the ground in forest and at edge, especially in the dense growth which succeeds tree-falls. Very difficult to observe, although its nasal whistled call is often heard; the bird will decoy to a good whistled imitation of it. The call consists of three notes, the first sometimes inaudible or omitted, the second lower, the third rising; it is given four to seven times a minute. We found another antpitta, the Bay-backed Antpitta (*G. hypoleuca*), to be common in dense forest edge and in overgrown clearings at Cueva de los Guácharos National Park (1,900–2,000 m). This species has been recorded as close to Merenberg as La Candela, at 1,950 m (Meyer de Schauensee 1950), but we never heard its distinctive three-noted call (a first long one followed by two unslurred shorter and higher ones) here. Merenberg probably is a little too high for this upper tropical and subtropical antpitta.

Scytalopus sp. Tapaculo.* Although we never saw a

tapaculo, we occasionally heard the characteristic vocalization of some member of this genus coming from dense forest undergrowth. Carriker collected three specimens of *S. unicolor*, the Unicolored Tapaculo, higher in Moscopán, but two other species (*S. femoralis* and *S. latebricola*) are also possible here.

Pipreola riefferii. Green-and-Black Fruiteater.* Common in understory and middle levels of forest. Seen singly or in pairs, sometimes with mixed flocks, invariably approachable and lethargic. Eats fruits of understory trees and vines, notably *Hedyosum* sp.

Pachyrhamphus versicolor. Barred Becard.* Common in upper and middle levels of forest and at edge. A frequent member of mixed flocks; the male's pretty whistled "treedididee?" was often heard. Although numerous and conspicuous here, Carriker obtained only one at higher elevations in Moscopán, indicating that this becard is approaching its upper elevational limit at Merenberg.

Ochthoeca cinnamomeiventris. Slaty-backed Chat-Tyrant.* One pair observed throughout the study in an area of dense forest undergrowth near a small waterfall. Both members of the pair were observed building a nest of mosses on a rock ledge behind the waterfall on 15 February.

Tyrannus melancholicus. Tropical Kingbird.* Uncommon around isolated trees and at edge of pastures. Much more numerous at lower elevations (e.g., in the upper Magdalena Valley; Miller 1947), but also regularly recorded up into the temperate zone in cleared areas (Meyer de Schauensee 1950, pers. observ.). Carriker obtained one even higher in Moscopán.

Myiodynastes chrysocephalus. Golden-crowned Flycatcher. Very rare; one observed at forest edge on 21 April. Probably a wanderer from lower in the subtropical zone; Merenberg's elevation is relatively high for the species (Chapman 1917, Meyer de Schauensee 1950).

Contopus fumigatus. Greater Pewee.* Very rare at forest edge; one seen on 7 February. A widespread and usually numerous bird of the subtropical and temperate zones (Meyer de Schauensee 1950, pers. observ.). We found it common at elevations both lower (Cueva de los Guácharos National Park) and the same (ridge above Isnos) as Merenberg, and Carriker collected 10 higher in Moscopán. Its rarity at Merenberg is inexplicable.

Pyrrhomias cinnamomea. Cinnamon Flycatcher.* Abundant at edge, much less numerous at middle levels in forest, then usually at openings. Most often seen in pairs, usually not with flocks. Perches very upright, sallying out to capture insects from the air and from foliage.

Myiophobus flavicans. Flavescent Flycatcher.* Common at edge and in middle and understory levels of forest. Seen in twos and threes, rarely with flocks. Typically forages by sallying out from a low perch, picking off insects from leaves, branches, or the ground. Its posture is upright; the bird recalls an *Empidonax*.

Myiophobus pulcher. Handsome Flycatcher.* Common at middle and upper levels of forest, less often at edge. Seen in small groups of two to four birds accompanying large mixed flocks. In appearance strikingly like the larger *Leptopogon rufipectus* (see below).

Poecilatriccus ruficeps. Rufous-crowned Tody-Tyrant.* Uncommon in dense undergrowth at edge of forest and in openings. Seen singly, not with flocks. Perches in low shrubbery, making short abrupt sallies to glean insects off foliage.

Pogonotriccus ophthalmicus. Marble-faced Bristle-Tyrant. Rare in middle and understory levels of forest. Regularly joins mixed flocks. Perches upright, occasionally flicking a wing up over its back (much like

Leptopogon); rather active, and, unlike the preceding small flycatcher, not at all hard to see.

Mecocerculus poecilocercus. White-tailed Tyrannulet. Uncommon in upper and middle levels of forest. Seen singly or in pairs, frequently with mixed flocks. Often exposes white in tail. Regularly gives a distinctive high sibilant "tee-tee-tee-tee." Its horizontal warbler-like posture is strikingly unlike the upright posture of *M. leucophrys*, the White-throated Tyrannulet, found at higher elevations.

Elaenia sp. Elaenia.* Rare at forest edge. Carriker collected four specimens of *E. pallatangae*, the Sierran Elaenia, higher in Moscopán, and as he obtained no other *Elaenia*, Merenberg birds were probably this species.

Tyranniscus viridiflavus. Golden-faced Tyrannulet.* Uncommon at forest edge and in middle and upper levels of forest. Most often with mixed flocks. Perches horizontally, often with its tail "half-cocked."

Leptopogon rufipectus. Rufous-breasted Flycatcher.* Common in understory and middle levels of forest. Usually seen singly; sometimes with flocks. Superficially resembles *Myiophobus pulcher*, and best distinguished by its larger size, grayish crown, and rufous facial area, also by its frequent habit of lifting its wings, one at a time, up over its back, as do all members of the genus (Ridgely 1976, pers. observ. for *L. taczanowskii*). Probably here approaching its upper elevational limit; Carriker obtained only one specimen higher in Moscopán.

Mionectes striaticollis. Streak-necked Flycatcher.* Rare in forest understory and at edge. Usually seen singly, often with mixed flocks.

Notiochelidon cyanoleuca. Blue-and white Swallow.* Abundant over cleared areas, especially around buildings, which provided nest sites.

Cyanolyca viridicyana. Collared Jay. Very rare; a group of three or four birds seen only 1-2 June. The group foraged independently of other birds in middle and upper levels of forest. Collared Jays were also seen in forest above Isnos (2,500 m), but judging from the few records mentioned by Meyer de Schauensee (1951), the species is not numerous around the head of the Magdalena Valley.

Cyanocorax yncas. Green Jay. Common and conspicuous in all levels of forest, at edge, and in isolated trees. Forages actively and noisily in groups of two to six, usually not associating with other birds. Unlike what Alvarez (1975) found in a more disturbed area in northern Colombia, Green Jays at Merenberg were not especially shy, and indeed often seemed inquisitive, sometimes closely approaching the observer, especially in response to squeaking. Their loud discordant call notes are characteristically tripled (e.g., "renh-renh-renh") in quality and rhythm remarkably reminiscent of a North American katydid (*Pterophylla* sp.)! Carriker's not obtaining any higher in Moscopán would indicate that Merenberg is near the species' upper elevational limit.

Odontorchilus branickii. Gray-mantled Wren. Rare in upper and middle levels of forest. Forages among mosses and other epiphytes on larger branches, generally avoiding the leafy tips. Seen with mixed flocks, usually large. A very distinctive wren, quite gnatcatcher-like in its plumage, foraging style, and attitudes (even to the often-raised tail). Strikingly quiet for a wren; we have not distinguished its calls anywhere in its range. This race (n nominate *O. b. branickii*) has previously been recorded in Colombia from only one specimen, that taken at La Palma, 1,650 m (Chapman 1917, Meyer de Schauensee 1951). Hilty (1977) recently found the western race (*minor*) in the upper tropical zone on the W slope of the Western Andes in

Valle Department. Merenberg is the highest locality on record for the species.

Thryothorus genibarbis. Moustached Wren. Common in dense undergrowth in forest and at small openings. Very difficult to observe, but its rich musical phrased song was often heard emanating from impenetrable tangles. Merenberg's elevation is probably near the upper limit for the species; Carriker did not obtain any.

Troglodytes aedon. House Wren. Uncommon in brush along pasture edges.

Troglodytes solstitialis. Mountain Wren.* Common in vine tangles and in undergrowth of forest. Sometimes forages with mixed flocks, but also often alone. On 22 March observed bringing nesting material, fine epiphyte rootlets, to a cluster of dead *Cecropia* leaves about 7 m above the ground at forest edge.

Henicorhina leucophrys. Gray-breasted Wood-Wren.* Uncommon in dense forest undergrowth, principally around overgrown treefalls. More numerous lower in the subtropical zone, e.g., at Cueva de los Guácharos National Park (where it was abundant).

Mimus gilvus. Tropical Mockingbird. Rare around isolated trees and along fence rows in pastures. More numerous at lower elevations in the upper Magdalena Valley (Miller 1947, pers. observ.).

Myadestes ralloides. Andean Solitaire.* Uncommon at forest edge, and in forest understory. Eats fruits of *Hedyosmum* sp.

Turdus fuscater. Great Thrush.* Rare at forest edge and in pastures. Eats fruits of *Cecropia* sp. Much more numerous at higher elevations, but occurs widely in cleared parts of the subtropical zone (Meyer de Schauensee 1951, pers. observ.).

Turdus serranus. Glossy-black Thrush.* Rare at forest edge and in forest. Eats fruit of *Cecropia* sp. Much less conspicuous than the preceding species. More numerous in forest above Isnos, at slightly higher (2,400 m) elevations than Merenberg; Carriker collected four higher in Moscopán.

Turdus ignobilis. Black-billed Thrush. Rare at forest edge. Much more numerous at lower elevation in semi-open areas in the Magdalena Valley (Miller 1947, pers. observ.).

Cyclarhis nigrirrostris. Black-billed Peppershrike.* Uncommon in middle and upper levels of forest and at edge. *Cyclarhis gujanensis*, the Rufous-browed Peppershrike, replaces *nigrirrostris* at lower elevations in the upper Magdalena valley; we found it as high as near La Plata (1,300 m) and Palestina (1,450 m). *Cyclarhis nigrirrostris* behaves and sings very much like the better-known *C. gujanensis*, but seems to require more extensive forest, and does not tolerate mostly cleared areas (in which *C. gujanensis* often occurs).

Vireo gilvus. Warbling Vireo.* Abundant in middle and upper levels of forest and at edge. A frequent member of mixed flocks.

Vireo olivaceus. Red-eyed Vireo. Rare winter resident, noted most often in middle levels of forest. Did not sing. Last seen 26 March.

Icterus chrysater. Yellow-backed Oriole.* Uncommon at forest edge and in isolated trees in pastures. More numerous at lower elevations in the upper Magdalena Valley (Miller 1947, pers. observ.), but Carriker did obtain two specimens even higher in Moscopán (which must be nearly the highest elevation ever recorded for this species).

Sturnella magna. Eastern Meadowlark.* Rare in pastures. More numerous at lower elevations in the upper Magdalena Valley (pers. observ.); Carriker, however, obtained one specimen even higher in Moscopán.

Vermivora peregrina. Tennessee Warbler. Rare winter resident in middle and upper levels of forest and

at edge. Usually foraged with mixed flocks of resident insectivores. Last seen 10 May.

Parula pitiayumi. Tropical Parula. Uncommon in middle and upper levels of forest and at edge. Frequently forages with mixed flocks, usually in pairs.

Dendroica fusca. Blackburnian Warbler. Abundant winter resident in middle and upper levels of forest and at edge. The most commonly observed bird during the northern winter, as it was near Popayán, Cauca Department, in disturbed oak woodland at 1,650 m (Chiple 1976). It was also the most numerous North American migrant at San Antonio in the Western Andes (Miller 1963). A very frequent member of mixed species flocks. Last seen 24 April; Miller (1963) last recorded it on 20 April, but we also saw a female along the old Buenaventura road (600 m on W slope of Western Andes in Valle Department) on 5 May.

Wilsonia canadensis. Canada Warbler.* Common winter resident, foraging in vine tangles and forest undergrowth. Chiple (1976) and Miller (1963) also found this species the second most numerous migrant. Often forages with mixed species flocks, especially with *Basileuterus* spp. Last observed 8 April; Miller (1963) last recorded it on 13 April, but we also saw a female along the old Buenaventura road (500 m on W slope of Western Andes in Valle Department) on 5 May.

Myioborus miniatus. Slate-throated Redstart.* Abundant, foraging very actively in more diverse microhabitats of forest than any other Merenberg bird: in understory, middle and upper levels, vine tangles, edge, even on trunks and large horizontal branches. Frequently makes short sallies, catching insects in the air, apparently having first flushed them. Often forages with mixed flocks, but is also regularly seen alone or in pairs.

Basileuterus luteoviridis. Citrine Warbler. Very rare at forest edge; one seen with a mixed flock 14 February. More common above Isnos (2,400–2,500 m), where it also fed at edge.

Basileuterus tristriatus. Three-striped Warbler. Common in forest undergrowth and around overgrown treefalls. Usually in small groups, less often in pairs; frequently forages with mixed flocks. Carriker failed to obtain any higher in Moscopán, indicating that despite its abundance here, Merenberg must be near its upper elevational limit.

Basileuterus coronatus. Russet-crowned Warbler.* Abundant in forest undergrowth and around overgrown treefalls, sometimes feeding on the ground in leaf litter and at edge. Often with mixed flocks, frequently associating with *B. tristriatus*. Seen feeding a fledged juvenile 6 June.

Conirostrum albigrons. Capped Conebill.* Common at upper levels of forest and at edge, where it sometimes comes lower. Most often forages by gleaning insects from terminal leaves and branches, but also takes some *Cecropia* sp. fruit. Often wags tail. Usually seen with mixed flocks.

Diglossa albilatera. White-sided Flower-piercer.* Uncommon in forest understory and at middle levels, also at edge and in gardens. Seldom with mixed flocks. Regularly observed piercing flowers, especially those of *Palicourea cuatrecasasii*, but also gleans insects from foliage.

Diglossa cyanea. Masked Flower-piercer.* Rare in middle levels of forest, in understory, and at edge. Much more numerous in temperate zone forests, and common in the Puracé National Park area; Carriker collected eight higher in Moscopán.

Euphonia xanthogaster. Orange-bellied Euphonia.* Rare in middle and upper levels of forest and at edge. More numerous lower in the subtropical zone (e.g., at Cueva de los Guácharos National Park), but Carriker did obtain one even higher in Moscopán.

Pipraeidea melanonota. Fawn-breasted Tanager. Uncommon at forest edge and in isolated trees in pastures.

Tangara arthus. Golden Tanager.* Rare in forest and at edge. Seems notably less numerous in the upper Magdalena Valley than in the Western Andes (pers. observ.). Merenberg's elevation is rather high for this essentially subtropical species; Carriker's single specimen from even higher in Moscopán is among the highest ever recorded for the species. Frequently forages on bare or mossy branches (even trunks) in a manner much like that of the Black-and-white Warbler (*Mniotilta varia*). Willis (1966) and Hilty and Simon (1977), in the Western Andes, noted that several *Tangaras* employed this method of searching for insects; we found that among Merenberg members of the genus, *T. arthus* employed this method most frequently.

Tangara xanthocephala. Saffron-crowned Tanager.* Abundant in middle and upper levels of forest and at edge. More frugivorous than any other resident *Tangara*, eating especially *Cecropia* spp., *Morus* sp., *Miconia* spp., and other members of the Melastomataceae. Less often gleaned for insects in leafy terminal areas.

Tangara chrysotis. Golden-eared Tanager. Uncommon in middle and upper levels of forest and at edge. As only one specimen of *T. chrysotis* has been recorded from Colombia, that taken at San Agustín (Meyer de Schauensee 1951), we were surprised to find this species regularly, in small numbers, at Merenberg. We also saw a few individuals along the trail from Palestina to Cueva de los Guácharos National Park (1,850 m). Usually observed eating melastome fruit; also seen eating fruits of *Morus* sp. and gleaning insects from leaves.

Tangara parzudakii. Flame-faced Tanager.* Common at edge and in upper levels of forest. Forages for insects almost exclusively in lichens (*Usnea* sp.) epiphytic on tree branches; only rarely gleans in leafy tips. *Tangara parzudakii* also eats fruit of *Cecropia* spp., but not nearly as frequently as *T. xanthocephala*. Courtship feeding observed 21 February.

Tangara labradorides. Metallic-green Tanager.* Rare at forest edge. Observed feeding on *Cecropia* spp. fruit, and also gleaned in leafy terminal branches. More numerous lower in the subtropical zone, especially in the Western Andes (Miller 1963, pers. observ.). Carriker obtained one specimen in Moscopán; this is probably the highest elevation ever recorded for the species (Meyer de Schauensee 1951).

Tangara ruficervix. Golden-naped Tanager. Common in upper and middle levels of forest and at edge. Eats fruits of *Cecropia* spp. and *Morus* sp., as well as gleans insects from leaves. Merenberg appears to be one of the highest recorded localities for this typically subtropical species (Meyer de Schauensee 1951); Carriker failed to obtain any higher in Moscopán.

Tangara nigroviridis. Beryl-spangled Tanager.* Common at middle levels of forest and at edge. Except for *T. xanthocephala*, this species was the most frugivorous *Tangara*. Frequently associates with the latter, particularly at fruiting melastomes and *Morus* sp. When *T. nigroviridis* forages for insects, it often searches bare terminal branches.

Tangara vassorii. Blue-and-Black Tanager.* A probable altitudinal migrant; observed only from 25 December to 2 January, then feeding especially on seasonal fruits of *Miconia* sp. Much more numerous in the temperate zone; Carriker obtained a series of 11 higher in Moscopán.

Anisognathus flavinucha. Blue-winged Mountain Tanager.* Abundant at edge and in middle and upper levels of forest. Highly frugivorous, exploiting *Prunus* sp., *Miconia* sp., *Morus* sp., *Souroubea* sp., and es-

pecially *Cecropia* spp. Occasionally gleans insects from leaves.

Thraupis episcopus. Blue-gray Tanager. Rare in isolated trees in pastures and at forest edge. Much more numerous at lower elevations in the upper Magdalena Valley (Miller 1947, pers. observ.).

Piranga rubra. Summer Tanager.* Rare winter resident; last observed 7 March. Forages at edge and in middle and upper levels of forest; noted singly, usually with mixed flocks.

Tachyphonus rufus. White-lined Tanager. Very rare at forest edge; one seen 22 May. Considerably more numerous lower in the Magdalena Valley.

Creurgops verticalis. Rufous-crested Tanager.* Common in upper levels of forest and at edge. Never seen to eat fruit; gleans insects, almost always in leafy terminal areas. Also flycatches opportunistically, and much more frequently than any other Merenberg tanager. Usually accompanies mixed flocks.

Chlorospingus ophthalmicus. Common Bush-Tanager.* Abundant in upper and middle levels of forest, in understory, and at edge. Usually in groups, most often with mixed flocks.

Cnemoscopus rubrirostris. Gray-hooded Bush-Tanager.* Very rare at middle levels of forest and at edge; seen 21 January and 5–9 June. Seen singly or in pairs, usually with mixed flocks. Often wags tail. More numerous at higher elevations (e.g., above Isnos and in Puracé National Park); Carriker took four higher in Moscopán.

Hemispingus frontalis. Oleaginous Hemispingus. Common in dense forest undergrowth and in vine tangles. Often accompanies mixed flocks of *Basileuterus* spp. and *Premnornis*. Carriker failed to obtain any higher in Moscopán, indicating that Merenberg is near the species' upper elevational limit.

Hemispingus melanotis. Black-eared Hemispingus. Very rare in forest undergrowth; seen 6 and 28 July. Seen in pairs or singly, often foraging with mixed flocks. A subtropical tanager, rather local, generally associating with stands of bamboo *Chusquea* sp.; not previously reported between the Department of Tolima in the Central Andes and Nariño Department (Meyer de Schauensee 1951, 1964). J. Silliman also took several specimens in 1971–1972 on the E slope of Puracé National Park; these now reside in the INDERENA collection in Bogotá (S. Hilty, pers. comm.).

Atlapetes gutturalis. Yellow-throated Brush-Finch. Rare at edge and around overgrown treefalls in forest.

Atlapetes fuscoolivaceus. Dusky-headed Brush-Finch.* Rare in forest undergrowth, especially around overgrown treefalls and at edge. This upper Magdalena Valley endemic is more numerous at lower elevations in the subtropical zone, e.g. at San Agustín and Cueva de los Guácharos National Park. Merenberg observations and Carriker's pair of specimens considerably extend the upper elevational limit of this species, previously recorded only at 1,550–1,900 m (Meyer de Schauensee 1951). The seemingly closely related *A. flaviceps*, the Olive-headed Brush-Finch, was recently mist-netted and photographed by J. S. Dunning not far from Merenberg; the species was previously known only from northern Tolima Department, well to the north of our area (Meyer de Schauensee 1951, 1970). Three birds were captured on 18–19 December 1967 near La Plata Vieja, ca. 1,300 m, further down the Río de la Plata Valley. We examined the photographs and found the birds clearly referable to this species. *Atlapetes flaviceps* here appears to be virtually sympatric with *A. fuscoolivaceus*, perhaps replacing that species lower in the subtropical zone.

Atlapetes brunneinucha. Chestnut-capped Brush-Finch.* Rare in forest undergrowth, often foraging on

the ground. Perhaps somewhat overlooked. Usually in pairs, and not associating with mixed flocks.

Zonotrichia capensis. Rufous-collared Sparrow.* Common in pastures and at edge.

Spinus psaltria. Dark-backed Goldfinch. Very rare; one male mist-netted 14 May. More numerous lower in the Magdalena Valley.

CARRIKER'S COLLECTIONS FROM MOSCOPÁN

M. A. Carriker, Jr., a professional collector then residing in Colombia, made at least three major collecting trips to Moscopán after the Popayán-Neiva highway was opened to traffic in the late 1940s: February–March 1952, March 1954, and February 1956. During these periods, Carriker obtained a total of 501 specimens representing 114 species. Only a very few of these specimens have been recorded in the literature. Judging from his specimen labels, most of his collecting was carried out near an elevation of 2,485 m, or about 185 m above Merenberg's average elevation. Some of his specimens, of course, doubtless came from somewhat above or below this elevation.

Carriker's Moscopán birds help put the Merenberg avifauna into better perspective, especially coming as they do from a slightly higher elevation. Many species are of course found in both areas; we have commented above on a number of these. Below we briefly discuss only the 34 species which Carriker collected but which we did not find at Merenberg.

Nothocercus julius. Tawny-breasted Tinamou. No tinamou was seen or heard at Merenberg. This one, widespread but elusive in temperate zone forests (or perhaps *N. bonapartei*, the Highland Tinamou, which replaces it at subtropical elevations), might formerly have been found here, but if so it seems to have been locally extirpated.

Merganetta armata. Torrent Duck. Merenberg lacks the swift rocky streams or rivers that this duck requires.

Buteo platypterus. Broad-winged Hawk. Probably occurs in small numbers at Merenberg, as a transient or winter visitant from North America. An unidentified *Buteo* sp. (not *B. magnirostris*) seen 7 March may well have been this species.

Herpetotheres cachinnans. Laughing Falcon. Primarily a tropical zone raptor (Brown and Amadon 1968), *Herpetotheres* seems to have spread upward into the subtropical zone subsequent to local deforestation. Moscopán may be the highest locality ever recorded for the species. We also saw a pair above Isnos (at 2,300 m), but it was never recorded at Merenberg.

Ognorhynchus icterotis. Yellow-eared Parrot. Apparently this parrot was quite frequent in the Moscopán region in the 1950s. In addition to the five specimens obtained by Carriker, F. C. Lehmann (1957) collected a number of others in the same general area. However, Lehmann (1957) was already noticing a steady diminution in numbers, and this decline has now continued to the point where this species has largely disappeared from the region. Except for a pair in flight on one occasion over the páramo at Puracé National Park, we never recorded it. This parrot prob-

ably disappeared mostly as a result of the extensive deforestation that has taken place in recent decades, perhaps also due to some direct persecution. It has also declined elsewhere in its rather limited range, and has been given "vulnerable" status in the latest Red Data Book (King 1979). Yellow-eared Parrots presumably used to occur, at least seasonally, at Merenberg, but it is doubtful that they ever will again.

Tyto alba. Barn Owl. Local in clearings and open areas virtually throughout Colombia (Meyer de Schauensee 1964), we never found Barn Owls at Merenberg, but they could occur.

Colibri thalassinus. Green Violetear. Although this conspicuous hummingbird appears to be common only a little higher than Merenberg, and also occurs regularly at certain localities lower in the subtropical zone (Meyer de Schauensee 1964), we never recorded it at Merenberg. It could occur sporadically here.

Lafresnaya lafresnayi. Mountain Velvetbreast. In this part of Colombia *Lafresnaya* appears to be restricted to the temperate zone, where it occurs in shrubby areas and at forest edge (S. Hilty, pers. comm.; pers. observ.). It almost certainly never occurs as low as Merenberg.

Eriocnemis alinae. Emerald-bellied Puffleg. Chiefly a subtropical zone species inhabiting the interior forest (Meyer de Schauensee 1970, pers. observ.), this puffleg, although generally an uncommon hummingbird, seems likely to occur at Merenberg. Possibly it was overlooked.

Ramphastos ambiguus. Black-mandibled Toucan. Moscopán is the highest locality ever recorded for this toucan (Haffer 1974); Carriker's specimen may have been a wanderer from lower in the subtropics. None was ever recorded at Merenberg, nor was the species (an obvious one) known to local residents. Apparently more numerous, though now far from common, lower in the subtropical zone around the head of the Magdalena Valley; Chapman's (1917) collectors obtained several from various sites at elevations ranging from 1,500 to 2,000 m. Forests at these levels, it should be noted, have now been extensively cleared.

Campylorhamphus pucheranii. Greater Scythebill. Apart from "Bogotá" trade-skins (with no precise data), Carriker's specimen appears to be the first record of this rare and poorly-known woodcreeper in Colombia away from the Western Andes (Meyer de Schauensee 1950).

Margarornis squamiger. Pearled Treerunner. A common bird of temperate zone forests, numerous at Puracé National Park, it almost certainly never occurs as low as Merenberg.

Ampelion rubrocristatus. Red-crested Cotinga. Found chiefly in the temperate zone up to the edge of páramo, this cotinga would not be expected to occur as low as Merenberg.

Ampelion rufaxilla. Chestnut-crested Cotinga. Unlike the previous species, *A. rufaxilla* is a bird of subtropical forests, where it perches conspicuously in the canopy and often sallies after insects. Given Carriker's four specimens from only a little higher in Moscopán, its absence at Merenberg is puzzling, but could be related to the small extent and relative isolation of Merenberg forests, in conjunction with the species' relative rarity throughout its range.

Lipaugus fuscocinereus. Dusky Piha. Presumably a very vocal bird (as is its close relative of the Amazonian lowlands, *L. vociferans*, the Screaming Piha), this species could not have been overlooked if it had been present at Merenberg. It seems to occur chiefly in the temperate zone (Meyer de Schauensee 1950), which perhaps helps to account for its absence here. Perhaps, also, the remaining patches of forest are too small for it.

Pyroderus scutatus. Red-ruffed Fruitcrow. This large cotinga has seemingly been extirpated from the immediate Merenberg area.

Rupicola peruviana. Andean Cock-of-the-Rock. Like the fruitcrow, almost certainly extirpated from Merenberg; local residents told us that it used to occur. The streamside habitat that the species favors is not found at Merenberg, so, presumably, it never was present in large numbers.

Ochthoeca fumicolor. Brown-backed Chat-Tyrant. Common in temperate zone clearings up to the edge of páramo (Meyer de Schauensee 1964, pers. observ.), Moscopán is unusually low for the species (and is nearly the lowest ever recorded for it). *Ochthoeca fumicolor* would certainly never occur as low as Merenberg.

Myiarchus cephalotes. Pale-edged Flycatcher. We never saw a *Myiarchus* at Merenberg. *Myiarchus cephalotes* is recorded widely from the subtropical zone around the head of the Magdalena Valley, mostly at somewhat lower elevations than Merenberg (Meyer de Schauensee 1950). Its absence from Merenberg is puzzling.

Idioptilon granadense. Black-throated Tody-Tyrant. Though fairly conspicuous and, unlike so many small Andean flycatchers, easy to identify, we failed to find this tody-tyrant at Merenberg. It might be expected to occur, for we did observe it above Isnos (2,400 m) and at Cueva de los Guácharos National Park (1,900 m), and also found it quite common in temperate forests in Puracé National Park. Its apparent absence from Merenberg is difficult to explain.

Pseudotriccus ruficeps. Rufous-headed Pygmy-Tyrant. A shy bird of forest undergrowth, this flycatcher could have been overlooked at Merenberg. In our experience, however, it occurs chiefly in the temperate zone, somewhat lower in the Western Andes (S. Hilty, pers. comm.; pers. observ.).

Pogonotriccus poecilotis. Variegated Bristle-Tyrant. Never certainly identified at Merenberg, this flycatcher is recorded from a number of lower subtropical localities in the upper Magdalena Valley (Meyer de Schauensee 1950). It probably does occur in small numbers at Merenberg.

Serpophaga cinerea. Torrent Tyrannulet. The streams or rivers that this species requires are not found at Merenberg.

Mecocerculus minor. Sulphur-bellied Tyrannulet. A relatively rare bird in collections, this species has been recorded from several localities around the head of the Magdalena Valley, at elevations both higher and lower than Merenberg (Meyer de Schauensee 1950). It may occur here in very small numbers, and possibly was overlooked.

Tyranniscus cinereiceps. Ashy-headed Tyrannulet. Status much as for the previous species. Likewise may occur in small numbers at Merenberg.

Notiochelidon murina. Brown-bellied Swallow. Although common over open and semi-open areas in both the temperate and páramo zones in Colombia (Meyer de Schauensee 1951, pers. observ.), this swallow almost certainly would never occur as low as Merenberg.

Myioborus ornatus. Golden-faced Redstart. Common in temperate forests of Puracé National Park, and also seen as low as 2,400 m above Isnos, this redstart replaces *M. miniatus* at higher elevations. An obvious and easily identified bird, we feel certain that it does not range as low as Merenberg.

Iridosornis rufivertex. Golden-crowned Tanager. Typically a temperate zone bird, and fairly common at Puracé National Park, this tanager certainly would never occur as low as Merenberg.

Anisognathus lachrymosus. Lacrimose Mountain-Tanager. Another common temperate zone tanager,

numerous in Puracé National Park. As Carriker obtained six, and as we also observed it as low as 2,400 m above Isnos, it seems possible that this tanager, like *Tangara vassorii*, might occasionally wander as low as Merenberg.

Buthraupis montana. Hooded Mountain-Tanager. Found chiefly in temperate zone forests, although recorded somewhat lower in the Western Andes (Chapman 1917, Meyer de Schauensee 1951), this tanager probably never occurs as low as Merenberg.

Dubusia taeniata. Buff-breasted Mountain-Tanager. Occurring mostly in temperate zone clearings and at forest edge (Chapman 1917, pers. observ.), this tanager could occasionally wander as low as Merenberg, for Meyer de Schauensee (1951) recorded it locally from the subtropical zone as well.

Chlorornis riefferii. Grass-Green Tanager. Evidently quite numerous only a little higher than Merenberg (Carriker obtained seven in Moscopán), and seen by us as low as 2,400 m above Isnos, this tanager may occur at least occasionally at Merenberg itself. Although commonest in the temperate zone, *Chlorornis* has also been recorded locally from the subtropics, e.g., at La Candela (2,000 m) in the upper Magdalena Valley (Meyer de Schauensee 1951).

Sporophila nigricollis. Yellow-bellied Seedeater. Although essentially a tropical zone bird, this seedeater has also been recorded locally in the subtropics (Meyer de Schauensee 1951). Like *Spinus psaltria*, it may occur as an occasional wanderer at Merenberg.

Atlapetes schistaceus. Slaty Brush-Finch. Although common at elevations almost equal to Merenberg's on the ridge above Isnos (2,400 m up), this conspicuous and rather arboreal brush-finch is evidently scarce in Moscopán, as Carriker collected only one. It apparently does not occur at Merenberg.

DISCUSSION

During our nine months of study at Finca Merenberg, we recorded 132 bird species. As discussed above, Carriker obtained a further 34 species in Moscopán during three lengthy collecting trips in the 1950s, when the region was much wilder than it is today. Carriker evidently collected at somewhat higher elevations than Merenberg's (16 of the 34 species that he obtained but which we failed to find are essentially temperate zone birds), and his activities were apparently concentrated on a ridge west of Santa Leticia (a town 12 km NW of Merenberg) and directly connected to the main spine of the Central Andes. A last eight species (*Metallura tyrianthina*, *Myiotheretes fumigatus*, *Ochthoeca diadema*, *Tyranniscus nigrocapillus*, *Cacicus leucorhamphus*, *Diglossa caerulescens*, *Hemispingus atropileus*, and *Atlapetes leucotis*) were found at similar elevations on the ridge above Isnos. This last total could have been raised by more prolonged observations. Most of these birds are also primarily temperate zone species, and only two (*Tyranniscus nigrocapillus* and *Diglossa caerulescens*) seem at all likely to ever occur at Merenberg.

The total thus comes to 174 species. Only two other similarly thorough avifaunal stud-

ies seem to have been reported for single areas in the Colombian Andes. Both of these took place on the eastern slope of the Western Andes in Valle Department, both centering on elevations somewhat lower than Merenberg (ca. 2,000 m). Miller (1963) recorded 167 species at San Antonio, while S. Gniadek (unpubl. data) found 176 at Pichindé (ca. 30 km S of San Antonio). By comparison, equally intensive studies at localities in the humid tropical zone have reported many more species. None has been reported on from Colombia, but two other sites elsewhere in the upper Amazon basin, Limoncocha in eastern Ecuador and the Explorer's Inn area near Puerto Maldonado in southeastern Peru, appear to be the richest localities in the world for bird species. Well over 450 species have been recorded at Limoncocha (Tallman and Tallman 1977, pers. observ.), while the total for the Explorer's Inn recently surpassed 500 species and is still increasing (T. Parker, pers. comm.).

What accounts for the lower avian diversity found at subtropical elevations such as Merenberg's? Judging from the other two Colombian studies, Merenberg cannot be considered atypical. Although subtropical forests are structurally about as complex as lowland forests, they seem generally to be less diverse than the latter. This is true of plants (Walter 1971), as well as birds. Obviously plant species diversity will, to some extent, affect bird species diversity, due to its effects on the availability of niches, but this explanation begs the question. Of more general significance may be the fact that, at least in Colombia, the humid subtropics, where undisturbed, provide but one important habitat, the forest. There are no natural open areas, relatively little edge or secondary growth, and almost no open standing water. Even where man creates the first and second, these seem to remain under-used. To some extent, then, the large avifaunas recorded for lowland localities simply reflect the greater diversity of natural habitat there. Lowland areas also appear to have many more long-distance migratory species (only seven were found at Merenberg). Comparing places only in terms of their resident forest avifaunas would probably be more meaningful, but in practice would also be much more difficult. Slud (1976), for example, did not attempt to distinguish between the "forest" and "non-forest" components of his various locality lists. Of the Merenberg avifauna, 85% (148 species, including six of the seven North American

migrants) is dependent on forest, with the remainder being waterbirds (only two species, one of them a North American migrant) and birds of open or semi-open areas (24 species). Of the last, 15 are essentially tropical zone inhabitants which have been able to spread upward subsequent to deforestation, while 6 occur widely at all elevations, and only 3 have been able to spread downslope, only 1 of them at all regularly.

The human impact on the Merenberg region and its avifauna has also been substantial. Extensive areas have been at least partially deforested over the last few decades, and the region now supports a rather dense rural population. Many of the larger or rarer birds, especially those dependent on extensive and continuous forest, have declined or even disappeared altogether. Especially striking is the absence of some "expected" raptors and large frugivores. Raptors always seem scarce in the montane forests of South America (pers. observ.), most species being relatively secretive and all occurring at low densities under seemingly optimal conditions. They are also difficult to collect; Carriker's failure to obtain many comes as no surprise to us (conceivably he may have refrained from shooting them due to their bulky size, etc.). We do feel that our not having recorded raptors locally accurately reflects their current rarity in the region; seeing them, however, is far easier than collecting them. Carriker did collect sizeable series of several large frugivores, species such as *Ognorhynchus icterotis*, *Lipaugus fuscocinereus*, *Pyroderus scutatus*, and *Rupicola peruviana*. None of these now occurs at Merenberg, and it seems certain that their absence can be traced to the activities of man, both direct (hunting) and indirect (forest clearance, creating patches of forest too small and isolated to support these species). However, a few large frugivores (e.g., the guan *Chamaepetes*, the toucan *Andigena nigrirostris*, and the two quetzals *Pharomachrus* spp.) have managed to persist. Why these birds have been able to do so, while the others have not, is an intriguing question.

Although Merenberg's avifauna is somewhat diminished, it remains of unusual interest, and the site itself is exceptional in that it provides relatively straightforward access (and for the hardy, even accommodations) to the generally difficult-to-reach subtropical forest. We can think of no more appropriate way of closing than to commend the Buch family for having had the vision to

protect their land, and to further hope that the property will be preserved in perpetuity, ideally under the aegis of private conservation organizations such as the recently founded Fundación Merenberg.

ACKNOWLEDGMENTS

We thank the Buch family for their hospitality at Finca Merenberg and for providing August–December rainfall data. Jorge I. Hernandez C. aided us in obtaining the necessary research permits, while Gustavo Lozano C. and Roberto Jaramillo M. helped us tremendously by identifying much plant material. C. K. Gaulin and J. D. Ridgely assisted us in collecting data and in other ways. R. Pasquier at the United States National Museum and J. Fitzpatrick at the Field Museum in Chicago compiled lists of Moscopán specimens at their respective institutions, while M. Clench aided us in compiling such a list at the Carnegie Museum in Pittsburgh. S. Hilty contributed useful comments on an earlier draft of this paper, as did two reviewers, E. Eisenmann and J. P. O'Neill. R. Andrews drew Fig. 1. We thank all these individuals for their time and expertise. This study was carried out in the course of larger scale research funded by World Wildlife Fund grant no. US-61 (to RSR) and National Science Foundation grant no. BMS75-18145 (to SJCG).

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