SUPPLEMENTARY DATA ON THE TROPICAL AVIFAUNA OF THE ARID UPPER MAGDALENA VALLEY OF COLOMBIA

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In 1947 a report (Miller, Auk, 64: 351–381) was made on the avifauna of the arid tropical area in the upper Magdalena Valley at Villavieja, Huila, Colombia. One hundred and thirty species were recorded. Although it was known that more species occurred in the area, the list at that time seemed reasonably complete. We had no prospect of further intensive field work in the Valley, but in 1949 the Associates in Tropical Biogeography of the University of California began sponsoring an investigation of the breeding cycles of vertebrates in this near-equatorial area and thus opportunity came for me to return to the field there from January 26 to March 7, 1949. Incidental to the study of cycles, considerable faunistic information was obtained which is reported herewith to supplement the earlier account. Twenty-five additional forms are recorded from the valley floor, all but six from the vicinity of Villavieja, and for a few species previously mentioned new information on behavior is given. A review of the fauna of the valley floor from Giradot to central Huila based on recent literature also is undertaken.

The expedition of 1949 permitted visiting a wider variety of places in the valley than previously, enabled me to see more of the biotic and physiographic barriers bounding the basin, and allowed exploration of some tracts of streamside forest less disturbed by human activity than those examined in 1945. The main base of operations was five kilometers north of Villavieja, a camp at the edge of the fossiliferous badlands designated Cerbatana. At this point was a tributary stream course of the Magdalena River, and about three kilometers to the west the main river channel with some mature forest and woods 50 to 100 feet high could be reached. It was in the river bottom particularly that additional species of birds were found. Some localities in the eastern and western foothills were visited briefly. No records from areas higher than 2600 feet are included; at this elevation the thorn scrub of the mesas gives way to less xeric plant growth, and a fauna not considered characteristic of the arid lower tropical floor of the basin begins to come in.

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and especially to Dr. Armando Dugand and Jose I. Borrero of that institute, for assistance in arranging and carrying out the expedition and to the Servicio Geológico Nacional through Dr. Roberto Sarmiento and his staff, particularly Diego Henao and Alberto Sarmiento, for sharing camp and transportation facilities and for many other aids. Subsequent expeditions to Colombia in 1950 by my colleagues, Oliver P. Pearson, Robert C. Stebbins, and John R. Hendrickson also contributed some data on the composition of the avifauna, although their principal activity was directed to the cyclic studies and to the collecting of mammals, reptiles, and amphibians.

In the following list the species marked with an asterisk are additions to the list presented earlier. Observations are from the vicinity of Camp Cerbatana and in 1949 unless otherwise noted.

**Phalacrocorax olivaceus* (Humboldt).—Seen in two's flying up the Magdalena River on February 14.

**Casmerodius albus* (Linnaeus).—Seen at Neiva, Huila, on January 30, in flooded fields and also at Garzon, Huila, on February 17.

**Sarcoramphus papa* (Linnaeus).—This species appeared about the camp on October 25 and 27, 1950, to feed on animal carcasses with other vultures. One, apparently an immature lacking the dorsal white areas of the plumage, was taken on November 3 and saved as a skeleton; iris yellow, and cere red, orange, and yellow.

**Accipiter bicolor bicolor* (Vieillot).—Twice encountered in 1949, this species has been reported previously from the valley at Purificación (Chapman, Bull. Amer. Mus. Nat. Hist., 36: 247, 1917). On February 2 in a tall grove of streamside woods a young buff-breasted hawk was found. The tail was only two-thirds grown. The adults in attendance were taken. The female had a foot of a Bob-white in its stomach. The male was heard to give a soft clear whistle. The ventral plumage of the male is light blue-gray, but the female is darker gray and has intermixed buffy feathers on the belly from a previous immature plumage. Specimens: adult ♂, testis 8 mm., weight 250 gm.; adult ♀, 425 gm., feet, face and iris yellow; adult ♂, February 6, testis 6 mm., weight 190 gm.

**Buteo brachyurus* Vieillot.—One was taken on February 25 in an area of scattered scrub on a mesa top. It was a female in completely black plumage phase; cere and feet yellow; iris brown; largest ovum 2 mm.; weight 425 gm.

Geranospiza caerulescens caerulescens (Vieillot).—An immature female (350 gm.) taken on March 6, eight kilometers north of Villavieja had the remains of nestling Paroquets (*Forpus*) in the stomach. The extremely long legs of this Crane-hawk must enable it to reach into the nest holes of Paroquets, which commonly are situated in fence posts. The young Paroquets this hawk had taken had such slightly developed feathers as to indicate that they were too young to have ventured from the bottom of the nest cavity. Another hawk of this species taken on February 12 had a bird wing of undetermined species in the stomach. This hawk, an adult, had a yellow ovarian ovum 7 mm. in diameter; eyes dark red; feet orange; weight 475 gm.

Ortalis columbiana columbiana Hellmayr.—A female taken on February 25 had an edematous brood patch and ovarian ova up to five mm. in diameter. There was no coiling of the trachea in this adult, which suggests that coiling is confined to the male. On February 2 a half-grown young was taken and on February 14 a male with testis

12 mm. long, which specimens further indicate the time of the breeding season. Weights were: ♂, 600 gm.; ♀, 500 gm.; jv. ♂, 225 gm.

A specimen of *Ortalis guttata caquetae* from Finca Caño Rico, Boyacá, on the east side of the Andes, taken June 6, 1946, by R. A. Stirton reinforces my opinion that *O. guttata* and *O. columbiana* are not conspecific. Although these types are allopatric, the strikingly different color pattern of the head and neck and the lanceolate and wedge-shaped feathers of these areas in *columbiana*, even in the juvenal bird, suggest that the two kinds may be so different as to be incapable of interbreeding in nature. Until there is better evidence bearing on this matter, I prefer to treat them as full species.

**Charadrius collaris* Vieillot.—One was taken by Diego Henao in a wet sandy wash near some water in a tributary of the Magdalena River, eight kilometers north of Villavieja on March 6; testis, 4 mm.; weight 25.5 gm.

**Columba cayennensis occidentalis* Sztolcman.—This pigeon is common in the arid thorn scrub and in the broken woods in the river bottom, but it could not be reported earlier for lack of specimens. Skins taken in 1949 show that the birds are not of the race *pallidicrissa*, as it was suspected they might be, for they lack the clear white crissum of that form. Neither are they the richly rufous *C. c. tamboensis* of the Cauca Valley. They are separable from *C. c. cayennensis* of the east side of the Andes by the lack of a terminal tail band. Surprisingly, the resemblance throughout is with *occidentalis* of western Ecuador (specimens in Amer. Mus. Nat. Hist.) and I see no course but so to designate them. The species has been recorded at Giradot (de Schauensee, Caldasia, 5: 457, 1949). Both specimens taken were females: February 14, laying, weight 250 gm.; February 26, egg in duct, iris and feet red, bill black, 225 gm.

Leptotila verreauxi verreauxi (Bonaparte).—These doves were calling and evidently breeding in broken patches of woods about camp in February, and also in October, 1950. Hendrickson found a nest on October 22 containing two eggs. It was situated on a ledge of a six-foot cliff face partly screened by plant growth. The nest was a flat collection of sticks and grass stems. A female taken on February 13 shows two empty follicles in the ovary and one yellow ovarian ovum four mm. in diameter; iris, yellow; face, blue; weight 142.1 gm.

**Crotophaga ani* Linnaeus.—This species proved to be common in moist pasture land but not in the scrub where *Crotophaga sulcirostris* occurs chiefly. Partly for this reason it was not detected in 1945. Numerous specimens were taken in 1949 and 1950 for investigation of the breeding cycle. Reported previously at Melgar, Tolima (de Schauensee, *op. cit.*: 494).

Otus choliba crucigerus (Spix).—On February 12 a nest of this Screech Owl was found in the Laja Valley north of Villavieja. It was seven feet up in a 12-foot dead stub which was a foot in diameter. There was a rotted out limb that formed an access to the hollow interior. Two small young were 14 inches down from the entrance. When I first approached the area, an owl was seen perched among fairly open twigs of a small tree in mid-morning light. It distorted and lengthened its face in the concealing reaction but the ear tufts stood up only slightly. When it was shot, a second bird, the male, flushed from the nest stub, whether or not actually from the nest cavity I could not be sure. On January 31 a male was taken at night as it gave a low mellow trill with little acceleration at the end. This note, which resembled closely the trills of some of the western races of *Otus asio*, served to excite the bird when I whistled it. Evidently the note has the same aggressive or territorial significance as in the North American species. Specimens: ♂, January 31, testis 12 mm., iris

yellow, weight 142.4 gm.; ♂, February 12, testis 7 mm., 139.0 gm.; ♀, February 12, with brood patch, 163.2 gm.

**Asio stygius robustus* Kelso.—This owl has been considered typical of the subtropical and temperate zones, but on February 25 one was taken near our camp in the thorn scrub of a broken mesa border. In mid-morning my attention was attracted by the loud calling of a *Buteo magnirostris*. It was apparently excited by the owl which flew from the tree in which the hawk was calling. The owl moved 400 yards and was found sitting with ear tufts erect in a vine-tangled tree. It was a female; largest ovum 1 mm.; iris, yellow; weight, 675 gm.

**Phaethornis anthophilus anthophilus* (Bourcier).—On January 28 two of these hummingbirds were taken in a canyon bottom 14 kilometers west of Coyaima, 1500 feet, Tolima. These were seen at a red-flowering tree *Brownea ariza* in which the blossoms hung in large clusters. The hummers fed, while hovering, by probing directly up into the deep corollas, for which the long bill and neck of this hummer seem especially suited. Specimens: ♂, testis 2.5 mm., lower mandible, except tip, red, upper mandible black; juvenile, bill coloration same. This species has been reported south to Chicoral and Espinal.

Lepidopyga goudoti goudoti (Bourcier).—Herbert Mason, botanist of our party, found a nest of this hummingbird in a small croton plant at the base of a low sandstone cliff near camp. The nest was about two feet from the bare ground in an open crotch. The whitish lichens placed on the outside of the nest rendered it inconspicuous in the gray bush, but when the dark green adult sat on it she was so conspicuous as to be visible 60 yards away. On February 11 the nest contained two blackish half-grown young which the parent shaded from the mid-day sun. The young had yellow borders of the mouth and a small patch of rich brown down in the middle of the back. On October 24, 1950, a nest with two eggs was found in the same area.

**Momotus momota subrufescens* Sclater.—Motmots were encountered occasionally in 1949 and 1950 in the heaviest woods of the river bottoms. On March 6 one was flushed from the entrance of a hole in flat sandy ground within the woods. The hole was about three inches in diameter and extended down at an angle for at least four feet. Specimens: sex?, January 31, iris red, weight 102.0 gm.; ♂, March 5, testis 5 mm., with brood patch, 94.8 gm.; ♂, March 6, testis 5 mm., with brood patch; ♂, October 29, testis 2 mm., 92 gm.

The three motmots saved as skins match closely the series of *subrufescens* from the Santa Marta district in the American Museum of Natural History. Also similar are the birds in that collection from Chicoral and Honda, Tolima, as Chapman originally (*op. cit.*: 271, 1917) indicated. Later Chapman (Bull. Amer. Mus. Nat. Hist., 48: 27–59, 1923) assigned these birds from Tolima to *M. m. conexus*, along with two from the middle Magdalena Valley in the vicinity of Puerto Berrio, thus giving *conexus* a split range in Panamá and Colombia with *reconditus* occupying eastern Panamá and northwestern Colombia. On reexamining Chapman's material it appears to me that his birds of the middle Magdalena are very close to the paler variants of *reconditus* and might best be considered as intergrades of *reconditus* with *subrufescens* which show a color stage similar to *conexus* of Panamá. Such an interpretation avoids the incongruity of a split range for *conexus* and fits better with the *subrufescens*-like color of the birds of the upper Magdalena. We may then envison *subrufescens* extending south in the tropical zone from the Santa Marta district to the upper Magdalena Valley with birds of the mid-valley region showing some intergrading influence of the adjoining *reconditus* to the west. De Schauensee (*op. cit.*: 599) reports other specimens from the upper Magdalena to be the same as

birds of the Panama Canal Zone, a situation which inexplicably does not accord with the matching of my material and the birds from Honda and Chicoral with *subrufescens*.

**Veniliornis kirkii cecilii* (Malherbe).—This species of small woodpecker was found in dense river bottom forest, working at middle heights in the 50-foot trees. Reported earlier from Chicoral (Chapman, *op. cit.*, 1917). Specimens: ♂, March 5, testis 9 mm., with brood patch, 35.0 gm.; sex?, March 5, 27.6 gm.

**Campylorhamphus trochilirostris venezuelensis* (Chapman).—Encountered once in tall river bottom forest eight kilometers north of Villavieja on March 6. The male taken had a testis 9 mm. long and a brood patch; weight 35.0 gm.; bill dull red. This woodhewer had recently fed on a large cicada, a type of food for which the exceptionally long, slender, curved bill of the species does not seem to be particularly adapted. Reported by de Schauensee (Caldasia, 5: 657, 1950) from Espinal and Gualanday.

**Certhiaxis cinnamomea fuscifrons* (Madarasz).—This spinetail was found in an area of grass six feet high in the partly cleared river bottom on March 4. A group of them was stationed in low brushy trees in the grass by a small slough. They sat rather inactively and chattered. One, at least, postured deliberately with the head thrust straight up and the small yellow throat patch directed toward another bird. Specimens: adult ♂, testis 6 mm., iris dull ivory, weight 18.6 gm.; adult ♀, ovary inactive, iris dull ivory, 18.0 gm.; juvenal ♂, testis 1 mm., iris gray, 17.0 gm.

**Thamnophilus punctatus subcinereus* (Todd).—In brush at the edge of a canyon bottom wash 14 kilometers west of Coyaima, 1500 feet, Tolima, one of these antwrens was taken on January 28. This male is paler beneath than topotypical *subcinereus* from the Santa Marta district. This species has been reported south to Chicoral by Chapman (*op. cit.*, 1917).

**Camptostoma obsoletum caucae* Chapman.—Found once in river bottom forest eight kilometers north of Villavieja on March 6. This flycatcher has been reported previously from San Augustín and from the vicinity of Giradot and Chicoral (de Schauensee, *op. cit.*).

**Thryothorus leucotis leucotis* Lafresnaye.—Found on March 5 in the shaded dense vine tangles of a river bottom forest where at least six singing males were present in an area of about ten acres. Previously recorded from Chicoral by Chapman (*op. cit.*, 1917). Specimens: adult ♂, testis 5 mm., weight 24.2 gm.; adult ♂, testis 1.5 mm., 22.8 gm.

**Hylocichla minima minima* (Lafresnaye).—One of these winter visitant thrushes was taken on February 18 in a wooded ravine 20 kilometers southwest of Garzon, 2600 feet, Huila. It was a female showing immature skull; weight 33.1 gm.

Polioptila plumbea anteocularis Hellmayr.—On February 27 I witnessed what appeared to be courtship or sex recognition display in this species. A male of a pair was shot, and soon the female began giving a whining note regularly. Another male appeared and postured before her repeatedly, taking a perch on the same level or below the female. He sang softly and steadily and took an erect position, bill straight up and with the back of the head with its black crown patch oriented toward the female whether she was above him or to the side. The female gave no sign of response, but the male continued to maneuver elaborately to keep the black patch directed toward her. The patch in the male of this gnatcatcher is large and has a sharply defined transverse posterior border far back on the nape. The function of this marking in sex recognition seems strongly suggested by the special display behavior.

**Vireo flavoviridis flavoviridis* (Cassin).—One of these migrant vireos was taken on March 4. It was a male with testis 2.2 mm. long and a heavy deposit of fat, conditions suggesting that it was in migration; weight 22.1 gm. The bird was singing, in what was probably about half-volume, in a dense-crowned tree near a banana grove. The species has been reported at Chicoral by Chapman.

**Dendroica aestiva amnicola* Batchelder.—Yellow Warblers, apparently of this race, were wintering in the valley. *D. a. aestiva* was taken in 1945. The gonads were small as in wintering birds and there was little or no fat. Specimens: ♂, February 1, weight 8.8 gm.; ♂, March 3, 8.8 gm.

**Basileuterus fulvicauda motacilla* Miller.—Warblers of this newly described race are now known from near Coyaima and Chicoral, Tolima, and from near Colombia, Huila. For comments on habitat, activity, and specimens see Miller (Proc. Biol. Soc. Wash., 65: 16, 1952).

**Psomocolax oryzivorus oryzivorus* (Gmelin).—On February 28 at Bodega, 2000 feet, between Colombia and Baraya, Huila, a loose flock of about 20 of these Rice Grackles was feeding in a dry rice field and in scattered mesquite at its borders. The bird taken had rice in the stomach; adult ♂, testis 4 mm., weight 200 gm.

**Agelaius icterocephalus icterocephalus* (Linnaeus).—Encountered in the tall grass borders of a slough near the main river channel. No more than four were seen at one time. Two independent juveniles were taken from this group and one adult male was seen, the latter giving no sign of territorial establishment. This blackbird recently has been reported from Estación Saldaña (de Schauensee, Caldasia, 5: 999, 1951). Specimens: juvenal ♀, March 4, weight 27.0 gm.; juvenal ♂, March 5, 31.6 gm.

**Tanagra laniirostris crassirostris* (Sclater).—Present in small numbers in broken woodland along tributary streams of the Magdalena. Reported at Chicoral by Chapman. Specimens: adult ♂, February 2, testis 8 mm., weight 15.3 gm.; adult ♀, February 9, ovum 1.5 mm., 15.1 gm.; immature ♂, February 14, female plumage, testis 2 mm., 16.9 gm.; adult ♂, March 3, testis 7 mm., 14.5 gm.

**Spermophila nigricollis nigricollis* (Vieillot).—One was taken on March 3 in bushes along the border of a wash. It was a male with 2 mm. testis; weight 10.2 gm. No others were seen in the area which had been visited frequently.

Volatinia jacarina splendens (Vieillot).—On February 14 I flushed a male from a nest situated one foot up in a grazed off clump of coarse grass. The top of the clump was two feet above ground and no other grass of any kind stood within a foot of the clump. The bird appeared to be a fully black male; I could not be certain that it had actually been settled on the nest, but it flushed when I was only three feet away. The nest was a thin, deep cup, and it contained two eggs.

Since these supplementary records increase the knowledge not only of the avifauna of the arid extreme of the valley floor at Villavieja but also indicate, with the previous report, the composition of the avifauna of the valley bottom generally from Giradot to Garzon below the 2600-foot level, it seems appropriate to list here the additional species reported in the literature. Only those reports giving specific record stations in the valley floor are included. Most of these are in Tolima, and particularly from Chicoral, Melgar, Cunday, Saldaña, and Purificación. This material is drawn from de Schauensee's excellent compilation of the distribution of the birds of Colombia (*op. cit.*) and the

additions entered therein by Dr. Dugand at the Instituto de Ciencias. Without this source this more complete faunal treatment would be impossible. The list, which brings the total avifauna to 192, is as follows:

Nothocercus bonapartei discrepans
Pandion haliaëtus carolinensis
Falco deiroleucus
Himantopus himantopus mexicanus
Rynchops nigra cinerascens
Piaya cayana mehleri
Piaya minuta gracilis
Bubo virginianus elutus
Campylopterus falcatus
Florisuga mellivora
Chlorostilbon gibsoni gibsoni
Damophila julie julie
Amazilia cyanifrons cyanifrons
Amazilia saucerrottei warscewiczi
Chalybura buffonii buffonii
Chrysoptilus punctigula striatigularis
Cercomacra nigricans nigricans
Myrmeciza longipes boucardi
Manacus manacus flaveolus
Arundinicola leucocephala
Myiodynastes luteiventris luteiventris (non-resident)
Myiozetetes similis columbianus
Cnemotriccus fuscatus cabanisi
Capsiempis flaveola leucophrys
Phyllomyias griseiceps cristatus
Leptopogon amaurocephalus diversus
Pipromorpha oleaginea parca (also taken by me 6 km. E Chaparral, 2700 feet)
Progne chalybea chalybea
Progne tapera tapera
Vireo olivaceus (non-resident)
Dacnis lineata egregia
Dendroica fusca (non-resident)
Wilsonia canadensis (non-resident)
Ramphocelus dimidiatus molochinus
Tachyphonus rufus
Spermophila intermedia bogotensis
Arremon aurantiirostris erythrorhynchus

In the earlier report it was possible to list 12 forms that appeared to be endemic to the upper Magdalena tropical district. All occurred on the floor of the valley even if they were not confined to it. To this list may now be added five more races:

Chlorostilbon gibsoni gibsoni (Fraser)
Manacus manacus flaveolus Cassin (de Schauensee; also taken by me 6 km. E Chaparral, 2700 feet)
Basileuterus fulvicauda motacilla Miller (1951, *op. cit*)
Ramphocelus dimidiatus molochinus de Schauensee
Tiaris bicolor huilae Miller (1951, *op. cit.*)

The avifauna of the upper Magdalena basin contains a large group of forms which are essentially west-Andean and which for the most part reach their southeastern limits in this area compared with the small group with east-Andean affinities. To the previous list of 26 west-Andean forms the following 21 may now be added on the basis of improved information on ranges derived largely from de Schauensee's work. One form on the previous list, *Ramphocelus dimidiatus dimidiatus*, is now known to occur as an endemic race in the area but the species is west-Andean. The taxonomic entity involved in west-Andean relations is indicated in bold face type.

Columba cayennensis **occidentalis**
Piaya minuta **gracilis**
Bubo virginianus **elutus**
Asio stygius **robustus**
Nyctibius griseus **panamensis**
Damophila **julie julie**
Amazilia **cyanifrons cyanifrons**
Amazilia **saucerrottei warsewiczi**
Chrysoptilus punctigula **striatigularis**
Veniliornis kirkii **cecilii**
Certhiaxis cinnamomea **fuscifrons**
Erator inquisitor **albitorques**
Myiozetetes similis **columbianus**
Capsiempis flaveola **leucophrys**
Camptostoma obsoletum **caucae**
Pipromorpha oleaginea **parca**
Thryothorus leucotis **leucotis**
Dacnis lineata **egregia**
Tanagra laniirostris **crassirostris**
Spermophila intermedia **bogotensis**
Arremon aurantiirostris **erythrorhynchus**

To the list of nine eastern types, these three may now be added:

Otus choliba **crucigerus**
Podager **nacunda minor**
Turdus **leucomelas albiventer**

Some attention was given previously to the possibility that the low gap in the eastern Andes at Andalucia in southern Huila served as an avenue for dispersal of east-Andean forms into the upper Magdalena Valley. In 1949 I had the opportunity to travel through this pass, the elevation of which we checked as 7500 feet, and on through to Florencia and the lowlands to the east in Caquetá. Two factors now make me think this is an unlikely route for crossing of the east-Andean elements. First, the heavy cloud forest of the pass area and the tropical forest below are ecologically unsuitable for the forms in the Magdalena Valley under consideration and constitute therefore a vast barrier regardless of elevation or precise zonal classification of the pass, which I would judge approaches temperate conditions. Second, the lowland fauna of Caquetá is of Amazonian forest type, not that of the Llanos to the north, to which latter the forms of the Magdalena basin are most related. The 12 east-Andean forms probably have crossed the Andes, recently or earlier, north of Andalucia, perhaps even some of them north of Bogotá. Eight of them still occur in open terrain in higher zones or to the northward along such routes today. Crossing in the passes east of the town of Colombia in extreme northeastern Huila appears much more likely, ecologically, than at Andalucia.

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