
Birds Collected in Northeastern
Nicaragua in 1922

BY

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BY WHARTON HUBER.

Through the financial assistance of several members of this Academy Mr. J. Fletcher Street and the writer were enabled to undertake field work in northeastern Nicaragua during the early part of 1922. Dr. Theodore N. Bouchelle, surgeon and metallurgist of the Eden Mining Co., very generously offered to bear all of the expense of the expedition from the time we reached Prinzapolka and throughout our stay in the field. This he did in addition to caring for our health and rendering invaluable help.

Leaving Philadelphia on February 28, we sailed from New Orleans on March 3, arriving in Bluefields, Nicaragua, on March 8. A small amount of collecting was done around Bluefields March 9 to 12, and we sailed to Prinzapolka. From Prinzapolka to Tunkey the trip was made by pitpan or native dugout lashed to a small power boat. Practically no stops were made as two officials of the mining company were in haste to reach the mine. It was with deep regret that we passed rapidly through a country teeming with bird life, and could not do any collecting. From Tunkey to Miranda the pitpan was poled by Mosquito Indians. Here we took a little narrow gauge gasoline train of flat cars for the Eden Mine.

Field work was vigorously pursued about Eden from March 20 to April 10. Then from April 11 to 15 we worked at Santa Rosita, an abandoned gold mine about 40 miles down the Banbana River below Miranda. There was quite a bit of cut-over land about the abandoned mine at Rosita that was covered with a new growth eighteen to twenty feet high. The country was not as mountainous as about Eden but was covered with heavy forest.

We made our headquarters at the staff house at Eden where we were made very comfortable. The mountains about the Eden Mine are from 1500 ft. to 2500 ft. in height and are thickly covered with forest. A small amount of land was cleared for a potrero or pasture for the cattle that supplied beef for the staff. Numerous streams and rivers were everywhere as the average rainfall at Eden is 145 inches. The latitude of Eden is 14°-00' North, Longitude 84°-26' West.

A trip on mule back was made across the mountains to the Great Falls, Pis Pis River, which is about ten miles northwest of Eden. This locality is in the heart of the mountains, and in the Waubs River watershed. Collecting was carried on at Great Falls from April 20 to 26, and one or two days collecting was done there on May 14, 18, and 26. → Wana

Mr. Street's business as an architect called him home on May first. The writer continued collecting until May 24 when the heavy and continuous rains put a stop to further work. Leaving Eden by pitpan on

June 5 I reached Prinzapolka on the morning of the 7th, the Indians taking advantage of a flood in the river and paddling day and night. I left Bluefields on June 18 and reached Philadelphia June 29.

In the sixty-three days collecting we made up 625 bird skins, besides nearly a hundred mammals, a collection of fish and reptiles, and over seven thousand insects were also collected.

Since our visit in 1922 the Eden Mine has been abandoned as the supply of gold ran out. It will only be a very few years until the forest will completely obliterate all traces of the clearings, and it is for that reason that I have given the latitude and longitude, carefully determined by the engineers at the mine.

The material was studied and the report prepared immediately after the return of the expedition but for various reasons publication has been delayed until the present time.

TINAMIDAE

Tinamus major fuscipennis Salvadori.

Nos. 75189-93, ♀♂♂♂♂, April 20, 23, 23, May 14, 14, Great Falls, Pis Pis River.

Iris sepia. Bill black above, light horn below. Legs and feet pale bluish slate.

Seen several times in the hills about Eden but no specimens were secured there. Exceedingly shy, and usually only obtained by chance during the day. Towards evening or about six o'clock its call is frequently heard in the forest, hence the name of "Six O'clock Bird." At this time one may stalk the birds fairly easily, especially by occasionally imitating their call. On the night of May 14th while out in the forest at Great Falls with a jack light, a male of this species was shot from a tree where it was roosting on a limb about thirty-five feet up. The eyes reflected the light and I was very much surprised not to pick up a mammal after shooting. Known as "Mountain Hens" in Nicaragua one frequently sees them in captivity. The flesh, of a slightly greenish tint, is very delicious when cooked.

Nest: While we did not personally see the nest we were told by natives that it was placed "on the ground in the forest." Two sets of eggs were brought to us. Four eggs, taken April 5th at Eden, measure respectively 52 x 46.6, 59.2 x 46.4, 61.7 x 48.8, 63.2 x 49.7 mm. They were "nile blue" in color. One egg from a nest taken early in April at Santa Rosita was given to us on April 11th. This egg was so badly decomposed that the shell is stained and discolored. It measures 57.3 x 47.3 mm.

CRACIDAE

Ortalis cinereiceps frantzii (Cabanis).

Nos. 75194-95, breeding ♀♂, April 12, Santa Rosita, April 3, Eden.

Iris sepia. Bill black. Legs and feet slate color.

Chachalacas were more often heard than seen, its call of Cha-cha-la-ca starting slowly and repeated faster and faster was often heard particularly towards sunset. At Santa Rosita flocks of a dozen or more individuals were fairly common in the low growth.

Nest: A single nest was found from which the bird was flushed. Situated on an old stump in a clump of bushes in the open potrero. Composition was of a small quantity of decayed vegetation which has left many stains upon the eggs. The three eggs were taken at Eden, May 27, and were heavily incubated. Of a creamy-white color with the rough pebbly surface characteristic of *Ortalis*. They measure 50.4 x 36.8, 51.5 x 36.6, 52. x 37.7 mm.

PERDICIDAE

Odontophorus melanotis melanotis Salvin.

Nos. 75196-98, juv. ♀, adults ♂♀, April 20, Great Falls, Pis Pis River; June 4 between Eden and Miranda.

Adults: Iris sepia. Bill black, brown at tip. Legs and feet dark slate.

Juvenile: Iris olive brown. Bill light reddish brown. Legs and feet slate.

The plumage of the young is similar to that of the adult female except that it is slightly lighter especially the chest, is more streaked, the shaft streaks of the back are light buff and are conspicuous. The throat is between tawny and ochraceous tawny instead of blackish as in the adult female.

This is an exceedingly shy species and is found in small flocks or coveys in the forest.

Rhynchortyx cinctus cinctus (Salvin).

Nos. 75199-200, ♂♂, May 8, June 3, Eden.

Iris reddish brown. Bill black at base, tip brownish horn. Legs and feet plumbeous.

These two specimens from Eden agree in color with a male, No. 128406, U. S. N. M. collected by Dr. Charles W. Richmond on the Escondido River, 50 miles from Bluefields, Nicaragua, August 23, 1892. In the series before me there is considerable variation in the color of the back, rump, and upper tail coverts. This is also true in specimens of *R. c. australis* Chapman, from different elevations in Colombia. The birds before me from the lowlands of eastern Nicaragua have the back, rump, and upper tail coverts light olive (buffy citrine), an occasional feather with a narrow very deep brown, nearly black shaft streak; the feathers are minutely barred and speckled with black. Three males from interior and northern Nicaragua have the back and rump ochraceous buff overlaying vinaceous drab. Two males from Panama seem to agree closely with the birds from central and northern Nicaragua.

This is a rare bird in all collections. In Nicaragua I met with it only in the deep, dark forest, where only a glimpse of a close at hand quickly moving object was all that I had, although I invariably shot with the hope of securing one. It was in this manner that I secured these two specimens. While I never saw more than three together at a time it is safe to say that there were generally only two. The thickness of the growth, and the twilight prevailing in the heavy forest, made objects on the ground, even when close at hand, very difficult to see.

COLUMBIDAE

Columba rufina pallidicrissa Chubb.

No. 75284, ♂, March 12, Bluefields.

Iris, orange red, ring around eye red. Bill black. Legs and feet vermilion lake.

While this was a common species around the lagoon, through lack of time I secured only the one specimen.

There is but one other specimen of *pallidicrissa*, a male from Quirigua, Guatemala, in the Academy's collections, so I sent the present specimen to Mr. Outram Bangs of the Mus. of Comp. Zool. for comparison. He writes me as follows: "It is a very dull-colored example and lacks the rusty color of the wing coverts and back of the species entirely. Still it comes from right in the middle of the range of the form and I can't believe that it is anything else. In a long series, however, we have none so dull in color." The measurements are as follows: Wing 162.9, tail 109.5, bill from base 23.5, tarsus 24.3 mm.

Columba nigristrois nigristrois Selater.

Nos. 75265-70, ♂♂♂♂♀, April 10, 29, May 3, 11, Eden, April 13, Santa Rosita.

Iris pale carmine. Bill black. Legs and feet lake red.

A common bird usually perched on a limb of a trumpet tree its mourning note became one of the familiar sounds of the forest.

Claravis pretiosa pretiosa (Ferrari-Perez).

Nos. 75271-77, ♀♂♀♂♂, May 13, 14, 4, March 30, Eden, April 14, Santa Rosita, April 24, Great Falls, Pis Pis River.

Iris pale rosy carmine. Bill greenish gray. Legs and feet flesh color.

A common bird wherever there was a clearing.

Leptotila cassini cerviniventris (Selater & Salvin).

Nos. 75279-83, ♀♀♂♂, April 22, Great Falls, Pis Pis River, April 7, May 13, 16, Eden.

Iris straw yellow, naked space around eye carmine purple. Bill black. Legs and feet lake red.

***Oreopeleia violacea albiventer* (Lawrence).**

No. 74278, ♀, April 22, Great Falls, Pis Pis River.

Iris golden yellow. Bill carmine purple, brown at tip. Feet and legs lake red, blending to flesh color posteriorly.

Obtained high up on a hillside in dense forest. While several others were flushed from the ground in the forest this is the only specimen we secured due to the denseness of the plant growth.

RALLIDAE***Cerciscus cinereiceps leucogaster* Ridgway.**

Nos. 75134-40, ♂♂♂♂♀, juv. ♂♂, March 24, May 3, 4, 8, 11, 12, 21. Eden.

Iris carmine. Bill horn color, light green towards base. Legs and feet raw umber.

Fairly abundant at Eden in the clumps of low brush and high grass in the "potrero" or pasture. Often heard and occasionally seen, its habits are rather mouse-like. Easily called out of hiding by imitating the squeak of a young bird.

In the above series there is considerable individual variation. The gray of the head in all of the specimens extends only back to a point between the eyes, and is met there by the brown of the back. A Panama specimen has the entire head gray, the neck and back much darker brown. In the Nicaragua series the throat is white while the breast is white topped with vinaceous cinnamon, whitest along the medial line. In two specimens Nos. 75134 a ♂, and 75138 a ♀, the wing coverts are barred with white. No. 75139 is a downy young ♂, glossy black with a greenish tinge above, below dull black. In life the bill was dull flesh color with a crossband of deep sepia brown across the middle.

Nest: A nest found at Eden April 30, one foot up, in a small bush about fifty yards from the staff house was almost globular in shape with a small entrance at the side. It was composed almost entirely of grasses. The three eggs that were heavily incubated are creamy white, spotted all over with cinnamon rufous and lavender. They measure 32.5×20.9 , 30×22 , 28.1×21.9 mm. respectively.

CHARADRIIDAE***Ereunetes pusillus* (Linnaeus).**

No. 75131, ♀, May 7, Prinzapolka.

Iris brown. Bill black. Legs and feet greenish black.

This specimen was obtained by Mr. Street when he reached the coast.

PARRIDAE***Jacana spinosa spinosa* (Linnaeus).**

Nos. 75132-33, ♀♂, May 7, Prinzapolka.

Iris brown. Bill and frontal shield yellow. Legs and feet greenish olive.

A common bird at the mouth of the Prinzapolka River.

HELIORNITHIDAE

Heliornis fulica Boddaert.

Nos. 75127-30, ♀♂♀, April 11, Tunkey River above Tunkey. April 15, Tunkey River between Tunkey and Miranda, April 15, Banbana River between Rosita and Tunkey.

This interesting species was to be seen sparingly on the Banbana and Tunkey Rivers. Occasionally seen on the quiet stretches of water under the overhanging boughs, but more frequently in the eddies at the foot of a rapids. Here swimming and diving amongst the foam and drift it seemed to obtain its food. It is an extremely shy bird, for as our canoe approached it would swim close to the bank and endeavor to hide in the drift or overhanging foliage, or would fly up and alight on a horizontal limb over the water sitting motionless as our canoe approached. Several times these birds were observed making long flights up or down the river. The Sumo and Mosquito Indians hold the Finfoot in great reverence and are not at all pleased at any attempt to collect it.

ARDEIDAE

Florida caerulea (Linnaeus).

No. 75141, ♀, April 2, Eden.

Iris straw. Bill grayish at base, black at tip. Legs and feet pale green.

This specimen is in the white plumage of the immature. Shot on the cleared pasture land where several individuals could be seen daily feeding amongst the grazing cattle. A common species along the rivers.

Heterocnus cabanisi (Heine).

No. 75142, ♂, June 6, Banbana river, just above Yawaltara Rapids. Iris yellow.

Flushed from the high rank grass on the river bank as we passed in a canoe on the crest of a flood. The Sumo Indian boatman were much pleased when this specimen was retrieved after a hard fight to hold the canoe into the bank, as the meat was considered very fine eating.

ANATIDAE

Calina moschata (Linnaeus).

Nos. 75143-4, ♀♂, May 11, Eden, May 9, Prinzapolka.

Colors of soft parts of ♀. Iris light brown, naked skin over bill and eye rose pink. Bill black with bars of grayish pink. Legs and feet black.

Common on the savannas above Prinzapolka, also on the lower Banbana and Prinzapolka Rivers. The ♀ was the only one seen about Eden where it

fed on a small dam opposite the mine machine shop. Although it was seen for several days previous to May 11th, I was not able to approach within gunshot due to its wariness and the lack of cover on the hillside.

Dendrocygna autumnalis (Linnaeus).

Nos. 75145-49, ♂♀♀♀♀, March 14, Prinzapolka.

Killed at a single shot from a flock of nine that were feeding in a small pond close to some houses on the edge of the settlement. These ducks are known as "whistlers" on the coast of Nicaragua, and are said to be abundant during the winter months.

CATHARTIDAE

Sarcorhamphus papa (Linnaeus).

Nos. 75152-3, ♂♂, April 18, Eden.

Iris creamy white. Legs and feet slaty black.

Seen frequently at Eden but generally high in the air except when dead cattle were to be found. They were then rather tame and as many as a dozen were to be seen feeding upon the carcass and sitting in the trees near-by.

FALCONIDAE

Folyborus cheriway auduboni Cassin.

No. 75150, ♂, May 7, Prinzapolka.

Iris orange brown. Bill azure. Legs and feet canary yellow.

We saw it only near the coast.

Ibycter americanus guatemalensis Swann.

Nos. 75173-6, ♂♂♂♂, April 11, Tunkey River 5 miles above Tunkey. April 12, Santa Rosita.

Iris scarlet, naked skin of the head vermillion. Bill basal half azure blue, tip gambouge yellow. Cere azure blue. Legs and feet brick red.

The crop of one specimen taken from a small flock at Santa Rosita was gorged with wasps and small seeds.

The specimens taken on April 11 were shot from a flock of fifteen or twenty individuals that were perched on the ridge poll and about a Sumo Indian house. Their loud call of "Ka-Ka-Ka-Ka" could be heard some distance upstream as we paddled down in a dugout canoe. The Indians were not at home.

While the eastern Nicaragua birds rightfully belong to the northern form separated by Swann yet the individual variations are considerable as will be seen from the following measurements taken from the above four ♂. Wing 360-380 (371), tail 244-255 (251), tarsus 57.6-59.6 (58.4), culmen from anterior portion of nostril 28.7-30 (29.1) mm. The white of the lower parts does appear to extend farther forward on the breast, and all of

the above skins appear at first glance to be larger, and to have greater feet than Panama birds.

***Micrastur melanoleucus naso* (Lesson).**

No. 75182, ♂, April 27, Eden.

Iris reddish brown. Bill dark brown. Legs and feet yellow.

This single specimen was the only one seen. It is in the intermediate plumage. Pale ochraceous fawn below, without spots or bars: the nuchal collar is of a dirty yellowish white with the tips of the feathers black. Its measurements are as follows: Wing 286, tail 321, tarsus 9.1, culmen from anterior portion of nostril 21.2 mm.

***Buteo platypterus platypterus* (Vieillot).**

Nos. 75184-5, ♂♂, April 1, 8, Eden.

Iris brownish yellow. Bill horn color, cere greenish yellow. Legs and feet yellow. Both specimens are in the immature plumage.

The Broad-winged Hawk was rather common along the small streams near Eden; all seemed to be in the immature plumage.

***Bupornis nigriventris arguta* Peters & Griscom.**

Nos. 75186-7, ♀♂, May 7, Prinzapolka.

Iris yellow. Bill black, cere azure blue. Legs and feet yellow.

The two specimens were collected by Mr. Street on the outskirts of the village. We did not see it about Eden.

***Leucopternis ghiesbreghtii costaricensis* W. L. Slater.**

No. 75181, ♀, May 5, Eden.

Iris brown. Bill bluish horn color, black at tip. Legs and feet light yellow.

This, the only one seen, was shot from high up in a tree in the deep forest well up on the hillside.

***Elanoides forficatus yetapa* Bonn. & Vieillot.**

No. 75177, breeding ♀, March 24, Eden.

Iris dark hazel. Bill horn color, bluish towards base. Legs and feet pale slate.

This specimen was shot shortly after copulation, which we witnessed. Upon dissecting the largest egg was found to be slightly over one inch in length.

A number of these kites were regularly seen at Eden, Santa Rosita, and at Great Falls, Pis Pis River, but as they were so extremely wary this was the only one secured. On April 12 at Santa Rosita, a Swallow-tailed Kite was found incubating on a nest high up in a balsa tree. As it flushed it was shot but lodged high up and all efforts to dislodge it failed. The balsa tree

was one of a few very tall trees left when the land was cleared a number of years before as mining operations were started, then abandoned. At the time of our visit the second growth was from twelve to fifteen feet high.

This breeding specimen has the back and interscapular region deep bottle green as in South American examples, and thus extends the breeding range of this form to Northeastern Nicaragua. The measurements are as follows: Wing 435, tail 313.7, culmen from anterior portion of nostril 21.6, tarsus 31.3 mm.

Harpagus bidentatus bidentatus (Latham).

No. 75183, ♀, March 30, Eden.

Iris coppery yellow. Bill, upper black; lower, greenish white. Cere yellow. Naked skin around eyes greenish yellow. Legs and feet canary yellow.

Shot from a trumpet tree along a small stream called the Tunkey Bin. Its actions were very much like *Buteo platypterus*.

This specimen is in the immature plumage. Brown above, underparts white streaked with large tear-shaped brown centers to the feathers. Sides of the neck barred with rufous; a few feathers of the fore part and sides of the head dark bluish slate.

Wing 205, tail 142, culmen from anterior part of nostril 14.6, tarsus 45.6 mm.

Ictinia plumbea plumbea (Gmelin).

Nos. 75178-80, ♂ and breeding ♀♂, April 2, Eden, April 12, Santa Rosita, May 4, Miranda, 5 miles S. E. Eden.

Iris carmine. Bill black. Legs and feet orange.

These kites were seen almost daily around Eden where the forest had been cleared and second growth had taken its place. At Santa Rosita they were extremely numerous in the low second growth. Cicadas swarmed here and we watched the kites catching the cicadas in their claws from the foliage of the tops of bushes and also from the air.

Falco albigularis albigularis Daudin.

No. 75188, ♂, March 24, Eden.

Iris blue black. Bill blue black. Cere and naked skin around eyes yellow. Legs and feet pale orange.

This is the only one we saw around Eden where it was shot from the top of a high dead tree that contained a colony of martins. Just back of Bluefields several pairs were seen on dead trees acting very much as if they were breeding, this was on March 11 and 12.

BUBONIDAE

Pulsatrix perspicillata saturata Ridgway.

No. 75151, ♀, May 6, Eden.

Iris brownish orange. Bill yellowish. Naked parts of feet horn gray. The above was taken in the dense forest well up on a hillside.

PSITTACIDAE

Ara macao (Linnaeus).

Nos. 75201-2, ♀♂, May 12, Eden, April 15, Banbana River between Santa Rosita and Tunkey.

Rather a common species around Eden, but very difficult to get a shot at. Without doubt this is the most striking bird of the tropics especially where they could be seen daily and in numbers as they were at Eden. Their parrot-like high-pitched scream was always a signal to drop our skinning. Whether it was a pair flying shoulder to shoulder with measured wing beats or a dozen or more individuals in a straggling line with long streaming tails, it was a memorable event of the day. In certain lights against the deep green foliage of the forest these brilliant birds appeared dark and inconspicuous as they flew across the valley. In other lights their brilliant colors stood out in all their glory.

On April 9 about two miles south of Eden, a pair was found nesting in a cavity in a large tree. The cavity was about fifty feet above the ground. Upon entering the cavity which went straight down the female was completely hidden, even her long tail. The Indians were unable to reach the nest although several attempts were made.

Ara ambigua ambigua (Bechstein).

Nos. 75203-4, ♂♂, April 4, 19, Eden.

While not as abundant as the preceding species, they might be called fairly common about Eden. Equally as wary, and hard to obtain as they are usually about two gunshots away. Both specimens were secured with buckshot at what would seem an impossible distance.

Aratinga astec astec (Souancé).

Nos. 75207-14, ♂♂♂♂♀♀♀, March 21, April 2, 3, 4, May 6, Eden.

Iris orange, orbital space dull white. Bill light horn color. Legs and feet dusky.

Very common at Eden and also at Bluefields where flocks of from ten to thirty were flushed from a "food" tree. Their flight is very rapid.

Pionus senilis decoloratus Griscom.

Nos. 75216-19, ♀♀♂♂, May 11, March 20, April 1, Eden.

A very common species about Eden to be seen in isolated trees in the clearings as well as in the dense forest. While I have no comparative material from Costa Rica we have two specimens from Guatemala, one from Honduras, and one from Mexico. Nicaraguan specimens are slightly bluer on the tips of the primaries than the Mexican specimen especially. Under

subspecific characters Mr. Griseom says¹ in part, "Similar to typical *senilis* (*Spir*), but throat and chest noticeably more dusky purplish, less blue." The present series from Nicaragua are quite the reverse, being more blue than purplish, and the blue extending well down on the belly, especially on the full-plumaged male.

Eucinetes haematotis haematotis (Selater & Salvin).

No. 75215, May 5, Eden.

Iris brownish yellow, bare orbital space flesh pink. Bill yellowish white. Legs and feet flesh color.

This single specimen, the only one seen, I obtained in the dense forest high up on the hillside at about 1700 feet elevation. I saw it fly from one tree to another but as it remained perfectly motionless I could not locate it. I remained concealed for at least ten minutes before it moved.

Amazona autumnalis salvini (Salvadori).

Nos. 75205-6, ♂♂, May 10, Eden, April 14, Santa Rosita.

Iris reddish orange. Bare orbital space white. Bill horn color. Legs and feet light plumbeous.

Not an uncommon species at all the collecting stations we visited. Very difficult to get within gunshot of. The specimen secured at Santa Rosita was shot from a flock of about twenty-five that were feeding in one tree.

These two specimens from northeastern Nicaragua are clearly intermediate between *autumnalis* and *salvini*. The yellow region on the sides of the head is much reduced and is dotted almost throughout with green feathers. It is best perhaps to place them under *salvini*.

An additional specimen No. 70853 in the Academy's collection, presented by Mrs. Theodore W. Bouchelle is clearly referable to *salvini*. It was an adult cage bird at Eden in 1922 at the time of my visit to the mine. About 1924 it was brought to Philadelphia where it was kept in captivity until the summer of 1927 when it was killed by being caught in a slamming door. This bird, a ♀, has only a trace of yellow feathers scattered through the green on the right side of the head. The left side of the head has a clear yellow space 7 x 2 mm.

ALCEDINIDAE

Megasceryle torquata torquata (Linnaeus).

Nos. 75220-22, ♀♀♂, April 15, Banbana River, between Santa Rosita and Tunkey, April 21, Great Falls, Pis Pis River.

Iris grayish blue. Bill black, horn color towards base of lower. Legs and feet greenish olive.

The ♂ and ♀ collected April 21 were mated.

¹ Amer. Mus. Novit., no. 379, Oct. 17, 1929, p. 6.

Rather rare on the upper stretches of the rivers but common on the lower and wider stretches nearer the coast.

Chloroceryle amazona (Latham).

Nos. 75223-25, ♂♀♂, April 24, Great Falls, Pis Pis River, April 15, Tunkey River, between Tunkey and Miranda.

Iris grayish black. Bill black. Legs and feet black.

Chloroceryle americana isthmica (Goldman).

Nos. 75226-29, ♀♀♂♂, April 24, Great Falls, Pis Pis River, April 5, May 16, Eden.

Iris dark sepia. Bill black. Legs and feet horn color.

MOMOTIDAE

Baryphthengus martii semirufus (Scalater).

Nos. 76839-43, ♀♀♂♂, May 11, 13, Eden.

Iris red brown. Bill black. Legs and feet black.

The above were taken in the deep forest on a hillside at about 1000 feet elevation. Their note is a deep Hoo! Hoo!, very owl-like. The bird is generally much nearer than the sound of the call note would indicate. While this species was fairly common about Eden it was more often heard than seen owing to the denseness of the forest.

Specimens from Nicaragua average larger and somewhat lighter than those from Panama and Colombia. The average measurements of the two ♂s and three ♀ above are as follows: ♂s wing 154.7, tail 301.5, culmen from anterior portion of nostril 37.5, tarsus 32.4 mm.

♀s wing 147.7, tail 273.1, culmen from anterior portion of nostril 37.2, tarsus 32.6 mm.

Electron platyrhynchum minor (Hartert).

No. 76844, ♀, May 4, Miranda near Eden.

Iris brown. Bill black, brown at tip. Legs and feet grayish black.

This single specimen when compared with Panama and Costa Rica examples shows some differences. The chestnut area both above and below is considerably darker and less yellowish in the Nicaraguan specimen. The underparts are clearer green, less bluish green than in the birds from Panama. When more material is assembled from the northern part of its range it will be possible to determine whether these differences are constant. I saw this bird sitting on a bare branch extending out from the cut bank of the small mine railroad from Eden to Miranda. My attention was attracted to its flight, which was very similar to that of the Tyrannidae. It flew from the dead branch near the ground, caught a beetle in midair, returned to the same branch again, and proceeded to beat the wings from the beetle by striking it against the branch. As it swallowed the beetle I collected it. No other individuals of this species was seen.

***Electron carinatum carinatum* (DuBus).**

No. 76845, ♀, May 8, Eden.

Iris red brown. Bill black, lighter at tip. Feet black.

In heavy forest on the hillside, this the only one of this species seen was perched about four feet from the ground.

***Momotus momota lessonii* Lesson.**

Nos. 76846-7, ♂♀, April 13, Santa Rosita.

Iris carmine. Bill black. Legs and feet horn color.

The two specimens were taken in the deep forest. This species was not seen at Eden or at Great Falls of Pis Pis River.

CAPRIMULGIDAE***Lurocalis stoneli* Huber.**

No. 75160. Type of species ♂, June 6, 10 miles above mouth of Banbana River.

This is I believe the first record for the genus *Lurocalis* north of South America. The above specimen was shot from a flock of fifteen or twenty individuals that were flying back and forth over the Banbana River at dusk. I was travelling down river in a pitpan on the crest of a flood so was unable to secure additional material. For further details of this species see *The Auk*, Vol. XI, 1923, pp. 300-301.

***Nyctidromus albicollis intercedens* Griscom.**

Nos. 75169-72, ♂, breeding ♂♂, breeding ♀, March 20, 28, Eden, April 12, Santa Rosita, April 21, Great Falls, Pis Pis River.

Iris black. Bill brown. Legs and feet pale horn brown.

A common species in all three of the above localities. It could be heard every night especially in the vicinity of houses. There was a large flat rock in front of the staff house at Eden where a pair came every night. From this rock the male called incessantly until with the aid of a flashlight he was added to the collection.

Four sets of eggs of this cuiejo were found. No attempt was made to construct a nest, the eggs being deposited upon the leaves. On March 28 an adult ♂, A.N.S.P. No. 75170, was flushed from two eggs. No ♀ was seen. The eggs were about half incubated, are of a light pinkish cinnamon spotted all over with ochraceous tawny and rather indistinct spots and blotches of lavender. There is an occasional small spot or fine line of dark brown scattered throughout. They measure 28.6×21.1 , 27.6×21.5 mm. respectively.

On April 21, at Great Falls, Pis Pis River, ♀ A.N.S.P. No. 75172 was found sitting upon two eggs. In collecting the bird one egg was broken by shot. The unbroken egg which was one half incubated measured 29.9×23.4 mm. Two eggs were taken at Eden, April 27, considerably over half incu-

bated, they measure 27.9×20.5 , 27.4×20.5 mm. A single egg was found on the ground in a clump of bushes from which the parent bird was flushed. This egg was heavily incubated, was taken May 10 at Eden, measures 30.9×21.9 mm.

APODIDAE

Streptoprocne zonaris bouchellii Huber.

Nos. 75154-61, ♀♂♂♀♂♂♀, March 25, 29, April 1, Eden.

This subspecies was described by me in *The Auk*, Vol. XI, 1923, p. 302. J. L. Peters says (*Bull. M. C. Z.*, Vol. LXIX, No. 12, p. 427) that the narrower white collar more mottled in front is not of subspecific value but depends upon age and individual variation. I do not agree with Peters in this case as at least three of the eight specimens collected from a huge flock were upon dissection found to be fully adult. No doubt a greater series from this region will settle the matter definitely.

This was a common species about Eden. Great flocks could be seen about the hills daily, only coming near the ground when their food was driven down by heavy clouds. Numbers of these swifts were seen flying into the heavy hanging vines that obscured the rocks about the Great Falls, Pis Pis River. They were evidently nesting there the latter part of April.

Chaetura pelagica (Linnaeus).

Nos. 75162-3, ♀♀, April 1, Eden.

The plumages of these two specimens have proven very puzzling to me. They do not match up with any in our series. They differ from any specimen of *pelagica* in our series by having a grayer, almost white, throat and upper breast. The gray ending more abruptly on the breast, not blending into the color of the lower parts as in our series of *pelagica*. The outer webs of the primaries are glossed with bluish violet.

A large flock of these swifts appeared about the house at Eden about nine o'clock in the morning of April first but after two specimens were shot, disappeared and were not seen again.

Chaetura richmondi Ridgway.

Nos. 75164-67, ♂♂♂♀, March 29, Eden.

About three in the afternoon of March 29 a huge flock of Richmond's Swifts appeared flying rather low over the potrero. I was only able to shoot four times at them when they were frightened away by the shooting. We never saw them again.

TROCHILIDAE

Phoebastria superciliosa cephalo (Bourcier & Mulsant).

Nos. 75346-50, ♀♂♂♀, May 5, 19, April 3, 28, Eden. April 22, Great Falls, Pis Pis River.

Iris grayish. Bill black above, flesh color below, darker towards tip. Legs and feet flesh color.

This was a common species around Eden where it could be seen daily, both along the streams and high up on the hillsides in the forest. The white-tipped central tail feathers were always conspicuous and identified this species in the field at a glance.

***Phoebastria adolphus saturatus* Ridgway.**

Nos. 75351-2, ♂♀, April 6, May 18, Eden.

Iris dark slate. Bill black above, gambouge yellow below, tip black. Legs and feet flesh color, claws horn color.

While this was a rather common species it was difficult to collect as it appeared and vanished altogether too quickly.

***Florisuga mellivora mellivora* (Linnaeus).**

Nos. 75390-2, ♂♂, April 22, Great Falls, Pis Pis River. March 20, Eden.

Iris dark slaty. Bill black. Legs and feet black.

A common species in the vicinity of streams.

***Polyerata amabilis* (Gould).**

No. 75376, ♂, April 8, Eden.

***Amazilia tzacatl tzacatl* (De la Llave).**

Nos. 75365-73, ♂♀, juv. ♂♂♂♂♂♂♂♂♂, March 21, 25, 30, 31, April 3, 5, Eden. March 9, Bluefields.

Iris blue black. Bill black above, flesh color below, tip black. Legs and feet fuscous.

Rieffer's Humming Bird was extremely common in all the localities visited about Eden.

A young ♂, A.N.S.P. No. 75367, fully feathered, was taken at Eden on March 30. In this specimen the bill is only 10 mm. long. The feathers of the crown are quite rusty. The metallic green is confined entirely to a trace on the sides of the neck.

***Amazilia rutila rutila* (Delattre).**

No. 75374, ♀, March 10, Bluefields.

This species was only found around Bluefields where several additional individuals were seen but not collected.

***Hylocharis eliciae* (Bourcier & Mulsant).**

Nos. 75354-7, ♂♂♂♀, March 20, 21, April 8, 28, Eden.

This sapphire was frequently met with along the streams about Eden.

***Thalurania colombica venusta* (Gould).**

Nos. 75377-89, ♂♂♂♂♂♀♀♂♂♂♂♂♂♂♂♂, April 6, 27, 28, May 5, 16, Eden, April 22, Great Falls, Pis Pis River.

Iris black. Bill black. Legs and feet fuscous.

This was rather a common hummer both at Eden and at Great Falls, along the streams and well back in the forest. The series of nine males and four females show considerable variation. There is no doubt that they confirm the statement of Mr. James L. Peters that *T. townsendi* Ridgway is a subspecies of *T. colombica*. (Bull. Mus. Comp. Zool., Vol. XLIX, No. 12, p. 429.) I have submitted the series to Mr. Peters and he says "one of them, Male No. 75378, might almost pass for *townsendi*." "Three of your females are like *venusta* while No. 75379 is like *townsendi*." I feel, however, that the entire series should be called *venusta* as they are as a whole nearer that form than to *townsendi*. The two individuals are, however, intermediate between *venusta* and *townsendi*.

***Chalybura melanorrhoa* Salvin.**

Nos. 75358-64, 7♂, March 20, April 8, May 11, 16, Eden.

Iris dark gray. Bill black above, pale purplish carmine below, tip black. Legs and feet flesh color.

This species was seen only at Eden and along the smaller streams. No females were seen.

***Heliomastes longirostris pallidiceps* (Gould).**

No. 75353, ♂, April 3, Eden.

Iris dark brown. Bill black. Legs and feet black.

This is the only example of this handsome hummer that we saw. It is not in full plumage but in the immature moult and closely resembles a female.

***Klais guimeti* (Bourcier & Mulsant).**

No. 75375, ♂, April 3, Eden.

Iris dark brown. Bill black. Legs and feet black.

Taken in the dense forest on the hillside and the only one seen.

***Microchera parvirostris* (Lawrence).**

Nos. 75393-402, ♀♀♂♂, juv. ♂♂♀♂♂♂♂, April 10, 27, 28, May 8, 10, 18, Eden, May 26, April 21, 26, Great Falls, Pis Pis River.

Iris blue black. Bill black. Legs and feet black.

This was a fairly common species both at Eden and at the Great Falls. A young male was caught in the house at Great Falls, May 26, where it was busily engaged in catching and eating sand flies from the wire screens on the porch.

The above series shows a wide variation in plumage. There are but two fully plumaged males. One very young male is similar in plumage to the females, metallic bronzy green above, grayish white below. The other three males are in various stages of intermediate plumage. Grayish white below,

speckled and blotched with metallic coppery purple, above metallic bronzy green interspaced with metallic coppery purple feathers, the whole upper surface having a purplish sheen. The crown is green with a few white feathers. In two specimens there is a white line from base of bill running above eye.

TROGONIDAE

Trogon curucui tenellus Cabanis.

Nos. 75299-01, ♂♂♂, April 13, Santa Rosita, May 12, 15, Eden.

Iris brown. Orbital ring grayish blue. Bill yellowish green. Legs and feet lead color.

The three specimens collected were all that we saw of this species and were found in the deep forest.

Trogon violaceus braccatus (Cabanis & Heine).

Nos. 75302-6, ♀♂♀♂♂, May 8, April 3, May 16, Eden, April 15, Santa Rosita.

Iris brown. Bill black above, greenish white below. Feet olive.

Trogon massena massena Gould.

Nos. 75296-8, ♂♂♂, April 7, Eden, April 13, Santa Rosita.

Iris brownish yellow. Orbital ring cardinal red. Bill orange. Legs and feet raw umber.

CUCULIDAE

Playa cayana thermophila Slater.

Nos. 75285-91, ♀♂♂♀♀♂♂, March 23, 25, April 4, Eden, April 15, Santa Rosita, May 13, 15, Eden.

Iris carmine. Orbital ring pale greenish. Bill greenish yellow. Legs and feet slaty gray. Inside of mouth and tongue black.

Rather common where the cleared land had grown up into low bushes around Eden, Santa Rosita, and at Great Falls of Pis Pis River.

Crotophaga sulcirostris sulcirostris Swainson.

Nos. 75292-95, ♀♂♀♂♂, May 5, March 25, Eden, March 12, Bluefields.

Iris dark brown. Bill black. Legs and feet black.

A strain of albinism ran through the anis around Eden. The two females collected there on March 25 and May 5, both have the wings and tail thoroughly suffused with white, so much so that when they were flying they had the appearance of having pure white wings and tail. One of these specimens also has a few white feathers on the breast. This same albinistic condition of wings and tail was present in about ten per cent of the anis around Eden. I saw no signs of albinism in the anis at Bluefields, Santa Rosita, or Great Falls of the Pis Pis River, where in all three places they were very common.

The ani is a bird of the cleared country especially where there are cattle. It is not unusual to see several anis perched upon the backs of cattle. The cattle in moving about and cropping the grass stirred up quantities of insects. Small flocks were always present near the feet and mouths of these cattle catching the insects forced into the open.

A nest was found at Santa Rosita on April 14, it was about six feet up in a wild pineapple. There were eleven eggs in the nest. Several females had contributed to the clutch in this nest; they could be seen awaiting their turn to deposit eggs in it. The nest was first found at 8 o'clock in the morning and contained eight eggs. Returning again to the nest at nine thirty the same morning we found it to contain eleven eggs. Although we returned to the nest several times during the day, no more eggs were deposited. The nest was collected about five in the afternoon. The most interesting procedure was the changing of the leaf lining of the nest. Apparently each time a bird returned to the nest it brought a fresh green leaf and deposited it in the nest, removing a dried and withered leaf from the eggs. At times several anis would be on the side of the nest bringing fresh green leaves and removing the withered ones. This was probably done to shade and keep the eggs cool and retard incubation as no doubt the clutch was not complete.

The nest, a rather bulky and loosely constructed affair, was made entirely of pieces of a small vine and lined with green leaves. It measures 16×9 by 7 inches deep outside and $5\frac{1}{2} \times 4$ by 2 inches deep inside.

RAMPHASTIDAE

Ramphastos sulphuratus brevicarinatus Gould.

Nos. 75250-1, ♂♂, April 23, 26, Great Falls, Pis Pis River.

Iris emerald green. Legs and feet turquoise blue.

These were the only ones seen. None was observed either at Eden or Santa Rosita.

Ramphastos swainsonii Gould.

Nos. 75252-3, ♀♀, April 5, May 12, Eden.

Not an uncommon species about Eden.

Pteroglossus torquatus torquatus (Gmelin).

Nos. 75255-64, ♂♂♀♂♂♀♂♂, March 24, 27, April 3, 8, 29, Eden.

Iris lemon yellow. Bare orbital space, poppy red becoming brownish-black immediately around the eye. Bill, maxilla light horn color at sides, stained brownish from one half to one and one half inches from base, then blending into coppery rose at the base. Culmen blackish. Mandible black with a slight reddish tinge at the tip. Entire base of bill margined by an ivory white narrow ridge. Legs and feet sage green.

A common species about Eden where small flocks of from six to twenty were often met with, usually in the lower growth of the forest. They were

very tame and several individuals could be shot without others of the band taking flight.

Selenidera spectabilis Cassin.

No. 75254, ♀, May 12, Eden.

Iris carmine, bare skin around eye purplish green, shading into yellow below. Bill deep olive green above, vandyke brown below. Legs and feet turquoise blue.

Only two individuals of this rare species were seen, high up on a hillside in the dense forest. They were feeding near the top of a very high tree. In shooting this specimen I lost sight of the other and did not see it again.

GALBULIDAE

Galbula melanogenia Selater.

Nos. 75311-16, ♀♂♂♂♂♂, April 14, Santa Rosita, March 23, April 2, 3, 5, May 9, Eden.

Iris sepia. Bill black. Legs and feet pale yellowish green.

Common along the water courses, especially the small streams.

BUCCONIDAE

Notharchus hyperhynchus dysoni (P. L. Selater).

No. 75308, ♀, May 4, Miranda, 7 miles SE. of Eden.

Iris brown. Bill black. Legs and feet lead color.

Shot sitting on a bare limb of a trumpet tree where it looked much like a *tyrannus*.

Malacoptila panamensis inornata (DuBus).

No. 75307, breeding ♀, April 5, Eden.

Iris carmine. Bill black above, pale greenish horn color below. Legs and feet pale olive.

This was a breeding bird as it contained a fully developed egg. Probably this is a rather rare bird in the localities visited as no others were seen. It was perched in the thick foliage about ten feet above the water of a small stream called the Tunkey Bin.

Monasa grandior Selater and Salvin.

Nos. 75309-10, ♂♀, April 15, Baubana River between Santa Rosita and Tunkey.

Iris red brown. Bill coral red. Legs and feet slaty horn-color.

In paddling up the Baubana River in a dugout canoe, our attention was attracted to a bird calling loudly high up in a tree overhanging the river. Upon approaching the tree two were seen close together; their coral red beaks were very conspicuous. Both were collected and they proved to be male and female. In all probability a mated pair.

PICIDAE

Centurus pucherani pucherani (Malherbe).

Nos. 75231-38, ♀♂♀♂♂♂♂, May 16, 16, 16, March 21, April 3, 4, 5, 5, 28, Eden.

Iris sepia. Bill black. Legs and feet grayish green.

Common in the forest along the smaller streams and in isolated dead trees in open patrerros.

Celeus loricatus diversus Ridgway.

No. 75239, ♀, April 7, Eden.

Iris dark brownish red. Bill greenish horn color. Legs and feet greenish slate.

The only individual of this species seen was found in the heavy forest on a hillside at an elevation of about 900 ft. I believe this extends the known range of the species to northeastern Nicaragua as I know of no record for north of Costa Rica.

Geophloeus lineatus similis (Lesson).

Nos. 75240-42, 75245, ♂, April 18, Eden, ♀, March 12, Bluefields, ♂, May 16, Eden, ♀ breeding, March 11, Bluefields.

Iris white. Bill white. Legs and feet slaty blue.

The female taken at Bluefields, March 11, contained an egg ready to lay.

Scapanus guatemalensis guatemalensis (Hartlaub).

Nos. 75243-44, juv. ♀♀, May 8, Eden.

Iris yellow. Bill ivory white. Legs and feet greenish gray.

There were four individuals together on a high dead tree in the deep forest when the above two were collected. Evidently two adults and two young, as they seemed to be feeding the young. Extremely noisy and wary.

Veniliornis oleaginus sanguinolentus (Sclater).

Nos. 75246-48, ♂♀♂, March 28, April 5, May 11, Eden.

Iris reddish brown. Bill dark horn. Legs and feet light horn.

Taken in dense forest near a stream.

FORMICARIIDAE

Cymbilaimus lineatus fasciatus Ridgway.

Nos. 76848-54, ♂♂♂♀♀♂♂, April 22, Great Falls, Pis Pis River, April 2, 8, May 8, 12, Eden.

Iris carmine. Bill black above, blue black below. Legs and feet bluish slate.

This was a rather common bird in the forest, especially where the army ants were on the move. Insects stirred up from their hiding places by the

oncoming horde of army ants were easily caught by this active Bush Shrike. I shot one of these Bush Shrikes one day just in front of the advancing army ants but before I could retrieve it the ants had advanced beyond the specimen. Though I did get a number of ants on my legs and body that felt like coals of fire, I was unable to pick up the bird. I reluctantly left it, expecting later to return when the ants had passed on to get the skeleton. To my great surprise the specimen was intact, the ants having not eaten it even around the eyes.

Thamnistes anabatinus saturatus Ridgway.

No. 76885, ♀, May 11, Eden.

Iris red brown. Bill greenish black above, horn color below. Legs and feet greenish slate.

This specimen was taken in the heavy forest and is as far as I know the first record for Nicaragua.

Myrmotherula fulviventris Lawrence.

Nos. 76855-56, ♂♀, Eden, May 3, 5.

Iris straw color. Bill black above, azure below. Legs and feet slaty.

Both specimens were taken in the forest in the vicinity of the army ants.

Microerhops boucardi virgata (Lawrence).

Nos. 76857-61, ♂♂♀♀, April 7, May 12, Eden, April 13, Santa Rosita.

Iris sepia. Bill black, azure at base of lower. Legs and feet black.

This was apparently a rather common bird in the heavy forest. It was seen at Great Falls but no specimens were collected there.

Cercomacra tyrannina crepera (Bangs).

Nos. 76867-73, ♂ breeding, ♂♂♂♂♂♂, May 3, 5, 8, 16, March 25, Eden, April 12, Santa Rosita.

Iris light olive. Bill black. Legs and feet slate color.

While this is a bird of the more open woodlands and river banks, one was occasionally seen along the trails through the heavy forest. For some peculiar reason no females of this species were seen. The nest found and collected was under observation for several hours but was always brooded by the male, though he was flushed several times in the hope that the female would return with him. The male (No. 76868) sang continuously while upon the eggs; it was his continuous singing that led me to the nest. It took very careful search to find the pendant globular nest in the twilight of the heavy tropical forest. By following carefully the direction from whence the song came, it was, I think, the reflection of the bird's eye that finally located the nest. The head was thrust out of the side hole of the

nest and a rather loud twittering warble poured forth. I stood about five feet from the nest carefully observing the bird as it sang but upon approaching within two feet of the nest the song ceased. I tried to catch the bird upon the nest but it slipped through my fingers, later I collected it as it left the nest.

Nest: Situated about seven feet from the ground on a steep hillside in heavy forest about thirty feet from a trail. A more or less globular pendant affair hanging from the end of a very thin limb. It is carefully attached and woven to the ends of two twigs having a bunch of green leaves at their ends. The entrance is near the top and on one side, nearly roofed over. Composed of dry leaves and palm shreds woven together with the long shredded stems of ferns, some of these fern stems hanging down eighteen inches below the nest. The lining is of fine fern stems, the whole nest with its green moss and long dripping fern stems looks just like so many other bunches of moss hanging everywhere that without the singing bird on the nest it would never have been noticed.

The measurements of the nest are, outside, length 230, width 110 mm. Inside, depth from bottom of entrance 40, width 45 mm. The diameter of the entrance is 50 mm.

*Eggs*²: The nest contained two heavily incubated eggs, creamy white spotted chiefly around the larger end with dark vinaceous brown with a slight violet tint nearly approaching mars violet. In addition to the spots there are fine hair-like lines of the same color. There is an approach to a wreath of these spots and hair-like lines around the large end while the small end is almost devoid of spots and lines. The eggs measure: 22×16 , 21.5×16 mm.

***Formicarius analis umbrosus* Ridgway.**

Nos. 76874-76, ♂♂♂, April 13, 15, Santa Rosita, May 5, Eden.

Iris brown. Bill black. Legs and feet horn brown.

All three specimens of this Ant Thrush were shot while feeding on the ground in the heavy brush. My attention was attracted to one of them by hearing a persistent kicking in the dry leaves. After a time I located the bird kicking up the leaves with both feet and picking up food thus bared.

***Gymnophthys bicolor olivascens* (Ridgway).**

No. 76883, ♀, March 30, Eden.

Iris dark crimson. Bill black above, grayish white below. Legs and feet light plumbeous. Naked skin around the eye pale blue.

Taken in the heavy forest where it was feeding upon ants. The only one of the species seen.

² This is I believe the type set of *C. t. crepera* as I cannot find any description of the nest and eggs of this species.

***Mylophylax naevioides capnitis* (Bangs).**

Nos. 76877-82. ♂♂♀♀♂♂, March 30, April 8, Eden, April 13, Santa Rosita, April 25, Great Falls, Pis Pis River.

Iris dark gray. Bill black. Legs and feet light slate.

A common species in fairly heavy forest. It was generally in mixed flocks with other arboreal ant thrushes. Usually very noisy and easily located.

***Myrmornis stictoptera* (Salvin).**

No. 76884, ♂, April 3, Eden.

Iris sepia. Bill black. Legs and feet light brown. Bare postocular region campanula blue.

This was the only specimen of Richardson's Ant Thrush seen and is apparently a rather rare species in collections. It was scratching in the leaves in the heavy underbrush well up on the hillside in heavy forest. This specimen, as compared with three specimens of *M. torquata* from British Guiana in the Academy's collection, is much darker, less rufescent above, especially the edges of the feathers. The tail is dark brown, not bright rufous as in *torquata*; under tail coverts olive brown. Chest and underparts very dark gray; the black throat patch has no white tips to the feathers. The wing coverts are broadly tipped with rich fawn color. Under wing coverts buff without black barring. The inner web of the remiges is crossed by a band of buff.

FURNARIIDAE***Synallaxis brachyura nigrifumosa* Lawrence.**

Nos. 76888-92, ♂♀♂♂ juv. ♂ breeding, ♀, March 24, 25, May 6, Eden.

Iris red brown. Bill bluish black, darker above. Legs and feet lead color.

A rather common species around brush piles, especially in cut over land. The juvenile male No. 76891 was apparently just out of the nest for it was being fed by female No. 76892. Both were collected at the same shot on May 6th, in the act of feeding. The young lacks the cinnamon-rufous crown patch of the adult, the head being concolor with the back, also the cinnamon rufous of the wings and coverts being replaced by prouts brown. The underparts are olive gray in the young.

***Automolus ochrolaemus hypophaeus* Ridgway.**

No. 76893, ♂, April 10, Eden.

Iris dark gray. Bill greenish horn. Legs and feet pale olive.

This the only individual seen was taken near the ground in the heavy forest and extends the known range of this form to northeastern Nicaragua.

***Xenops minutus ridgwayi* Hartert and Goodson.**

No. 76887, ♂, March 23, Eden.

Iris dark sepia. Bill horn color. Legs and feet slaty.

No others were seen. Taken in the thick heavy forest where it was climbing among the vines about six feet from the ground.

***Sclerurus guatemalensis guatemalensis* (Hartlaub).**

No. 76886, ♀, April 6, Eden.

Iris sepia. Bill black above, horn color below. Legs and feet olive horn color.

This should have been a common bird in the thick dark forest but no others were seen. This leafscraper was feeding upon the ground in heavy dark forest. My attention was attracted by the noise made by the bird, which used both feet simultaneously, and vigorously kicked the leaves quite a distance.

DENDROCOLAPTIDAE***Dendrocolaptes certhia sancti-thomae* (Lafresnaye).**

Nos. 76894-5, ♂♂, April 10, Eden, May 14, Great Falls, Pis Pis River.

Iris brown in Eden specimen, dark gray in Great Falls bird. Bill black: base of lower mandible horn color. Legs and feet greenish slate.

Both specimens were taken in heavy forest.

***Xiphorhynchus guttatus costaricensis* (Ridgway).**

Nos. 76896-99, ♀♂♂♀, March 23, April 8, May 16, Eden.

Iris sepia. Naked skin around eye pale greenish. Bill black above, pale brownish horn below. Legs and feet grayish green.

In comparing the above four specimens with a series from Costa Rica, I find the underpart much brighter buff. All were collected in the heavy forest.

***Xiphorhynchus triangularis punctigula* (Ridgway).**

Nos. 76900-03, ♂♂♂♀, April 10, Eden, April 20, 26, Great Falls, Pis Pis River, May 8, Eden.

Iris dark sepia. Bill black above, grayish white below. Legs and feet slate.

All of the above were found in the heavy forest. It was an interesting woodhewer to watch. Climbing the trees spirally, gathering food from the bark, and dropping small pieces of bark as it went up the trunk to about fifty feet, then flying down to the foot of another tree to repeat the performance.

***Lepidocolaptes souleyetii compressus* (Cabanis).**

Nos. 76904-5, ♀♀, March 21, Eden.

Iris sepia. Bill brownish horn color. Legs and feet grayish green.

But two individuals of this woodhewer were seen and they were together cleaning insects from the bark of trees in the heavy forest.

These two specimens agree with specimens from Costa Rica and Western Panama except that the two Nicaraguan specimens have slightly longer bills.

***Glyphorynchus spizurus pectoralis* Selater and Salvin.**

Nos. 76906-13. ♂♀♀♀♀♂♀, March 23, April 4, 6, May 5, 8, 10, Eden, April 22, Great Falls, Pis Pis River.

Iris dark sepia. Bill black above, light horn color below. Legs and feet slaty black.

All of the above specimens were taken in heavy forest, where the birds were generally found rather high up on the larger limbs of the trees.

In comparing the above series with a specimen from Lancetilla, Honduras, and one from Quirigua, Guatemala, I cannot see any appreciable difference. Neither can I see any difference between specimens from Gatun, Canal Zone of Panama, and the above specimens from Nicaragua, Guatemala, and Honduras.

Peters has described a southern race *G. s. sublestus* (Bull. M.C.Z., 69, No. 12, 1929, p. 443, Changuinola, Northwestern Panama) characterized by "throat averaging darker, more cinnamonaceous, less ochraceous; pale streaks on the posterior underparts narrower and less numerous." I cannot, however, with the material before me distinguish any constant difference other than slight individual variations. Therefore the definite placing of these birds from northeastern Nicaragua must be left to some one with a finer sense of differentiation than I possess.

***Dendrocincina anabatina anabatina* Selater.**

No. 76833, ♂, April 8, Eden.

Iris light brown. Bill brownish horn above, horn color below. Legs and feet greenish slate color.

This specimen was taken in the dense low growth on the edge of a small stream. No other individuals were seen.

TYRANNIDAE

***Sayornis nigricans aquatica* Selater & Salvin.**

No. 75600, breeding ♀, April 15, Banbana River near Tunkey.

Iris olive brown. Bill black. Legs and feet black.

This bird had an egg ready to lay and probably had a nest near-by. It was collected along the Banbana River about twenty miles east of Eden.

The under tail coverts are nearly white except for a slight wash of buffy. There is also a slight trace of buff on the white feathers on the forward part of the belly.

Phoebes were seen sparingly along the Prinzapolka, Banbana, and Tunkey Rivers, where they would sit upon a stone or bit of drift. A single individual was seen at the Great Falls, Pis Pis River, on April 25. They were exceedingly shy when seen from the river and would fly into thick cover before our pitpan could reach shooting distance.

***Colonia colonus leuconota* (Lafresnaye).**

Nos. 75610-15, breeding ♂, breeding ♀♀♂♂, May 16, March 20, April 5, April 10, Eden.

Iris sepia. Bill black. Legs and feet black.

The pair collected May 16 were building a nest in a cavity in a dead stub about 30 feet up. The stub was along a trail on the bank of a small stream. The land about had been cleared but had grown over again to a height of about 20 feet.

This was a rather common flycatcher; especially in the vicinity of small streams. It could be seen flying up into the air to seize an insect and floating back to a favorite perch, the two long middle tail feathers making a beautiful and striking field mark.

***Tyrannus tyrannus* (Linnaeus).**

No. 75559, ♀, April 13, Santa Rosita.

Only upon this one occasion did we see migrant kingbirds. About sunset a flock of from 40 to 50 individuals flew into some thick trees near our camp. In the dusk I was only able to secure a single bird, which was very fat.

***Tyrannus melancholicus chloronotus* Berlepsch.**

Nos. 75560-66, ♀♂♂♂♀♀, March 11, Bluefields, March 24, April 1, May 6, 10, Eden.

Iris sepia. Bill black. Legs and feet slaty fuscous.

This was by far the most common flycatcher in every locality visited. At Eden they visited the lights around the staff house as soon as it was daylight, catching the large moths and insects that remained around the light.

***Legatus leucophthalmus leucophthalmus* Vieillot.**

Nos. 75586-7, breeding ♀♀, April 28, 8, Eden.

Iris brown. Bill black. Legs and feet black.

These birds while rather larger than specimens taken in Costa Rica and Panama are still well within the wing measurements of *leucophthalmus*; they measure 82.3 and 82.2 mm. respectively. Female No. 75586 was flushed from a nest in a low dead tree on the edge of a trail. Nest about twenty feet up, composed of grasses, rootlets, etc., was roofed over. A hold on the side led upward to a small cup-shaped receptacle for the one egg it contained. This egg about one third incubated has a solid ground color of

snuff brown. The large end has an indistinct wreath of small spots, blotches and lines of very dark mummy brown. A few small spots and lines of mummy brown are scrawled sparingly over the entire egg. The egg measures 22.8×16.9 mm.

***Myiodynastes luteiventris luteiventris* Selater.**

Nos. 75574-5, ♀♂, May 10, March 31, Eden.

Iris dark sepia. Bill black, lighter towards base of lower mandible. Legs and feet fuscous.

But two Sulphur-bellied Flycatchers were seen, both were in cut-over land.

***Megarynchus pitangua mexicanus* (Lafresnaye).**

Nos. 75568-73, ♂♂ juv., ♀ juv., ♂ breeding, ♂ breeding ♀, March 25, 31, May 6, Eden.

The Mexican Boat-billed Flycatcher was a fairly common bird around Eden in the open potrero and forest where it was generally found on dead trees. It was occasionally seen along the rivers. Male and female Nos. 75572 and 73 were a mated pair, they were feeding the two young Nos. 75570 and 71 when collected. The two young were able to fly. They were perched close together on a dead limb overhanging a small stream. The parents were busily engaged flying into the air catching insects and feeding the young. It was a very noisy performance in which all concerned took part and was accompanied on the part of the young by a great deal of wing flapping.

Both young are mummy brown above the feathers edged with cinnamon rufous, there is no trace of the olive green upper parts of the adults. There is no trace of the concealed crown patch in the above young. The under parts of the young are pure white slightly edged on the breast and belly with saffron yellow. In the four adults collected at Eden all have the concealed crown patch *rufous tawny* with no trace of lemon yellow.

***Myiozetetes similis superciliosus* Bonaparte.**

Nos. 75576-81, ♀♂♂♀ breeding ♂♂, March 20, 24, April 1, 28, May 10, Eden.

Iris sepia. Bill black. Legs and feet black.

Giraud's Flycatcher was common everywhere about Eden and at Great Falls. The series of six specimens above seem rather small in size. The wing measurements are three males 87., 89.6, 91.5 mm. Three females 81.2, 83.5, 84. mm. In a small series from Alta Mira, Mexico, the wing measurements are as follows, three males 94.1, 97.2, 99.5 mm. Two females 92., 92.3.

Nests were frequently found in low trees along streams in clearings and very commonly in orange trees close to houses. Three clutches of eggs were

collected, two with nests. A nest taken April 19th in an orange tree close to the staff house at Eden contained three fresh eggs. It was about ten feet up in a cluster of small limbs, a loosely made affair partly roofed over. Composed of grass, plant stems, plant down, moss, and bits of cotton and cheese cloth that we discarded in our skinning operations. It is lined with fern stems, a long whisp of the fern stems 500 mm. long hanging from the entrance. This nest measures 300 mm. high by 140 mm. wide outside. Inside measurements are 125 mm. deep by 90 mm. across, the entrance is 50. mm. A second nest also taken from an orange tree at Great Falls, Pis Pis River, is almost globular in shape with a hole on the side near the top; it is entirely roofed over. Composed of grass, leaves, plant down, rootlets and moss. Lined with the tops of fine grass. It has two whisps of grass tops streaming from the entrance. Outside measurements 150 mm. deep by 170 mm. across. Inside 80 mm. deep by 70 mm. across, the entrance is 45 mm.

Three clutches of eggs collected are white or creamy white, spotted with vinaceous-brown and lilac the spots most numerous about the larger end. They measure respectively 25.5×16.1 , $23. \times 16.5$, 22.6×16.5 ; 25.5×16.1 , 26.6×16.5 , 24.8×16.6 ; 21.7×16.4 mm.

***Myiozetetes granadensis granadensis* Lawrence.**

Nos. 75582-4, ♀♂ breeding ♀, May 6, March 21, April 18, Eden.

Iris buffy. Bill black. Legs and feet black.

The female No. 75584 was shot leaving a nest containing four eggs on April 18. The nest was twenty feet up on a branch of a stub overhanging the Tunkey Bin River, which is a stream about twenty feet wide at this point opposite Eden. The nest is rather loosely put together of grasses, moss and plant down and is partly roofed over. It is lined with fine grasses. Measures 180×140 mm. outside. Inside it is 100 mm. deep by 70 mm. wide. The entrance is 50 mm. in diameter.

The four fresh eggs are creamy white with spots of dark vinaceous-brown and a few blotches of prout's brown. These eggs measure 23.7×17.6 , 23.6×17.5 , 23.5×17.4 , 23.3×17.1 mm.

***Pitangus sulphuratus guatemalensis* (Lafresnaye).**

No. 75567, ♂, March 11, Bluefields.

Iris reddish brown. Bill black. Legs and feet brownish black.

A fairly common flycatcher around Bluefields but not seen at all around Eden.

This specimen is smaller than those from northern Mexico and the underparts of a deeper yellow.

***Myiarchus tuberculifer nigricapillus* Cabanis.**

Nos. 75588-93, ♂♂♀♀♂, April 18, May 6, 11, Eden, March 10, 11, Bluefields.

Iris sepia. Bill blackish-brown. Legs and feet black.

Extremely common about Bluefields while at Eden it was quite rare, and the three specimens collected were the only ones seen there.

***Myiochanes richardsoni sordidulus* (Sclater).**

No. 75599, ♂, May 11, Eden.

This specimen has proven very troublesome. The plumage closely resembles a darker colored example of *M. c. brachytarsus* while the wing formula is that of *virens* and *richardsoni*, in that the tenth (outermost) primary is longer than the sixth. The measurements are as follows: Length (skin) 130, wing 73.5, tail 58.5, exposed culmen 14.2, tarsus 15.3 mm. It may be that with more material available the above specimen may prove to belong to another form.

***Myiochanes cinereus brachytarsus* (Sclater).**

Nos. 75594-98, ♀♀ breeding ♀♀, March 20, 24, April 1, Eden, April 21, Great Falls, Pis Pis River.

Iris olive brown. Bill dark horn above, light horn below. Legs and feet horn color.

The female No. 75597 taken April first at Eden had a nest well out on a horizontal limb about fifty feet up. The nest was saddled in a fork and looked from the ground similar to a nest of *M. virens*.

***Terenotriccus erythrurus fulvularis* (Salvin and Godman).**

Nos. 75603-4, ♀♂, March 23, Eden, April 25, Great Falls, Pis Pis River.

Iris sepia. Bill horn color above, light brown below. Legs and feet light brown.

Found in the heavy forest where its activities were confined to the growth of thick vines near the ground.

***Myiobius sulphureipygius aureatus* Bangs.**

Nos. 75601-2, ♀ breeding ♀, April 20, Great Falls, Pis Pis River, May 3, Eden.

Iris sepia. Bill brown above, flesh color below. Legs and feet slaty horn.

The female No. 75602 was collected as it left the nest and upon dissection had an egg ready to lay. The nest overhanging a small stream in dense forest on a hillside, was attached to a liana about seven feet from the water. At first glance the nest resembled a bunch of drift that had caught on the vine at high water. The nest is a large one for so small a bird and is very carefully constructed. Made of fern and moss stems care-

fully woven together and attached throughout its length to the liana. The outside is carefully decorated with green moss and a few plant stems. The entrance is from the bottom and to one side where it leads to pocket on the opposite side where the eggs are laid. Its length is 500 mm., greatest outside diameter across egg pocket 100 mm.

The single fresh egg (another was in the oviduct of the female ready to deposit) is creamy white or pinkish white heavily marked especially about the larger end with cinnamon rufous. The blotches and lines of cinnamon-rufous follow the axis of the egg and the design is similar to the design of the eggs of *Myiarchus crinitus*. The egg measures 18.5×13.5 mm.

***Rhynchocyclus brevirostris brevirostris* (Cabanis).**

No. 75585, ♂, May 8, Eden.

Iris sepia. Bill black above, grayish horn below. Legs and feet plumbeous.

Collected near the top of the hills in heavy forest. This was the only Flat-billed Flycatcher seen.

***Todirostrum cinereum finitimum* Bangs.**

Nos. 75605-09, ♂♀♂♂, March 21, 23, April 1, May 16, Eden.

Iris yellow. Bill black above, horn color below. Legs and feet slaty horn.

This bird was rather common about Eden, especially along the smaller streams in low growth. A nest was collected on April 18 that we had watched the birds building about ten days previous; it contained three fresh eggs. The nest was about fifteen feet above the water of the Tunkey Bin River, a small stream about ten feet wide at that point. The nest was hanging from the tip of a small limb. The limb on which the nest hung was the nesting place of a colony of "fire ants" and in securing the nest and eggs I was literally on fire from head to foot from the bites of these tiny ants. This nest resembles an elongated pear with a hole in the side. Composed of fibres, rootlets, small leaves and moss, with a few dead tree blossoms woven into the top. The interior is lined with very fine fibres and plant down. Measures 240×75 mm. outside, 65 mm. deep by 50 mm. wide inside. Diameter of entrance is 25 mm. The three eggs are white, one egg only having a very few minute dark brown specks. They measure 16.7×12.1 , 16.5×11.8 , 16.1×11.8 mm.

PIPRIDAE

***Piprites griseiceps* Salvin.**

No. 75546, ♂, April 10, Eden.

Iris dark sepia. Bill black above, azure below. Legs and feet grayish slate.

This is a rare bird in collections and is not often met with in the field. It was the only one seen and was collected in the heavy forest in a rather damp spot. This individual was shot in a tall tree high up, and its actions were very vireo-like. I believe *griseiceps* will be found more commonly in the high trees of the forest than near the ground.

***Pipra mentalis mentalis* Selater.**

No. 75545, ♂, April 20, Great Falls, Pis Pis River.

Iris white. Bill brownish horn above, brownish white below. Legs and feet flesh color.

Taken in the thick undergrowth along the Pis Pis River about two miles below the falls. This species was not seen at Eden.

***Manacus candei* (Parzudaki).**

Nos. 75538-44, ♂♂♂♂♂♂ immature ♂, March 23, 31, April 4, 5, May 8, Eden.

Iris pale sepia. Bill black above, bluish horn color below. Legs and feet bright orange.

Rather common in dense thickets along streams where it was to be found on the ground or in the low growth near the ground. A fairly noisy bird, its sharp "snap" often betraying its presence for quite a distance. This species was not seen at Great Falls, or at Santa Rosita.

The immature male is in the plumage of a female except that the belly is bright yellow slightly washed with olive. The legs and feet were deep orange in life.

***Schiffornis turdinus verae-pacis* (Selater and Salvin).**

No. 75547, ♀, April 20, Great Falls, Pis Pis River.

Iris dark gray. Bill horn color. Legs and feet slate.

Taken in the dark heavy forest well up on a hillside. No other individuals were seen.

COTINGIDAE

***Rhytipterna holerythra holerythra* (Selater and Salvin).**

Nos. 75548-51, ♀♀♀♀, April 28, May 12, 16, Eden.

No males of this species were taken. All four of the above birds were shot from the tops of high forest trees.

***Pachyramphus cinnamomeus cinnamomeus* Lawrence.**

Nos. 75552-55, ♂♂♂♂, April 2, 5, 10, Eden.

Iris dark hazel. Bill black above, blue black below. Legs and feet slate color.

The Cinnamon Becard was rather common in the forest about Eden where I always found it in the tops of high forest trees.

***Tityra semifasciata costaricensis* Ridgway.**

Nos. 75557-8, ♀♂, April 10, May 4, Eden.

Iris light reddish brown. Bill basal half dull rose purple, distal half black. Naked orbital space purplish-carmine. Legs and feet grayish olive.

Several other individuals of this species were seen high up on dead forest trees but I was unable to collect them. The female (No. 75557) evidently had a nest high up in an abandoned woodpecker hole as she entered the hole several times.

***Erator albitorques fraseri* (Kaup).**

No. 75556, ♂, April 5, Eden.

Iris dark sepia. Bill black above, azure below. Legs and feet slate color.

Taken high up on a dead tree in the forest. Its actions were so much like *T. s. costaricensis*, that I did not know until I picked it up that it was a different species.

HIRUNDINIDAE***Iridoprocne albilinea* (Lawrence).**

No. 75537, ♂, April 23, Great Falls, Pis Pis River.

Iris sepia. Bill black. Legs and feet black.

The Mangrove Swallow was common along the larger rivers. I found a large colony breeding in trees killed by the backing up of water for the power dam at Great Falls.

***Progne chalybea chalybea* (Gmelin).**

No. 75531, breeding ♀, May 2, Eden.

Iris dark brown. Bill black. Legs and feet brownish horn-color.

Several pairs of Gray-breasted Martins were nesting in holes high up in a dead tree on the bank of a small stream which flowed through the potrero at Eden.

***Hirundo erythrogaster* Boddaert.**

No. 75532, ♂, May 2, Eden.

Iris very dark brown. Bill black. Legs and feet horn brown.

The only Barn Swallow seen. I caught this one roosting at night above a light at the door of my room in the staff house.

***Stelgidopteryx ruficollis uropygialis* (Lawrence).**

Nos. 75533-36, ♀♀♀♀, March 23, April 1, 2, 3, Eden.

Iris dark sepia. Bill black. Legs and feet black.

Several breeding colonies were found nesting in holes in clay banks along streams.

SYLVIIDAE***Polioptila bilineata bilineata* (Bonaparte).**

Nos. 75632-3, ♀♂, March 9, Bluefields, March 21, Eden.

Iris black. Bill black. Legs and feet black.

Gnatcatchers were rather common at Bluefields in the trees about town and in the partly cleared regions surrounding the town. At Eden only a pair were seen of which the male was secured.

Ramphocaenus rufiventris rufiventris (Bonaparte).

Nos. 76862-66, ♂♂♀♀, March 29, April 3, 8, May 5, 18, Eden.

Iris light buffy brown. Bill dark brown above, light brown below. Legs and feet bluish plumbeous.

A common bird about Eden but not met with at any other place we collected. It was found in vine-covered thickets as well as amongst the vines in the forest, usually low down. It is very tame and unsuspicious so we could get within a few feet of it.

TROGLODYTIDAE

Phengopedius maculipectus umbrinus (Ridgway).

No. 75317, ♀, April 8, Eden.

Iris brown. Bill black above, azure below. Legs and feet slaty.

Curiously enough no other individuals of this Wood Wren were seen.

Troglodytes musculus intermedius Cabanis.

Nos. 75318-23, ♂ breeding, ♂♂♀ juv., ♀ juv., ♂, April 5, May 2, 10, 17, Eden.

Iris sepia. Bill black. Legs and feet horn color.

The Central American House Wren was common about the buildings and the potrero at Eden, Great Falls, and also at Santa Rosita although no specimens were collected at the two last named localities. Its song and actions are as far as I can see the same as *T. aedon*. The two young were just out of the nest and could not fly (May 17).

A nest was collected May 2 in a hole in a post close to the staff house. It contained three half incubated eggs. Specimen No. 75319 is the male parent bird of this nest and was incubating the eggs at the time. The nest a rather scant affair for a house wren is composed of a few small sticks, rootlets, and grass, lined with feathers and horse hair. In the lining of the nest is also a wing of a cicada. The three eggs are white thickly specked with cinnamon rufous, a rather indistinct wreath of lilac markings encircle the larger end. They measure 17.5×13.6 , 17.1×13.5 , 16.8×13.2 mm.

Henicorhina prosthelencu tropaea Bangs and Peters.

Nos. 75324-27, juv. ♂♂♂, juv. ♀, May 5, 11, 18, April 27, Eden.

Iris sepia. Bill black. Legs and feet dark slaty.

The two young (Nos. 75324, 75327) were just able to fly though I caught them in my hand. They are much darker in color than the adults. They

also differ in having the head and back much darker brown, the chin only is white, while the throat and chest are gray edged with cinnamon. Belly and undertail coverts cinnamon.

On May 19, in the forest back of Eden, one of these wrens was flushed from a nest containing two fresh eggs. The nest about eighteen inches above the ground was placed in a crevice in a fallen log. This old moss-covered log lay close to a trail in the heavy forest and the jar from my weight in stepping on the log flushed the bird. The nest a carefully made bulky globular shaped affair. Composed of fern stems, plant fibres, and moss, lined with fine grasses. The entrance is from the side. The outside diameters are 190×130 mm. The eggs are white with a very few light brown specks. They measure 20.0×14.5 , 20.1×14.1 mm. respectively.

This was rather a common wren in the forested hills about Eden. Its actions and the type of forest it is found in remind us much of our Winter Wren (*Nannus hiemalis*). It was a rather difficult bird to collect as it dodged under and about fallen timber. To my mind it is the most pleasing songster of the tropical forest. The song seemed to say "*buenos dios*" repeated several times. In fact several of the men at the Eden Mine asked me if I had collected the bird that said "*buenos dios*"; they were very much surprised when I showed them a specimen to find it was such a small bird. They expected a very much larger bird to produce such a volume of sound.

***Thryophilus castaneus costaricensis* (Sharpe).**

Nos. 75328-34. ♀♀♂♂♂♂, March 23, April 5, 27, May 10, 11, Eden, April 21, Great Falls, Pis Pis River.

Iris rufous. Bill black above, slaty horn below. Legs and feet dark slaty.

The song of this wren was one of the first bird notes one heard on the upper reaches of the Banbana River upon entering the country in March and the last song I remember as the pitpan drifted down stream to the coast in June. It was common throughout the forest as well as along the streams and rivers.

Specimen No. 75330, a female, has a distinct trace of black barring on the belly.

***Thryophilus thoracicus* (Salvin).**

Nos. 75335-40. ♂♂♀♀♀♀, May 3, March 30, April 8, Eden, April 22, Great Falls, Pis Pis River.

Iris dull orange. Bill black above, bluish white below. Legs and feet slaty.

We found this wren in the very thickest kind of jungle where it was as a rule silently looking for food amongst the fallen branches and dead leaves. I did not hear any of these wrens sing or utter a sound.

Lencolepis phaeocephalus lawrencii (Selater).

Nos. 75341-45, ♂♂♀♀, April 22, Great Falls, Pis Pis River, April 10, May 3, 10, Eden.

Iris dark olive. Bill black, orange yellow along edges at base. Bare skin about eye azure. Legs and feet olive brown.

Not a common bird in any of the regions we visited. It is a good songster, and through this we were able to locate the five specimens above.

The underparts are perceptively darker in these specimens, and the backs are richer brown when compared with specimens from Panama.

TURDIDAE

Turdus grayi casius (Bonaparte).

Nos. 75626-28, ♂♂♂, March 29, April 10, May 8, Eden.

Iris light reddish brown. Bill light olive. Legs and feet light brown.

While not common about Eden yet almost every day towards sundown one could be heard singing. The song resembles that of our robin, *T. m. migratorius*, especially the evening song. It was rather a common species about Bluefields in early March.

A nest containing three eggs was found on April 13 at Santa Rosita, about fifteen feet up in a tree close to a native house. The eggs were bluish green, spotted and blotched with reddish brown. They were so nearly hatched that they were not collected.

VIREONIDAE

Vireo ochraceus Salvin.

No. 75631, ♂, March 12, Bluefields.

Iris dark brown. Bill horn color. Legs and feet slate.

This was the only individual of this species seen about Bluefields, none was seen at any of the other localities visited. It was taken in a low tree near a lagoon in land that had once been cleared but through neglect was fast becoming a low forest. Its actions were slow and deliberate, and it could be recognized as a vireo even at a distance.

Myiophylus decurtatus pusillus (Lawrence).

No. 75630, ♂, March 10, Bluefields.

No other specimens were seen. Collected in the same piece of second growth as the preceding specimen.

Myiophylus ochraceiceps pallidipectus (Ridgway).

No. 75629, ♀, April 22, Great Falls, Pis Pis River.

Iris grayish white. Bill horn color. Legs and feet black.

This female was taken from a high tree well up on the hillside in heavy forest. No others were seen.

MNIOTILTIDAE

Protonotaria citrea (Boddaert).

No. 75622, ♂, March 23, Eden.

Iris sepia. Bill dark horn color above, lighter below. Legs and feet slate color.

No other specimens of the Prothonotary Warbler were seen. Taken in the low bushes on the edge of a small stream called the Tunkey Bin.

Dendroica aestiva aestiva (Gmelin).

No. 75616, ♂, March 10, Bluefields.

Iris bluish. Legs and feet naples yellow.

While several Yellow Warblers were seen about Bluefields, especially in the trees in the town, but a single specimen was collected. None was seen in the other localities visited.

Dendroica magnolia (Wilson).

Nos. 75617-18, ♀♀, March 20, 29, Eden.

The Magnolia Warbler was common in the thick growths along the streams during the latter part of March and the first half of April.

Dendroica pensylvanica (Linnaeus).

Nos. 75619-21, ♀♂♂, March 23, April 5, 6, Eden.

Iris sepia. Bill dark horn above, lighter below. Legs and feet light brownish slate.

The Chestnut-sided Warbler was a very common migrant during the latter part of March and the first half of April.

Seiurus aurocapillus (Linnaeus).

No. 75623, ♀, April 8, Eden.

A number of ovenbirds were seen about Eden the first half of April and the single specimen was collected as a matter of record.

Phaeothlypis leucopygia leucopygia (Sclater and Salvin).

Nos. 75624-25, ♀♂, April 28, Lone Star Falls near Eden.

A few other individuals were seen along the banks and on stones along the small streams. It has a habit of bobbing its tail up and down. A shy and difficult bird to get near.

FRINGILLIDAE

Cyanocompsa cyanoides concreta (DuBus).

Nos. 75521-22, ♂♀, April 25, Great Falls, Pis River, April 6, Eden.

Male—Iris sepia. Bill black. Legs and feet greenish black.

Female—Iris blue black. Bill blue black. Legs and feet horn color.

I have referred these two specimens to the northern form rather than to *C. cyanoides cyaneus*; they are, however, intermediates, but on size and color I believe they are nearer *concreta* and have so placed them.

***Oryzoborus nuttingi* Ridgway.**

No. 75517, ♂, April 14, Santa Rosita.

Iris sepia. Bill flesh color. Legs and feet dark olive.

Several other individuals were seen in a small patch of rice but this was the only one near enough to shoot, although considerable time was spent endeavoring to obtain additional specimens. It was not seen at any other locality visited.

***Oryzoborus funereus* Sclater.**

No. 75518, ♂, March 12, Bluefields.

Iris blue black. Bill black. Legs and feet black.

The Lesser Rice Grosbeak was common about Bluefields where it was found in the tall rank grass bordering the lagoon. The snuff-colored females were carrying strips of grass and building nests on March 12, in the rank grass growing out of the water. They were not seen in the other localities visited.

***Sporophila corvina* (Sclater).**

Nos. 75523-30, ♂ juv. ♂♂♀ breeding, ♀♀♂♂, March 20, 28, 31, April 4, 27, May 11, Eden, March 12, Bluefields.

Iris dark brown. Bill black. Legs and feet black.

The Black Seed-eater was common wherever the land had been cleared but was not found in the forest or second growth.

The immature male taken March 20 is in the brown plumage of the female. The testes were very large, indicating that the bird was breeding or about to breed.

Several nests were found but only two were collected. A nest was taken on April 4 at Eden. It was placed about six feet from the ground in an orange tree. We had watched the bird build this nest and after the single egg had remained in the nest six days without the addition of more eggs, the female (no. 75527) was shot and the nest collected. Upon dissecting the female we found that no more eggs would have been deposited. The nest is a very flimsy cup-shaped affair, made of rootlets, fern stems, and a few horse hairs, and measures 80 mm. in diameter by 45 mm. high outside. Inside measurements are 50 mm. diameter by 25 mm. deep. The single egg is grayish white, blotched and streaked with Prout's brown. It measures 17.5 x 12.9 mm.

Another nest containing two eggs was collected at Eden on April 17. It was three feet above the ground in a small bush growing in the potrero. The nest is even more flimsy than the preceding and is made entirely of plant stems and green moss. It measures outside 85 mm. in diameter by 45 mm. deep. Inside measurements are 50 mm. in diameter by 35 mm.

deep. The eggs are grayish white spotted with fuscous and blackish brown. They measure 17.7×13 . and 17.6×13.1 mm. respectively.

***Pitylus grossus saturatus* Todd.**

Nos. 75519-20, sex ? ♂, April 15, Santa Rosita, April 25, Great Falls, Pis Pis River.

Iris sepia. Bill coral red. Legs and feet dark brown.

This was a very rare species in all the localities we visited. One or two more individuals were seen but always in the thickest kind of places where shooting was impossible. Their clear cardinal like whistle was occasionally heard.

***Caryothraustes pollogaster scapularis* (Ridgway).**

Nos. 75490-95, ♂♂♂♀♀, March 21, April 6, May 11.

Iris sepia. Bill black, azure towards base. Legs and feet slate.

The Lesser Bishop Grosbeak was rather common at times along the small streams about Eden. Small flocks of a dozen or twenty individuals would be found feeding well up in the trees.

***Saltator magnoides magnoides* Lafresnaye.**

Nos. 75482-89, ♀♀♂♂♂♀, March 25, 28, April 3, 4, 10, May 10, Eden.

Iris dark brown, bare skin below eye bluish-flesh color. Bill bluish-black. Legs and feet slate color.

This saltator was rather common in the bushes in the potrero, and on partially cleared land around Eden. It was not observed in the other localities visited.

***Arremonops stratiiceps richmondi* Ridgway.**

Nos. 75504-15, ♂♂♂♀♀♂♂, juv. ♀♀. juv. ♂, March 20, 21, 25, 28, 31, April 27, May 3, 10, 16, Eden.

Iris orange sepia. Bill slaty horn color. Legs and feet light horn color.

Of the two young males taken May 3 and 16, the former just able to fly, the latter had just left the nest unable to fly was hopping about the low bushes in the potrero. As the plumage is so different from the adults a brief description is here given:

Head brownish black, an indistinct line in the center dark citrine. Back, rump, and tail dark citrine, the entire upper surface except the tail streaked with sooty black. Chest, breast and flanks mignonette green, throat and abdomen dirty white tinged with olive, the whole of the underparts are streaked with sooty black.

The throats and heads of these two young sparrows were covered with the so-called "red bugs" of the tropics. Many of them were transmitted to different parts of my anatomy when I skinned birds infested with these mites.

Richmond's Sparrow was very common on the cleared hillsides about Eden, and especially so about the brush heaps in the potrero. The males were often perched on top of low bushes where they sang their song and made themselves generally conspicuous, while the females were well concealed in the brush heaps.

***Arremon aurantirostris rufidorsalis* Cassin.**

Nos. 75496-503, juv. ♀♀♂♂, May 3, 6, 8, 10, March 28, 30, April 28, Eden.

Iris sepia. Bill orange-cadmium. Legs and feet otter brown.

A young female No. 75496 May 3 is in the juvenile plumage and was not able to fly. It is sooty olive above, darker on the wings, back and tail, a band of sooty olive across the chest, throat dirty yellowish white, abdomen light yellowish brown. Bill black, iris sepia, legs and feet light brown.

The Orange-billed Sparrow was rather common, especially in the forest, where it often could be heard scratching in the leaves.

***Spiza americana* (Gmelin).**

No. 75516, ♂, April 15, Santa Rosita.

This dickeissel was shot from a large flock of considerably over a hundred dickeissels that were feeding in a rice patch in a small plantation. The owner of the plantation said he had great difficulty in saving his rice from these birds that came in great numbers. He said they came every year in large flocks at the time the rice was ripe. The crop of this specimen was gorged with rice.

COEREVIDAE

***Chlorophanes spiza guatemalensis* Selater.**

Nos. 75403-09, breeding ♀♂♀♂♂, March 24, April 5, 27, May 3, Eden, March 9, 12, Bluefields.

Iris burnt sienna. Bill in ♂, black along top of upper mandible, Naples yellow below. Bill in ♀ black above, yellowish horn color below. Legs and feet greenish slate.

The Green Honey Creeper was common in all the localities visited. The female taken March 24th at Eden was breeding.

***Cyanerpes cyaneus cyaneus* (Linnaeus).**

Nos. 75410-12, ♂♂♂, March 12, Bluefields.

Iris black. Bill black. Legs and feet vermilion.

We found this species only at Bluefield where it was fairly common.

***Cyanerpes lucidus isthmicus* Bangs.**

Nos. 75413-15, ♂♂♂, March 22, April 6, Eden, April 20, Great Falls, Pis Pis River.

Iris dark sepia. Bill black. Legs and feet buttercup yellow, claws black.

Only the above three individuals were seen.

Dacnis cayana ultramarina Lawrence.

Nos. 75416-19, ♂♂♂♂, March 9, 12, Bluefields, April 8, Eden.

While this was a rather common species around Bluefields but a single individual was seen at Eden.

Coereba mexicana mexicana (Sclater).

Nos. 75420-22, ♀♂♂, March 22, 28, 31, Eden.

Iris dark sepia. Bill black. Legs and feet slaty horn color.

Rather common about Eden in the vine-covered tangles.

THRAUPIDAE

Tanagra luteicapilla (Cabanis).

No. 75444, ♂, testes large, April 5, Eden.

Iris dark olive brown. Bill horn color. Legs and feet fuscous.

This specimen, the only one obtained, is apparently in immature plumage, although the testes were very large. The back is yellowish olive green with a very few steel blue tips to the feathers. Sides of the head steel blue intermixed with the yellowish olive green of the back. Throat yellowish olive with patches of the steel blue feathers giving a mottled effect. Found in the dense forest well up on the hillside at about 1000 feet elevation.

Tanagra gouldi gouldi (Sclater).

Nos. 75445-47, ♂♂♂, April 6, 8, Eden, April 20, Great Falls, Pis Pis River.

Iris sepia. Bill black above, azure below. Legs and feet slate.

Tangara lavinia dalmasi Hellmayr.

No. 75448, ♂, May 11, Eden.

Iris brown. Bill brownish horn. Legs and feet plumbeous.

The only one of this species seen was shot from the top of a high tree in the dense forest.

Tangara larvata franciscana (Sclater).

Nos. 75449-50, ♀♂, April 4, Eden, March 12, Bluefields.

While this tanager was rather common around Bluefields, only two or three individuals were seen at Eden.

Thraupis cana diaconus (Lesson).

Nos. 75454-58, ♂♂♂♂♀, March 28, 29, April 1, May 2, Eden.

Iris sepia. Bill, upper black, lower pale azure, tip black. Legs and feet slaty.

This tanager was common around the houses in Bluefields and also at Eden.

***Thraupis abbas* (Lichtenstein).**

Nos. 75459-64, breeding ♀, juv. ♀, ♂♂♂♂, May 11, 13, Eden, April 13, 14, Santa Rosita.

Iris pale sepia. Bill blue black. Legs and feet slate color.

The juvenile ♀ is in the first plumage and was killed with the same shot with the parent ♀ while being fed. I fail to find any record of this species having been taken in Nicaragua previously.

***Amphocelus passerinii* Bonaparte.**

Nos. 75423-34, ♂♂♂♂ im. ♂, ♀♀♀♀♂, im. ♂, March 20, 22, 24, 28, 30, April 3, May 10, 11, 14, Eden.

This was the commonest and most conspicuous bird about the potreros or clearings.

Three sets of eggs were collected at Eden, all placed from three to six feet from the ground in bushes in the potrero. The two nests collected are rather thin affairs composed of leaves and pieces of very thin vines. Both are lined with the same kind of very fine plant stems. The inside measurements of the two nests are as follows: diameter 70 × 34 mm. depth, diameter 65 × 35 mm. depth. One set of two eggs was taken on April 4th. On April 12th a set of one egg and on May 2 another set with one egg. The eggs are bluish glaucous, specked, lined and blotched with several shades of brown. In one egg the specks are wholly about the larger end. The eggs measure 25.5 × 16.9, 27 × 16.9, 22 × 17, 24.4 × 16.5 mm.

***Phlogothraupis sanguinolenta aprica* Bangs.**

Nos. 75435-43, ♂♂♂♂♀♂♂ breeding ♀♂, May 8, 10, 14, 16, March 28, April 10, Eden.

Iris brownish red. Bill bluish white. Legs and feet slate.

Rather a common species about Eden. A nest was found on March 28 in a "catelaw" bush about 6 feet up. The female No. 75442 was flushed from the nest and shot but the nest contained no eggs. An egg ready to lay was found broken in this bird upon skinning. Another nest found on April 27 near Eden contained three eggs. It was about three feet up in a bush near a small stream. A rather compact affair composed of leaves, small vines, plant stalks, grass heads and green moss, lined with fine brown plant stems. The inside measurements are 70 mm. diameter by 45 mm. deep. Two of the three eggs were destroyed by ants while drying. The remaining egg is etain blue, spotted and scrawled with dark brown and blackish brown and an occasional faint mark of lavender mostly around the larger end. This egg measures 24.2 × 16.4 mm.

***Piranga rubra rubra* (Linnaeus).**

Nos. 75465-67, ♂♀, April 12, Santa Rosita, April 1, Eden.

Iris sepia. Bill brownish horn. Legs and feet light grayish brown.

Rather common the latter part of March and during April.

***Chlorothraupis carmioli carmioli* (Lawrence).**

Nos. 75451-53, ♀, breeding ♀♀, April 10, Eden, April 22, Great Falls, Pis Pis River.

Iris olive brown. Bill black. Legs and feet slate.

The three specimens collected were found in the heavy forest. On April 22 in the dense forest on a steep hillside on the south side of the Pis Pis River I flushed a bird from a nest three feet up in a bush. After waiting for about two hours concealed close by the bird returned to the nest. Allowing about ten minutes to pass so she could get comfortably settled, I flushed and shot female No. 75452, the nest contained two eggs. Compactly built of small sticks, leaves and green moss, lined with very fine light brown plant stems, and on top of the lining a thin layer of black hairlike fibres.

A very beautiful nest.

The two eggs are creamy white spotted and specked with several shades of brown and lavender. A broad wreath of lavender and brown around the larger end. They measure 26.3×16.9 , 24.1×16.7 mm.

***Habia salvinii discolor* (Ridgway).**

Nos. 75468-75, ♂♂♀♀ im. ♂♂♀, March 23, April 3, 8, May 5, 19, Eden.

Iris pale sepia. Bill black. Legs and feet yellowish brown.

This tanager was generally found preying upon insects stirred up by the traveling army ants.

The immature male taken April 8 is in plumage similar to that of a female, but the crown patch is more conspicuous. Basal portion of the feathers of crown patch yellow, middle portion orange red, tips of the feathers concolor with the back. Throat and upper breast more orange, balance of the plumage similar to that of the female. The testes in this specimen were very large.

***Lanio leucothorax leucothorax* Salvin.**

No. 75476, ♂, April 22, Great Falls, Pis Pis River.

Iris sepia. Bill black. Legs and feet dark horn.

This was the only individual of the lanio seen, it was in a high forest tree near the river.

***Tachyphonus delatrii longirostris* Huber.**

Nos. 75477-81, ♂ juv. sex ? ♂♂♂, April 20, Great Falls, Pis Pis River, May 14, Eden.

Iris maroon. Bill black, azure at base of lower mandible. Legs and feet black.

No. 75477 is the type of this northern race (see Proceedings of the Acad. Nat. Sciences Phila. Vol. LXXXI, 1929, pp. 471-472).

ICTERIDAE

Zarhynchus wagleri wagleri (Gray).

Nos. 75640-53, ♂♂♂♂♀♀♀, juv. ♀♂♂♂♀♀, March 21, April 5, May 14, Eden, April 24, Great Falls, Pis Pis River.

Iris white, edged with ultramarine blue. Bill greenish white, spectrum blue at the base. Legs and feet black.

All of the above specimens are breeding birds except the young female taken April 24 at Great Falls. This young bird had just left the nest and was unable to fly. In coloration it resembles the adult female, but is slightly darker and duller. It has a band of white feathers extending around the entire base of the upper mandible, very narrow at the gape. This band of white feathers reaches a width of 5 mm. over the eyes and at the medial line.

Wagler's oropendola was an abundant nesting bird around Eden and at Great Falls. There was a number of colonies about Eden including from twenty-five to one hundred pairs of birds. Most of the colonies were close to human habitations. The colony at Great Falls numbered considerably over two hundred and fifty pairs of birds, the nests occupying five trees.

Gymnostinops montezuma (Lesson).

Nos. 75634-39, ♀♀♀♀♀, all breeding birds, March 25, 28, May 6, Eden.

Iris brown. Bill, terminal half chrome orange, basal half black. Bare skin on sides of head flesh color with a faint bluish tint. Legs and feet black.

There was but a single colony of about ten pairs of the Montezuma Oropendola near Eden. This colony where the specimens were collected was in a very high tree growing on the bank of a small stream about two miles north of Eden. There was a nesting colony of about twenty pairs in a large tree at the landing place at Santa Rosita. A number of colonies was passed while traveling in canoe or pitpan between Santa Rosita and Prinzapolka.

The Montezuma and Wagler's oropendolas were called "yellow tails," and were hunted for food. Having a very strong odor much like our crow, only much stronger, I did not try eating them.

The song of this species and its peculiar method of bowing while singing is ably described by Dr. C. W. Richmond (Proc. U. S. Nat. Mus. XVI, 1893, p. 494).

Amblycercus holosericeus holosericeus (Lichtenstein).

Nos. 75654-5, ♂♀, March 30, Eden, April 14, Santa Rosita.

Iris naples yellow. Bill yellowish green. Legs and feet plumbeous.

Prevost's Cacique was rare in all the localities we visited, as only two or three other individuals were seen.

The measurements of these two specimens are as follows: No. 75654 ♂, wing 103.6, tail 102.4 mm., No. 75655 ♀, wing 90.6, tail 87.6 mm. In both of these specimens the wing is slightly longer than the tail, which is the only character on which Todd separated *centralis* (Proc. Biol. Soc. Wash. vol. 29, 1916, p. 95, Rio Siesola, Costa Rica). Peters in his discussion of this species (Bull. M. C. Z., vol. 69, no. 12, pp. 474-76) gives a very useful table showing the results of measurements of wings and tail from the range of the species except those of Nicaragua. I have therefore given the measurements of these two specimens.

Psomocolax oryzivorus impacifus Peters.

Nos. 75656-58, ♂♂, April 23, 25, Great Falls, Pis Pis River.

Iris olive brown. Bill black. Legs and feet black.

Giant Cowbirds were rather common at Great Falls around the colony of breeding *Z. w. wagleri*. The cowbirds were continually entering the nests of the oropendolas; if the parent birds were near a fight ensued in which the cowbird was driven off. If the nest was unguarded the cowbird entered and remained until the egg was laid or the parent returned. The male cowbirds accompanied the females in their operations around the oropendola nests.

Icterus spurius (Linnaeus).

Nos. 75659-60, ♂♀, March 12, Bluefields, March 28, Eden.

Iris brown. Bill black above, slate below, lighter at base. Legs and feet slate.

Orchard Orioles were seen almost daily during March and the first half of April. They were especially plentiful about Bluefields.

Icterus galbula (Linnaeus).

No. 75661, ♂, March 29, Eden.

A single specimen of the Baltimore Oriole was taken at Eden. One or two others were seen during the first part of April.

Icterus prothemelas (Strickland).

Nos. 76834-37, ♂♂♂, March 23, May 5, Eden, April 28, Neptune Mine near Eden, May 7, Prinzapolka.

Iris dark sepia. Bill black, pale azure towards base of lower. Legs and feet dark slaty gray.

Lesson's Oriole was found sparingly in open situations, about houses and occasionally in the potreros. Other individuals were seen but not collected.

Sturnella magna inexpectata Ridgway.

No. 76838, ♀, May 7, savanna above Prinzapolka.

Iris brown. Bill horn color. Legs and feet pale brown.

This specimen of the Central American Meadowlark was collected by Mr. Street while at Prinzapolka waiting for a schooner to take him to Bluefields. He visited the pine-dotted savanna on the Prinzapolka River, a short distance above the town of Prinzapolka on the coast. He spent but the one day on the savanna and collected only a very few birds. The fauna of this savanna should prove to be very interesting, and is easily accessible from Prinzapolka.

CORVIDAE

Psittorhinus mexicanus cyanogenys Sharpe.

No. 75249, ♂, March 12, Bluefields. Testes very large.

Iris blue-black. Bill black. Legs and feet black.

This Brown Jay was shot from a flock of about twenty-five individuals feeding in the open country about half a mile back of the town of Bluefields. We did not meet with this jay in any other locality visited.