

ADDITIONAL INFORMATION CONCERNING THE BIRDS
OF EL SALVADOR

By JOE T. MARSHALL, JR.

From December 24, 1941, to May 13, 1942, the author collected birds in El Salvador, Central America, for the Museum of Vertebrate Zoology, as a member of the University of California Expedition to El Salvador under the direction of Dr. R. A. Stirton. The following annotated list is designed as a supplement to Dickey and van Rossem's (Field Mus. Nat. Hist., Zool. Ser., 23, 1938) excellent account of the birds of El Salvador. It includes new information concerning certain birds listed by them as well as a few birds new to the country; these latter are marked with an asterisk. It is hoped that the reader will attribute the paucity of new records to the thoroughness with which Mr. van Rossem worked the avifauna of El Salvador, not to a lack of activity on my part!

The localities mentioned under the species accounts are with one exception the same as those visited by van Rossem and described fully in his gazetteer (*op. cit.*, p. 13). Mt. Cacaguatique is an extinct, eroded volcano near the Honduras boundary in eastern El Salvador. It is planted to coffee over most of the north side. At the top, however, are virgin tracts of large oaks, a few pines, and, in the most humid places, tracts of dense brush and vine tangles. The summit is humid enough to allow for the occurrence of several species of birds typical of the cloud forest.

Lake Olomega is in the hot lowlands of the southeastern corner of the republic. The country surrounding it is covered with grass, sparse arid foothill forest of deciduous trees, or dense swamp forests. It is a station characteristic of the Arid Lower Tropical Zone.

Los Esesmiles is a 9000-foot mountain in the northwestern part of El Salvador. It is covered with a magnificent dripping cloud forest of oaks and white pine.

Volcan de Santa Ana is on the coastal side of the country not far from the Guatemalan boundary. Like Los Esesmiles, much of this mountain and some of its sister peaks, such as Cerro del Aguila, are in the Humid Upper Tropical Zone.

Chilata is a hacienda in the low Balsam Range near the coast of western El Salvador. Its avifauna is of the Arid Lower Tropical Zone like that of Lake Olomega.

The grove of *Pinus oöcarpa* at 5500 feet on the west slope of Los Esesmiles mentioned beyond represents a habitat not visited by van Rossem. Although it resembles the pine country in which both he and I collected at a lower elevation at the west base of Los Esesmiles, it has a peculiar assemblage of bird species in a combination which resembles neither the cloud forest nor the lowland stands of *Pinus oöcarpa*. This may be because it is the only virgin growth of pine in the area, and because unlike the lowland pine forest, there is much brush beneath the trees. The following birds were found there: Central American Red-tailed Hawk, Guatemala Road-runner, Central American Spotted Screech Owl, Central American Great Horned Owl, Costa Rican Saw-whet Owl(?), El Salvador Whip-poor-will, Texas Nighthawk, El Salvador Flicker, El Salvador Acorn Woodpecker, Nicaragua Flycatcher, Honduras Buff-bellied Flycatcher, El Salvador Steller Jay, American Raven, Chiapas Wren, Banded Cactus Wren, El Salvador Bluebird, Nicaragua Olive Warbler, Guatemala Painted Redstart, Wagler Oriole, El Salvador Red Tanager, Prevost Ground Sparrow, and Mexican Rusty Sparrow. This locality resembles greatly the yellow pine forests of the Transition Zone in the United States, a fact borne out by the presence of several of the species mentioned.

Ardea herodias. Great Blue Heron. Although this species was common at Lake Olo-



Fig. 8. View from Mt. Cacaguatique, El Salvador, looking through oak forest (Arid Upper Tropical Zone) toward Volcan de San Miguel on the horizon.

mega in January and February, only one specimen was taken, the characters of which do not justify the application of a subspecific name. It is lighter and larger than *herodias* and darker than *treganzai*; it has a smaller bill than *sanctiluceae*.

Casmerodius albus. American Egret; *Leucophoyx thula*. Snowy Egret. With the cessation of plume hunting, egrets have multiplied to such an extent that they were found in great abundance at Lake Olomega in January and February.

Buteogallus anthracinus subtilis. Mangrove Black Hawk. William Gealey of our party took an immature male of this race at Lake Olomega, which is within the breeding range of *B. a. anthracinus*. This bird is much smaller and has fewer dark markings than immatures of *B. a. anthracinus* taken by van Rossem at the same locality. In view of this discrepancy in characters, it seems at present logical to consider it a winter vagrant from the range of *subtilis* on the coast, rather than an intergrade or variant of *anthracinus*.

Dactylortyx thoracicus salvadoranus. San Miguel Long-toed Quail. I took an adult male which had been singing in a coffee finca at 5000 feet on Cerro del Aguila, one of the cones in the Santa Ana Volcano group. It represents a sizable population in this vicinity which is isolated from *salvadoranus* on Volcan de San Miguel and *D. t. taylori* on Mt. Cacaguatique by a lack of intervening high-altitude humid forest. It is of considerable interest, therefore, that this bird shows no approach to *D. t. chiapensis* to the north, but is identical in ventral color and short tarsus with *salvadoranus* and is even grayer dorsally than that form. For the present, therefore, it has been catalogued under *salvadoranus*.

The remarkable song of the male Long-toed Quail was often heard in the densest

high growth bordering the forest of giant figs and avacados on Cerro del Aguila. It is astonishing in its volume and penetrating quality and consists of three or four long whistles, each higher in pitch than the preceding, followed by three rapid phrases of staccato notes, descending in pitch.

Dactylortyx thoracicus taylori. Interior Long-toed Quail. Seven specimens of this race were taken by members of our party on Mt. Cacaguatique. Mr. van Rossem has measured the four adult males prepared as skins and finds that color alone distinguishes this race from *salvadoranus*.

Melopelia asiatica. White-winged Dove. Immense flocks of these doves were seen at Lake Olomega in January and February, thereby bearing out the testimony of native hunters that in some winters they migrate in great numbers to the El Salvador lowlands (see Dickey and van Rossem, *op. cit.*: 188).

Otus trichopsis mesamericanus. Central American Spotted Screech Owl. This species was found in surprising abundance in the coffee fincas on Mt. Cacaguatique. A pair could be expected about every hundred yards, usually in little shaded gulleys. I used the call note of this species with great success in attracting crowds of small birds around my stuffed owl, and both at Mt. Cacaguatique and Los Esesmiles, it was not unusual to have the local pair of Spotted Screech Owls answer and even put in an appearance in broad daylight. Certain peculiarities in the habitat preferences of this owl seem worthy of mention. At Mt. Cacaguatique eleven specimens were taken from coffee fincas, either in the large trees planted for shading the coffee or in the coffee bushes themselves. Although I hunted for them extensively in virgin tracts of oak and *Pinus oöcarpa*, at no time were they found there except for one pair which flew into oaks at the very edge of a finca. At Los Esesmiles, however, they were numerous in sparse, second-growth oaks at the lower edge of the cloud forest and were abundant in stands of *P. oöcarpa* from 3500 to 7000 feet. Only one pair came to my attention in the vicinity of Volcan de Santa Ana, where the birds were calling at dusk at the edge of a finca at 4500 feet.

The call notes of *mesamericanus* were a little different from those of *O. t. trichopsis* which I have heard in Arizona. The ordinary call, a trill of nine to thirteen even mellow whistles on the same low pitch may begin with a higher note. The "syncopated" call, given when the birds are more excited, consisted always of rapidly repeated phrases of a grace note followed by three or four long notes, thus: *to toóo, toóo toóo, to toóo toóo toóo*. The Arizona birds which I heard gave the following: *to to toóo to toóo, to to toóo to toóo*, etc. When pairs were collected, it was found that females' calls were pitched about a major third above those of the males. Females called less frequently and were harder to approach than males. At Mt. Cacaguatique in January, most of the birds were paired and had enlarged gonads, but five males were taken at the same spot in the course of two weeks, so one wonders about the stability of their territories. Juveniles were out of the nest by the last week of March at Los Esesmiles. Foraging, as watched at Mt. Cacaguatique, was done in the coffee bushes, where the birds would perch on little twigs six inches to six feet above the ground and look from side to side, then fly rapidly to the next bush. Stomach contents revealed that they fed on moths, caterpillars, grasshoppers, crickets, and beetles; one stomach contained the jaw of a shrew. These birds were so tame that I once struck one with my face while I was crashing through the coffee after another which was hooting.

Bubo virginianus melancercus. Central American Great Horned Owl. A male was taken in a grove of *Pinus oöcarpa* at 5500 feet on the west slope of Los Esesmiles on

March 31. It had been hooting regularly and decoyed to imitated calls, but flew whenever the light was turned on. I finally obtained it when I was able to see its silhouette against the moonlit sky. On April 6, one called just once in the early evening from the pines at 3000 feet at the west base of Los Esesmiles.

Ciccaba nigrolineata nigrolineata. Black and White Owl. A pair occupied the area around a spring in the hills at Lake Olomega. The female, which had been feeding on grasshoppers, was taken on January 29 and had eggs in the oviduct. The male, with testes enlarged, was taken on the 30th; it had grasshoppers and two bats in its stomach. The call of this species resembles that of *Ciccaba virgata* in having two percussive barks, but these are preceded by four hoots ascending in pitch. The male has a much lower note than the female.



Fig. 9. Lake Olomega, showing growth of water hyacinth in foreground.

Rhynopteryx clamator clamator. Striped Horned Owl. This species was found to be common in the open savannas around Lake Olomega in January and February, when they often were heard. The three specimens obtained showed that the breeding season was under way. They had fed upon rodents (*Liomys*) and grasshoppers. The call is a single hoot, higher in the female, and is identical with that of the Long-eared Owl. However, at no time did Striped Horned Owls change to the muffled or inflected hoots which Long-eared Owls sometimes utter. One male was taken on January 26 as he hooted at frequent intervals from a high tuft of bushes overlooking the grassland. On February 6 both members of a pair were attracted by imitated calls and were induced to come from similar grassland and swamps to a tree over my head. In life these birds looked and sounded very much like the Long-eared Owl.

Cryptoglaux ridgwayi.* Costa Rica Saw-whet Owl. Early in the evening of March 21 I was returning to our camp at Los Esesmiles when I heard Dr. Stirton attempting to "call up" a pair of Spotted Screech Owls which were trilling close at hand. Knowing that he is a far better collector than musician, I was somewhat amused by his whistles, which were an octave too high for *Otus trichopsis* and sounded more like the notes of a

Saw-whet Owl. I was surprised, therefore, to hear him shoot. Together, we searched with lighted newspapers for the specimen, which turned out to be a Costa Rica Saw-whet Owl, the third specimen in existence! It had flown to a branch in front of Dr. Stirton after he had been whistling about four minutes at the edge of a second-growth oak forest at 7500 feet. He remarked that it had made a low purring sound.

On the night of March 24, I determined to try for more Saw-whet Owls, and set out through the cloud forest, giving imitations of Dr. Stirton's whistle. About a half-mile from where the first was taken, another answered me, this time in a little grove of young pines at the edge of the cloud forest. I had been whistling and giving Barred Owl hoots at this spot for about fifteen minutes. Its call was a series of ten mellow whistles,



Fig. 10. An isolated tract of cloud forest surrounded by brush- and grassland on Los Esesmiles. Site where Costa Rica Saw-whet Owl was taken.

each note distinct, but not staccato, an octave higher in pitch than the call of a male *Otus trichopsis*, uninflected, and much softer than the whistle of *Glaucidium brasilianum*. I answered, and it apparently became more excited and uttered a rapid series of whistles, which sounded like an *Otus* trill, though higher; then it flew up to a pine branch near me and gave the slower calls. The bird appeared very pale in the light of my hunting lamp; much of the face and underparts seemed to be white. I shot it and proceeded up the mountain. Only one more was called up in a distance of three miles; this one again was at the edge of the cloud forest. It called only once with the slow series of whistles, and I was unable to locate it. All the notes mentioned sound exactly like the few *Cryptoglaux acadica* which I have heard, but they were always at a constant pitch.

My next encounter with what I suppose was this species occurred on March 31, when I was hunting in a grove of *Pinus oöcarpa* at about 5500 feet, far below the cloud forest on Los Esesmites. I had given up trying to find *Otus flammeolus* in these pines and was about to go to sleep under an oak when I heard four whistles of *Cryptoglaux* quality, but very soft and descending in pitch. I answered and immediately heard the bird alight on a branch of the oak about seven feet over my head, where it gave several high notes. This started a furor of calling from a pair of *Otus trichopsis* which apparently had a nest in the oak, and before I could get my light on there was a scuffle at the oak branch and the Saw-whet Owl was "run out" of the neighborhood. I hunted for it about a half hour, and then, when I returned to the oak and burrowed into my pile of pine needles, the whole performance was repeated. By this time I had lost patience with the *Otus trichopsis*, and collected them both, but then a Great Horned Owl put in its appearance, and dawn soon ended further hunting of *Cryptoglaux*.

The two specimens were adult males nearing the breeding condition, the testes of one measuring 4.5 mm., of the other, 6.5 mm. (Two breeding *Cryptoglaux acadica* in the collections of the Museum of Vertebrate Zoology had testes 7 mm. long.) Their coloration suggests the juvenal plumage of *C. acadica* because spotting or streaking is almost lacking, and they fit closely the descriptions of the two other specimens, namely the types of *C. ridgwayi* and "*C. rostrata*," which were designated as "young" and "slightly immature," respectively. A fifth specimen examined by Salvin and since destroyed, was also in this "immature" plumage. The body feathers of the El Salvador specimens are complete and stiff, in no way suggesting the lacey juvenal feathers of *acadica*. Therefore, the controversy concerning whether or not tropical Saw-whet Owls ever attain the "adult" plumage (Griscom, Amer. Mus. Nov. No. 438, 1930:2; Peters, Chest-list of Birds of the World, 4, 1940:174, footnote) would seem to be settled, and it is justifiable to regard them as specifically distinct from *acadica*. Peters (*loc. cit.*) correctly regards *ridgwayi* and *rostrata* as conspecific. The fact that they were originally thought to be separate species is apparently due to an error in comparing measurements. "*Rostrata*" was alleged to have a much larger bill than either *ridgwayi* or *acadica* owing to the comparison of total exposed culmen in "*rostrata*" and *acadica* with culmen "from anterior end of cere" in *ridgwayi*. Comparing culmen from anterior end of cere, I find that 14 male *acadica* average 11.4 mm. (10.5-12.3), 7 female *acadica* average 12.5 (11.7-13.0) and the three males of *ridgwayi* average 13.4 (13.0-13.6). The type of "*rostrata*" is a female, which would be expected to have a still larger culmen from cere.

The two El Salvador specimens are remarkably different in coloration; accordingly, a brief description follows. No. 85693, Mus. Vert. Zool., collected March 21, 1942, is the darker of the two, with the auriculars and postauricular ruff dark brown except for the anterior rows of ruff feathers which are blackish-brown as in many *C. acadica*. It fits the description of *ridgwayi* except that the toes are partially, though sparsely, feathered, and the legs are cinnamon buff like the flanks. Conspicuous white-tufted filoplumes extend beyond the contour feathers of the head. No. 85694 is much paler ventrally. The superciliary region, forehead, sides of throat, and legs are whitish, and a band below the throat and the median portion of the belly are pure white. The feathers of the first two rows of the postauricular ruff are blackish basally with pure white tips. The rest of the ruff feathers are buff with some brown spotting which suggests the pattern in adult *acadica*. The most anterior crown feathers have inconspicuous but distinct buffy shaft streaks. There are three rows of small white spots on the inner webs of the rectrices and a suggestion of them on the outer webs. Several of the greater secondary coverts

have white spots, and the outer webs of the primaries are margined with whitish, this color indented at intervals to suggest four vague bands. The toes are heavily feathered almost to the claws. It can be seen then, that several characters of *acadica* have been only partially suppressed in this specimen. Considering the four known examples of *C. ridgwayi* as a whole, it is very awkward to attempt their subdivision into races, in view of the great variability shown, and specimens in the Museum of Vertebrate Zoology are catalogued under the binomial for the present.

Griscom (*loc. cit.*) mentions that *rostrata* and *ridgwayi* differ in shape of wing from *acadica*. The two El Salvador birds show the difference as follows: although in wing length (132 and 135 mm.) they equal *acadica*, primaries 9 and 10 are shorter, respectively, than 9 and 10 in *acadica* and primaries 1 to 5 are considerably longer than the same in *acadica*, such that 10 is a little shorter than 1, and 9 equals 5. In *acadica*, 10 equal 3 and 9 equals 6. Hence the wing of *ridgwayi* is the more rounded of the two and possesses a greater area.

Concerning the food habits of *Cryptoglaux ridgwayi*, meager evidence is forthcoming from the presence of a feather in one stomach and a few hairs in the other!

Caprimulgus vociferus vermiculatus. El Salvador Whip-poor-will. These birds were abundant at Los Esesmites during our stay there from March 8 to April 5. Wintering *C. v. vociferus* were not in evidence and the seven specimens taken, four of them males, were breeding birds, showing the red coloration and transverse barring of *vermiculatus*. The male of this race has not previously been collected. These birds did not frequent the dense cloud forest but were common around its edges in clearings and smaller trees. They were also numerous in open groves of *Pinus oöcarpa* at 5500 feet. The call of *vermiculatus* is noticeably harsh and rough, and has a "flutter" or "burr" all the way through which is different from recordings I have heard of *C. v. vociferus*.

Chaetura vauxi tamaulipensis.* Tamaulipas Vaux Swift. Swifts of the species *vauxi* were undergoing a gradual transition from winter flocking to pair formation at Volcan de Santa Ana in April. On sunny days pairs or small groups, probably of the race *richmondi*, would be seen flying in fixed circuits among certain groups of large fig trees, chattering noisily in their pursuit of each other. The same trees were used for this performance every day. (Similar behavior was noted at Chilata in the first half of May; by this time pairs were the rule.) On cloudy or rainy afternoons, flocks of 100 to 200 silent individuals would form, and they would occasionally mill around at a low level. Two males were taken from such a flock on April 12; one, a typical *richmondi*, was nearing the breeding condition (testes 3 mm.) and was not fat. The other was excessively fat, had very small testes, and was undoubtedly a bird wintering from the north. In color, it agrees with the description of *tamaulipensis*, being intermediate between *C. v. vauxi* and *richmondi*.

Streptoprogne zonaris mexicana. Mexican Collared Swift. Near Hacienda Chilata, in the Balsam Range, is a large stream which flows for a mile or more through an impressive canyon, the walls of which in many places are perpendicular and a hundred feet high. Here were found in May such birds as the White-throated Falcon, Texas Kingfisher, Black Phoebe, Mango Flycatcher, Rough-winged Swallow, Banded Wren, and Bonaparte Tanager. But the most impressive visitants to the gorge were the Collared Swifts. A flock of about 50 would appear every afternoon over a grassy knoll overlooking the gorge. Here they would feed on the swarms of termites and would occasionally chase the White-throated Falcons. (Often they were accompanied by dark swifts,

larger than *Chaetura vauxi*, which gave a harsh buzzing note; these may have been Chestnut-collared Swifts.) At sunset, the Collared Swifts would plunge into the gorge and dash up and down the water course in compact formation at tremendous speed, amid an ear-splitting clamor and rush of wings. When it was almost dark, they would begin, singly or in small groups, to enter a fissure in the rock behind a twenty-foot waterfall, from which their high-pitched squeals would continue. Usually they slowed down at the fall and fluttered through the spray into the crack, but on May 8, several perched woodpecker-fashion on the wall of the gorge, and one female was shot. A male was taken on the knoll on May 10, and another on May 12. Only one of the three specimens is typical of the race *mexicana*. This is a male (prepared as a skeleton), with testes 7 mm. long, which had glossy black adult plumage with a very wide white chest band, a long wing (over 205 mm.), and the chin and forehead brown, contrasting with the black of the crown. The other male, with testes 6 mm. long, has a wing of 205 mm., but the coloration is that of *S. z. albicincta*, with the skin and forehead concolor with the crown and throat, respectively, and the back an intense black. Apparently this is a year-old bird, as the white chest band is narrow and only the tips of the feathers are white. The female has a wing of only 194 mm., and the chin and forehead are concolor with the rest of the head, but the plumage is mostly sooty, not glossy black. The chest band is formed by the white tips of only two rows of feathers and most of the throat feathers have a minute whitish bar at the tip. This bird, apparently also in immature plumage, had laid possibly within the last two or three weeks, judging from two erupted ovarian follicles and the large size of the oviduct. Since the three birds appear to be in about the same stage of the breeding cycle, they should be considered in the same race, *mexicana*. This is in accord with Griscom's deëmphasis of color characters in distinguishing *albicincta* from *mexicana* (Bull. Amer. Mus. Nat. Hist., 64, 1932:194).

Tilmatura dupontii xenoura.* Dupont Hummingbird. Two specimens from the coffee finca on Mt. Cacaguatique, a male taken on January 10, and a female on January 13, are referred to this race provisionally (see Griscom, Proc. New England Zool. Club, 8, 1932:55). The female has almost no black on the central rectrices, but the tips of the other rectrices are cinnamon-rufous, like the dark underparts. The rump patches are a lighter cinnamon. The chestnut bar on the outer rectrix of the male is 4 mm. wide.

Aspatha gularis. Blue-throated Motmot. This remarkable bird was found commonly at Los Esesmiles in March, generally in dense clumps of small trees at the edge of or in more open parts of the cloud forest. Although they often were attracted to my stuffed owl in the daytime, they called and were most active at dusk and on cloudy mornings. They invariably perched absolutely motionless within the interior of a tree, where their color blended so well with the foliage that they seemed to vanish upon alighting. In foraging, they would mount into the air in pursuit of large beetles and other flying insects and return to the same perch, reminding me greatly of the Flammulated Screech Owl. Foraging continued in the evenings until it was almost totally dark, hence the large eye of this crepuscular species. The calls are low-pitched mellow hoots which can be heard for great distances; these are an outstanding feature of the riot of noise and song proceeding from the cloud forest at dusk, including the racket of the Black Chachalaca, the strident calls of woodhewers and the Tawny Automolus, and the matchless song of the Guatemala Solitaire. The ordinary call is a single *coo*, to which a short syllable a major third higher in pitch may be added, thus: *coo-lick*. This may be delivered in a long, continuous roll as follows: *coo-lick-coo-lick-coo-lick*, etc. Five males were taken,

March 12 to 19, all of which had testes from 3 to 5 mm. long; one taken on the 19th had a fully developed brood patch.

Xiphorhynchus erythropygius.* Spotted Woodhewer. I was attracted to a pair of these rare woodhewers on March 13 at Los Esesmiles by their peculiar call, a low hen-like "cut-uck." The female was collected as it foraged up the trunk of a small tree in the brushy understory of the cloud forest. The male was taken near the same place on March 30. I have compared these specimens with five *erythropygius* from Guatemala borrowed from the American Museum of Natural History, with which they are identical except for a more greenish-olive tone on the scapulars and interscapulars. This might be regarded as a trend toward *X. punctigulus*, but in view of the different style of coloration and different size and shape of the bill in *punctigulus*, I follow Oberholser (Smithsonian Misc. Coll., 48, 1905:63) and Ridgway (Bull. U. S. Nat. Mus., 50, 1911:



Fig. 11. View within cloud forest near summit of Los Esesmiles.

254-255) in regarding the two forms as distinct species. Hellmayr (Field Mus. Nat. Hist., Zool. Ser. 13, part 4, 1925:310), who regards both as races of *triangularis*, refers to birds intermediate in color and amount of back streaking, but does not mention the bill or style of spotting. Two male *punctigulus* from Chiriquí, Panama, in the collections of the California Academy of Sciences differ from the seven Guatemala and Sal-

vador *erythropygus* as follows: the bills are straight and abruptly tapering at the tip (see Ridgway, *loc. cit.*, pl. XIII) rather than being decurved and gradually tapering; bill depths at nostril are 7.7 and 7.8 mm., widths at nostril 6.3 and 6.7, whereas in the latter specimens these measurements are 6.6-7.3 and 5.2-6.0, respectively. The crown feathers are greenish-olive with a line of buff along the shaft rather than dusky-tipped with an oval spot of buff. Also, the few buff marks on the interscapulars are lines rather than spots. The buff centers of the ventral feathers are reduced in size and number so that the underparts are predominantly green, and the throats are yellowish with triangular spots of olive rather than buff with transverse bars.

Lepidocolaptes souleyetii insignis. Northern Streak-headed Woodhewer. This species was taken in the coffee fincas and oaks on Mt. Cacagatique where it occurred in equal numbers with *Lepidocolaptes affinis affinis*.

Automolus rubiginosus umbrinus.* Tawny Automolus. The loud calls of this species were heard at dawn every day at Los Esesmiles, and at least two or three individuals were within hearing anywhere in the cloud forest. Owing to their extreme shyness and their preference for the densest tangles of underbrush and fallen trees, they were rarely seen, however, and I collected only two, a male in breeding condition on March 24, and a female on March 30. These have been compared with specimens of the race *veraeopacis* from the American Museum of Natural History, from which they differ in accordance with the characters of *umbrinus*.

The loud cries of this species, like those of woodhewers, have a peculiar wooden quality which makes one think immediately of a "subpasserine." The whistled call is made up of three notes, each with a marked upward inflection. In addition, the birds sometimes utter a guttural purring sound while foraging or when alarmed. Occasionally they mount up into the cloud-forest oaks and utter three or four long inflected whistles which descend greatly in pitch, and one is startled to hear this familiar human "appraisal" note in a spot so far removed from a college football stadium. The few members of this species which I was able to watch foraging worked on the ground among fallen logs and overhanging roots on banks, so stealthily that there was never a rustle to indicate their presence.

Empidonax albigularis australis.* Southern White-throated Flycatcher. This drab little flycatcher was commonly found in patches of low brush and weeds between 4500 and 5500 feet at Volcan de Santa Ana, where seven specimens were taken between April 11 and 25. It is certainly not a spectacular bird as it never leaves its habitat and seldom perches higher than six feet above ground. The "song" of the male, usually loud and of distinctive pattern in this genus, is here reduced to a few faint lisping and twittering notes, and the call, which can be heard only a few yards away, is a faint, yet sharp "buzzt" with the quality of a song sparrow's alarm note. Pairs were the rule and the condition of the gonads indicated that their breeding season was just beginning. Breeding territories, if they were yet established, must have been very small, as it was not unusual to find three pairs in thirty yards along brushy gulleys. I have compared the five El Salvador specimens prepared as skins with eighteen *Empidonax albigularis australis* and three *E. a. albigularis* from the collections of the Museum of Comparative Zoology and the American Museum of Natural History and agree thoroughly with the conclusions of Griscom in his revision of the species (Bull. Amer. Mus. Nat. Hist., 64, 1932:266). The *albigularis* of Guerrero and western Guatemala, which are light grayish-olive dorsally and pale yellowish ventrally, can be readily separated from the richly

colored *australis* from Vera Cruz, Huexotitla, and Costa Rica. The latter are greenish-olive above, rich yellowish or buff on the posterior underparts, with a chest band of olive in fresh plumage which is darker in worn plumage when the dusky bases of the feathers are exposed. The skins from El Salvador and two recently taken specimens from Rancho Quemado, District of Achaga, Honduras, show great individual variation, although inclining as a series more to an olive-brown back. The chest band in these birds is uniformly somewhat lighter than in the *australis* series, but the posterior underparts are richly suffused with yellow, cinnamon, or buff. Accordingly they are regarded as *australis*; surely nothing would be accomplished by burdening this little-known species with another racial name. The point of major interest is that the series from western El Salvador shows so little approach to the western Guatemala form, from which it is not far removed geographically.

Platyrhynchus cancrininus. Mexican Spade-billed Flycatcher. Two of these flycatchers were taken by John Davis at Lake Olomega, February 15 and 16. A total of four pairs was noted by him in dense leafy undercover beneath the tall trees of the jungle where it was cool and rather moist. His attention "was first attracted to them by the call note which sounded like the 'per-dit' of a Western Tanager, with an extra 'dit' syllable, although the whole note was not nearly so loud." The birds perched low down in the shrubs, motionless like small *Empidonax* flycatchers. Members of a pair stayed close together. Van Rossem found this species only at Zapotitan, in 1912, in a higher zone, the Arid Upper Tropical.

Elaenia obscura frantzii. Frantzius Elaenia. Four specimens were taken in January on Mt. Cacagatique; the two adults prepared as skins are bright olive-green above and yellowish-green below and are identical with a series of 23 recently collected December birds from Chiriquí, Panama, in the collections of the California Academy of Sciences. Two March adults from Los Esesmiles are, like the El Salvador birds in the Dickey Collection, distinctly browner above; they might be considered to approach the northern race, *ultima*. However, they have not the darker, less yellowish ventral color of that form, and, as stated by van Rossem (*op. cit.*, :392), are still greener above and yellower below than recently collected skins from Costa Rica. I am therefore inclined to regard the differences among birds from El Salvador, Costa Rica, and Panama as seasonal only.

Notiochelidon pileata. Cobán Swallow. This species was abundant at Los Esesmiles, where eight specimens were taken between March 12 and 31. It is apparently a summer visitant only, arriving the second week of March. Van Rossem (*loc. cit.*: 401), who was at the locality a month earlier than our party, saw only four, and these on March 10, 1927, the last day of his stay there. The swallows which I took were in breeding condition by the latter part of the month. Small groups, foraging low over bare ridges and knolls cleared of the cloud forest, were seen daily. On March 31, I found the headquarters of the colony, a large dead pine at the head of a steep canyon at about 8700 feet. Several hundred birds were perched there and groups of them were continually launching out to forage low over the wheat-fields, clearings, and land slides in the cloud forest. In flight, this species resembles the Rough-winged Swallow in its habit of "floating" with infrequent single wing-beats, but it is much faster, and in straightaway flight the wings are moved rapidly, reminding one more of a swift. The call is a rolling "bzeet," sharper than that of the Rough-wing.

Hemicorhina leucophrys capitalis. Gray-crowned Wood Wren. Four specimens, taken March 15 to April 4, at Los Esesmiles have been compared with skins from Honduras

in the Museum of Comparative Zoology, and with birds from Guatemala in the American Museum of Natural History; they agree in all characters with the race *capitalis* from the mountains of the Pacific side of Guatemala. By the latter part of March, when males began singing, it became evident that this was a very common species in dense streamside thickets in the cloud forest. The song is patterned like that of *Thryothorus modestus* (only two phrases given at a time), but is more varied and much superior musically.

Heleodytes zonatus zonatus.* Banded Cactus Wren. This species was found at only one spot, a small, open stand of *Pinus oöcarpa* at 5500 feet on the steep west slope of Los Esesmiles. They were entirely absent from the lower foothills where this pine also occurred. Nine specimens were taken on April 1 and April 6. It was a great surprise to see these large wrens foraging like nuthatches on the trunks and more upright limbs of the tall pines. They also worked in little bushes, clinging to the tiny twigs and leaning far over like goldfinches. One bird sat upright on the topmost twig of a large pine, uttering its harsh notes!

Turdus rufitorques. Rufous-collared Robin. Two males, in breeding condition, were taken near our camp at Los Esesmiles, March 9 and 13. Flock movements were still occurring at this time, however. On the 13th, about a dozen birds, spread out over several canyons and ridges, and yet keeping in touch by calling, were gradually moving as a unit down the mountain. On the 31st a colony was found about 5 miles away in some orchards at 7500 feet where the males were singing at dusk. It seems incredible that the daytime movements of these birds could be carried out on such a far-flung scale! Similarly, at Volcan de Santa Ana a male was collected about five miles from the summit where the only known breeding colony in the area is situated.

Turdus assimilis rubicundus. Dearborn Robin. A small breeding colony of these robins was found on May 2 in a shaded canyon at 2000 feet in the Balsam Range near



Fig. 12. Panorama showing Cerro del Aguila, near Volcan de Santa Ana.

Chilata. This canyon had a luxurious growth of trees and moisture-loving vegetation, the only such growth in this arid part of the range. Dearborn Robins occurred in several colonies in forests of high altitude at Volcan de Santa Ana, and it was a surprise to find them at Chilata associated with such low-zone birds as the Paltry Flycatcher, Long-billed Ant Wren, Yellow-green Vireo, and Blue Honey Creeper.

Hylocichla mustelina. Wood Thrush. One was taken on February 17 at Lake Olo-mega by John Davis. This is the second record for the country. The first was taken by Mr. van Rossem at Mt. Cacaguatique, at a much higher elevation and in a different life-zone.

Anthus spinoletta alticola.* Rocky Mountain Pipit. A pipit of this race (see Todd, Proc. Biol. Soc. Wash., 48, 1935:64) was taken on April 16 on a dry lake bed at 5500 feet in the mountains north of Volcan de Santa Ana; it was in full spring plumage.

Seiurus aurocapillus cinereus.* Gray Oven-bird. One specimen belonging to this newly described race (Miller, Condor, 44, 1942:185) was taken on Mt. Cacaguatique on January 10.

Atlapetes gutteralis subsp. Yellow-throated Sparrow. This species was found at the summit of Mt. Cacaguatique in January, where it was fairly common in extensive tracts of dense bushes over moist ground. Owing to its habit of remaining far in the interior of this brush, it was almost impossible to collect and only one specimen was taken on January 10. This bird is a male, just completing the molt from juvenal to adult plumage. It is so much darker than any other specimens from El Salvador that it may well represent an undescribed race isolated on the eroded summit of the old volcano. The scapulars are black with very dark olive-brown tips, the latter color occurring over the rest of the upperparts.

Melospiza lincolni lincolni.* Lincoln Sparrow. Of the three Lincoln Sparrows which I collected at Mt. Cacaguatique and Los Esesmites, one has been identified by Dr. Alden H. Miller as *M. l. lincolni*. This was taken at the latter locality on March 16, where it was feeding in a brush patch with a flock of Indigo Buntings. The other two are *M. l. alticola*.

I am indebted to Mr. van Rossem for his suggestions and generous assistance in comparing my specimens with those in the Dickey Collection; also to the authorities of the American Museum of Natural History, the Museum of Comparative Zoology, and the California Academy of Sciences for the use of specimens. Mr. John Davis took many valuable birds in the course of his explorations as herpetologist with the expedition, and Dr. R. A. Stirton, as leader, mammalogist and paleontologist of the expedition, found time to collect some remarkable birds and ingeniously to retrieve many more which I had given up for lost!

Museum of Vertebrate Zoology, Berkeley, California, November 16, 1942.