

NOTES ON BIRDS OF THE LAKE PATZCUARO REGION,
MICHOACAN, MEXICO

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Because of the diversity of bird life observed by Edwards and Stephen W. Eaton of Cornell University when they visited Lake Pátzcuaro on July 28 and 29, 1946, they considered the region a promising one for study. Further impetus to plans for intensive investigation of the region was afforded by the report of Blake and Hanson (1942) on avifaunal studies in the Rio Tepalcátepec-Cerro de Tancítaro area. Their paper, which emphasized the fact that little published information on the birds of the state of Michoacán was available, serves as an excellent groundwork for further study in the state.

Consequently the Lea-Edwards Expedition with John W. Boehm of Elgin, Illinois, visited Pátzcuaro in the late winter and early spring of 1947, making observations and collecting birds intensively in the region from March 14 to 19 and from April 25 to May 9. The following report, based on 167 specimens of 92 species, also includes mention of 58 species of which we obtained no specimens, but which were observed either by us in 1947 or by Eaton and Edwards during the visit in the summer of 1946.

We found that there were no previously published reports of the occurrence in Michoacán of 48 species of the total of 150 species that we recorded. These are designated in the annotated list by an asterisk placed before the species name. Although almost half of them are based on sight records alone, and many are common birds in similar situations in other parts of the central plateau, we feel that it is worthwhile to give them special mention. R. T. Moore (1945:223) apparently has assembled a collection of several thousand birds from Michoacán, taken by Chester C. Lamb, and it may contain many of the species that we designate as new records for the state, since presumably portions of the collection still remain to be reported upon. Three have been recorded by Moore (1945:231-232) as occurring in his Tarascan Faunal District, which consists primarily of a portion of the state of Michoacán, but also includes some of México and Jalisco.

All of the observations reported herein were made within the region extending from Carapan and the volcano of Parícutin east to Morelia, and from the Mexico City-Guadalajara highway south to Tacámbaro. However, by far the greater portion of the work was done within a few miles of the lake shore inside the boundaries of the Lake Pátzcuaro basin. The surface of the lake is well over 6000 feet above sea level and only once, during a morning's collecting near Tacámbaro at approximately 5000 feet elevation, did we descend appreciably below this level.

The 1947 party entered the Pátzcuaro Lake basin in mid-March by way of Carapan, Cherán, Nahuatzin and Sevina, driving over deep-dusty, rocky roads and ox-trails from Sevina across the mountains to Erongarícuaro, and thence around the west and south shores of the lake to Pátzcuaro. The extensive virgin forests of pine which once supported a population of Imperial Ivory-billed Woodpeckers (*Campephilus imperialis*) (Nelson, 1898:218) were no longer to be found between Nahuatzin and Pátzcuaro, the land having been almost completely cleared for agriculture. Even the mountain tops were covered only with relatively small areas of what appeared to be second-growth pine and oak. *Campephilus imperialis* is undoubtedly completely absent at present from this section of its former range.

The extensive marshes near the southeast arm of the lake received the greatest share of our attention, and we made collections there in March, April and May. The marsh along the lake shore consisted primarily of cattails (*Typha*). Approximately 300 yards

back from the shore another marsh commenced and extended two or three miles to the east along an inlet stream. It consisted mostly of a low grass-like herb, probably *Carex*, interspersed with large areas of *Scirpus* and small patches of *Typha*.

For a few days in March we camped in open pine woods two miles south of Pátzcuaro and made collections there at that time as well as in late April and early May. Edwards investigated a similar area near Ajuno on April 30. The woods included in this category consisted almost entirely of scattered large, long-needed pines with only a few thick-leaved oaks interspersed. The forest floor was grassy and in a few places heavily grown with an irregular shrub-like plant reaching a height of five feet.

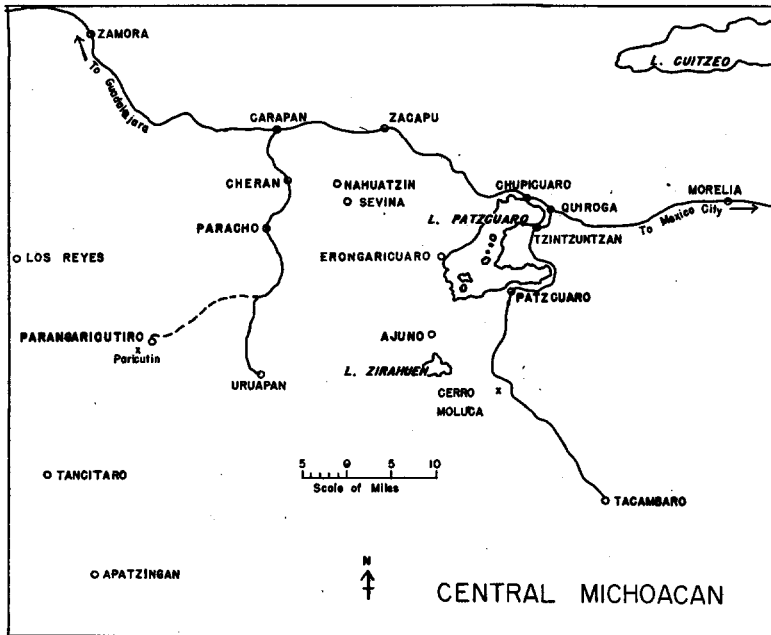


Fig. 46. Map of central Michoacán showing localities mentioned in the text.

In late April and early May we investigated two types of woodland which we had not visited in March. The first, largely a mixture of pine and oak, was the most widespread sort of habitat in the region, excepting the cultivated fields and rocky pastures. There was great variation in the proportions of oak and pine. The woods which we investigated, situated five miles south of Pátzcuaro, and 7600 feet above sea level, contained many oaks and smaller thick-leaved shrubs, with scattered pine trees towering overhead. It was relatively humid within and the substratum consisted of jumbled rocks, presumably an old lava flow. A somewhat similar association at about 5000 feet elevation, approximately three miles north of Tacámbaro, was drier, contained fewer pines and thick-leaved shrubs and grew on a clay soil.

The second type consisted of a dense growth of fir (*Abies*). We studied a small forest of this sort on Cerro Moluca, approximately fifteen miles south of Pátzcuaro at an estimated elevation of 9000 to 9500 feet. A large portion of the forest consisted of almost pure stands of fir of heights up to 100 or 150 feet, but a few park-like openings existed, grassy or grown with shrubs and herbs.

With the exception of a few specimens returned to the Dirección General Forestal

y de Caza, our specimens are now in the personal collection of George M. Sutton. We wish to express our appreciation to Dr. Sutton for his advice and encouragement in all phases of the work. We wish also to thank Mr. Emmet R. Blake and Mr. Stephen W. Eaton for carefully checking the manuscript, and the latter also for allowing inclusion of his field observations. We are much indebted to the authorities of the United States National Museum, the Fish and Wildlife Service Collection, the Chicago Natural History Museum, the Museum of Zoology of the University of Michigan and the American Museum of Natural History for assisting us and placing their collections at our disposal. Much of the work was done as part of a research project at the University of Michigan Biological Station.

Unless otherwise stated, specimens were taken within five miles of Pátzcuaro.

**Aechmophorus occidentalis*. Western Grebe. Edwards saw one April 29 at the north end of the lake.

**Podilymbus podiceps*. Pied-billed Grebe. We saw several in the south and southeast portions of the lake in March, April and May.

**Ardea herodias*. Great Blue Heron. We saw as many as five together in May. In March and April they seemed less common.

Casmerodius albus. American Egret. We saw two dozen or more in July, and as many in March, April and May.

**Leucophoyx thula*. Snowy Egret. We saw a few in May.

**Hydranassa tricolor*. Louisiana Heron. A few were present in March, April and May.

Botaurus lentiginosus. American Bittern. We saw from one to several in the marshes in March and May.

Plegadis mexicanus. White-faced Glossy Ibis. 1 ♂, May 3. We saw Glossy Ibis on every occasion that we worked along the lake shore. They fed in groups of as many as sixty in the shallow water, particularly frequenting the shore of the southeast arm of the lake and pools in the inlet marsh nearby. All were in immature or winter plumage and none showed white face markings. The bare skin around the eye of our specimen varied from gray to pinkish-lavender. If coloration of that exposed area differs in immature *P. falcinellus* and *P. mexicanus* as in the adults of the respective species, our specimen is the latter.

**Anas acuta*. Pintail. Edwards saw two males and a female May 2.

**Anas americana*. Baldpate. This was the most abundant species of duck on the southeast arm of the lake in March, April and May, showing little diminution in numbers by the end of the first week in May. There were probably 400 or 500 individuals.

**Anas discors*. Blue-winged Teal. We saw five in April and May.

Anas cyanoptera. Cinnamon Teal. This species was nearly as abundant as the Baldpate.

**Anas clypeata*. Shoveller. We found them rather scarce; never more than one to ten Baldpates.

**Oxyura jamaicensis*. Ruddy Duck. Edwards saw a male and three females May 8.

Coragyps atratus. Black Vulture. We saw two or three almost daily.

Cathartes aura. Turkey Vulture. This species was equal in numbers to the Black Vulture.

**Buteo albicaudatus*. White-tailed Hawk. Eaton and Edwards saw one near Zacapu July 29, 1946.

Buteo jamaicensis. Red-tailed Hawk. We occasionally saw one.

**Circus cyaneus*. Marsh Hawk. We recorded the species six times in March, April and May.

**Pandion haliaetus*. Osprey. We saw one near the north shore of the lake April 29.

Polyborus cheriway. Caracara. We saw one bird four times in March, April and May.

**Falco peregrinus*. Duck Hawk. Eaton and Edwards saw one July 28, 1946.

Falco sparverius. Sparrow Hawk. We encountered a few scattered throughout the area.

**Porzana carolina*. Sora. 2 ♂ ♂, May 3. These birds were moving in and out of the thick *Scirpus* of the shore marsh. One of them made a low grunting sound which we had heard in this marsh previously. Their stomachs contained fine green plant material.

Fulica americana. Coot. They were almost as numerous as the Baldpate.

Jacana spinosa. Jacana. We saw one in March, one in April and five in May.

**Charadrius semipalmatus*. Semipalmated Plover. Edwards saw one at the south end of the lake April 25.

Charadrius vociferus. Killdeer. Edwards saw one May 1.

Actitis macularia. Spotted Sandpiper. 1 ♀, April 29. We saw a few April 25 to May 1.

Himantopus mexicanus. Black-necked Stilt. We saw flocks of as many as forty individuals from March to May.

**Chlidonias niger*. Black Tern. Eaton and Edwards saw several in immature or winter plumage over the lake July 28.

Zenaidura macroura. Mourning Dove. We saw fifty in one day in April and several small groups in March and May.

Scardafella inca. Inca Dove. This was the most abundant dove in the region. We saw and heard them daily.

Crotophaga sulcirostris. Groove-billed Ani. Edwards saw one in Tacámbaro April 28.

Bubo virginianus. Horned Owl. We heard two calling shortly before dawn May 6.

Chordeiles acutipennis. Texas Nighthawk. Edwards saw one at dusk April 26, flying through the yards and gardens near the lake at Pátzcuaro.

Caprimulgus vociferus oaxacae. Whip-poor-will. 1 ♀, March 16. Individuals were active at night in March, April and May. The bird taken was calling shortly before it was collected. It is closely similar to the type of *oaxacae*, particularly in the decidedly buffy collar and lores and in the strong buffy brown edgings of the black spots. Our specimen differs only slightly from the type in being paler throughout, less definitely spotted below, and having larger and less triangular spots on the crown. It is browner than *arizonae*, especially below, and is considerably more buffy brown than *setosus*.

**Streptoprocne zonaris*. Collared Swift. We saw a flock of approximately eight near Tacámbaro April 28.

Cyanthus latirostris propinquus. Broad-billed Hummingbird. 2 ♂♂, April 26, 29. The specimens are in immature plumage, showing a few metallic blue feathers on the abdomen. We have no *propinquus* at hand for comparison, but our specimens are darker with less yellowish reflection above than either *latirostris* or *magicus*, and the blue feathers appearing on the abdomen are bluer than in either of those. In comparison with *toroi* both of our specimens are longer billed (exp. culmen 20.5 mm.) and neither shows the dusky or metallic markings of the anterior under tail coverts of that race.

Hylacharis leucotis borealis. White-eared Hummingbird. 1 ♂, April 29. The species occurred commonly in a variety of habitats from the flowering trees along the lake shore through open pine woods, the pine-oak woods, and into the high fir forest. Our specimen tends toward *leucotis* in having a short bill (culmen 16.5 mm.) but its long wing (61 mm.) and greater extent of white on the abdomen place it closer to *borealis*.

**Calothorax lucifer*. Lucifer Hummingbird. 1 ♀, April 26. Our only record for the species was at the base of a dry hillside near the lake.

Trogon mexicanus. Mexican Trogon. 1 ♂, April 30. We recorded the species often in the pine-oak woods April 30 to May 7. It was conspicuous because of its loud call, which consisted of six or eight notes given in quick succession and ending usually with a cluck. Edwards watched a female in attendance at a nest in the fir forest on May 2. The nest hole was twenty-five feet up in a dead tree trunk.

**Megaceryle alcyon*. Belted Kingfisher. Lea saw one March 18.

Colaptes cafer. Red-shafted Flicker. The species was to be seen frequently in all of the woodlands that we studied.

Balanosphyra formicivora. Acorn-storing Woodpecker. The species seemed less common than the preceding one.

Dendrocopos scalaris centrophilus. Ladder-backed Woodpecker. 1 ♀, March 16. We saw the species infrequently in the open pine woods or feeding in low semi-herbaceous plants near the lake shore. Our specimen closely resembles the type of *centrophilus*, differing only in having a slightly shorter, stouter bill, and slightly wider black barring and brighter white above. It is less heavily spotted below than *azelus* and *bairdi*, and much larger (wing 101 mm.) than the former. It is somewhat darker above and smaller than *cactophilus*.

Sayornis nigricans. Black Phoebe. In late April a pair was nesting under the eaves of a house in Pátzcuaro near the lake shore.

**Sayornis saya*. Say Phoebe. 1 ♂, March 17. We noted the species only on March 17 and April 26 in the scrub growth in the dry fields bordering the inlet marsh. The racial affinities of this specimen are not readily apparent. It is considerably darker than pale extremes of the nominate race, and almost perfectly matches some specimens of *yukonensis* except in being slightly browner on the crown. However, we encountered difficulty in finding constant characters to separate *yukonensis* and *saya*.

Pyrocephalus rubinus. Vermilion Flycatcher. On April 29 we saw a female beginning nest construction at the north end of the lake, and on July 28 a pair was feeding young in a nest in the lake section of Pátzcuaro. The species was to be seen frequently, particularly around villages where orchards and gardens were cultivated.

Tyrannus vociferans vociferans. Cassin Kingbird. 1 ♂, April 30, testes enlarged. We saw this species almost daily along the roads, at the borders of the forests and around the edge of the inlet marsh.

Myiarchus tuberculifer querulus. Olivaceous Flycatcher. 1 ♀, May 2. We recorded the species frequently from April 28 to May 7 in the mixed pine and oak woodland, in the fir forest and once near the south shore of the lake. It called rather frequently, a rolling "r-rew pee-r-r-r" or a mournful "whee-oo-oo-o."

**Contopus virens richardsonii*. Wood Pewee. 1 ♀, April 29, Chupícuaro.

Contopus pertinax pertinax. Coues Flycatcher. 1 ♀; ovary enlarged, April 28, 1947, Tacámbaro. 1 ♀, July 29, 1946, dead on road near Carapan.

Empidonax hammondi. Hammond Flycatcher. 1 ♂, May 6.

Empidonax difficilis occidentalis. Western Flycatcher. 1 (sex?), March 16. 1 ♂, April 30, Ajuno. These were our only positive records of the species.

Empidonax fulvifrons rubicundus. Buff-breasted Flycatcher. 1 ♀, March 14, Sevina. 1 ♂, April 27. This was the most common flycatcher in the open pine woods. It was conspicuous around our camp in March when individuals were chasing each other about, voicing a variety of calls. It seemed much less active in late April and early May.

Mitrephanes phaeocercus phaeocercus. Tufted Flycatcher. 1 (sex?), May 6. Seeming superficially to be the darker and more buffy counterpart of *Empidonax fulvifrons* in the denser mixed woods, this species was recorded with certainty only on April 27 and 30 and May 6 and 7. Edwards found an occupied nest in the fir forest on May 7. It was a cup-shaped structure on a side spur of a dead limb which was hanging almost straight down. The nest was sheltered by the limb and was completely invested with lichens on the outside. Comparative material at hand is inadequate but our specimen agrees closely in coloration, above and below, with one adult male *phaeocercus* from Tancitaro in the Chicago Natural History Museum.

**Eremophila alpestris chrysolaeama*. Horned Lark. 1 ♂, testes large, 1 ♀, May 4, Carapan. We noted this species infrequently in the high open fields along the roads. One group near Carapan numbered at least a dozen birds. Here we collected our two specimens and saw two others in flight display, zooming upward, gliding and singing in spiral descent. Both appear to be closest to *chrysolaeama*, the female not differing noticeably from a series in the Fish and Wildlife Service collection. The male differed only in having a larger area of cinnamon in the nuchal region and less heavily marked stripes on the back. The male is not as strongly washed with cinnamon buff above as *oaxacae*, particularly on the rump and upper tail coverts, and is darker and duller around the occiput and nape.

**Progne subis*. Purple Martin. 1 ♀, oviduct large, May 2, Cerro Moluca. Over Lake Pátzcuaro and again near a dead tree by the edge of the fir forest on Cerro Moluca we saw as many as a dozen Purple Martins on May 2, 3 and 7. They fluttered about holes in the dead tree, but never entered as we watched. Our specimen is quite dark-bellied, being similar to one Jalisco specimen, one California specimen and two from Florida in the Fish and Wildlife Service collection. Other portions of the plumage agree readily in coloration with a series of the race *subis* and differ markedly from *hesperia* in lacking both the pearly gray throat coloration and the definite whitish collar around the hindneck.

Petrochelidon pyrrhonota. Cliff Swallow. We saw groups of nests on houses in the lake section

of Pátzcuaro and watched the birds gathering mud for further construction in late April. We noted the species also near Chupicuaro and the volcano of Parícutin.

**Stelgidopteryx ruficollis*. Rough-winged Swallow. 1 ♂, testes large, May 7. Occasionally we watched individuals of this species feeding in association with *Progne subis* and *Tachycineta thalassina*. On May 2, 4 and 7 we found them active around banks which were favorable nesting sites, and on May 5 we saw several above the old lava flow of the volcano of Parícutin at San Juan de Parangaricutiro. Our specimen shows the large size (wing 116 mm.) and trace of cinnamon coloration on chin and throat characteristic of *fulvipennis* (Brodkorb, 1942:216 = *salvini* of Griscom, 1929:70), but it is by no means a well-marked example. As is to be expected in breeding birds, the light edgings of the tertials are worn off almost completely.

Hirundo rustica. Barn Swallow. The species was a common breeding bird in the vicinity of Pátzcuaro. We saw adults feeding young on the nest in late July.

**Tachycineta thalassina*. Violet-green Swallow. 1 ♂, testes large, April 27. 3 ♀ ♀, May 2, Cerro Moluca. Individuals of this species were nesting in the eaves of the houses in April and May. One of the three females taken from a flock at Cerro Moluca proves to be of the race *lepida*. It differs from examples of *thalassina* in its purple upper tail coverts and very small size (wing 107 mm.). The other two females conform well in color with a series of *thalassina* in the American Museum of Natural History and are near the upper limits of this large race in size (wing 114, 115 mm.). The male appears to be intermediate between the Mexican and western races. In color it is typical of *thalassina*, but is considerably smaller than average (wing 118 mm.).

Corvus corax. Raven. We saw up to three or four daily in almost every part of the area covered.

Aphelocoma ultramarina ultramarina. Mexican Jay. 1 ♀, March 17. 1 ♂, testes large, April 30. Conspicuous and noisy, the species occurred rather frequently in the pine, pine-oak and fir woodlands, usually in small groups. On May 6 we watched a group chasing a Great Horned Owl in the pine-oak woods. No nesting activity was apparent.

Cyanocitta stelleri purpurea. Steller Jay. 1 ♀, April 30. We noted the species only twice; Lea collected one of three scolding birds in the pine-oak woods on April 30, and Edwards saw a single quiet individual in the fir forest on May 2.

Parus sclateri sclateri. Mexican Chickadee. 1 ♂, testes large, May 7. 1 ♀, May 7. In the pine and fir woodlands the two noted "zee-zee" calls of this species were conspicuous. We heard a few at the edge of the lava flow near the volcano of Parícutin. It was very difficult to place our specimens subspecifically, because of the relatively slight differences between the races. The female appears to be closer to *sclateri* in coloration, however, and although the male tends strongly toward *eidus* in its paler gray coloration it is quite small (wing 65.5 mm., tail 62.5).

Psaltriparus minimus iulus. Bush-tit. 1 ♀, ova large, March 17. 1 ♂, April 27. We noted the species occasionally in the pine and pine-oak woods. Our male specimen is closely similar to the type (male) of *iulus*, being much less brownish above than *melanotis* from Veracruz, Oaxaca and Guatemala. Female specimens of *iulus* or *melanotis* were not at hand for comparison, but our female specimen is identical in back coloration to the type of *iulus*. It is darker above than female *lloydi* and buffier below. Ridgway (1904:427) lists Pátzcuaro as a locality for *P. melanotis melanotis*.

Sitta carolinensis. White-breasted Nuthatch. We saw less than a dozen during our studies.

Sitta pygmaea flavinucha. Pygmy Nuthatch. 1 (sex?) immature, May 6. We recorded the species only on May 6 when we saw a few groups of two to five individuals in the pine-oak woods. Compared with seven *flavinucha* from Tancítaro, Michoacán, three of which are immature, our specimen seems fairly close in color of the nuchal patch and in overall coloration. It is distinctly darker brown below and very slightly darker gray above than a series of adult *chihuahuae* in the Chicago Natural History Museum.

Certhia familiaris guerrerensis. Brown Creeper. 3 ♂ ♂, March 17, April 30, May 2. We noted the species occasionally in the pine-oak, pine and fir woodlands. Although the differences are slight our specimens are somewhat darker above and show a more chestnut, less tawny, rump than examples of *jalicensis* which we examined. They are too small for *alticola*.

**Cistothorus palustris iliacus*. Long-billed Marsh Wren. 2 ♂ ♂, March 18, May 3. 2 ♀ ♀, April 26, May 3. Common in the marshes along the southeast arm of Lake Pátzcuaro. We noted some singing. Without investigating the problem exhaustively we follow the usage of the name *iliacus* as outlined

by Aldrich (1946:131). However, all of the above specimens are much closer to three pale individuals which we examined from the type locality of "laingi" than to the darker and more rufescent type of *iliacus*. They lack noticeable barring of the upper tail coverts.

Campylorhynchus megalopterus megalopterus. Huitzilac Cactus Wren. 1 ♀, ova large, May 7, Cerro Moluca. Several individuals were noted in the fir forest. They moved about on the spreading branches of large fir trees, somewhat after the fashion of nuthatches. Their rasping calls "di-di-di-dit—di-dit" were voiced frequently. The specimen is less barred above and slightly less brownish than a good series of *megalopterus* from Morelos and Michoacán.

Campylorhynchus gularis. Spotted Cactus Wren. 1 ♀, ova large, April 27. Lea observed a pair copulating in the brushy growth near the lake at Chupicuaro April 29. Our breeding female has the short bill (culmen 19.5 mm.) and brownish crown of *gularis*, and we follow Blake and Hanson (1942:539) in considering this group specifically distinct from *jocosus*, although we have not examined immature birds. Specimens from Jalisco, Sinaloa and near the town of Uruapan in Michoacán differ from ours in being less brownish and less striped, while a female from Carricitos, Tamaulipas, resembles our Pátzcuaro specimen much more closely.

Thryomanes bewickii murinus. Bewick Wren. 1 ♂, March 18. We noted this species occasionally on the outskirts of the villages, in the pine woods and near the inlet marsh. The birds were singing but we found no nests. In wing length (60 mm.) it tends somewhat toward *percusus*, which Blake and Hanson (1942:540) recorded from Tancítaro, but is less brownish above and has less heavily barred under tail coverts than the type and a series of that race. In coloration it closely resembles a series of *murinus* from Morelos, Hidalgo and México.

Troglodytes brunneicollis colimae. Brown-throated Wren. 2 ♂ ♂, May 2. We noted it frequently in early May in the pine-oak woods and the fir forest. This wren was rather secretive in movement, but its song was loud, reminding us of that of the House Wren of the eastern United States. One specimen tends toward *guerrerensis* in lacking a grayish tinge, but appears to be closest to *colimae* in being darker than the former above and below and more reddish on the breast. However, we had no known *colimae* at hand for comparison. The other specimen, taken within a few feet of the first one in the edge of the fir forest, cannot be satisfactorily placed. It seems closest to *brunneicollis* in its reddish cast, but is lighter and more reddish brown than that race. The flanks are very lightly barred and very reddish.

Catherpes mexicanus mexicanus. Canyon Wren. 1 ♂, May 3. Common about the houses in the villages, in the dry rocky hills above the lake and in the ruins of the church in Parangaricutiro. We heard them singing in mid-March and found a nest with fully fledged young in late April.

Toxostoma curvirostre curvirostre. Curve-billed Thrasher. 2 ♂ ♂, testes large, May 3, 6. 1 ♀, oviduct enlarged, May 2. We noted the species occasionally in the dry hedgerows, cactus growth and dry countryside. It occurred also near Parícutin along the edge of the cold lava flow. The female and the male taken May 3 are close to typical *curvirostre*, but the other male is larger (wing 115 mm., tail 115), more heavily spotted, less buffy below and less brownish above. It is apparently much like specimens taken in the area from northeastern Jalisco to northwestern Guanajuato and Aguascalientes, which were referred to *celsum* by Moore (1941:213), but are characterized by longer wings than typical *celsum*. Since the wing and tail proportions are as in *curvirostre*, however, we prefer to place this bird with our other two breeding specimens in that race.

Melanotis caerulescens effuticius. Blue Mockingbird. 1 ♂, April 28, Tacámbaro. We watched a group of twenty individuals in a woodlot three miles north of Tacámbaro. They behaved and sang much in the manner of thrashers, although one of their calls was similar to a call of the Carolina Wren (*Thryothorus ludovicianus*). Edwards saw two near Chupicuaro April 29. The specimen is intermediate between *effuticius* and *caerulescens*, although closer to the former, particularly in dorsal coloration.

Mimus polyglottos. Mockingbird. Edwards saw one a short distance west of Erongaricúaro March 14.

Turdus migratorius. Robin. 1 ♂, testes enlarged, May 6. We saw this species in the pine and pine-oak woodlands and up to the edge of the old lava flow at the volcano of Parícutin. It became increasingly conspicuous in late April, when we saw individuals carrying nesting material. Our single specimen, a breeding male, is difficult to place, but seems closer to *permixtus* in small size (wing 134

mm.) and blackness of wings and tail. It is far from the dark extreme of *permixtus*, however, particularly in breast coloration.

Myadestes obscurus. Brown-backed Solitaire. We heard and saw several in late April and May, in the pine-oak woods and fir forest.

**Hyalocichla guttata*. Hermit Thrush. 1 ♂, March 16. We noted this quiet species infrequently in March, April and May in the pine, pine-oak and fir woodlands. Dr. A. H. Miller has kindly identified this specimen, stating that it is "*polionota*—atypical coloration toward *guttata*."

Catharus occidentalis fulvescens. Russet Nightingale Thrush. 2 ♂ ♂, testes large, May 6. We heard this species frequently in the pine-oak woods and the fir forest on May 6 and 7. The birds were shy and stayed in the thick undergrowth most of the time.

Catharus aurantiirostris clarus. Orange-billed Nightingale Thrush. 1 ♂, April 28. The startlingly loud song of this species became a familiar sound in the hedgerows and shrubbery of the villages. The specimen is slightly darker than the type of *clarus*, but very closely similar to some topotypes.

Sialia sialis fulva. Bluebird. 2 ♂ ♂, March 16, May 7. We saw bluebirds commonly in very open pine woods and along the roads and fields in March, April, May and July. All that we examined closely proved to be of this species. Because of the conflicting treatments of *Sialia sialis* by Ridgway (1907) and Griscom (1932), and the inconclusive evidence of the few undeniably breeding specimens at hand, we cannot be sure of the status of Pátzcuaro birds. Our first specimen, azure blue above and light below, is close to *fulva*. But the second bird, while azure blue above, is very dark below, considerably more so than the co-types of *guatemalae*.

**Poliophtila caerulea*. Blue-gray Gnatcatcher. 1 ♂, March 18. Recorded only twice, on July 28, 1946, when one was seen in the bottom of the bowl of Cerro del Estribo in company of *Mniotilta varia* and *Sitta carolinensis*, and on March 18 when Lea collected one in the dry growth near the southeast arm of Lake Pátzcuaro. The specimen closely matches the nominate race in lightness and blueness of the crown and back, and is too large for *deppiei*. We hesitate to place this specimen with *caerulea*, however, since transients from the eastern United States are so unexpected, and since intermediates between *deppiei* and *amoenissima* might be expected to resemble *caerulea* in some instances.

Regulus regulus aztecus. Golden-crowned Kinglet. 3 ♂ ♂, May 2, 1 ♂, May 7, testes large. 1 ♀, May 2, ovary large. We recorded the species in the fir forest on May 2 and 7. The sibilant songs and calls were almost constantly to be heard. Wetmore (1941:565) has shown that Lawrence's type of *aztecus* is identical with Guatemalan specimens, and not merely a migrant *olivaceus*. Our good series of breeding birds is closely similar to Wetmore's Guatemalan specimens and readily separable from the other races.

**Regulus calendula*. Ruby-crowned Kinglet. In March and late April we often encountered this species.

**Anthus spinoletta geophilus*. Water Pipit. 2 ♀ ♀, April 26, May 3. We saw individuals in groups of as many as forty in the fields and on mud flats along the southeast arm of the lake, in late April and early May. The specimens are difficult to place but appear to be intermediate between *geophilus* and *pacificus*, somewhat closer to the former. In series the two races seem to be separable on the basis of the more brownish dorsal coloration and more cinnamomeous ventral coloration of *geophilus*, but in his description of this race, Oberholser (1946:388) makes no mention of characters separating it from *pacificus*.

Ptilogonys cinereus pallescens. Mexican Ptilogonys. 2 ♂ ♂, April 28, Tacámbaro. We noted the species occasionally from April 27 to May 7 in the pine and pine-oak woods. Edwards found an occupied nest on April 28, which was about thirty feet above ground on a horizontal branch in an oak tree. It was somewhat larger than the nest of *Contopus virens* of the eastern United States, but similar in position, structure, and in being covered on the outside by lichens. An adult sat on the nest.

We have no *pallescens* at hand for comparison, but our specimens are grayer, less brownish than a good series of *cinereus*. Both specimens are no doubt intermediate, and the definitely brownish cast about the head of one places it rather far from typical *pallescens*.

**Lanius ludovicianus mexicanus*. Loggerhead Shrike. 1 ♂, testes large, April 30. We recorded it infrequently along the road to Tacámbaro and in the hills above the lake, in March, April and May.

The specimen is considerably darker than *sonoriensis* dorsally, and the tail is longer, though the rump is not strikingly contrasted with the back. It probably is a first-year bird.

Vireo huttoni mexicanus. Hutton Vireo. 1 ♂, May 2. We noted a few May 2, 6 and 7 in the pine-oak woods and in the fir forest.

Vireo solitarius cassinii. Solitary Vireo. 1 ♂, March 14, Sevina. 1 ♀, May 6. We saw a few in March, April and May. The specimens are small (wing 73 mm., 72; tail 54.5, 52).

Vireo gilvus swainsonii. Warbling Vireo. 1 ♂, May 6. 1 ♀, April 30. Presumably most of the great numbers of *Vireo gilvus* in the region in late April and early May were transients.

Mniotilta varia. Black and White Warbler. 1 ♀, April 28, Tacámbaro. Noted infrequently in March, April, May and July.

Vermivora celata. Orange-crowned Warbler. 1 ♂, March 16, represents the race *lutescens*. Edwards saw a few in the pine woods March 16 and 17.

**Vermivora ruficapilla ruficapilla*. Nashville Warbler. 2 ♀ ♀, April 29, May 2. The species is a rather common transient in the spring. The specimens, though worn, show the characters of *ruficapilla* well, particularly the dullness of the rump, upper tail coverts and wing coverts.

Vermivora superciliosa palliata. Jalisco Warbler. 2 ♂ ♂, testes large, May 6. 1 ♀, ovary large, April 30. We noted the species frequently in the pine-oak woods and occasionally in the fir forest in late April and early May. The song consisted of a dry buzz on one pitch, with no introductory notes.

Peucedramus taeniatus. Olive Warbler. 1 ♂, May 6, represents the race *giraudi*. We recorded it in March, April and May; more frequently in the last month. The specimen is large (wing 77 mm., tail 53.5).

Dendroica petechia. Yellow Warbler. 1 ♂, April 28, Tacámbaro (*brewsteri*). 1 ♂, testes large, May 3 (*dugesii*). We noted the species frequently near the villages in the spring and summer. Edwards found an occupied nest at Chupícuaro April 29. The breeding race of the Pátzcuaro area appears to be *dugesii*.

**Dendroica auduboni*. Audubon Warbler. 2 ♂ ♂, March 16, 1 ♂, April 30. This species was found in greater abundance in the spring than any other warbler of the Pátzcuaro region.

Two specimens have the small size (wing 75.5 mm., 75) and light coloration of the race *auduboni*. A large, dark male (wing 84 mm.) taken March 16 is referable to *D. a. memorabilis*.

Dendroica nigrescens. Black-throated Gray Warbler. 1 ♂, March 17.

Dendroica occidentalis. Hermit Warbler. We saw them in groups of small birds in March and late April.

**Oporornis tolmiei*. Tolmie Warbler. We saw two near Tacámbaro April 28.

**Geothlypis trichas melanops*. Yellowthroat. 3 ♂ ♂, May 1, 3, 8. It was common in the shore marsh and we encountered it occasionally in the big inlet marsh nearby, in March, April and May. We first heard it sing on May 3, but singing was not often heard. We found no nests or evidence of territorial behavior. In small size our specimens (wing 59.5 mm., 57, 57) tend somewhat toward *chryseola*.

**Geothlypis speciosa*. Orizaba Yellowthroat. 2 ♂ ♂, March 18, May 3. We saw a few in the shore marsh of the southeast arm of the lake and the nearby inlet marsh, on March 18, April 26 and May 3. The birds seemed to be paired but did not sing often and showed no defense of territory. The specimen taken May 3 has an almost pure black crown as contrasted to the grayish crown of the other. No doubt this is due to feather wear since worn July specimens are black-crowned and less buffy beneath than our fresher specimens.

W. W. Brown states (letter) that two specimens in the American Museum of Natural History which he collected in November, 1910, and labeled as to locality simply "San Mateo, Mexico" were taken in the state of México. Hellmayr (1935:442) lists one specimen collected by W. W. Brown at San Mateo, but presumed that this locality was in the mountains of Veracruz. Doubtless this bird was actually taken in the state of México, near the small town of San Mateo, which is only a few kilometers from Lerma. Although no previous published records for Michoacán exist, there are two Michoacán specimens in the United States National Museum, one from Huingo and the other from Pátzcuaro. The known range at present thus extends through Lerma and San Mateo in the state of México, to Pátzcuaro and Huingo in Michoacán, while the occurrence of the species in Veracruz is doubtful.

Icteria virens auricollis. Yellow-breasted Chat. 1 ♂, April 29, Chupícuaro. We noted the species frequently in April and May and once in July. Our specimen has the wing and tail proportions (77.5 mm., 84) and coloration of this race.

Wilsonia pusilla. Pileolated Warbler. 1 (sex?), May 7 (*puleolata*). Seen often in late April and early May in all types of habitat except the marshes.

**Setophaga picta*. Painted Redstart. We saw one July 28, 1946, and another April 28, 1947.

Myioborus miniatus miniatus. Red-bellied Redstart. 1 ♂, April 27. We noted it commonly in the pine-oak woods and occasionally in the fir forest in late April and early May. The song varied considerably, most frequently being a "chip-chip, witchy-witchy-witchy."

Ergaticus ruber ruber. Red Warbler. 1 ♂, 1 ♀, May 2, Cerro Moluca. Next to the Golden-crowned Kinglet this was the most common species in the fir forest in early May. The loud song rendered this warbler the more conspicuous of the two species. One of the song variations could be phrased "chivvy, chivvy, hu-r-r-r-r, chiv-chiv-chiv." We saw a few also in the pine-oak woods May 6.

Basileuterus belli bateli. Bell Warbler. 2 ♂ ♂, May 6. Recorded in March and May in the pine woods, pine-oak woods and fir forest. They were secretive, but occasionally voiced a low rasping "zi-i-i zi-i-i-it." Although specimens from north-central Michoacán have been assigned to *bateli* by Moore (1946:100), ours seem hardly other than intermediates between *belli* and *clarus* except in slightly longer tail (56.5 mm., 59.5). Our specimens do not show the more golden tinge dorsally and the reduction of black on the sides of the crown attributed to *bateli*, but until further clarification of the problem we place them provisionally with that group.

Basileuterus rufifrons dugesi. Rufous-crowned Warbler. 1 ♂, 1 (sex?), April 28, Tacámbaro. We saw this species occasionally in late April and early May in the pine and pine-oak woods. The male is too worn to be placed satisfactorily but the latter specimen appears to be *dugesi*.

**Passer domesticus*. House Sparrow. We saw a few about some of the villages and found a nest with young in a broken street lamp April 26.

Molothrus ater artemisiae. Cowbird. 1 ♂, 3 ♀ ♀, March 18. We saw the species frequently in large flocks in March, April and May. In late April some of the birds engaged in courtship antics.

Cassidix mexicanus. Great-tailed Grackle. Many frequented the trees in villages.

**Icterus bullockii bullockii*. Bullock Oriole. 1 ♂, March 17. We saw a few others in the pine woods.

Icterus spurius. Orchard Oriole. 1 ♂, sub-adult, May 3. In April, May and July we watched males singing in trees and hedgerows near the lake.

Icterus parisorum. Scott Oriole. 1 ♂, March 16. 1 ♂, sub-adult, April 29, Chupícuaro.

**Icterus cucullatus*. Hooded Oriole. 1 ♀, April 28, Tacámbaro. We cannot satisfactorily place this specimen. It is much less yellowish, more grayish buffy above and below than any of the known races.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. 2 ♂ ♂, sub-adult, April 29, Quiroga. On all of our visits to the Pátzcuaro region we recorded this species in flocks of a half-dozen or more, sometimes as many as fifty.

Sturnella magna. Meadowlark. We saw four on May 3 and May 8 near the southeast arm of the lake. They were singing and calling.

Tanagra elegantissima rileyi. Blue-hooded Euphonia. 1 ♀, April 29, Chupícuaro. One other was recorded, in the lake section of Pátzcuaro. We have not seen known *rileyi*, but our specimen differs from an Hidalgo specimen of *elegantissima* in being much less yellowish green above and below, and in having a duller throat patch and slightly duller crown.

Piranga flava hepatica. Hepatic Tanager. 2 ♂ ♂, testes large, April 28, 29. 1 ♀, March 17. Eaton and Edwards watched a female feeding a fledgling on the ground at Cerro del Estribo July 28, 1946. The following year we found them rather uncommon in the spring. All of our specimens fall into this race as characterized by Sutton and Phillips (1942).

**Piranga ludoviciana*. Western Tanager. Lea saw three males in breeding plumage April 27 in the pine-oak woods. We saw males and females at Tacámbaro the following day.

**Piranga erythrocephala candida*. Red-headed Tanager. 1 ♀, April 28, Tacámbaro. The specimen, possibly a transient, is even grayer above and less yellowish below than individuals from Sinaloa and Jalisco.

Pheucticus melanocephalus maculatus. Black-headed Grosbeak. 1 ♂, March 15. 3 ♂ ♂, testes large, May 6. Singing individuals were common in the woodlands in spring.

Guiraca caerulea deltarhyncha. Blue Grosbeak. 1 ♂, April 26. Noted occasionally in April, May and July along the roads and in dry fields. Males were singing in May but did not appear to be paired. Although little comparative material is at hand, it is apparent that our specimen has the straight

culmen and heavy bill of *deltarhyncha* (exposed culmen 18 mm., depth of bill at base 14, depth at nostril 12.5). All *eurhyncha* that we have examined have definitely more curvature.

**Passerina amoena*. Lazuli Bunting. Lea saw several in the undergrowth of the pine woods March 17.

Carpodacus mexicanus. House Finch. The species was abundant throughout the region.

**Sporophila torqueola torqueola*. Cinnamon-rumped Seed-eater. 1 ♂, May 1. It was also recorded in the outskirts of Pátzcuaro in July, 1946.

Spinus pinus macropterus. Pine Siskin. 1 ♀, ovary large, May 2, Cerro Moluca. We occasionally saw groups of as many as forty. The specimen is similar in size and coloration to two *macropterus* from Tancitaro and one from Pacheco, Chihuahua, in the Chicago Natural History Museum.

Spinus notatus griseus. Black-headed Siskin. 1 ♂, April 28, Tacámbaro. We saw a few in April and one on July 28, 1946. Our specimen is large (wing 71 mm.) and bright.

**Spinus psaltria psaltria*. Arkansas Goldfinch. 2 ♂ ♂, April 29, May 3. We saw groups of as many as twenty individuals in the dry fields near the lake on April 29 and May 3.

Atlapetes pileatus pileatus. Rufous-capped Atlapetes. 1 ♂, testes large, May 2, Cerro Moluca. We encountered it occasionally in April, May and July in the undergrowth of the pine-oak woods and fir forest, and near the volcano of Parícutin. The specimen is near the upper limit for *pileatus* in size (wing 67.5 mm., tail 72), but tends toward *canescens* in having distinctly olive-gray instead of olive-brown upper parts. Since we have no *canescens* at hand, the placement of the specimen must remain tentative.

Atlapetes torquatus virenticeps. Green-striped Atlapetes. 1 ♂, testes large, May 2, Cerro Moluca. Edwards saw a few of these secretive birds in the thick undergrowth of the fir forest on May 2 and 7.

We have no specimens of *colimae* or *verecundus* for comparison, but our specimen is close to four *virenticeps* from Tancitaro in dorsal and ventral coloration. In long tail (90.5 mm.) and large bill (exp. culmen 17 mm.) it is closest to *virenticeps* also, but tends toward *verecundus* in length of wing (82.5 mm.).

Pipilo ocai nigrescens. Collared Towhee. 5 ♂ ♂, 4 ♀ ♀, gonads large, March 17, April 27, 30, May 2, 7, Ajuno, Cerro Moluca, Pátzcuaro. The species was common in the woodlands and hedgerows. Singing activity was at a peak in late April. One bird which Lea collected as it was singing proved to be a female. Some of our specimens have buffy brownish flanks or obscure spotting on the tail, and two have all black crowns. Others have olive flanks and restricted chestnut crown patches. One has almost no visible white on the throat. None has noticeable black dorsal streaks.

Pipilo fuscus fuscus. Brown Towhee. 2 ♂ ♂, testes large, April 29, May 3. This species was common during the spring and summer in the villages, along the roads and hedgerows and in the edge of the old lava flow near the volcano of Parícutin. Edwards found a nest with eggs April 27.

Oriturus superciliosus. Striped Sparrow. We saw a few in the open pine woods at 7000 feet elevation.

Passerculus sandwichensis. Savannah Sparrow. 1 ♂, March 18, referable to *anthinus*. 2 ♀ ♀, March 17, May 3, appear to be *P. s. nevadensis*. The form *brunnescens* is represented by the following material: 1 ♂, testes large, May 3. 1 ♂, testes large, May 8. 3 ♀ ♀, May 3. This sparrow was common in the fields close to the lake shore, where we heard many singing in April, May and July. The song was similar to that of our eastern United States bird except that a quick descending "tittle-dur" replaced the final trill. The bright yellow of the superciliary stripe was prominent in the field.

Our specimens were compared with the type of *brunnescens* and the slight differences noted we attribute largely to wear. After examination of many breeding and wintering birds of the Mexican plateau we feel that *brunnescens* is a dark brown Savannah Sparrow with a bright yellow superciliary line in reasonably fresh plumage, somewhat resembling *wetmorei* of Guatemala.

Chondestes grammacus. Lark Sparrow. We saw a few along the highway on the east side of the lake in March and April.

Aimophila rufescens subvespera. Rusty Sparrow. 1 ♂, April 28, Tacámbaro. This is a pale, long-tailed bird (wing 73.5 mm., tail 80) which we assign to *subvespera* because of the black in the rufous crown stripes.

Aimophila ruficeps fusca. Rufous-crowned Sparrow. 1 ♂, April 29, Chupícuaro. We saw this sparrow occasionally in the brushy growth on dry hillsides and fields in April and May.

Junco phaeonotus australis. Mexican Junco. 1 ♂, March 16. Noted frequently in the forests and along the roads in spring and summer. Individuals were singing in late April and early May in the pine-oak woods and fir forest. Our specimen is brighter and more extensively red on lower back and tertials than four *phaeonotus* from Nuevo León and five *australis* from Tancitaro.

Spizella passerina. Chipping Sparrow. 1 ♂, testes large, May 1. 1 ♀, May 1. We saw the species in large flocks in late April and May, and saw adults feeding young out of the nest July 28, 1946. Our specimens, apparently a pair, are closely comparable to the type and a good series of the race *mexicana*. They probably represent the breeding population of the Pátzcuaro area. One unsexed bird taken April 29 at Chupicuaro appears to represent *arizonae*.

**Spizella pallida*. Clay-colored Sparrow. 1 (sex?), March 18. We saw a few flocks in the dry pastures near the lake.

**Zonotrichia leucophrys*. White-crowned Sparrow. Edwards saw two or three in the outskirts of Pátzcuaro April 26.

**Melospiza lincolni lincolni*. Lincoln Sparrow. 1 ♂, April 29, Chupicuaro. We saw a few along rock fences and woods borders in March, April and May. We are indebted to Dr. Alden H. Miller for his identification of this specimen.

Melospiza melodia adusta. Song Sparrow. 4 ♂ ♂, testes large, April 26, May 8. 1 ♀, April 26. We saw the species frequently in the shore marshes and the big inlet marsh in March, April, May and July. The birds were paired in late April and sang often, but we did not find any nests. All of these topotypes show the very rusty brown dorsal coloration which characterizes *adusta*.

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