

## FURTHER ORNITHOLOGICAL NOTES FROM ZACATECAS, MEXICO

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THE west-central Mexican state of Zacatecas has seldom been mentioned in ornithological literature. The proof of this statement lies in the 48 state records which appear below. Yet I believe that all of these species are locally common, or at least regular in occurrence.

Wollweber collected in Zacatecas in the early nineteenth century; Nelson and Goldman worked extensively in the western part of the state (Goldman, 1951); and Chester Lamb collected moderately in the state for the Moore Collection of recent years (Miller *et al.*, 1957). But references to their collections are brief and scattered through the literature, and the only ornithological writings dealing specifically with this area are those of the writer (Webster and Orr, 1952 and 1954; Webster 1954*a*, 1954*b*, 1956).

Herewith I present new findings from trips made in 1954 and 1955, together with a few observations from 1950 and 1952. In 1954 I studied in the state from June 17 to July 29, visiting almost every locality shown in Fig. 1; I was assisted by Mr. Robert H. Brewer, who was, however, primarily collecting insects. In 1955, I was accompanied by Dr. Allan R. Phillips; we worked in Zacatecas from September 5 to 29.

### ACKNOWLEDGMENTS

I want to thank many people. Dr. Robert T. Orr and the rest of the staff of the California Academy of Sciences helped me at every stage. Dr. Allan R. Phillips not only did a substantial part of the field work reported, but also several of the identifications, as noted below. Drs. Alden H. Miller and Frank A. Pitelka not only allowed me free access to the Museum of Vertebrate Zoology, but loaned many specimens for use in San Francisco and permitted me to report several specimens from the collections under their care. Dr. Kenneth C. Parkes of the Carnegie Museum loaned me several specimens for comparison. Mr. Robert H. Brewer was a helpful, cheerful assistant in the field. Sr. Anhelm Mier permitted us to camp and collect on his hacienda at Laguna Valderama, as did Sr. Miguel Zorilla Silva near Chalchuites. The authorities of the Mexican Department of Forestry and Game courteously granted me collecting permits. Lastly, I want to acknowledge the financial help of the California Academy of Science during my field work in 1955, and similar financial aid by the Hanover College faculty research fund for my field work in 1954.

The Sierra Madre Occidental, in which all of this area is included, is not a continuous mountain range in Zacatecas. Especially is this so in the region of the southeastward-trending continental divide, where broad, flat valleys alternate with isolated mountains, as near Zacatecas City. Further south and west, there is rugged canyon and mesa country, with great canyons leading

south-southwest into the Rio Grande de Santiago in Jalisco, and separated by flat-topped mesas which are most precipitous on their western and southern slopes. The climate of western Zacatecas is varied; the low country near Moyahua is frost-free and has a yearly average temperature of about 22°C., whereas there are frequent frosts and an annual average of 13°C. at Zacatecas City. The annual rainfall, 91 per cent of which falls between June 1 and December 31 (Anonymous, 1939), varies from 15 inches at Zacatecas City to about 36 inches at the most humid point visited, 13 miles west of Milpillas. In general, there is a trend of decreasing moisture from the west toward the east.

The vegetation has been studied by Shreve (1942) and Gentry (1946 MS); these botanists, however, did not visit the deep western canyons. A rough ecological classification of western Zacatecas, following, for the most part, Gentry (1946) and Leopold (1950), divides the land into three categories: (1) Grassland at elevations from 6,000 to 8,000 ft., with annual rainfall from 15 to 25 inches. The dominant grasses are species of *Bouteloua*, which form pure short-grass plains in flat and more humid areas where grazing is light. Slopes and overgrazed or eroded areas are grown to oak (*Quercus*) woodland or junipers (*Juniperus*) and/or piñons (*Pinus edulis*) forming a low scrub or a woodland, or, in drier areas, to cactus-acacia-mesquite (*Opuntia-Acacia-Prosopis*) scrub. The drier grassland areas have a savannah-like formation on flat or gently sloping ground called cactus-acacia grassland; here large *Opuntia* cacti and acacia trees are scattered on a short-grass plain. (2) Pine-oak forest and woodland, at elevations from 7,000 to 11,000 ft. (not on level areas below 7,400 ft.), with annual precipitation from 25 to 36 inches. (3) Tropical deciduous woodland, at elevations from 4,200 to 5,100 ft. in deep canyons of the Pacific slope, with an ecotone with grassland which carries some morning glory trees (*Ipomoea*) upward to elevations of 6,300 ft. Climax woodland consists of morning glory trees, *Jatropha*, *Bursera* (at least two species) and other unidentified trees with a scattering of large candelabra cacti (*Pachycereus*). Cypressess (*Taxodium*) are found along the rivers; large mesquite trees (*Prosopis*) are prominent along waterways and the edges of sugar cane and cornfields, while eroded slopes and abandoned fields support a dense thorny scrub chiefly of *Acacia*.

Localities mentioned in the systematic list are shown on the accompanying map (Fig. 1) and may be briefly described thus (all distances in air line miles):

Cerro Gordo is 9 miles northwest of Sombrerete; considerable work was done in 1952, 1954, and 1955 around a camp in sparse piñon-juniper woodland at 7,900 ft., 3 miles east of the peak.

Sombrerete is a city in the grassland of northwestern Zacatecas; study

here was chiefly in July, 1950, 4 miles south of town in cactus-acacia-mesquite scrub at 7,600 ft.

The Rio Atotonilco crosses the highway a mile southwest of the town of Sain Alto; some collecting was done here in June of 1952 and 1954 in the riparian cottonwood-willow (*Populus-Salix*) association at 6,800 ft.

The Rio Florido (= Trujillo) crosses the highway 15 miles northwest of Fresnillo. Field work in the cottonwood-willow along the river a mile north

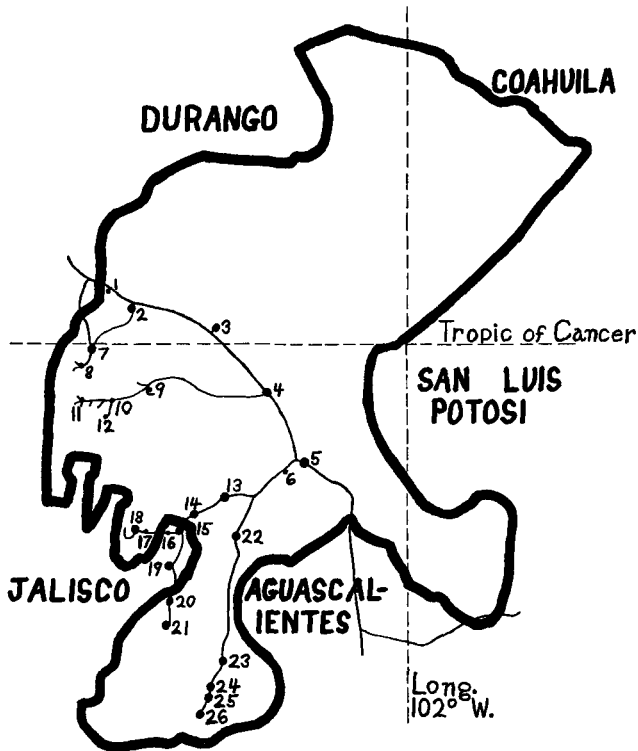


FIG. 1. Outline map of the state of Zacatecas, Mexico, showing localities mentioned in the text and routes traveled in 1950, 1952, 1954, and 1955. Bordering states are labeled. The El Paso-Mexico City highway (Nacional 45) is shown entering northwest of Cerro Gordo and leaving southeast through Aguascalientes. Figures denote the following localities: 1—Cerro Gordo; 2—Sombretete; 3—Sain Alto; 4—Fresnillo; 5—Ciudad Zacatecas; 6—Creek 9 miles west of Zacatecas City; 7—Chalchuites; 8—Zorrilla's; 9—Laguna Valderama; 10—Milpillas; 11—Camp 13 miles west of Milpillas; 12—Rancho Hornillas; 13—Garcia (= Jerez); 14—Tepetongo; 15—Huejucar; 16—La Mesa; 17—Santa Teresa; 18—Monte Escobedo; 19—Colotlan; 20—Momax; 21—Tlaltenango (= Sanchez Roman); 22—Villanueva; 23—Jalpa; 24—Apozol; 25—Juchipila; 26—Moyahua.

of the bridge and in the cactus-acacia-mesquite scrub (elevation 6,600 ft.) was on scattered days in June and July, 1952, and 1954.

Fresnillo is an old mining city at 7,300 ft. in cactus-acacia grassland that has been much modified by man.

Zacatecas City, the capital of the state, is a mining center four centuries old; the center of town is at 8,100 ft. Goldman (1951) states that the locality is very arid, no doubt basing his statement on the appearance of the vegetation, which is sparse cactus-acacia scrub. Actually the annual rainfall is recorded to average 15 inches, and the primeval vegetation of the townsite was no doubt grassland, with the surrounding peaks supporting oaks and perhaps pines. I attribute the present appearance to deforestation, overgrazing, and accelerated erosion, as does Leopold (1950). Work near here was at a creek 9 miles west of town, bordered with cottonwood, willow, and *Baccharis* brush in the grassland at 7,400 ft.

Chalchuites is a town in the grassland at the western foot of Cerro Pachon. Driving south and west from here, across a broad, cultivated valley, we ascended through piñon-juniper woodland and camped at 8,400 ft. in oak woodland on a ridgetop 8 miles south-southwest of town. Other higher ridges to the south and west reached 9,200 ft. and bore pine forests. We were here, on the hacienda of Sr. Miguel Zorilla Silva, from July 2 to 5, 1954; the locality is referred to hereafter as Zorilla's.

Laguna Valderama is a short-grass plain or prairie at 7,800 ft., 40 miles west of Fresnillo. Our camps in 1952 and 1954 were southeast of the prairie in mixed pine-oak-juniper woodland and Chihuahua pine (*Pinus chihuahuana*) forest. There are several seasonal ponds in the oak savannah country southwest of Laguna Valderama (on the road to Milpillas), one of them attaining a mile in length. The ponds were dry mud in June, but filled with water in July, and later in the rainy season (September 28) they were deep and clear, with considerable emergent aquatic vegetation.

Milpillas is a village in oak savannah country at 7,800 ft., 52 miles west of Fresnillo. Our study area in June and July, 1954, and September, 1955, was to the west, along the top of an irregular mesa from 8,200 to 8,400 ft. Scattered Chihuahua pines appear 3 miles west of Milpillas, mixed pine-oak woodland in another mile, and pine forest of Chihuahua and Apache pines (*P. latifolia*) after 10 miles. We camped as far as 13 miles west of Milpillas, and walked another mile beyond. There has been extensive cutting for charcoal burning of the oaks on this mesa, but lumbering did not begin until 1955 because few of the pines were large. Timber-cutting activity is still sporadic. Grazing pressure is uneven, with some areas intensively overgrazed and other areas supporting luxuriant bunch grass and other ground cover.

Ernest P. Edwards and Stephen S. Russell visited Rancho Hornillas in July 1950.

Garcia (= Jerez) is a city in the grassland at 6,800 ft., 28 miles west of Zacatecas City. We followed down the broad Jerez Valley south to the towns of Tepetongo, 6,600 ft., and Huejucar, Jalisco, 6,400 ft. Water birds were observed on the mile-long reservoir beside Tepetongo. On July 15, 1954, we continued on south through Colotlan, Jalisco, to Tlaltenango (= Sanchez Roman), Zacatecas. Our camps the next two days were 7 miles north of Colotlan, at 6,100 ft. in morning glory trees mixed with high mesquite-acacia-cactus scrub, and a mile south of the village of Momax, beside the Rio Tlaltenango at 5,600 ft. At the Momax camp, collecting was in the bottomlands along the river, where thickets of willow alternated with wet pastures and cultivated fields of sugar cane and chile peppers.

From Huejucar a truck trail leads west, up onto the mesa at 7,400 ft. at the village of La Mesa. From here a plain sweeps west and north for many miles, with nothing breaking the prairie vista but an occasional stone wall. However, in two arroyos below the mesa level there is oak woodland. The track winds west, gradually descending across the prairie to the village of Santa Teresa, at 6,500 ft., and then on west and up a series of steps to Monte Escobedo; oak woodland begins at 7,400 ft., 3 miles east of the town of Monte Escobedo. Up on the mesa west of the town (7,700 to 8,000 ft.) the woodland consists of a very large-leaved oak, with some weeping pines; further west Chihuahua pine and Apache pine appear and the very large-leaved oak is replaced by a small-leaved species. At its western face, 8 miles west of town, the mesa drops precipitously into the great barranca of the Rio Bolaños. We climbed down the cliffs in several places and found varied conditions—dry manzanita (*Arctostaphylos*) brush and rocks at one point; pine forest on one shady slope, oak woodland at another place, large oaks draped with moss and epiphytes shading a brush-choked ravine and cascade. Our camps near Monte Escobedo were 4 and 5 miles west of town, respectively, and we worked chiefly about those areas and on the western slope in July, 1954, and September, 1955.

Villanueva is a town in southwestern Zacatecas at 6,600 ft. Thence the road extends southward down the valley of the Rio Malpaso and its continuation the Rio Juchipila to Moyahua, 81 miles below at 4,200 ft. Patches of morning glory trees appear at about 6,300 ft., 10 miles below Villanueva, and candelabra cacti a few miles further on, but well-developed deciduous woodland does not begin until one nears Jalpa, 5,000 ft., along with sugar cane cultivation. Jalpa, Apozol, Juchipila, and Moyahua are the towns of the lower valley, Juchipila being the largest, and the capital of the district. Our main camp in the area was  $2\frac{1}{2}$  miles north of Moyahua, at 4,300 ft., beneath

a large mesquite tree and near fields of corn and squash. A trail leads from our campsite to the river, 400 yards away, through a steep-walled ravine between hills. The hills are grown with tall, coarse grass on the ridges; brush on some slopes, and deciduous woodland on some slopes and in ravines. Along the river there are cypresses on the deep side and large mesquites back from the gravel bar on the shallow side.

#### SYSTEMATIC LIST

The following list of species includes only those forms collected in 1954 and 1955 which represent new information. State records for Zacatecas are indicated by an asterisk (\*). Unless otherwise stated, dates in June and July are for 1954; dates in September are for 1955. All specimens referred to are now in the collection of the California Academy of Sciences, except those which are stated to have been taken by Phillips, which are now in the personal collection of Allan R. Phillips. Except where stated otherwise, localities are in Zacatecas. Measurements are in millimeters.

\**Plegadis falcinellus chihi*. White-faced Glossy Ibis.—On July 13 an adult with two young was in a pond between Laguna Valderama and Milpillas. The adult, a male, and a yearling male were collected. On July 18 one flew down the river past our camp at Momax.

\**Florida caerulea caerulea*. Little Blue Heron.—Two stuffed specimens were examined in a taxidermist's shop in Juchipila. Both were in the white immature plumage; both were said to have been taken on the bank of the river at the edge of town in March, 1955.

\**Aquila chrysaetos canadensis*. Golden Eagle.—One seen at close range in the oak-savannah five miles south of Laguna Valderama on July 3 was perched in an oak bush. A large collection of eagle talons from eagles shot at Laguna Valderama was shown to me by Señor Anhelm Mier in June. All of them appeared to belong to the Golden Eagle, which was said to be a serious predator on calves. On September 24 we examined a recently killed adult specimen at Laguna Valderama.

\**Accipiter striatus suttoni*. Sharp-shinned Hawk.—I saw one July 3 at Zorilla's, hunting along a pine-clad ridge. Phillips collected an adult male, September 25, 8 miles west of Milpillas. Phillips identified the specimen.

\**Colinus virginianus graysoni*. Bobwhite.—We very commonly saw and heard Bobwhite in the cornfields, the tall weeds and grass, and the scattered mesquites and acacias in the valley of the Rio Juchipila from 6,100 ft., 12 miles south of Villanueva, to Moyahua, July 25 to 27 and September 7 to 13; we took five specimens. On July 17 and 18 several were seen, and more heard in similar habitat in the valley of the Rio Colotlan, from 5,600 ft. at Momax to 6,400 ft., 9 miles north of Colotlan, Jalisco. A female taken at the last locality, July 18, had a shelled egg in her oviduct.

\**Meleagris gallopavo*. Wild Turkey.—We saw fresh tracks in a dry creek bed at Laguna Valderama, June 21 and 23, and picked up a freshly molted primary on June 23. We heard the gobble in oak woodland at Laguna Valderama July 8, and saw one bird in similar habitat 13 miles west of Milpillas on July 13.

\**Fulica americana americana*. American Coot.—There was one on the Rio Florido June 20, and September 15 there were six on the Tepetongo reservoir. On the ponds between Milpillas and Laguna Valderama on September 28 we took a single and saw a flock of 15.

\**Tringa solitaria solitaria*. Solitary Sandpiper.—One was taken at a small tank in the juniper-piñon area at Cerro Gordo, September 6. Later, the species was seen by ponds in the open short-grass plains—two in Jalisco, 3 miles west of La Mesa, September 15; one at Laguna Valderama, September 28; one September 28, 21 miles west of Fresnillo.

\**Columbigallina passerina passerina*. Common Ground Dove.—We saw many in the Juchipila valley, July 25 to 27 and September 6 to 13, from 15 miles south of Villanueva to Moyahua; a specimen was taken at Moyahua, July 26. In addition, several were seen at Momax, July 17 and 18, and from one to three each day spent at the Rio Florido, between June 20 and July 25, 1952, as well as 1954.

*Tyto alba pratincola*. Barn Owl.—Previously (Webster and Orr, 1952) we reported sight records from Sombrerete. None was seen or heard in 1954, but I heard one at Rio Florido, July 17, 1952, and September 10, 1955, one at Moyahua. Two specimens were examined in a taxidermist's shop in Juchipila; they were said to have been taken in that town.

\**Otus asio*. Common Screech Owl.—At Moyahua, there were several in the mesquite trees along the gullies, September 9 to 11. I compared all three specimens with the three fresh-plumaged specimens of *suttoni* (from Chihuahua and Durango) in the Museum of Vertebrate Zoology; found that they were browner and darker, less gray, both ventrally and dorsally, two slightly so and one definitely; and concluded that they represented the race *O. a. sortilegus* Moore, 1941, described from Atoyac, Jalisco. However, Dr. Alden H. Miller very courteously consented to study them. He writes, "Two of your Zacatecas owls seem so close to *suttoni* as to be inseparable. A. R. P. 3974 looks significantly darker and a bit browner and I suppose represents *sortilegus*, which we have not seen."

\**Micrathene whitneyi idoneus*. Elf Owl.—During the evening of September 11, at Moyahua, Phillips collected a Screech Owl in a mesquite tree. Before he could reload, an Elf Owl alighted in the glare of his headlight in the same tree, to be dispatched by Webster. The specimen (an adult female) was compared with three fall *whitneyi* from Arizona, an adult male *whitneyi* from Arizona, an adult *whitneyi* from Chilpancingo, Guerrero, November 30, 1940 (Mus. Vert. Zool.), and an immature *whitneyi* from Pacheco, Chihuahua, August 18, 1948 (Mus. Vert. Zool.). The Zacatecas bird is a darker, more chestnut shade of brown on the upper parts, the brown part of the tail and the facial markings, and the tail markings are fewer, smaller and more sharply contrasting. Until more material is available I follow Ridgway (1914) and recognize an eastern race. Whether the species is a transient, a resident, or winter visitant at Moyahua is anybody's guess. In passing, I note that the species has not been reported previously either from Chihuahua or Guerrero.

\**Phalaenoptilus nuttallii centralis*. Poor-will.—An immature female was taken on July 12, 13 miles west of Milpillas, in pine forest at the edge of a barranca. Earlier, the call of the species was heard almost every evening, July 13 to 23, 1950, at Sombrerete in mesquite-cactus-acacia scrub; July 12 to 16, 1952, and June 20 to 24, 1954, at Laguna Valderama on a rocky hillside in the grassland-pine-oak ecotone; and July 4, 1954, at Zorilla's, in oak woodland.

\**Caprimulgus vociferus oaxacae*. Whip-poor-will.—From one to five were heard calling each night spent in the pine-oak area in June and July—at Valderama (1952 as well as 1954), Monte Escobedo, and west of Milpillas. On June 27, 9 miles west of Milpillas, two nearly-grown young, able to fly but a few feet, were accompanied by both parents, although only the mother feigned injury. Phillips heard one calling early in the morning of September 17 near Monte Escobedo. On September 25, three called briefly as I

tramped around on an extended night hunt from our camp 8 miles west of Milpillas. A male taken September 17 at Monte Escobedo and a male taken July 10, 13 miles west of Milpillas, are both intermediate between *C. v. oaxacae* and *C. v. arizonae*. However, the freshly-plumaged bird is clearly nearer the darker southern race, whereas the worn July bird is equivocal.

\**Caprimulgus ridgwayi ridgwayi*. Ridgway Whip-poor-will.—On September 8 at Moyahua, this species called briefly in the evening; Phillips took two males, that night and September 11, on the large bare area provided by an ant hill. Phillips writes, "The specimens are slightly darker, particularly on the crown, than two males from Sonora, but this may be seasonal."

\**Cypseloides niger costaricensis*. Black Swift.—We saw from two to eight each day, 4 miles south of Jalpa and at Moyahua, September 8 to 13. Near Monte Escobedo, a flock of 20 circled over us on September 16. Phillips collected one near Jalpa, and Webster three at Moyahua. One Durango specimen (previously recorded as *C. n. borealis* by Webster and Orr, 1952) and the four Zacatecas specimens were compared with four *costaricensis* from Costa Rica (Carnegie Mus.). Also at hand were four June specimens from the State of Mexico (Mus. Vert. Zool.) and a migrant taken on the Pacific Ocean off Guatemala, September 20, 1933 (recorded previously by Davidson, 1934), plus an extensive series from Alaska, British Columbia, and California. All the Mexican birds at hand are *costaricensis*, although the specimen taken "at sea" is *borealis* as originally reported. Mexican birds are closer to *borealis* in the restriction of the ventral white markings and the lesser extent of white frosting on the head, but closer to *costaricensis* in wing and tail lengths. The color of back and belly is as black as *costaricensis* and blacker than *borealis* in each case.

Summary of measurements of specimens examined:

	<i>wing</i>	<i>tail</i>
10 males, <i>borealis</i> , Alaska, British Columbia, California	162-170 (165.5)	57-62 (59.7)
6 males, <i>costaricensis</i> , Estado de México, Zacatecas, Durango	158-163 (161.0)	53-57 (55.7)
2 males, <i>costaricensis</i> , Costa Rica	158-165 (161.5)	56-58 (57.0)
14 females, <i>borealis</i> , Alaska, British Columbia, California	156-164 (161.3)	50-55 (52.4)
3 females, <i>costaricensis</i> , Estado de México, Zacatecas	150-161 (156.3)	49-52 (50.7)
2 females, <i>costaricensis</i> , Costa Rica	155-156 (155.5)	48-50 (49.0)

\**Helimaster constantii*. Constant Star-throat.—Phillips collected a male September 12 at Moyahua, and heard another a few minutes later. We lack adequate material for racial identification.

\**Amazilia verticalis ellioti*. Violet-crowned Hummingbird.—An adult male was collected near Jalpa September 8. Several were seen at Momax July 17 and 18, and one at Moyahua July 26; Phillips saw one September 10 at Moyahua.

*Centurus uropygialis sulfuriventer*. Gila Woodpecker.—Five were seen on July 18 at Momax, several each day, July 25 to 27, at Moyahua, and several each day, September 8 to 13, 4 miles south of Jalpa, a mile north of Apozol, and at Moyahua. A female was taken near Jalpa, September 8.

*Lepidocolaptes leucogaster leucogaster*. White-striped Woodhewer.—We found it a common resident of oak woodland and pine-oak forest; it was noted almost every day in June, July, and September west of Milpillas, at Zorilla's, and near Monte Escobedo. Our six specimens are slightly intermediate toward *umbrosus*.

\**Platypsaris aglaiae richmondi*. Rose-throated Becard.—At Moyahua I saw three in



the deciduous woodland September 12. An immature female which was collected is near *richmondi*, although rather gray-backed for that race. Also, it is peculiar in having on the rectrices a sharply-demarcated gray tip 8 mm. long.

\**Myiozetetes similis primulus*. Social Flycatcher.—I saw one beside a sugar cane field near Juchipila July 27. Phillips and I saw three a mile north of Apozol, September 13, one of which Phillips collected and later identified.

*Myiarchus nuttingi inquietus*. Nutting's Flycatcher.—At Moyahua I saw two July 26, and collected an adult male September 12; Phillips heard two there on September 13. The specimen was identified by Phillips.

*Empidonax difficilis bateli*. Western Flycatcher.—Four males in full breeding condition were taken, June 28 to July 11, at Laguna Valderama and west of Milpillas. In each case, the habitat was a cool ravine with steep rocky walls. Dr. Phillips identified my specimens, commenting that *bateli* was somewhat doubtfully separable from *hellmayri*.

*Empidonax hammondii*. Hammond's Flycatcher.—Very common in the pine-oak country in September; specimens were taken September 16 near Monte Escobedo, and September 27, 8 miles west of Milpillas. My identification was verified by Phillips.

*Empidonax oberholseri*. Dusky Flycatcher.—Phillips took and identified a specimen September 11 at Moyahua.

*Empidonax wrightii*. Gray Flycatcher.—A female was taken September 9 at Moyahua.

*Empidonax minimus*. Least Flycatcher.—On September 11 at Moyahua two were taken.

\**Empidonax fulvifrons rubicundus*. Buff-breasted Flycatcher.—Almost every day spent in the pine-oak country in June, July, and September, and at each locality, one or two were noted. I took a specimen June 23 at Laguna Valderama.

\**Tachycineta thalassina*. Violet-green Swallow.—No doubt a common nesting bird in all types of pine-oak habitat where a few were seen each day in June, July, and September; a nest in an oak stub was examined on July 11, 13 miles west of Milpillas, and contained large young; that same day a flying immature was taken there. Large flocks seen near Jalpa, July 27 and September 8, and smaller flocks near Moyahua, September 9 to 13, probably were migrants. A single bird in the valley 4 miles south of Sombrerete June 19, 1952, must have been a vagrant.

*Corvus cryptoleucus*. White-necked Raven.—From one to 20 were seen each day in every locality except the pine-oak areas and those short-grass plains (generally at higher elevations and more humid) which were bordered by oaks (Laguna Valderama and the La Mesa-Santa Teresa grassland.) A specimen was taken in the juniper-piñon at Cerro Gordo, July 2, as previously reported (Webster, 1954a).

\**Sitta pygmaea chihuahuae*. Pigmy Nuthatch.—I saw flocks of four birds each in pine forest, at Laguna Valderama, July 9, and 13 miles west of Milpillas, July 10; a specimen was taken from each flock. Phillips collected two from a flock of three in pine forest 13 miles west of Milpillas September 26.

\**Campylorhynchus gularis*. Spotted Cactus Wren.—There were two family groups near our camp near Monte Escobedo, and one or both were seen each day, September 15 to 20. A young bird in juvenal plumage was collected by Phillips, and an adult by Webster.

\**Melanotis caerulescens effuticius*. Blue Mockingbird.—At Moyahua, one or two were noted each day in the deciduous woodland, July 26 and 27 and September 9 to 12. A male was taken July 27.

\**Ridgwayia pinicola*. Aztec Thrush.—On July 5, two males and a female were eating madroño berries in predominantly pine-oak woodland atop a ridge at 9,000 feet at Zorilla's. Thirteen miles west of Milpillas I saw a pair July 11 (male taken, in full breeding condition, the testes 12 mm. long, cloacal protuberance well developed and filled

with sperm) and two pairs and an extra male July 12 (female taken, brood patch present, had recently laid a set). At the latter locality, all were in the shady pine-oak woods along cliffs at the rim of a barranca; their actions indicated nesting. Stephen L. Russell saw one July 14, 1950, near the edge of a barranca at Rancho Hornillas. On September 17 Phillips took an adult female of two seen at the edge of the barranca on Monte Escobedo, and I saw a female there the next day.

I noted the vocabulary of the species to include a melodious trill, reminiscent of the song of the Varied Thrush (*Ixoreus naevius*), an attention or alarm note rather similar to the alarm note of the American Robin (*Turdus migratorius*), but a bit squeakier, and a warning or distress call that was written "suu-weep," most reminiscent of the warning call of the Hermit Thrush, but louder and more shrill.

*Catharus guttatus auduboni*. Hermit Thrush.—Phillips collected (and later identified) an immature female near Monte Escobedo, September 19. Later, Phillips saw two in thick brush north of the Cerro Gordo camp on September 29.

\**Catharus aurantiirostris*. Orange-billed Nightingale Thrush.—My only records are from the slope west of Monte Escobedo, below the mesa rim, in humid, brushy oak woodland along a cascading creek. Two were seen and two more singing males heard on July 21; the male taken was in full breeding condition, with testes 10 and 6 mm. long and cloacal protuberance well-developed and full of sperm. I saw three September 18. The specimen is no doubt of the race *clarus* in the sense of Moore (1937), who referred two birds from the eastern part of the Sierra Madre in Chihuahua to the race of southwestern Mexico, rather than to *aenopennis* of Sonora and extreme western Chihuahua. However, I note that this specimen is smaller (wing 79) and strikingly grayer, less rufescent, more olivaceous, than a series of supposed *clarus* from Guerrero.

\**Sialia sialis fulva*. Eastern Bluebird.—A colony was nesting in old woodpecker holes in the oaks of a sparse oak woodland in an arroyo extending through the grassland, 6 miles east of Santa Teresa July 19, and two males and a female were collected. The female had a well-developed brood patch and had recently laid a set. In addition, sight records were: one at Laguna Valderama June 24, three to four at Laguna Valderama July 12, 13 and 14, 1952; two about 5 miles southwest of Milpillas June 25; two July 13, 13 miles west of Milpillas; one July 22, west of Monte Escobedo. Probably more were overlooked among the much commoner Mexican Bluebirds (*Sialia mexicana*).

*Myadestes townsendi calophonus*. Townsend's Solitaire.—On July 11, two were seen and one heard singing 13 miles west of Milpillas, and an adult male with testes 7 mm. long was taken. On September 26, 8 miles west of Milpillas, Phillips collected a female largely in first winter plumage; the next day I saw three and collected a male just beginning the post-juvinal molt. Our specimens illustrate well the characters of the Mexican race. These records represent a southern extension of the breeding range of the species, which is given by the American Ornithologists' Union Check-list (1957) and the Mexican Check-list (Miller, *et al.*, 1957) as south to Durango.

*Ptilogonys cinereus otofuscus*. Gray Silky Flycatcher.—I saw this species only once at Laguna Valderama—a single bird on June 22—but noted it almost every day in the more humid pine-oak areas at Zorilla's, west of Milpillas, and Monte Escobedo. The largest flock was of 35 birds on September 25, 8 miles west of Milpillas, where they were feeding on mistletoe berries. A male taken on June 27, 9 miles west of Milpillas, had been feeding large young that were able to fly but a short distance.

\**Vireo bellii medius*. Bell's Vireo.—One was singing from a cottonwood tree beside the Rio Florido July 18, 1952. In 1954, a singing male was taken at the same place, June 29; the testes were 6 mm. long, the cloacal protuberance large and full of sperm.

Phillips saw one, which sang a little, by the river at Moyahua, September 12.

\**Vermivora superciliosa palliata*. Spot-breasted Warbler.—In pine-oak woodland at the rims of ravines and barrancas it was seen: July 14, 1952, one by Ernest P. Edwards at Rancho Hornillas; two, June 26, and one, June 28, 9 miles west of Milpillas; two, July 10, and six, July 12, 13 miles west of Milpillas; two, July 21, near Monte Escobedo. A singing adult male, testes 5 mm. long, wing 63, was taken June 26 and an immature male, wing 62, July 12. I am unable to distinguish my two specimens from a series from Guerrero.

\**Vermivora celata orestera*. Orange-crowned Warbler.—I saw two and took a female September 18, in the brushy undergrowth of oak woodland on the west slope of Monte Escobedo. I saw another September 22, in the brush by the creek 9 miles west of Zacatecas City. Phillips saw one September 26 and 27, 8 miles west of Milpillas.

\**Vermivora virginiae*. Virginia's Warbler.—At Moyahua, three were seen, September 11 and again the next day; a male was taken, September 11. Phillips saw one September 29 at Cerro Gordo.

\**Dendroica auduboni nigrifrons*. Audubon's Warbler.—It occurred almost invariably in small flocks together with Mexican Bluebirds in open stands of oaks—two miles east of the town of Monte Escobedo, September 21, between Laguna Valderama and Milpillas, September 24, every day 8 miles west of Milpillas, September 25 to 28, and in oak-juniper at Cerro Gordo, September 29. My female specimen is equivocal in size (wing 76), but the dark brown color places it definitely with the Mexican race.

\**Dendroica nigrescens halsei*. Black-throated Gray Warbler.—One was seen at Moyahua September 11; three to five each day at Monte Escobedo, September 16 to 20; one September 24, in oaks just south of Laguna Valderama; and from one to five each day, September 25 to 28, 8 miles west of Milpillas. My specimen (male, September 17) is an extreme example, in its large size (wing 66) and pale blue-gray color, of the southeastern subspecies.

\**Dendroica occidentalis*. Hermit Warbler.—On September 7 we saw and collected a female in the willows along a creek 9 miles west of Zacatecas City. Later, the species was seen near Monte Escobedo, two to 12 individuals each day, September 16 to 20. Phillips saw one September 25 and two September 26, 8 miles west of Milpillas.

\**Dendroica graciae graciae*. Grace's Warbler.—One or two were seen each day, September 16 to 19, near Monte Escobedo, and September 25 to 27, 8 miles west of Milpillas. Two specimens were taken.

\**Seiurus noveboracensis limnaeus*. Northern Waterthrush.—One was taken September 22, beside the creek 9 miles west of Zacatecas City. Dr. Alden H. Miller confirmed my identification.

\**Oporornis tolmiei*. MacGillivray's Warbler.—One or two were noted each of these days: 4 miles south of Jalpa September 8; at Moyahua, September 9 to 13; near Monte Escobedo September 18; 9 miles west of Zacatecas City September 7 and 22; Cerro Gordo September 29. A male taken at Moyahua September 11 was identified by Phillips as *O. t. intermedia*.

\**Cardellina rubrifrons*. Red-faced Warbler.—A male in a late stage of the post-juvenile molt was taken June 26, from a group of three, 9 miles west of Milpillas; a single bird was seen there June 28. Later, one was seen 13 miles west of Milpillas July 10 and two near Monte Escobedo September 18. In 1952, Webster noted one at Laguna Valderama July 13 and Ernest P. Edwards, one at Rancho Hornillas July 14.

\**Setophaga ruticilla tricolora*. American Redstart.—At Moyahua September 11, two were seen and a female taken. Phillips saw one September 29 at Cerro Gordo.

*Tangaxius aeneus assimilis*. Red-eyed Cowbird.—About 20 were seen, and an adult male taken (wing 109) July 18 at Momax. Flocks of 30 were seen July 26 at Moyahua and July 27 at the edge of Juchipila. We previously reported a sight record from the Rio Atotnilco (Webster and Orr, 1954).

*Icterus parisorum*. Scott's Oriole.—Common in cactus-acacia-mesquite grassland and also in juniper-piñon and in drier scrub oak areas near the edge of the grassland. An immature male was taken June 24 at Laguna Valderama.

\**Icterus wagleri castaneopectus*. Wagler's Oriole.—At Momax, one was seen July 17 and two July 18; in the Juchipila Valley from 22 miles north of Jalpa to Moyahua, in each site visited, July 25 to 27 and September 7 to 13, from one to eight were seen each day. Beside a creek 6 miles north of Villanueva, there were two in some tall cottonwood trees July 25. Two males taken at Moyahua July 26 and September 11, together with a specimen taken near Colotlan, Jalisco, July 17, belong uniformly to the northern race on the basis of color.

\**Icterus pustulatus*. Streak-backed Oriole.—Near Jalpa two were seen September 7 and 13 and six September 8; at Moyahua two to seven were seen each day, July 26 and September 9 to 13. Comparative material is inadequate for subspecific identification of our four specimens.

\**Icterus cucullatus cucullatus*. Hooded Oriole.—I saw a male with much bright orange-red on his head 4 miles north of Jalpa September 13, and Phillips took an immature male there later. We examined a specimen in a taxidermist's shop in Juchipila which was in the plumage of an adult male of this race; it was said to have been taken near the town; the wing was not measurable.

*Pyrhuloxia sinuata sinuata*. Pyrrhuloxia.—Subsequent to the original description in 1837 by Bonaparte, the type locality of the species was restricted to "Zacatecas" by Bonaparte himself (1850), but the type specimen is labeled only "W. Mexico," and the original description called it "Western parts of Mexico." The collector and source, then, remain unknown (Van Rossem, 1934), although it *may* have been collected near Zacatecas City by Wollweber. According to Van Rossem, quoted in Amadon and Phillips (1947), the type, a male, measures: wing 94, tail 101.

No other specimens have been reported from the general area designated as the type locality, and so mine are placed on record. A male from 7 miles north of Colotlan, Jalisco, July 17, measures: wing 96, tail 103; a female from 14 miles south of Garcia, Zacatecas, September 14, measures: wing 91, tail 102; in color they show no approach to the Pacific Coast race. These localities are, respectively, 37 and 46 miles southwest of Zacatecas City; I doubt that the species occurs regularly much closer than this. All our sight records are from the Jerez Valley, from 14 miles south of Garcia southward to near Colotlan, and from the Juchipila Valley, from 38 miles south of Villanueva southward to 4 miles south of Jalpa.

\**Loxia curvirostra stricklandi*. Red Crossbill.—At Laguna Valderama, Ernest P. Edwards heard a flock July 16, 1952; I saw one June 24 and a flock of 12, July 8. West of Milpillas, two were noted June 26, and 10 on September 25. Near Monte Escobedo, a few were noted each day, July 20 and 21 and September 16 to 19. Two males and a female were taken July 8, at Laguna Valderama.

\**Volatinia jacarini*. Blue-black Grassquit.—Seen almost exclusively in sugar cane fields—15, July 18 at Momax, and two to eight a day July 25 to 27 and September 8 to 12 in the Juchipila Valley from 4 miles north of Apozol to Moyahua. My specimen is racially unidentifiable, because it is an adult male taken July 18.

\**Aimophila rufescens rufescens*. Rusty Sparrow.—On the precipitous slope west of

Monte Escobedo, in an area where tall bunch grass flourished beneath oaks 10 to 20 feet high, I collected one July 21 and saw two, one of them in juvenal plumage, September 18. The male specimen was in full breeding condition—testes 8 mm. long, cloacal protuberance large and full of sperm.

\**Aimophila quinquistriata quinquistriata*. Five-striped Sparrow.—From two to five were seen each day at Moyahua, where they lived in the brush on the cliffside, July 26 and 27 and September 9 to 13. The birds were paired and singing in both July and September. Phillips and I each collected a male September 10. Both were in breeding condition, with the testes 6 and 14 mm. long, respectively, and the cloacal protuberances large and full of sperm.

*Spizella wortheni browni*. Worthen's Sparrow.—No colonies were located except for the one previously reported at Cerro Gordo (Webster and Orr, 1954; Webster, 1955). There a census indicated 10 breeding pairs in the summer of 1954. In 1955, two individuals were seen there September 6 and three September 7. The addition of three more specimens, taken in June and July, 1954, serves to confirm the color differences on which the description of this race was based.

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