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AVIFAUNA OF THE JORULLO REGION,
MICHOACÁN, MEXICO

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INTRODUCTION.

In 1759 the small volcano of Jorullo suddenly arose from the floor of a valley in south-central Michoacán, Mexico and, like its modern counterpart, Paricutín, 80 kilometers to the west, soon covered the surrounding farmlands with a thick blanket of ash. Gadow (1930) estimates that within seven years about 45 square kilometers of land had been seriously devastated and lay under up to 100 meters of lava and cinders; less severe damage occurred over a much wider area. Senescence then began and the volcano ceased to show outward activity after 1774.

Mountains ring the valley about Jorullo, forming a vast amphitheatre with the volcano (alt. ca. 1300 m.), a cinder cone, in the center (Fig. 1). To the west there is a wide breach in the mountains which is occupied by an expansive plain of volcanic sands, through which a stream passes. The village of La Playa (alt. ca. 750 m.) is located on the banks of a brook leading to the stream and a short distance to the south,

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between the water and the edge of the lava flow (*malpaís*), is the settlement of La Puerta (Map 1).

Except for the volcano and the *malpaís*, the surrounding region is almost wholly under cultivation or used for pasture. It is, therefore, a countryside typical of this section of Mexico, having fields dotted with palms or other useful trees and with woods along the streams and in scattered clumps. In the farmed area there is nothing to indicate that total devastation had taken place only 200 years ago.

The *malpaís* consists of jumbled heaps of rough lava with lichens, grass, *Opuntia*, and xerophilous shrubs and small trees dispersed throughout in varying densities (Fig. 2). The recent origin of the lava is evident. The sides of Jorullo are covered with grass, bushes, and low trees, including oak and pine. A comprehensive description of the vegetation of the entire area is presented by Gadow (1930).

The fauna of Jorullo has been little studied, although the site has been visited with comparative frequency, owing to the interest it holds for geologists. The first person to collect zoological material at the volcano seems to have been Baker, who obtained three birds on May 3, 1890 (Stone, 1890). In 1903 Nelson and Goldman were at Jorullo, from March 27 to 29 (Goldman, 1951), collecting plants, mammals, and birds, but no report on their work was prepared. Dr. Herbert Friedmann kindly examined the catalog at the United States National Museum and informs me that five birds were taken. Gadow was the next to work in the region. In 1908 he spent about a month studying the herpetofauna, in particular, which led to the publication of a valuable account of the faunal recolonization of Jorullo (Gadow, 1930). No further biological investigations are known to have been carried on until June 1950, when a field party from the Museum of Zoology at the University of Michigan spent two days collecting around La Playa and on the volcano. Dr. Robert W. Storer has sent me a list of the 12 birds that he and E. K. Miller obtained, as well as a summary of those species that were observed. From October 10 to 18, 1950, the late Timothy H. Laughlin and I collected birds and herpetological specimens in the valley, spending most of the period on the plain, near La Playa and La
Puerta. The birds are deposited in the Yale Peabody Museum of Natural History and the reptiles and amphibians in the University of Michigan Museum of Zoology. From July 1 to 3, 1951, William E. Duellman collected herpetological material near Jorullo for the University of Michigan. Utilizing specimens obtained by the Michigan parties, my collection, and portions of the incomplete manuscript of the present paper, he published a report on the herpetology of Jorullo (Duellman, 1954).

The area about Jorullo is too much disturbed by human occupation to attempt to study its recolonization by birds. However, in spite of its comparatively recent devastation, a great part of the district is similar to farming country elsewhere in that section of Mexico and its avifauna is probably comparable to that found in any like habitat on the edge of the Río Balsas drainage system. The following list is an enumeration of the species occurring in the valley about Jorullo and on the slopes of the volcano. The collection made in 1950 forms the basis of this account but, to make it as complete as possible, I have drawn upon the unpublished data generously given me by Drs. Friedmann and Storer. Nevertheless, the list still does not contain every species resident in the region and certainly gives but the roughest indication of the visitant and transient avifauna. For example, I saw individuals of Columbigallina, Leptotila, Myiarchus, and Seiurus but was unable to identify the species with confidence; certainly other forms were present but were not encountered during our short visit. Those birds which seem to be reported from Michoacán for the first time are indicated by an asterisk (*).
ANOTATED LIST.

Coragyps atratus (Bechstein). Black Vulture. The more abundant vulture. In the mid-morning as many as 28 could be seen circling over the valley.

Cathartes aura subsp. Turkey Vulture. Only one bird was seen during the entire period, although in other parts of the state it has been reported as being common (Blake and Hanson, 1942; Lea and Edwards, 1950; Davis, 1953).

Buteo nitidus subsp. Gray Hawk. A single individual of this species was identified with certainty. Storer saw an adult during his visit.

Polyborus plancus subsp. Crested Caracara. On October 17 two caracaras ranged over the fields on the western side of the stream at La Puerta.

Falco sparverius subsp. Sparrow Hawk. Very common.

Ortalis vetula subsp. Plain Chachalaca. The only suitable habitat for chachalacas is on the surrounding hills. The species is uncommon owing to intensive hunting but was heard calling each morning.

Philortyx fasciatus (Gould). Barred Quail. 2 ♂, Oct. 12; 1 ♂ 1 ♀, Oct. 16. Quail were extremely abundant in the fields, although the villagers kill them with sling shots at every opportunity. All the birds collected had enlarged gonads. The males weighed 125.0, 135.1, and 136.2 grams; the female 126.4 grams.

Actitis macularia (Linnaeus). Spotted Sandpiper. Several were seen regularly along the river.

Columba fasciata subsp. Band-tailed Pigeon. Small flocks passed over the valley several times.

Zenaidura macroura subsp. Mourning Dove. A few were seen each day.

Zenaida asiatica subsp. White-winged Dove. This was the most abundant of the larger doves.


Ara militaris subsp. Military Macaw. Gadow (1930:42) reported seeing a pair of these birds daily.

Aratinga canicularis eburnirostrum (Lesson). Orange-fronted Parakeet. 1 ♂, Oct. 13. The specimen has the broad orange forehead and more yellow ventral coloration of A. c. eburnirostrum, but the size (wing 139.5 mm.; tail 114.0 mm.) is indicative of a tendency toward A. c. clarae. The species was seen frequently, particularly in trees standing within fields. The bird weighed 73.5 grams.
Amazona finschi finschi (Sclater). Lilac-crowned Parrot. A female was collected by Nelson and Goldman. Flocks of parrots, presumably of this species, were observed each morning and evening but they never alighted.

Piaya cayana mexicana (Swainson). Squirrel Cuckoo. 1 ♀, Oct. 12. Fairly numerous, several being seen each day. The specimen weighed 99.7 grams.

Crotophaga sulcirostris subsp. Groove-billed Ani. Abundant wherever there were cattle.

Geococcyx velox melanchima Moore. Lesser Road-runner. A male road-runner was collected by Nelson and Goldman. I saw none in the Jorullo region, although they were noted often on the road between Ario de Rosales and La Huacana.

Glaucidium brasilianum subsp. Ferruginous Pygmy-Owl. A specimen was collected at La Playa by Storer, who informs me that it exhibits characteristics of both G. b. cactorum and G. b. ridgwayi. A series is needed for subspecific determination.

Caprimulgus ridgwayi ridgwayi (Nelson). Buff-collared Nightjar. Storer obtained a specimen on June 19. A few were seen during our visit.

Amazilia beryllina viola (Miller). Berylline Hummingbird. 1 ♂, Oct. 12; 1 ♂, Oct. 14; 1 ♂, 1 ♀, Oct. 16. An abundant form. The males weighed 5.0 and 5.4 grams; the unsexed birds 4.9 and 5.1 grams.

Selasphorus rufus (Gmelin). Rufous Hummingbird. 1 ♀, Oct. 18. The specimen, which weighed 2.6 grams, was obtained at the base of the volcano. While this form was definitely not so numerous as Amazilia beryllina, their relative abundance was not determined. At least two other species of hummingbird were present, but not identified.

Momotus mexicanus mexicanus Swainson. Russet-crowned Motmot. 1 ♂, Oct. 12; 1 ♀, Oct. 18. Fairly numerous. The female weighed 75.5 grams and the bird which was uncertainly identified as a male weighed 91.0 grams.

*Dryocopus lineatus scapularis (Vigors). Lineated Woodpecker. Miller secured a young female two miles south of La Playa. This appears to be the only record of the species from Michoacán.

Phloeocastus guatemalensis nelsoni (Ridgway). Pale-billed Woodpecker. Nelson and Goldman collected a female, which is the only time the bird has been recorded in the district.

Xiphorhynchus flavigaster mentalis (Lawrence). Ivory-billed Woodcreeper. A single bird was seen on the trunk of a palm on October 13. The species has not been seen previously in the vicinity of Jorullo, although Nelson and Goldman took a specimen at nearby Cayaco.

Platypsaris aglaiae albiventris (Lawrence). Rose-throated Becard. 1 ♂, Oct. 13. The specimen, which is immature and in heavy molt, weighed 28.5 grams. It was taken in a densely wooded area along a stream. No other was seen.

Pyrocephalus rubinus mexicanus Sclater. Vermillion Flycatcher. 1 ♂, 1 ?, Oct. 13; 1 ♂, Oct. 14; 1 ♂, Oct. 16. One of the most conspicuous elements of the avifauna, especially in the pastures. The gonads of one male were very enlarged, those of another moderately enlarged, and those of the last small. The last bird retains about one quarter of its immature plumage and weighed 12.8 grams. The remaining males weighed 14.0 and 14.3 grams. The unsexed specimen, which is in immature plumage, weighed 12.6 grams.

Tyrannus vociferans vociferans Swainson. Cassin Kingbird. A female was taken by Nelson and Goldman. To date it is the only record from the vicinity of Jorullo.

Tyrannus melancholicus occidentalis Hartert and Goodson. Tropical Kingbird. 1 ♂, Oct. 12; 1 ♂, Oct. 14. Common. The weights of the male and female were 41.5 and 30.0 grams, respectively.

Myiozetetes similis subsp. Vermilion-crowned Flycatcher. Several pair were along the river.

Pitangus sulphuratus derbianus (Kaup). Derby Flycatcher. 1 ♂, Oct. 18. The bird weighed 84.0 grams. An abundant form.

Contopus pertinax pertinax Cabanis and Heine. Greater Pewee. 1 ♂, Oct. 11; 1 ♂ ?, Oct. 14; 1 ♂, Oct. 17. The species was rather numerous in the fields where a few trees remained. The male and female weighed 24.2 and 25.8 grams, respectively; the bird of doubtful sex 24.3 grams.


Progne chalybea subsp. Gray-breasted Martin. Storer informs me that there were two martins present at the hacienda in La Playa.
Stelgidopteryx ruficollis fulvipennis (Sclater). Rough-winged Swallow. 1 ♂, Oct. 13; 2 ♂, Oct. 17. From Brodkorb’s discussion (1942) of the races of Stelgidopteryx ruficollis, it is apparent that these specimens are referable to S. r. fulvipennis. Their chins and throats are conspicuously tinged with buff and the shafts of the under tail coverts are faintly darkened subterminally. Their respective measurements are, wing (flat): 120.0, 119.0, 116.0 mm.; tail 56.0, 51.0, 53.0 mm.; weight, 16.0, 15.0, 15.4 grams. Lea and Edwards (1950) have recorded the species breeding in the region of Pátzcuaro and tentatively identified a specimen as S. r. fulvipennis.

Flocks of up to fifty birds appeared over the stream at La Puerta late each afternoon.

Corvus corax subsp. Common Raven. Ravens were seen flying over only once, although on the road between Ario de Rosales and La Huacana they were numerous.

Calocitta formosa formosa (Swainson). Magpie Jay. 1 ♂, Oct. 14; 1 ♀, Oct. 16. Moderately abundant. The male and female weighed 213.3 and 205.5 grams, respectively.

Campylorhynchus rufinucha humilis Sclater. Rufous-naped Wren. Dr. Storer collected a male at La Playa, which he informs me is nearest to humilis but show evidence of introgression with gularis. I saw none of these wrens during my visit.

Thryothorus pleurostictus nisorius Sclater. Banded Wren. 1 ♂, Oct. 13. Observed several times. The specimen, which is in heavy molt, weighed 23.8 grams.

Troglodytes aëdon parkmanii Audubon. Northern House Wren. 1 ♂, 1 ♀, Oct. 17. These specimens, taken in widely separated localities, were the only house wrens seen. The male weighed 10.0 and the female 9.7 grams.

Mimus polyglottos leucopterus (Vigors). Common Mockingbird. 1 ♂, Oct. 15; 2 ♀, Oct. 18. Mockingbirds were encountered among the lava flows only at the base of Jorullo, where they were numerous. It is surprising that none was seen in the vicinity of the village. The weight of the male was 46.5 grams; that of the females 44.6 and 44.7 grams.


*Catharus ustulatus swainsoni* (Tschudi). Olive-backed Thrush. 1 ♂, Oct. 15. The specimen was brought in by a boy and seems to be the first record of the species from Michoacán. It weighed 30.0 grams.
Polioptila caerulea caerulea (Linnaeus). Blue-gray Gnatcatcher. 1 ♀, Oct. 12; 1 ♀, Oct. 13. These birds have the following measurements: wing (flat), 52.5 and 52.5 mm.; tail, 50.5 and 51.5 mm.; culmen (base), 15.5 and 14.5 mm.; weight, 5.4 and 5.5 grams. The large size of the specimens indicates that they must be either the nominate form or P. c. amoenissima. They are pale ventrally and match perfectly some fall specimens of the former race from the southeastern United States. It would appear that the birds should be called P. c. caerulea and that they are probably winter visitants. However, the matter is complicated by the discovery by Davis (1953) of a breeding female and two juvenal males, in the vicinity of Tzitzio, whose measurements exceed those of P. c. deppei, the race which might be expected to be resident, and thus approach in size the more northern races. It is obvious that the gnatcatchers of this region sorely need study, but adequate breeding material is first required. Nevertheless, because the two birds in the present collection seem indistinguishable from certain individuals from the eastern United States, it is reasonable to assume they are P. c. caerulea, although Lea and Edwards (1950) chose not to name a male exhibiting similar characteristics, which they obtained in March at Pátzcuaro.

The species was abundant.

*Lanius ludovicianus excubitorides* Swainson. Loggerhead Shrike. 1 ♂ ♀, Oct. 18. This race appears not to have been recorded previously from Michoacán. The specimen, which weighed 46.4 grams, was taken in the *malpais*. No other was noted.

*Vireo hypochryseus hypochryseus* Sclater. Golden Vireo. 1 ♂, Oct. 13. The specimen was the only one seen. It weighed 12.9 grams.

*Mniotilta varia* (Linnaeus). Black and White Warbler. A single bird was present almost daily at our camp.

*Vermivora ruficapilla ridgwayi* van Rossem. Nashville Warbler. 1 ♂, Oct. 12. Lea and Edwards (1950) found the nominate form to be a common transient in the spring, but *V. r. ridgwayi* had not been reported heretofore. The species was seen on several occasions near La Puerta. The bird weighed 8.1 grams.

*Vermivora luciae* (Cooper). Lucy Warbler. 1 ? , Oct. 17. Only this bird was encountered. Its weight was 6.0 grams.


**Geothlypis trichas** subsp. Common Yellowthroat. Several birds were constantly present by the stream at La Puerta, but the proximity of houses prevented any collecting in that area.


**Cassiculus melanicterus** (Bonaparte). Yellow-winged Cacique. 1 ♂, 1 ♀, Oct. 12. Very common, particularly in the palms near the village. The male weighed 82.6 and the female 70.9 grams.

**Cassidix mexicanus obscurus** (Nelson). Boat-tailed Grackle. 3 ♀, Oct. 16. Although Blake and Hanson (1942) found the nominate form in the vicinity of Apatzingan, only about fifty kilometers to the west of Jorullo, these birds are very dark and definitely referable to *C. m. obscurus*. The species was moderately abundant. The specimens weighed 111.8, 122.1, and 126.3 grams.

**Icterus bullockii bullockii** (Swainson). Bullock Oriole. 1 ♂, Oct. 11. Numerous. The bird weighed 34.2 grams.

**Icterus spurius spurius** (Linnaeus). Orchard Oriole. A single male was seen on two days.

**Icterus wagleri wagleri** Sclater. Black-vented Oriole. There is a female of the species in the collection made by Storer at La Playa.

**Icterus cucullatus cucullatus** Swainson. Hooded Oriole. 1 ♂, Oct. 13; 1 ♂, 1 ♀, Oct. 14. Frequently observed in the palms. The males, both of which are adults, weighed 24.6 and 25.1 grams; the female, which is immature, 23.6 grams.

**Icterus pustulatus** subsp. Streak-backed Oriole. Several were identified at La Playa by Storer on June 19.

*Piranga rubra* subsp. Summer Tanager. A pair was seen on October 13.

*Passerina cyanea* (Linnaeus). Indigo Bunting. A single female was observed on October 16.

*Passerina ciris* subsp. Painted Bunting. 1 ♂, Oct. 13. The bird is in the process of assuming adult plumage and its measurements fall within the range of overlap for the two races. It, therefore, cannot be assigned to either race, although, as shown by Storer (1951), the nominate form is not known to winter in western Mexico. The bird weighed 14.0 grams.

**Volatinia jacarina** subsp. Blue-black Grassquit. Noted by Storer in June but not by us in October. The sparsity of fringillids, particularly those which are usually in the weeds along roads, was striking.
Chondestes grammacus strigatus Swainson. Lark Sparrow. 2 ♂, 1 ♀, Oct. 15; 1 ♀, Oct. 18. Large flocks occurred in the malpais. One of the males had very enlarged testes while in the other they were slightly enlarged. The bird identified with certainty as a female exhibited no indications of gonadal activity and none of the living birds showed sexual behavior. The indications of breeding, plus the fact that Baker (Stone, 1890) obtained the species at Jorullo on May 3, suggest that the species may be resident.

The males weighed 24.9 and 25.3 grams; the female 26.8 grams; the bird of doubtful sex 27.6 grams.

Aimophila ruficauda subsp. Stripe-headed Sparrow. Storer found this species common about La Playa. I saw none in October.

LITERATURE CITED
Davis, John, 1953, Birds of the Tzitzio region, Michoacan, Mexico: Condor 55: 90-98.
Fig. 1. Jorullo from the plain at La Puerta. Oct. 17, 1950.

Fig. 2. A portion of the malpais as seen from the summit of Jorullo. Oct. 15, 1950.