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INTRODUCTION

Because its unique geographical location and ecological setting supports a rich and varied avifauna, the Yucatán Peninsula has received considerable attention by ornithologists. The most valuable contribution is Paynter's "The Ornithogeography of the Yucatán Peninsula" (1955a), an authoritative study of the composition, distribution, and origin of the avifauna of the region. His work contains a complete listing of all species reported to that time from the peninsula. It considers the hundreds of specimens collected by the author and his associates during many months of field work, provides a synthesis of all the information available to 1955, and is the basic reference to the avifauna of the area. Paynter also pointed out matters for which information is lacking. Two of the most conspicuous deficits that he noted are the lack of knowledge about many species that occur on the peninsula in summer, and the paucity of data as to time of breeding, although some information on reproduction in a few species was published subsequently by Paynter (1955b) and Storer (1961).

In July and August of 1962, I was a member of a field party from the Museum of Natural History, The University of Kansas, engaged in a survey of vertebrates and their ectoparasites on the Yucatán Peninsula. The purpose of the present paper is to report on the birds collected and observed during the course of this field work. Particular emphasis is given to breeding information, but observations concerning distribution, incidence, and molt also are given. In addition, a list of the chewing lice (Mallophaga) taken from various specimens is given in Table 2 and in the appropriate species account of the host. Other ectoparasites removed from these birds will be reported on elsewhere.

ACKNOWLEDGMENTS

I am especially indebted to Dr. J. Knox Jones, Jr., under whose direction this field study was undertaken, and to Dr. Richard F. Johnston who aided greatly in the identification of specimens and critical reading of the manuscript. I am grateful also to other members of the field party who helped in collecting many of the specimens reported herein: Ticul Alvarez, A. Binion Amerson, Dr. William E. Duellman, Dr. J. Knox Jones, Jr., Thomas E. Lovejoy, III, Jack G. Makepeace, Dwight R. Platt, William C. Stanley, Jerome B. Tulecke, and John Wellman. Dr. K. C. Emerson graciously identified the specimens of Mallophaga and Dr. Allan R. Phillips aided in identification of some of the birds.

In addition, I wish to express sincere thanks for quarters provided our field party at the Campo Experimental Forestal "El Tormento" at Escárcega, Campeche, by Ing. Hector Flores S.; at Pueblo Nuevo X-can, Quintana Roo, by Pablo Alimilla; at Felipe Carrillo Puerto, Quintana Roo, by Fernando Esquival Montono; and at Pisté, Yucatán, by Luis V. Polanco. The field party benefited also from arrangements and helpful suggestions made by Eduardo C. Welling of Mérida and Marynoll Father Joseph Early of Felipe Carrillo Puerto. Wherever we camped the local Mayans were exceptionally helpful, especially as guides and collectors.

Our field party was composed of two units. One unit, working on a survey of Middle American vertebrates and their ectoparasites, was supported by the United States Army Medical Research and Development Command (Contract No. DA-49-193-MD-2215). The second unit, composed of students in the Field Course in Vertebrate Zoology from The University of Kansas, was supported in part by the Museum of Natural History and by a grant from the National Science Foundation (G 20939, Special Projects in Science Education). The late Ing. Luis Macías Arellano, Departamento de la Fauna Silvestre, Dirección General de Caza, México, D.F., generously provided the necessary permits for collecting vertebrates.

PHYSICAL FEATURES

The Yucatán Peninsula is a northeastern projection of Central America lying between the Gulf of Campeche, the Gulf of Mexico, and the Caribbean Sea. Its area is approximately 143,500 square kilometers and includes the Mexican states of Campeche and Yucatán and the sparsely settled Territory of Quintana Roo, plus parts of British Honduras and the Petén region of Guatamala. The peninsula has a mean breadth of about 300 kilometers and a coast line of about 1100 kilometers.

Topographically, the peninsula is a low-level plain that rises gradually inland to the south. The coast on the north and west is low, sandy, and semi-barren; openings through the outer coastal strand lead to narrow brackish lagoons surrounded by mangroves. The eastern coast consists of bluffs, indented with bays and bordered by several islands, the largest being Cozumel. A small range of hills traverses the peninsula from the city of

Campeche to Chetumal Bay; although appearing sizeable, these almost nowhere exceed 100 meters in elevation. The extreme southerly portion of the peninsula is moderately hilly and is covered with tropical rain forest.

The peninsula is composed almost wholly of a bed of coraline and porous limestone covered with a layer of thin, dry soil formed from the slow weathering of the bedrock. The humus is rarely more than a few centimeters deep, and consequently cornfields (*milpas*) must be moved every two or three years. With each move a new area of the land is cleared and burned. This agricultural practice has been routine with the Mayan people for centuries and apparently has had a profound effect on the vegetation, severely limiting the extent of virgin forest.

In many places, especially in the northern part of the peninsula, the rocky surface of the terrain is perforated by natural wells or sink-holes, which are called *cenotes* locally. Many *cenotes* support small "islands" of unique vegetation, the composition of which somewhat resembles the rain forest of the southern part of the peninsula. Temporary water-holes and shallow lakes (*aguadas*) are sparsely scattered throughout the southern half of the peninsula. There are no rivers of importance; most that are present are in the southernmost region.

The climate of northern Yucatán is hot and dry, and the absence of high mountainous ridges to intercept the moisture-bearing clouds from the Atlantic accounts for less rain than would be expected. The southernmost part of the peninsula receives a maximum of 200 centimeters of rain annually. The amount decreases toward the north to an average of about 45 centimeters. Almost all of the rain falls from May to October. Daily temperatures range from 78° to 98° F. in the shade; cool sea winds prevail day and night throughout most of the year. The hottest months are May and June. In winter, fierce northers, *temporales* or *nortes*, occasionally sweep across this open region, bringing rain and cooler temperatures, lasting several days.

The areas adjacent to British Honduras and Guatemala receive sufficient rainfall to support forests containing mahogany (*Swietenia*); sapodilly (*Achras*); several valuable cabinet woods; logwood (*Haematozylon*) and other dyewoods. As one proceeds northward the flora and fauna change gradually from that of the wet tropics to that of the dry tropics.

Paynter's (1955a) system of vegetational zones on the peninsula is useful to ornithologists. He recognized three zones: Scrub, Deciduous Forest, and Rain Forest. The Scrub zone occupies Isla Holbox and Isla Mujeres and the arid northern coast of Yucatán. The zone extends only a few miles inland and consists of low-tropical thorn forest of mesquite (*Prosopsis*), *Mimosa*, *Yucca*, *Agave*, and mangrove (*Rhizophora*) wherever standing water occurs. Sisal in Yucatán and Isla Mujeres of Quintana Roo are in this Scrub zone.

The Deciduous Forest zone is a vast area of low, semiarid, secondary forest occupying all of the state of Yucatán not in the Scrub zone, northern Campeche, and a thin strip a few kilometers wide in Quintana Roo along the Yucatán-Quintana Roo border and a similar narrow band along the eastern coast. The island of Cozumel is also included in this zone. Collections were made in the Deciduous Forest at Champotón, Campeche, Isla Cozumel and Puerto Juárez, Quintana Roo, and Pisté, Yucatán.

The Rain Forest zone occupies the remainder of the peninsula and includes most of the territory of Quintana Roo, and the southern half of Campeche. Collections were made in this zone at Escárcega, Campeche, and at Felipe Carrillo Puerto and Pueblo Nuevo X-can, Quintana Roo. Isla del Carmen cannot be accurately assigned to any of these three zones because most of the island has been planted in coconut palms. It is an area of high rainfall and may once have supported rainforest.

In the present report the term "second growth" refers to areas that have been recently cut over. In these areas, the forest is characteristically low and in a stage of transition. In the Rain Forest zone "second growth" areas usually contain species of deciduous trees.

Paynter (1955a) has given an excellent descriptive summary of the topography, climate, and phytogeography of the Yucatán Peninsula and there is little need to go into further detail here. During summer, the rainy season, the Deciduous Forest is much more luxuriant in appearance than in winter when most of the trees have lost their leaves. Also, the numerous *cenotes* in this zone support a limited growth of evergreen trees. For example, the large Cenote Seco about two kilometers east of Chichén-Itzá contains elephant ear (*Caladium*), mamey (*Mammea*), figs (*Ficus*), and other large trees the trunks of which are some 10 meters below the surface of the surrounding tableland. These plants project five to 10 meters above the surrounding low forest. The floor of this *cenote* is near the watertable but not below it.

GAZETTEER

The specimens of birds reported herein were collected at the localities shown on the accompanying map (Fig. 1). These localities are listed below in alphabetical order according to states.

Campeche

Champotón.—Lat. 19° 21′ N, long. 90° 43′ W, sea level to five meters. A fishing village on the Gulf of Mexico. Collections were made principally at our camp five kilometers south of the town. Low deciduous forest, second growth, and *milpas*.

Escárcega.—Lat. 18° 37′ N, long. 90° 44′ W, elevation 65 meters. A village in southwestern Campeche. Field work was carried out principally in the vicinity of an agricultural experiment station seven and a half kilometers west of the town. Second growth and moderately tall rainforest.

Isla del Carmen.—Lat. 18° 43′ N, long. 91° 41′ W, sea level to two meters. An island in the mouth of Laguna de Términos. Collections were made at our camp on the northeastern end of the island, about one kilometer southwest of Puerto Real. Coconut plantations and mangrove swamp.

Quintana Roo

Felipe Carillo Puerto.—Lat. 19° 35′ N, long. 88° 02′ W, elevation 30 meters. A village in east-central Quintana Roo. Field work was centered at Rancho San Miguel, about four kilometers north-northeast of the village. Mostly second growth rainforest with scattered large patches of tall trees (to 30 meters). Several large *milpas* were present on the ranch some of which had been recently cleared. Our camp was at a large aguada bordered on one side by an extensive marsh with tall dense grass.

Isla Cozumel.—Lat. 20° 27′ N, long. 86° 26′ W, sea level to 10 meters. A large island, 15 kilometers east of the mainland. Collections were made on the northwestern part of the island from one to five kilometers north-northeast of the village of San Miguel in low, dense deciduous forest.

Isla Mujeres.—Lat. 21° 12′ N, long. 86° 43′ W, sea level to 30 meters. A small, narrow island about eight kilometers from the coast at the northeastern end of the peninsula. Field work was done on the beach at the northern end of the island, in low deciduous forest in the middle of the island, and in low deciduous forest and cactus (*Opuntia*) association on a high rocky bluff on the southern end of the island.

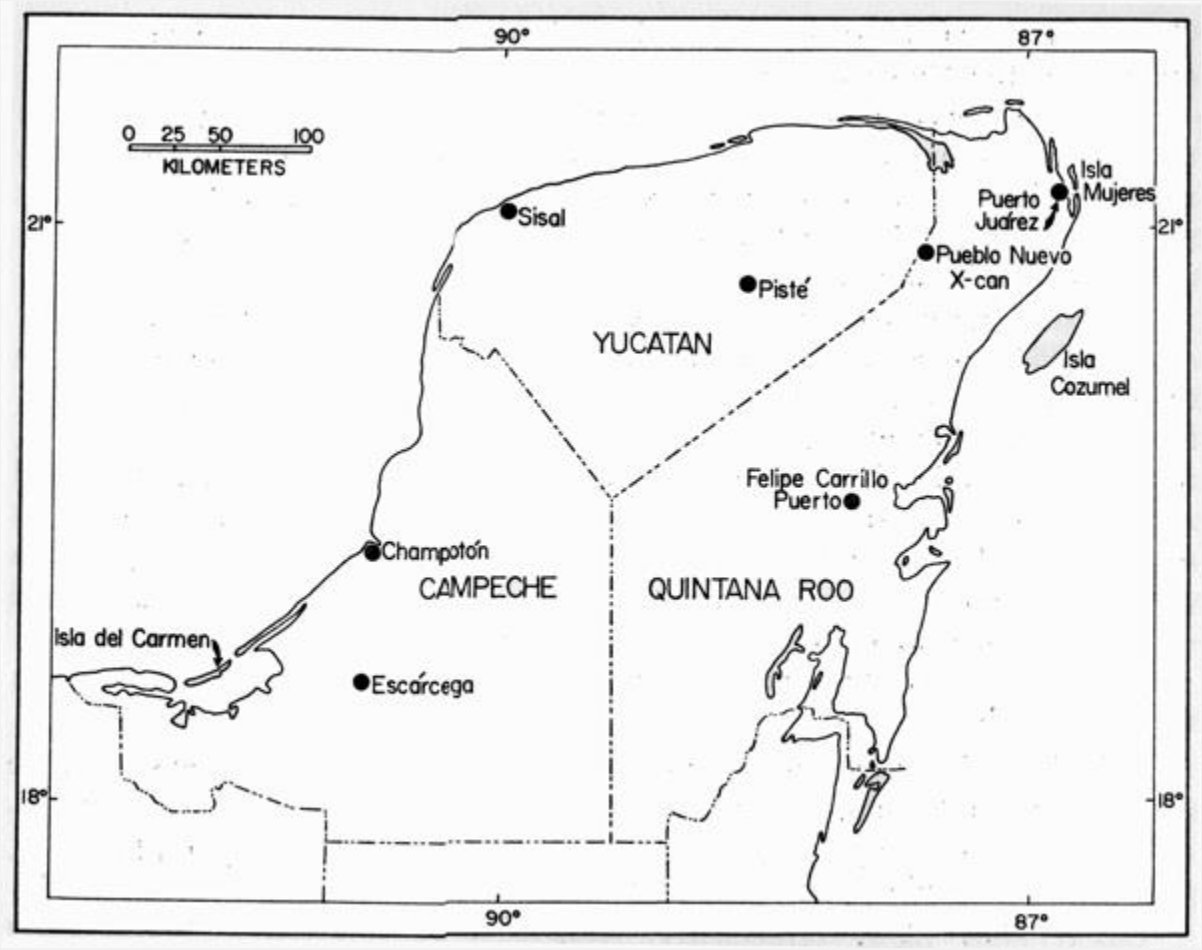

FIG. 1. A map of the Yucatán Peninsula of Mexico showing localities referred to in the text.

Pueblo Nuevo X-can.—Lat. 21° 52′ N, long. 87° 26′ W, elevation 10 meters. A village five kilometers east of X-can, Yucatán, in rainforest with dense underbrush. Specimens were obtained from the immediate vicinity of the village.

Puerto Juárez.—Lat. 21° 10′ N, long. 86° 49′ W, sea level. A small port on the Caribbean Coast with alternating sand beach and limestone shore. Mangrove swamps extend a short distance inland at various points. Specimens were collected in rainforestlike vegetation at a small *cenote*, in low deciduous forest, and at our camp along a large, cleared airstrip four kilometers west-southwest of the village.

Yucatán

Pisté.—Lat. 20° 42′ N, long. 88° 28′ W, elevation 10 meters. A village in dense, low deciduous forest with many nearby *milpas*. Collections were made in a wide area in the vicinity of the village, including nearby Chichén-Itzá.

Sisal.—Lat. 21° 10′ N, long. 90° 00′ W, sea level. A small village on the north-western coast of the peninsula. Collections were made on the beach, in the low scrub vegetation behind the beach, and in the mangrove swamps and nearly-dry lagoons further inland, from three to 13 kilometers west-southwest of the village.

ANNOTATED LIST OF SPECIES

Catalogue numbers in the following accounts are those of the Museum of Natural History, The University of Kansas. With the exception of a synoptic collection presented to the Departamento de la Fauna Silvestre, Dirección General de Caza, México, D.F., all of the specimens mentioned are in the museum at the University of Kansas.

Unless otherwise indicated, specimens taken were not molting. For birds undergoing postnuptial or postjuvenal molt, the degree of advancement of the molt is indicated by the numbers of primaries and rectrices that are new or partly ensheathed. Information on the condition of the testes refers to the left testis unless otherwise noted.

Scientific and vernacular names follow Friedmann *et al.* (1950) and Miller *et al.* (1957) except for specimens of species or genera that have been more thoroughly treated systematically since the publication of the Mexican Checklist, for example, *Columbina*, *Centurus* and *Platypsaris*, by Johnston (1962), Selander and Giller (1963), and Webster (1963), respectively. The trinomial is used whenever subspecific identities could be made with a reasonable degree of certainty. The specimens of several kinds were in extremely worn plumage or in molt and meaningful judgments concerning such characters as relative darkness or paleness of plumages could not be made.

Specimens are listed in each account according to the temporal order in which they were collected.

Bulbulcus ibis Linnaeus: Cattle Egret.—Our specimen is one of three individuals seen feeding near cattle at Rancho San Miguel on August 13 and 14.

Specimen (1): ♂, 40401, testis 6 x 2 mm., 289.5 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Casmerodius albus (Linnaeus): American Egret.—We took one egret from a flock of about 20 that flew low over our campsite on the morning of July 12.

Specimen (1): ♀, 40402, ovary inactive, 10 x 5 mm., 607.5 gm. (July 12), 5 km. S Champotón. Mallophaga: *Ciconiphilus obscurus.*

Cochlearius cochlearius (Linnaeus): Boat-billed Heron.—Three individuals were seen on a small point of land immediately south of the village on the west coast of Isla

Mujeres on the afternoon of August 1. One was foraging in a small cove about one mile south of the village on the morning of August 2. Paynter (1955a) did not list the species for Isla Mujeres; our observations seem to constitute the first records for the island.

Mycteria americana Linnaeus: Wood Ibis.—A flock of about 15 flew over our camp 4 km. NNE Felipe Carrillo Puerto on August 14.

Sarcoramphus papa (Linnaeus): King Vulture.—Our specimen was one of two individuals seen at a cenote.

Specimen (1): ♂ 40403, testes inactive, 8 lbs. (July 29), 1 km. N Pueblo Nuévo X-can. Mallophaga: *Colpocephalum megalops*.

Carthartes burrovianus Cassin: Yellow-headed Vulture.—We saw several Yellow-headed Vultures on Isla del Carmen on July 6, 7, 8, and 9. *C. burrovianus* was more abundant than either *Carthartes aura* or *Coragyps atratus* in the vicinity of Champotón, where we confirmed field identifications by taking a specimen. Until Wetmore (1950) clarified the status of *C. burrovianus* in southern Mexico and Central America, the species had gone unnoticed or misidentified as *C. aura*. The Mexican Checklist (Friedmann, Griscom, and Moore, 1950) omitted *C. burrovianus* from the avifauna of México. Blake (1953) included Tabasco, Chiapas, and Veracruz within the range of the species, but Paynter (1955a) omitted it from his list of birds of the Yucatán Peninsula. Our specimen seemingly constitutes the first record from the peninsula.

Specimen (1): ♂, 40404, testes inactive, 1¾ lb. (July 9), 2 km. S Champotón.

Chondrohierax uncinatus uncinatus (Temminck): Hook-billed Kite.—A pair was seen 5 km. S Champotón on July 8 and 9. Both birds were in adult plumage and appeared to be mated, although we found no nest. The male is referable to *C. u. uncinatus* on the basis of the narrow white ventral bands, most of which are 0.3 millimeter or less in width. None of the bars exceeds 0.5 millimeter in width. Paynter (1955a) discussed in detail the contradictions in the literature concerning the geographic range of this subspecies, and referred a male in his collection taken in February, 1952, to *C. u. aliquonis*. Traylor (1941) collected a large series of this species in Yucatán and Campeche in winter and allocated the specimens to the nominate form.

At Pisté, on July 23, a nestling approximately half-grown was brought in by a local boy. The rectrices were partly ensheathed and the feather count extensively downy.

Specimens (2): ♂, 40406, testis 9 × 5 mm., 215.0 gm. (July 10), 5 km. S Champotón; ♂, 40405, nestling, 117.6 gm. (July 24), Pisté.

Buteo magnirostris gracilis (Ridgway): Roadside Hawk.—This was the only hawk seen on Isla Cozumel.

Specimens (2): ♂, 40411, testis 5 mm., 207.3 gm. (August 10), 4 km. N San Miguel; ♀, 40412, 242 gm. (August 10), 3½ km. N San Miguel.

Buteo magnirostris conspectus (Peters): Roadside Hawk.—This species was the commonest hawk on the peninsula and was seen at all localities except Isla Mujeres and Sisal.

Specimens (5): ♂, 40409 (July 12), and ♀, 40410, ova to 1 mm., 249 gm. (July 16), 7½ km. W Escárcega; ♂, 40413, 279 gm. (July 17) 1 km. N, 13 km. W Escárcega; ♂, 40407, testis 5 × 2 mm., 254.7 gm. (July 23), Pisté: ♀, 40408, ovary inactive, 279.0 gm. (July 28), Pueblo Nuevo X-can.

Buteo brachyurus Vieillot: Short-tailed Hawk.—Our one specimen, a male (40414) weighing 342 gm. and in white-bellied phase, was taken by a native 6 km. W Escárcega on July 14. The testes were inactive.

Buteo nitidus plagiatus (Schlegel): Gray Hawk.—Our specimen is one of two subadults sighted near a large milpas, on Rancho San Miguel.

Specimen (1): ♂, 40415, testis 5 × 3 mm., 364 gm. (August 15), 4 km. NNE Felipe Carillo Puerto. Mallophaga: *Craspedorrhy* sp.

Buteogallus anthracinus (Lichtenstein): Common Black Hawk.—Five individuals were seen on August 23 along a stretch of five miles of highway about 30 mi. SW Champotón, Campeche. The species was identified from the description given in Blake (1953). The hawks were perched on dead limbs in full view, 50 to 100 feet from the highway, which at this locality parallels the beach, sometimes only a few yards from the water.

Ortalis vetula intermedia Peters: Chachalaca.—Chachalacas were heard or seen at all localities on the mainland except Sisal.

Specimens (3): ♀, 40416, 423 gm. (July 13), ♀, 40417, 432 gm. (July 15), and ♀, 40418, ovary 12 × 9 mm., 408.5 gm. (July 16), 7½ km. W Escárcega. Mallophaga: *Amyrisidea spicula*, July 16.

Colinus nigrogularis persiccus Van Tyne and Trautman: Black-throated Quail.—These quail were abundant in the arid scrub west of Sisal. Several coveys of half-grown chicks were seen and specimens taken were in full breeding condition. On a two-mile walk on August 18, in the coastal scrub about 5 km. W Sisal, a pair of quail was seen about every 100 paces.

Specimens (4): ♀, 40422, ovum in oviduct 30 x 22 mm., 147.5 gm. (August 10), ♀, 40420, ovum in oviduct 27 mm., 151.7 gm. (August 18), ♂, 40421, testis 9 × 5 mm., 119.6 gm. (August 18), and ♂, 40419, testis 11 × 6 mm., 145.7 gm. (August 18), all from southwest of Sisal.

Laterallus ruber (Sclater and Salvin): Little Red Rail.—Two specimens were taken about 3½ km. N San Miguel, Isla Cozumel, in tall grass. One bird was shot when

flushed; the other was caught in a Museum Special mousetrap. I follow Brodkorb (1943) and Paynter (1955a) who did not recognize subspecies in this species.

Specimens (2): ♀, 40424, ovary 9 × 3 mm., 41.5 gm. (August 8), and ♂, 40423, testis 6 mm., 40.0 gm. (August 11), Isla Cozumel.

Porphyrula martinica (Linnaeus): Purple Gallinule.—A female was taken in the tall grass where red rails were found on Isla Cozumel.

Specimen (1): ♀, 4025, ovary 14 x 7 mm., 169 gm. (August 10), 3½ km. N San Miguel.

Haematopus ostralegus Linnaeus: Oyster-catcher.—Two individuals were seen along the beach about 6 km. W Sisal on August 10 and 11.

Charadrius alexandrinus tenuirostris (Lawrence): Snowy Plover.—This was one of the commonest shorebirds on the beaches and mudflats west of Sisal. Several immature birds were taken, along with a pair of half-grown chicks, indicating the species was breeding, or recently had bred, there. No previous record of this species breeding on the peninsula has been found.

Specimens (6): ♀, 40431, ovary inactive, 38.2 gm. (August 7), 4 mi. S Sisal; ♂, 40426 testis minute, 35.4 gm. (August 9), ♀, 40427, half-grown chick, 25.4 gm. (August 9), ♂, 40428, half-grown chick, 21.2 gm. (August 9), ♀, 40430, imm., 38.0 gm., little fat (August 10), ♀, 40429, ovary inactive, 35.7 gm., little fat, molting—1st through 6th primaries and middle pair of rectrices are new (August 10), all from 13 km. WSW Sisal. Mallophaga: *Actornithophilus ochraceus*, August 9; *Quadraceps assimilis major*, August 7.

Charadrius wilsonia wilsonia Ord: Wilson Plover.—A flock of about 11 was seen on the beach north of the village on Isla Mujeres on August 1. Two specimens were collected on the leeward side of the island about three kilometers south of the village on August 2. The only evidence of breeding was slightly enlarged testes in one male. Two individuals were sighted on the east coast of the mainland at Puerto Juarez on August 4. The species was common 3 to 13 km. west-southwest of Sisal; specimens taken there may have been migrants.

Specimens (5): ♂, 40435, testis 3 × 1 mm., 59.0 gm. (August 2), and ♀, 40436, ovary inactive, 49.3 gm. (August 2), Isla Mujeres; ♀, 40434, ovary inactive, 53.6 gm. (August 7), ♂, 40433, testis 1 mm., 54.5 gm. (August 9), and ♂, 40432, imm., 53.7 gm., little fat (August 11), 3-13 km. WSW Sisal. Mallophaga: *Quadraceps assimilis major*, August 2 and August 11.

Actitis macularia (Linnaeus): Spotted Sandpiper.—A total of six individuals was seen on Isla Mujeres; each was alone. The species was common at Sisal where it was often seen in small mixed flocks with Snowy Plovers and Wilson Plovers.

Specimens (3): ♂, 40437, testis 2 × 1 mm., 33.8 gm. (August 9), ♂, 40438, imm., 28.2 gm. (August 10), and sex? 40439, imm., 31.0 gm. (August 10), 13 km. WSW Sisal. Mallophaga: *Quadraceps ravus*; August 10.

Catoptrophorus semipalmatus inornatus (Brewster): Willet.—A flock of 15 or 20 individuals was seen almost every day of our stay on the beach 8-13 km. WSW of Sisal. Measurements of two of the specimens are large and they are clearly referable to *C. s. inornatus*.

Specimens (3): ♂, 40441, testis 3 mm., 242.3 gm., wing 205 mm., tail 80 mm., tarsus 66 mm., culmen (from feathers) 60 mm. (August 9), ♀, 40440, ovary inactive, 240.5 gm., wing 204 mm., tail 77 mm., tarsus 69 mm., culmen (from feathers) 59 mm. (August 11), and ♂, 40442, imm., 221.1 gm. (August 11) 8-13 km. WSW Sisal. Mallophaga: *Austrominopon sachlebeni*, August 9; *Quadraceps carrikeri*, August 11.

Arenaria interpres (Linnaeus): Turnstone.—Six individuals were sighted on Isla Mujeres on August 1 and one individual was sighted 4 km. W Sisal on August 11.

Crocethia alba (Pallas): Sanderling.—This species was relatively common at Sisal where several flocks of 30 to 40 birds were seen. One specimen (40444) shows an unusual pattern of molt; replacement of outer primaries has preceded that of the inner.

Specimens (4): ♂, 40445, testis 3 × 1 mm., 57.5 gm., heavy fat (August 9), ♀, 40444, ovary granular 6 × 3 mm., 56.7 gm., molting (August 11), ♂, 40443, 35.5 gm. (August 11), and ♀, 40446, imm., 54.1 gm. (August 11), 6½-13 km. WSW Sisal. Mallophaga: *Lunaceps holophaeus actophilus*, August 11; *Carduiceps zonarius*, August 11.

Ereunetes pusillus (Linnaeus): Semipalmated Sandpiper.—The only individual seen was taken from a mixed flock of Sanderlings and Wilson Plovers.

Specimen (1): ♂, 40447, testis minute, 24.4 gm. (August 11), 8 km. WSW Sisal.

Himantopus mexicanus (Müller): Black-necked Stilt.—A lone individual was sighted on Isla Mujeres on August 2. A pair was on the mudflats among mangroves at Sisal, of which the male was taken on August 7. Although Paynter (1955a) indicated that this species probably breeds on the peninsula, there are no definite breeding records. Our specimen had only slightly enlarged testes, but its close association with a female suggested that the pair may have been mated.

Specimen (1): ♂, 40448, testis 7 × 3 mm., 189.4 gm., little fat (August 7), 5 mi. SW Sisal.

Larus atricilla Linnaeus: Laughing Gull.—This species was seen regularly along the coasts of the peninsula.

Specimen (1): ♀, 40449, ovary 7 mm. (inactive), 253 gm. (August 7), 4-3/10 mi. W Sisal. Mallophaga: *Quadraceps* sp.

Sterna albifrons antillarum (Lesson): Least Tern.—A flock of about 20 individuals was seen on Isla Mujeres; two individuals were shot and appear to be the first specimens from the island.

Specimens (2): ♀, 40451, ovary slightly enlarged, 49.0 gm. (August 2); sex? 40450, 41.8 gm. (August 2), Isla Mujeres.

Thalasseus sandvicensis (Latham): Cabot Tern.—Lone individuals were seen several times flying along the coast southwest of Sisal.

Specimen (1): ♂, 40452, 186 gm. (August 11), 13 km. WSW Sisal. Mallophaga: *Saemundssonia brevicernis*.

Patagioenas flavirostris flavirostris (Wagler): Red-billed Pigeon.—This species was seen at all stations except on the islands and in the arid scrub at Sisal. It was especially abundant at Escárcega, Felipe Carrillo Puerto, and Puerto Juarez. The male in breeding condition suggests that the breeding season extends into the summer.

Specimens (5): ♀, 40455, ovary inactive (July 13), ♀, 40456, ovary inactive, (July 13), and ♂, 40457, testis 7 × 5 mm. (July 15), 6-{7½} km. W Escárcega; ♂, 40453, testis 15 × 6 mm., 225.5 gm. (August 16), and ♀, 40454, ovary inactive, 228 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto. Mallophaga: *Columbicola* sp., July 15.

Zenaida aurita yucatanensis Salvadori: Zenaida Dove.—This species was common at Sisal.

Specimens (3): ♀, 40459, imm., 136.5 gm., little fat (August 11), 8 km. SW Sisal; ♀, 40399, 151.2 gm. (August 7), 1½ mi. S Sisal; ♀, 40400, 163.3 gm. (August 18), 2 km. WSW Sisal. Mallophaga: *Columbicola macrouras*, August 7.

Zenaida asiatica Linnaeus: White-winged Dove.—Birds of this species were ubiquitous in the scrub west of Sisal between 10 a.m. and 4 p.m. but inconspicuous at other times. Apparently the birds were from nests, roosts, and watering sites in the taller forest inland.

Columbina passerina pallescens (Baird): Common Ground Dove.—This species was common at almost all collecting localities, but was always outnumbered by the Ruddy Ground Dove. The species was not seen in the vicinity of Escárcega, probably because of the tall forest and lack of clearings there.

Specimens (5): ♂, 40461, testis 10 × 5 mm., 40.9 gm. (August 10), 2 km. WSW Sisal; ♂, 40460, testis 6 × 3 mm. (August 9), and ♀, 40464, ova to 4 mm., 37 gm. (August 9), {3½}-4 km. N San Miguel, Isla Cozumel; ♀, 40463, imm., molting, 35.5 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Columbina talpacoti rufipennis (Bonaparte): Ruddy Ground Dove.—This dove was common at all localities visited. All specimens were in breeding condition.

Specimens (9): ♀, 40472, ova to 3 mm., 45.4 gm. (July 8), ♂, 40468, testis 10 × 5 mm., 50.0 gm (July 8), ♂, 40469, testis 10 × 5 mm., 65.5 gm. (July 8), ♀, 40470, ova to 3 mm., 51.6 gm. (July 8) and ♂, 40471, testis 9 × 5 mm., 57.5 gm. (July 8), all from the vicinity of Puerto Real Isla del

Carmen; ♀, 40467, 57.7 gm., (July 10), 5 km. S Chapotón; ♂, 40473, testis 8 × 5 mm., 53.0 gm. (July 17), 1 km. N, 13 km. W Escárcega; ♀, 40465, ova to 21 mm., 51.8 gm. (July 28); Pueblo Nuevo X-can; ♂, 40466, testis 8 × 4 mm., 46.6 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Claravis pretiosa (Ferrari-Perez): Blue Ground Dove.—This species was seen only at Pueblo Nuevo X-can where a breeding pair was taken on July 29; this record extends the known breeding season by one month (see Paynter, 1955b).

Specimens (2): ♂, 40475, testis 10 × 5 mm., 65.0 gm. (July 29), and ♀, 40474, ova to 9 mm., 68.3 gm. (July 29), Pueblo Nuevo X-can.

Leptotila verreauxi fulviventris Lawrence: White-fronted Dove.—My only records of this species are the two specimens listed below. Both birds had slightly enlarged ovaries and the one from west of Escárcega was molting. Paynter (1955a) recorded breeding from late January to late April.

Specimens (2): ♀, 40476, ova to 2 mm., molting—5th and 6th primaries ensheathed (July 14), 7½ km. W Escárcega; ♀, 40477, ovary 12 × 5 mm., 162 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Leptotila jamaicencis gaumeri (Lawrence): Caribbean Dove.—Two were collected on Isla Cozumel and the several white-fronted doves seen on Isla Mujeres probably were of this species.

Specimens (2): ♂, 40478, testis 9 × 5 mm., 175 gm., molting—4th primaries ensheathed (August 9), and ♀, 40479, imm., 116.7 gm., molting—2nd primaries ensheathed (August 10), 3½ km. N San Miguel.

Oreopeleia montana montana (Linnaeus): Ruddy Quail-dove.—My only record is of a male, in full breeding condition, which extends the known breeding period almost two months.

Specimen (1): ♂, 40480, testis 19 × 8 mm., 144.7 gm. (July 29), Pueblo Nuevo X-can.

Artinga astec astec (Souancé): Aztec Parakeet.—This species was most common in deciduous forest and scrub at Champotón, Pisté, Puerto Juarez, and especially Felipe Carrillo Puerto. Parakeets were extremely wary and only two were collected.

Specimens (2): ♂, 40481, testis 3 × 2 mm., 75.0 gm., molting—extensive body molt, 8th primaries ensheathed, middle pair of rectrices are new (August 16), and ♀, 40482, ovary inactive, 72.4 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Amazona xantholora (Gray): Yellow-lored Parrot.—The species was abundant in the vicinity of Champotón. Large flocks congregated near camp; the birds began to assemble about an hour before dark. One was shot from a flock that flew over our camp and another was taken at night from its roost in a small tree about 10 feet above a trail.

One small flock of *Amazona* was seen 4 km. NNE Felipe Carrillo Puerto. All specimens were molting.

Specimens (3): ♂, 40483, testis 5 × 2 mm., 229.1 gm., molting—extensive body molt, 6th primaries ensheathed (July 9), and ♀, 40484, ovary 13 × 9 mm. (inactive), 209.0 gm., molting—extensive body molt, wing molt complete (July 11), 5 km. S Champotón; ♂, 40485, testis 5 × 2 mm., 210.9 gm., molting—extensive body molt, 7th primaries ensheathed (August 16), 4 km. NNE Felipe Carrillo Puerto.

Amazona albifrons nana Miller: White-fronted Parrot.—This species was common west of Escárcega where large flocks were seen every evening. A specimen of *A. albifrons* was taken south of Champotón where this species occurred in large flocks with *A. xantholora*. One specimen was taken from a small flock near Chichén-Itzá.

Specimens (5): ♂, 40487, testis 8 × 4 mm., 210.0 gm. (July 10), 5 km. S. Champotón; ♀, 40488, ovary inactive, 205.5 gm., molting (July 12), ♂, 40489, 232.5 gm., molting (July 13), and ♀, 40490, ovary inactive, 206.1 gm. (July 14), 7½ km. W Escárcega; ♀, 40486, ovary inactive, 176.0 gm. (July 27), 2 km. E Chichén-Itzá.

Coccyzus americanus americanus (Linnaeus): Yellow-billed Cuckoo.—A female taken at Pisté substantiates Paynter's (1955a) suggestion that the species breeds on the peninsula.

Specimen (1): ♀, 40491, ovary 12 × 9 mm., 58.7 gm., well-developed brood patch (July 22), Pisté.

Coccyzus minor (Gmelin): Mangrove Cuckoo.—In view of the paucity of recent records of this species from the mainland of the peninsula, it is noteworthy that several individuals were seen flying to and from the beach and mangroves late one evening about 4 km. W Sisal.

Piaya cayana thermophila Sclater: Squirrel Cuckoo.—This species was seen at our camps near Champotón, Pisté, Pueblo Nuevo X-can, and Puerto Juarez. The slightly enlarged (probably regressing) testes of males examined seem to be the only evidence of breeding activity in the species on the peninsula.

Specimens (3): ♂, 40493, testis 8 × 6 mm., 99.6 gm. (July 14), and ♀, 40494, 90.0 gm. (July 14), 7½ km. W Escárcega; ♂, 40492, testis 5 × 2 mm., 97.5 gm., molting (August 14), 4 km. NNE Felipe Carrillo Puerto.

Crotophaga sulcirostris sulcirostris Swainson: Grove-billed Ani.—Three half-grown juveniles were taken at Pisté and a pair in breeding condition was taken at Pueblo Nuevo X-can. These seem to be the first breeding records from the peninsula.

Specimens (5): ♂, 40495, juv., 39.9 gm. (July 21), ♂, 40496, juv., 39.5 gm. (July 21), and ♀, 40497, juv., 30.0 gm. (July 21), Pisté; ♂, 40498, testis 11 × 4 mm., 72.2 gm. (July 28), and ♀, 40499, ova to 7 mm., 70.0 gm. (July 28), Pueblo Nuevo X-can.

Crotophaga ani Linnaeus: Smooth-billed Ani.—The female taken on Isla Cozumel had a slightly enlarged ovary and had been banded (USFWS band no. 524-96303) on the island in 1961 as an adult.

Specimen (1): ♀, 40500, ovary 11 × 7 mm., 86 gm., molting (August 4), 3½ km. N San Miguel.

Glaucidium brasilianum ridgwayi Sharpe: Streaked Pygmy Owl.—A female (40501) was taken by a local boy at Pueblo Nuevo X-can on July 29 weighed 62 gm. and the ovary (7 × 3 mm.) was inactive.

Ciccaba virgata centralis Griscom: Squamulated Owl.—Our only specimen, a female (40502) weighing 288.7 gm. and having an inactive ovary (13 × 4 mm.), was taken at night on July 16 from a mist net stretched across a small trail 1 km. N, 13 km. W Escárcega.

Nyctibius griseus mexicanus Nelson: Mexican Potoo.—One specimen was taken at night 7½ km. W Escárcega where it was found sitting on the limb of a large dead tree. A light but steady rain was falling at the time. On the night of August 16 along a stretch of newly-constructed road 4-16 km. NNE Felipe Carrillo Puerto, 27 potoos were seen, their large and brilliant, amber-colored eyes first appearing in the headlights several hundred yards ahead of our vehicle. All of the birds were perched between 30 and 60 feet above the ground on dead limbs of large trees, and all were perched on the same side of the road facing the light of a full moon. None was less than 200 meters from the next; few flew at the approach of our vehicle. In addition to one specimen taken along the road, another was taken from a fence post in a *milpa* on the same night. It was approached close enough to be shot with a 22 caliber pistol loaded with dust-shot. All specimens had thick layers of subcutaneous and visceral fat and their gonads were small and seemingly inactive.

Specimens (3): sex? 40505 (July 13) 7½ km. W Escárcega; ♀, 40504, ovary 13 × 4 mm. (inactive), 265 gm. (August 16), and ♂, 40503, testis 5 × 3 mm., 320.5 gm. (August 16) 4 km. NNE Felipe Carrillo Puerto.

Chordeiles acutipennis micromeris Oberholser: Trilling Nighthawk.—This species was common in the arid coastal scrub west of Sisal, where hundreds could be seen flying every evening. They were common also at Puerto Juarez, but uncommon at Felipe Carrillo Puerto.

Specimens (2): ♂, 40506, testis 5 × 3 mm., 57.3 gm. (August 1), 5 km. WSW Puerto Juarez; ♀, 40507, ovary 4 × 3 mm. (inactive), 37.0 gm. (August 16), km. NNE Felipe Carrillo Puerto.

Nyctidromus albicollis yucatanensis Nelson: Parauque.—This species was especially common in the vicinity of Felipe Carrillo Puerto and on Isla Cozumel, and was seen at every collecting locality. A flightless, juvenal female was obtained by local boys at

Pisté on July 21. Therefore the reproduction period seems to be longer than Paynter's (1955a:141) data suggested.

Specimens (5): ♂, 40512, testis 7 × 3 mm., 75 gm. (July 10), 5 km. S Champotón; ♀, 40508, juv. (remiges and rectrices ensheathed basally), 44.2 gm. (July 21), Pisté; sex? 40510, 55.5 gm. (August 8), and ♂, 40509, testis 3 × 1 mm., 73.5 gm., molting—outermost two pairs of primaries ensheathed (August 10); 3½ km. N San Miguel, Isla Cozumel; ♂, 40511, 72.9 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Caprimulgus salvini badius (Bangs and Peck): Salvin's Whip-poor-will.—My only record of this species is provided by a female (40513) taken 3½ km. N San Miguel, Isla Cozumel, on August 8. The specimen weighed 58 grams, had an inactive ovary (6 × 4 mm.), and was molting (8th and 9th primaries ensheathed).

Chateura vauxi gaumeri Lawrence: Vaux Swift.—This species was seen at almost every locality visited. The only specimens obtained were brought in by a boy at Pueblo Nuevo X-can on July 30; he said he captured them in his house. Two of them were adults and four were fully-feathered young-of-the-year.

Specimens (6): ♂, 40516, testis 4 × 2 mm., ♀, 40519, ovary inactive, ♂, 40514, juv., 12.6 gm., ♂, 40515, juv., ♀, 40517, juv., and ♀, 40518, juv. (July 30) Pueblo Nuevo X-can.

Campylopterus curvipennis pampa (Lesson): Saber-wing.—A female (40522), shot 7½, km. W Escárcega on July 16, seems to provide the first record of breeding (ovum 6 mm. in oviduct) by this species on the peninsula. A non-breeding female (40521) that weighed 5.0 gms. was taken 4 km. NNE Felipe Carrillo Puerto on August 14.

Chlorostilbon canivetii canivetii (Lesson): Canivet Emerald.—This bird was seen at all localities at which we collected on the mainland.

Specimens (4): ♀, 40530, ovary moderately active, 3.0 gm. (July 22), ♂, 40525, 2.1 gm. (July 23), and sex? 40526, 2.9 gm. (July 25), Pisté; ♀, 40529, ovary inactive, 2.4 gm. (July 26), 3½ km. N Pisté.

Chlorostilbon canivetii forificatus Ridgway: Canivet Emerald.—The specimen is slightly larger than those taken on the mainland and is clearly referable to *C. c. forificatus*, a subspecies endemic to Isla Cozumel.

Specimen (1): ♀, 40534, ovary inactive, 2.8 gm. (August 8), 3½ km. N San Miguel, Isla Cozumel.

Amazilia candida candida (Bourcier and Mulsant): White-bellied Emerald.—This species seemed to be the commonest hummingbird at most localities on the mainland. However, it was not seen along the coasts.

Specimens (5): ♂, 40535, testis 3 mm., 2.9 gm. (July 12), and ♂, 40536, testis 2 mm., 3.6 gm. (July 14), 7½ km. W Escárcega; ♂, 40531, testis 2 mm., 4.3 gm. (July 28), ♂, 40532, 3.8 gm. (July 28), and ♀, 40533, ovary inactive, 3.9 gm. (July 29), Pueblo Nuevo X-can.

Amazilia rutila (DeLattre): Cinnamomeous Hummingbird.—In addition to the two localities from which specimens were taken, several individuals were seen near the airstrip at Puerto Juarez.

Specimens (2): ♀, 40538, ovary inactive, 4.1 gm. (July 30), 1½ km. S, 1 km. E Pueblo Nuevo X-can; ♂, 40539, testis 2 mm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Amazilia yucatanensis (Cabot): Yucatán Hummingbird.—Many of these hummingbirds were seen among the coco palms on Isla del Carmen. A female taken on August 14 with a moderately enlarged ovary may indicate that the breeding season extends well into the summer.

Specimens (4): ♂, 40540, testis 2 mm., 4.7 gm. (July 7), ♀, 40541, ovary inactive, 3.0 gm. (July 8), and ♂, 40543, 3.0 gm. (July 8); 1 km. SW Puerto Real, Isla del Carmen; ♀, 40542, ovary 6 × 2 mm. (ova to 1 mm.), 2.9 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Trogon citreolus melanocephala Gould: Citreoline Trogon.—This species was heard or seen at all localities where deciduous forest was present.

Specimens (7): ♀, 40557, ovary 14 × 8 mm. (ova to 2 mm.), brood patch, 72.5 gm. (July 16), and ♂, 40558, 66.5 gm. (July 16), 7½ km. W Escárcega; ♂, 40553, 74.0 gm. (August 1), ♀, 40552, 74 gm. (August 1), ♀, 40554, ova to 3 mm. (August 2), and ♂, 40555, 76.2 gm. (August 2), 4 km. WSW Puerto Juarez; ♀, 40556, 76.4 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Chloroceryle americana septentrionalis (Sharpe): Green Kingfisher.—My only specimen is a male (40559) shot near a large aguada at Rancho San Miguel, 4 km. NNE Felipe Carrillo Puerto on August 16. The specimen weighed 40.5 gm.

Ceryle torquata (Linnaeus): Ringed Kingfisher.—Paynter (1955a:154) noted that this "species has not been recorded from Yucatán but it is undoubtedly present, at least in the sheltered lagoon behind the barrier bar." A single individual was seen in one of these lagoons on August 9 and 10.

Eumomota superciliosa superciliosa (Sandbach): Turquoise-browed Motmot.—On July 9 this species was nesting in a large "colony" 5 km. S Champotón, Campéche, in a large abandoned gravel pit having vertical banks about 10 feet high. The pit was an irregular semicircle with an approximate radius of 100 yards and was bordered by a road on one side and elsewhere by low scrub vegetation. The pit was one of several found in the area and formerly was used as a source of limestone gravel used in constructing the road between Champotón and Escárcega. The exposed limestone substratum was overlaid with chalky soil six to eight feet deep.

Motmots were nesting in burrows dug in the layer of surface soil. A total of 101 burrows seemed to be in use or to have been used in 1962. Nine appeared to be unused and 24 burrows evidently were abandoned before they were finished. The depths of 12 burrows selected at random were 34, 32, 37, 25, 28, 44, 36, 36, 24, 37, 22, and 43 inches, and

averaged 33.4 inches. In cross-section the burrows varied from round (three inches in diameter) to oval (three inches high and four inches wide). The inner ends of the burrows were enlarged with a depression in the floor, where the eggs were laid.

The long axes of most burrows were straight and perpendicular to the face of the bank in which they were dug; two burrows nevertheless were curved laterally, and one was U-shaped, having two entrances that opened about 12 inches apart.

Eggs and nestlings were found lying on the bare soil at the inner ends of the burrows; no nesting material was found.

The contents of 10 burrows that were excavated are summarized in Table 1. Three nests contained no eggs or young. One of these was freshly dug. The other two empty burrows apparently had been recently occupied by nestlings and contained the foul smelling remains of fecal material, hundreds of beetle wings, and other undigestible parts of insects. The manure was teeming with large fly larvae.

TABLE 1. Contents of 10 burrows of Turquoise-browed Motmots.

Burrow	Fresh	Eggs	Nestlings	Post-fledgling
1	*			
2		4		
3		3		
4		4		
5		1	3	
6			4	
7			1	
8	x			
9				*
10				*

* Nothing.

x Broken egg shells.

Three burrows contained nestlings; one had four young with pin feathers, one a chick fully feathered, and one three newly hatched young and one egg.

In burrow 2, three eggs had advanced embryos and one was infertile; in burrow 3, the eggs had small embryos; and in burrow 4, the eggs appeared fresh. Burrows 3 and 4 were occupied by adult birds that did not flush during the excavation of their burrows. They were easily caught by hand and later prepared as specimens. One was a male and the other a female; each had a brood patch.

Possibly females of this species raise more than one brood in a single nesting season, but I have no direct evidence of this. Such an hypothesis is suggested by the different stages of nestings found in the burrows. Moreover, there were more than twice as many burrows as motmots in the area. The largest number of individuals counted at any time near the colony was 20 adults (about an hour after sunrise). Assuming that all of these birds had mates, the maximum number of adults present could have numbered about 40.

There is another bit of evidence for double broods. Because of fouling of the burrow that accompanies the raising of a brood of young, it seems improbable that a burrow would be used immediately for a second nesting attempt. Consequently digging a second burrow would be necessary, if a second brood is raised.

Most of my observations are in keeping with Skutch's detailed report (1947) of the species in Central America. According to him, eggs are laid in April and May in Honduras and Guatamala, although he did not state that breeding does not occur in other months. The observations in Campeche in early July suggest that breeding can occur over an extended period; Paynter (1955a:158) found the species to be in various stages of reproductive activity in April on the peninsula.

Skutch suggested that the motmots he observed in Central America were solitary nesters, and nest in "groups" only where suitable nesting sites are scarce. In Campeche, many suitable, seemingly identical, but unused, nesting sites were available within a few hundred yards of the site of the actual nesting "colony." Moreover, most of the burrows were only a few feet apart and no agonistic behavior was witnessed. It seems that this motmot is characterized by colonial nesting habits in Campeche, even where abundant sites for individual nesting efforts are available.

The species was abundant around the *cenotes* at Chichén-Itzá; adults with enlarged gonads and brood patches and juveniles were taken at Pisté as late as July 21.

Specimens (19): ♂, 40565, brood patch, 59.4 gm. (July 9), ♂, 40564, testis 8 × 4 mm., brood patch, 68.0 gm. (July 9), ♂, 40566, 74 gm. (July 9), ♀, 40567, juv. (July 9), ♂, 40568, testis 5 × 3 mm., 68.3 gm. (July 10), ♂, 40578, 59.5 gm. (July 11), and ♀, 40577, ova to 2 mm., brood patch, 65.2 gm. (July 11), all from 5 km. S Champotón; ♂, 40560, 43.6 gm. (July 20), ♀, 40562, brood patch, 55 gm. (July 21), sex? 40561, 64 gm. (July 21), and ♀, 40563, juv. (July 22), Pisté. Eight nestlings

(40569-76) that were taken from burrows at 5 km. S Champotón on July 11 had the following weights: 42.4 gm., 39.7 gm., 38.5 gm., 12.2 gm., 40.0 gm., 30.7 gm., 26.8 gm., 19.0 gm. Mallophaga: *Philopterus* sp., July 9.

Momotus momota lessonii Lesson: Blue-crowned Motmot.—For convenience, the specimens from 5 km. S Champotón are assigned to *M. m. lessonii* on the basis of measurements (wing 139 mm., tail 240 mm., culmen [from feathers] 41.0 mm.) taken on one specimen (40579), which are within the limits of the subspecies as described by Ridgway (1914). Two other specimens from that locality were prepared as skeletons and their weights are essentially the same as those Paynter (1955a) recorded for *M. m. lessonii*. According to Paynter, there is a southward clinal increase in size in this species between the smaller *M. m. exiguus* in the northern part of the peninsula and *M. m. lessonii* in the extreme southern part. A more extensive series of specimens from the vicinity of Champotón probably would reveal a population intermediate in size between the typical representatives of the two races.

Specimens (3): ♀, 40579, 105 gm. (July 10), ♀, 40581, 98.9 gm. (July 11), ♂, 40580, 102.5 gm. (July 11), 5 km. S Champotón.

Pteroglossus torquatus erythrozonus Ridgway: Collared Aracari.—A male taken at Pueblo Nuevo X-can on July 27 and a female from 4 km. NNE Felipe Carrillo Puerto on August 15 had slightly enlarged gonads, which probably were regressing. Apparently these are the first indications of breeding activity for this species on the peninsula.

Specimens (5): ♂, 40586, testis 4 × 2 mm., 155 gm. (July 16), 7½ km. W Escárcega; ♂, 40582, testis 10 × 5 mm., 169.1 gm. (July 27), and ♀, 40583, ovary inactive, 137.3 gm. (July 29), Pueblo Nuevo X-can; ♀, 40584, ovary 10 × 6 mm., 169.5 gm. (August 15), and sex? 40585, 148.9 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Rhamphastos sulfuratus sulfuratus Lesson: Keel-billed Toucan.—This species was especially common west of Escárcega, where it was most often seen in small flocks of less than 10 birds. Presumably breeding had already occurred; four specimens had inactive gonads.

Specimens (7): ♀, 40589, 367.3 gm. (July 12), ♂, 40588, testis 8 × 3 mm., 414.5 gm. (July 14), ♀, 40590, ovary 11 mm., 347.4 gm. (July 15), ♂, 40591, testis 5 × 3 mm., 371 gm. (July 15), ♂, 40593, testis 6 × 3 mm., 422.2 gm. (July 16) and ♂, 40592, 401.5 gm. (July 16), 6-7½ km. W Escárcega; ♀, 40587, 395.5 gm. (July 28), Pueblo Nuevo X-can.

Piculus rubiginosus yucatanensis (Cabot): Red-capped Green Woodpecker.—Specimen (1): ♀, 40594, ovary inactive (7 × 4 mm.), extensive body molt, 67.7 gm. (August 17), 4 km. NNE Felipe Carrillo Puerto. Mallophaga: *Penerirmus* sp.

Drycopus lineatus similis (Lesson): Lineated Woodpecker.—Specimen (1): ♂, 40595, molting, 141.2 gm. (July 15), 7½ km. W Escárcega.

Centurus aurifrons dubius (Cabot): Golden-fronted Woodpecker.—The gonads were moderately enlarged in several of the specimens taken in the first half of July. The plumage was much worn in all specimens and some were in early stages of molt. Apparently the breeding season on the peninsula extends to at least mid-July. The specimen from Isla Cozumel is assigned to *C. a. dubius*, following the systematic treatment by Selander and Giller (1963).

Specimens (10): sex? 40602, 75.0 gm. (July 8), and ♀, 40601, ovary 6 × 3 mm. (enlarged oviduct), 76.4 gm. (July 10), 1 km. S Puerto Real, Isla del Carmen; ♂, 40599, testis 6 × 8 mm., 101.3 gm. (July 10), and ♂, 40600, 86.0 gm. (July 11), 5 km. S Champotón; ♂, 40603, testis 5 × 3 mm. (July 14), and ♀, 40604, ovary 6 × 4 mm. (ova to 1 mm.), brood patch (July 16), 7½ km. W Escárcega; sex? 40596, molting, much visceral fat, 79.0 gm. (July 22), Pisté; ♀, 40597, 73.7 gm. (July 28), Pueblo Nuevo X-can; ♀, 40598, 79.6 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto; ♂, 40605, testis inactive, molting, much visceral fat (August 8), 3.5 km. N San Miguel, Isla Cozumel.

Centurus pygmaeus (Peters): Yucatán Woodpecker.—Paynter (1955a:166) reported evidence of breeding in this species on April 3 and May 23; a male having enlarged testes was taken on July 10.

Specimens (5): ♂, 40608, testis 6 × 4 mm. (July 10); ♀, 40607, 39.5 gm. (July 10), 5 km. S Champotón; ♂, 40609, testis inactive, 35.8 gm., moderate visceral fat (July 17), 1 km. N, 13 km. W Escárcega; ♀, 40606, ovary 6 × 4 mm. (inactive), 37.0 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto; ♂, 40610, testis inactive, heavy visceral and subcutaneous fat, 41.6 gm., (August 10), 3½ km. N San Miguel, Isla Cozumel.

Phloeoceastes guatemalensis guatemalensis (Hartlaub): Guatemalan Ivory-billed Woodpecker.—Specimens (4): ♂, 40611, right testis 2 mm., left testis vestigial, 203.7 gm. (July 23), Pisté; 40612, sex? 212 gm., (July 28), and ♀, 40613, 218.1 gm. (July 30), Pueblo Nuevo X-can; ♀, 40614, 189.2 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Dendrocincla anabatina (Sclater): Tawny-winged Woodhewer.—Specimen (1): ♂, 40615, testis 2 × 1 mm., 35.7 gm., molting—5th primaries and middle pair of rectrices ensheathed (July 17), 1 km. N, 13 km. W Escárcega.

Dendrocincla homochroa homochroa (Sclater): Ruddy Woodhewer.—May 20 seems to be the only previous date of record for breeding in this species (Paynter, 1955a:171); our specimen extends the known season nearly three months.

Specimen (1): ♀, 40616, ovary 13 × 6 mm. (ova to 2 mm.), brood patch, 35.1 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Sittasomus griseicapillus (Vieillot): Olivaceous Woodcreeper.—Specimens (2): ♂, 40617, juv., 11.2 gm. (July 26), Pisté; ♀, 40618, ovary inactive, 10.5 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Xiphorhynchus flavigaster (Swainson): Ivory-billed Woodcreeper.—According to Paynter (1955a:173), indications of breeding have been observed in specimens of this species taken between March 27 and June 5. A male taken on August 15 had moderately enlarged (probably regressing) testes and was well into the molt.

Specimen (1): ♂, 40619, testis 5 × 3 mm., 51.5 gm., molting—5th primaries and middle pair of rectrices ensheathed (August 15), 4 km. NNE Felipe Carrillo Puerto.

Lepidocolaptes souleyetii (Des Murs): Streak-headed Woodhewer.—This appears to be the second specimen recorded from the peninsula (see Traylor, 1941).

Specimen (1): ♂, 40621, testis 3 × 1 mm., 26.6 gm., molting—6th primaries ensheathed, middle pair of rectrices are new (July 17), 1 km. N, 13 km. W Escárcega.

Synallaxis erythrothorax Sclater: Rufous-breasted Spinetail.—Specimen (1): ♂, 40622, imm. skull, 16.1 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Thamnophilus doliatus (Linnaeus): Barred Antshrike.—Specimen (1): ♀, 40623, ovary 8 × 5 mm. (inactive), 26 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Formicarius analis (d'Orbigny and Lafresnaye): Black-chinned Antthrush.—Specimen (1): ♂, 40624, 56.0 gm. (July 29), Pueblo Nuevo X-can.

Pachyramphus major itzensis Nelson: Mexican Becard.—Previous records of breeding in this species are provided by a female obtained on July 12 (Paynter, 1955a:182) and a male taken on June 9 (Paynter, 1955b).

Specimen (1): ♂, 40625, testis 9 × 5 mm., 22.1 gm. (July 21), Pisté.

Platypsaris aglaiae (Lafresnaye): Rose-throated Becard.—All specimens have extensively worn plumage.

Specimens (3): ♂, 40628, 33.5 gm. (July 10), 5 km. S Champotón; ♀, 40626, ovary 6 × 3 mm., brood patch, 34.0 gm. (July 20), ♀, 40627, ovary inactive, 33.9 gm. (July 26); 3½ km. N and 6½ km. W Pisté.

Tityra semifasciata personata Jardine and Selby: Masked Tityra.—Previously, breeding information for this species has been available only for March (Paynter, 1955a:184). Adults were observed feeding young fledglings 7½ km. W Escárcega on July 15, and a juvenile was taken. Gonads of males were in full breeding condition.

Specimens (5): ♂, 40630, testis 13 × 6 mm., 81.3 gm. (July 14), sex? 40631, juv., 55.5 gm. (July 15), ♂, 40632, testis 9 × 5 mm., 73 gm., molting—1st and 2nd primaries ensheathed (July 15), and ♀, 40633, 84.7 gm. (July 16), 7½ km. W Escárcega; ♀, 40629, ova to 1 mm., 80.0 gm. (July 23), Pisté.

Erator inquisitor fraserii (Kaup): Black-capped Tityra.—Breeding has been recorded by Paynter (1955a:185) on April 26. A moderately enlarged testis (probably regressing) was noted in the specimen from Pisté, on July 21.

Specimens (2): ♀, 40635, 51.8 gm. (July 15), 7½ km. W Escárcega; ♂, 40634, testis 6 mm., 51 gm., molting—6th primaries ensheathed (July 21), Pisté.

Pipra mentalis mentalis Sclater: Red-capped Manakin.—The specimens here reported seem to be the first from the peninsula in which reproductive activity has been recorded.

Specimens (2): ♂, 40637, testis 5 × 3 mm., 14.0 gm. (July 29), Pueblo Nuevo X-can; ♂, 40636, testis 5 × 2 mm., 14.6 gm. (August 3), 4 km. WSW Puerto Juarez.

Pyrocephalus rubinus (Boddaert): Vermillion Flycatcher.—This species was seen only in the arid scrub 2-13 km. WSW of Sisal. Breeding seemingly had ended by early August, as evidenced by four adults that showed no gonadal activity and were in advanced stages of molt.

Specimens (5): ♀, 40638, juv., 12.1 gm. (August 7), 1½ mi. S Sisal; ♀, 40640, ovary inactive, 14.1 gm., molting—6th primaries ensheathed (August 10), ♀, 40641, ovary inactive, 13.9 gm., molting—7th primaries ensheathed (August 10), and ♂, 40642, testis 2 mm., 14.6 gm., molting—5th primaries ensheathed (August 10), 13 km. WSW Sisal; ♀, 40639, testis 1 mm., 14.0 gm., molting—7th primaries ensheathed (August 18), 2 km. SW Sisal.

Tyrannus melancholicus chloronotus Berlepsch: Tropical Kingbird.—Most specimens were molting. A male and two females from Pisté taken on July 21 and a female from Pueblo Nuevo X-can (July 29) had slightly enlarged (probably regressing) gonads. Three immatures were collected and adults were seen feeding young fledglings at Pisté. There seems to be no other breeding records from the peninsula.

Specimens (10): ♀, 40650, 42 gm., (July 10), 5 km. S Champotón; ♀, 40752, ovary inactive, 43.4 gm., molting—4th primaries ensheathed (July 14), and ♂, 40651, imm., 42.5 gm. (July 15), 6-7½/# km. W Escárcega; ♀, 40645, ovary slightly enlarged (8 × 3 mm.), 47.5 gm. (July 21), ♀, 40643, ova to 1 mm., 39.3 gm. (July 21), ♂, 40644, testis 10 × 7 mm., 43.1 gm., starting to molt—1st primaries ensheathed (July 21), and ♀, 40646, imm., (July 26), Pisté; ♀, 40648, ova to 1 mm., 37.4 gm. (July 29), Pueblo Nuevo X-can; ♂, 40647, imm., 38.4 gm. (August 14), and ♀, 40649, 44.4 gm., molting—only outer 3 pairs of rectrices present and are ensheathed basally, 6th and 7th primaries ensheathed (August 15), 4 km. NNE Felipe Carrillo Puerto.

Myiodynastes luteiventris luteiventris Sclater: Sulfur-bellied Flycatcher.—The latest breeding record given by Paynter (1955a:191) is for the last week in June. A male taken on July 31 had enlarged testes. None of the following specimens was in the process of molt.

Specimens (4): ♀, 40655, 44.5 gm. (July 10), 5 km. S Champotón; ♀, 40656, ovary slightly enlarged (8 × 4 mm.), 47.0 gm. (July 15), 7½ km. W Escárcega; ♀, 40654, testis 10 × 4 mm., 39 gm. (July 31), Pueblo Nuevo X-can.

Megarhynchus pitangua mexicanus (Lafresnaye): Boat-billed Flycatcher.—I know of no previous breeding record for this species on the peninsula. The female obtained on July 25 was observed feeding young.

Specimens (2): ♀, 40658, 57.6 gm. (July 11), 5 km. S Champotón; ♀, 40657, ovary 10 × 5 mm., 59.8 gm. (July 25), Cenote Seco, 2 km. E Chichén-Itzá.

Myiozetetes similis texensis (Giraud): Vermilion-crowned Flycatcher.—Paynter (1955a:192) reported this species breeding in mid-May. A male taken on July 17 west of Escárcega had enlarged (probably regressing) testes and indicates breeding later than May.

Specimens (3): ♂, 40660, testis 6 × 3 mm., 32.0 gm. (July 17), and sex? 40661, 33.8 gm., molting—5th primaries ensheathed (July 17), 1 km. N, 13 km. W Escárcega; ♂, 40659, imm., testis 2 × 1 mm., 27.6 gm. (July 29), Pueblo Nuevo X-can.

Pitangus sulphuratus guatimalensis (Lafresnaye): Great Kiskadee.—Apparently our specimens, which were in the late stages of breeding, are the first evidence of reproduction for the species on the peninsula.

Specimens (4): ♀, 40663, ova to 1 mm., 50.7 gm. (July 9), and ♂, 40664, right testis 12 mm., 65.0 gm., body feathers in early stages of molt (July 9), 5 km. S Champotón; ♂, 40665, testis 5 mm., 61.9 gm., molting—middle pair of rectrices are new, 6th primaries ensheathed (July 15), 7½ km. W Escárcega; sex? 40662, 59.5 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto. Mallophaga: *Philopterus* sp.

Myiarchus tyrannulus cooperi Baird: Wied Flycatcher.—This species was especially common among the coco palms on Isla del Carmen and Isla Cozumel.

Specimens (5): ♂, 40667, 36.7 gm. (July 8), ♂, 40668, 36.6 gm. (July 8), sex? 40669, 39.4 gm. (July 8), and ♀, 40670, 37.3 gm. (July 8), all from 1 km. SW Puerto Real, Isla del Carmen; ♀, 40666, ovary inactive, 34.9 gm. (August 10), 3 km. N San Miguel, Isla Cozumel.

Myiarchus tuberculifer platyrhynchus Ridgway: Olivaceous Flycatcher.—Breeding specimens of this species have been known previously from April and May (Paynter, 1955a:196); records listed beyond extend the season nearly three months.

Specimens (7): ♀, 40673, ova to 5 mm. (July 10), and ♀, 40674, ovary 7 × 3 mm. (ova to 1 mm.) (July 11), 5 km. SW Champotón; ♀, 40745, ovary inactive, 17.5 gm., starting to molt—1st, 2nd, and 3rd primaries ensheathed (July 16), 7½ km. W Escárcega; ♀, 40671, imm., 16.1 gm. (July 20) Cenote Seco, 2 km. E Chichén-Itzá; ♂, 40746, 18.2 gm. (July 22), Pisté; ♀, 40672, ovary inactive, 17.7 gm., molting—5th and 6th primaries and 1st secondaries ensheathed (August 15), 4 km. NNE

Felipe Carrillo Puerto; ♂, 40675, left testis 13 mm., right testis 10 mm., 17.5 gm. (August 8), 3½ km. N San Miguel, Isla Cozumel.

Contopus cinereus (Spix): Tropical Pewee.—The regressing gonads of the male taken on July 21 in an early stage of molt suggests breeding on the peninsula.

Specimens (2): ♂, 40676 testis 6 × 3 mm., 11.5 gm., starting to molt—1st and 2nd primaries ensheathed (July 21), 6½ km. W Pisté; ♂, 40677, testis 1 mm., 12.6 mm., molting—4th, 5th, and 6th primaries and 2nd secondaries ensheathed (August 14), 4 km. NNE Felipe Carrillo Puerto.

Tolmomyias sulphurescens (Spix): Sulphury Flat-Billed Flycatcher.—Paynter (1955a:201) presented breeding records for this species from mid-April to late June. My specimens seem to indicate that breeding extends at least into July.

Specimens (6): ♀, 40683, juv., 14.0 gm. (July 21), ♂, 40684, juv. (remiges and rectrices ensheathed basally), 14.0 gm. (July 21), and ♂, 40682, testis 8 × 4 mm., 13.7 gm. (July 26), Pisté and 3½ km. N Pisté; ♂, 40685, testis 7 × 4 mm., 15.3 gm., molting—1st and 2nd primaries ensheathed (July 28), and ♀, 40686, ovary inactive (July 28), Pueblo Nuevo X-can; ♂, 40687, imm., 16.0 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto. Mallophaga: *Philopterus* sp. July 28; *Myrsidea* sp. July 28.

Myiopagis veridicata (Vieillot): Yellow-crowned Elaenia.—The only previous breeding record is of a male that was taken on April 29. My only specimen has nearly fully enlarged testes.

Specimen (1): ♂, 40688, testis 7 × 4 mm., 13.1 gm. (July 17), 1 km. N, 13 km. W Escárcega.

Progne subis subis (Linnaeus): Purple Martin.—A large migrant flock of several thousand individuals of this species was present for several days in August at Rancho San Miguel.

Specimens (3): ♀, 40723, ovary inactive, 48.6 gm. (August 14), ♀, 40724, 51.8 gm. (August 17), and ♀, 40725, imm. skull, 52.1 gm. (August 17), 4 km. NNE Felipe Carrillo Puerto.

Petrochelidon fulva citata Van Tyne: Cave Swallow.—Throughout our stay at Pisté, large numbers of Cave Swallows were seen flying in and out of the small opening of a well-like *cenote* in the center of the village. Specimens were easily collected in a mist net placed across the opening. No young Cave Swallows were taken and gonads of adults were in various stages of reproductive activity. A few individuals taken were beginning to molt. Probably the swallows were nesting in the *cenote* although the nests were inaccessible to view. Previous breeding records are for April (Paynter, 1955a:209).

Twenty-two specimens were collected, of which the following were taken at Pisté, July 21-25: ♂, 40693, testis 6 × 3 mm., 18.4 gm.; ♂, 40696, 16.4 gm.; ♀, 40697, 18.2 gm.; ♂, 40695, 15.0 gm.; ♀, 40690, ovary inactive, 18.4 gm., molting—2nd primaries ensheathed; ♂, 40692, testis 5 × 3 mm., 17.9 gm.; ♀, 40698, 18.3 gm.; ♀, 40702, ovary

7 × 3 mm., 18.9 gm.; ♀, 40703, ovary 6 × 3 mm., 17.5 gm.; ♂, 40713, testis 3 mm., 18.4 gm.; ♀, 40704, 16.5 gm.; ♂, 40705, 20.3 gm.; ♂, 40699, testis 2 mm., 18.6 gm., molting—2nd primaries ensheathed; ♀, 40700, ovary 5 × 3 mm., 18.5 gm., molting—1st primaries ensheathed; ♀, 40701, ovary 5 × 3 mm., 16.5 gm., molting—1st primaries ensheathed; ♂, 40707, testis 7 × 5 mm., 19.9; ♂, 40708, testis 4 × 3 mm., 18.4 gm.; ♀, 40709, ovary 4 × 3 mm., 18.0 gm.; sex? 40711, 18.3 gm., molting—1st and 2nd primaries ensheathed.

Additional specimens are: ♀, 40718, 16.5 gm., molting—3rd primaries ensheathed (August 16), and ♀, 40719, 18.5 gm., molting 1st primaries ensheathed (August 16), 4 km. NNE Felipe Carrillo Puerto; ♂, 40689, testis 1 mm., 16.2 gm., molting—2nd primaries ensheathed (August 10), 13 km. WSW Sisal. Mallophaga: *Philopterus excisus*, July 21; *Myrsidea* sp. July 21 and 25.

Stelgidopteryx ruficollis Audubon: Rough-winged Swallow.—Previous records indicate that three subspecies of this species occur on the Yucatán Peninsula (Paynter, 1955a:209). One of these, *S. r. ridgwayi*, is resident. *S. r. serripennis*, representing the breeding population occurring from British Columbia and New Hampshire over much of the United States to central California, central Texas, and the Gulf states, has been taken on the peninsula in winter. Paynter referred two specimens taken in late September and three January-taken specimens to *S. r. stuarti*, the highland race that breeds from the mountains of southern Veracruz to Guatamala.

Allan R. Phillips had identified two immature individuals (40694 and 40712) from Pisté as *S. r. stuarti*; one specimen from Puerto Juarez also is an immature and is nearly identical to those from Pisté. Two adults from Pisté (40691 and 40710) are noticeably darker dorsally than the immatures but are molting extensively and their identification to subspecies is equivocal. Two other adults (40706 and 40715) were prepared as skeletons.

Although mid-July seems early for *S. r. stuarti* to be present on the peninsula it is not too surprising since the three specimens positively identified are immature birds and young possibly arrive earlier than do adults. But, the immature specimens possibly are atypical individuals of the resident population of *S. r. ridgwayi*.

Except for the immature individual from 5 km. WSW Puerto Juarez, all specimens were taken in mist nets over the *cenote* at Pisté where *Petrochelidon fulva* also was obtained.

Specimens (7): ♂, 40694, imm., 16.2 gm., ♀, 40691, ovary inactive, 16.4 gm., molting—general body molt, 5th primaries and middle pair of rectrices ensheathed, ♀, 40712, imm., 14.5 gm., ♀, 40706, 14.8 gm., ♂, 40715, 16.4 gm., ♂, 40710, 18.5 gm., molting—general body molt, 1st primaries and middle pair of rectrices ensheathed, all from Pisté, July 21 and 25; ♂, 40720, imm., 15.5 gm. (August 1), 5 km. WSW Puerto Juarez.

Hirundo rustica erythrogaster Boddaert: Barn Swallow.—Specimen (1): ♀, 40721, imm., 7.3 gm. (August 18), apparently an early migrant, 2 km. WSW Sisal.

Iridoprocne albilinea (Lawrence): Mangrove Swallow.—Specimen (1): ♀, 40722, imm. (July 7), Puerto Real, Isla del Carmen.

Cissilopha yucatanica (Dubois): Yucatán Jay.—Heretofore, breeding activity has been recorded only in March (Paynter, 1955a:217). All specimens in my collection have extensively worn plumage and were beginning to molt.

Specimens (6): ♂, 40726, left testis 9 × 7 mm., right testis 4 × 2 mm., brood patch, 122.3 gm., molting—1st and 2nd primaries ensheathed (July 10), 5 km. S Champotón; ♂, 40727, testis 5 × 3 mm., brood patch, 125.6 gm., molting—1st and 2nd primaries ensheathed (July 11), 5 km. SW Champotón; ♀, 40728, 109.8 gm. (July 13), and sex? 40729, 109.5 gm. (July 15), 7½ km. W Escárcega; ♀, 40730, imm., 110.3 gm. (July 21), Pisté; ♀, 40731, ovary inactive, brood patch refeathering, 121 gm., molting—2nd and 3rd primaries ensheathed (August 16), 4 km. NNE Felipe Carrillo Puerto.

Cyanocorax yncas maya (van Rossem): Green Jay.—There are records of breeding by this species on the peninsula for April 28 and 29, and June 4 (Paynter, 1955a:215, 216).

Specimens (4): ♂, 40740, testis 5 × 3 mm., 81.2 gm. (July 16), 7½ km. W Escárcega; ♀, 40739, juv., 62.3 gm. (July 21), ♂, 40737, 64.5 gm. (July 21), and ♀, 40738, 64.1 gm. (July 21), Pisté.

Psilorhinus morio (Wagler): Brown Jay.—Specimens (3): ♀, 40742, 203.5 gm. (July 13), ♂, 40743, juv., 170 gm. (July 14), 7½ km. W Escárcega; ♂, 40741, juv., 193.7 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Thryothorus lucovicianus albinucha (Cabot): Carolina Wren.—This wren formerly was considered to be a species (*T. albinucha*). In the light of evidence presented by Lowery and Berrett (1963), it is advisable to follow Paynter (1955a:219) and consider *albinucha* to be a subspecies of *T. ludovicianus*. The only previous evidence of breeding by this species on the peninsula was a male having slightly enlarged gonads taken by Paynter (1955a:219) on March 9.

Specimen (1): ♂, 40754, juv., 16.8 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Thryothorus maculipectus canobrunneus (Ridgway): Spotted-breasted Wren.—According to Paynter (1955a:220) this species breeds from mid-March to May 23. Gonads were moderately active in our specimens as early as mid-July.

Specimens (4): ♀, 40758, ovary (6 × 3 mm.) granular (July 14), and ♂, 40757, testis 5 × 3 mm., 15.3 gm. (July 14), 7½ km. W Escárcega; ♀, 40755, ovary 6 × 3 mm. (ova to 1 mm.), 12.7 gm. (July 21), Pisté; ♂, 40756, ovary 4 × 3 mm., 16.8 gm. (August 3), 4 km. WSW Puerto Juarez.

Troglodytes musculus (Naumann): Southern House Wren.—Specimen (1): ♀, 40760, juv. (August 2), 4 km. WSW Puerto Juarez.

Troglodytes beani (Ridgway): Cozumel Wren.—Specimens (2): ♀, 40761, 13.3 gm. (August 9), and ♂, 40762, imm., 13.6 gm. (August 9), 3½ km. N San Miguel, Isla Cozumel.

Campylorhynchus yucatanicus (Hellmayr): Yucatán Wren.—This species was abundant in the coastal scrub west of Sisal where some breeding activity was noted. A few individuals were carrying nest material and several were feeding young. There were many old and abandoned nests and apparently the breeding season was nearly over. The only previous breeding record is for March 19 when a newly completed nest was found (Paynter, 1955a:218).

Specimens (4): ♂, 40750, imm., 32.4 gm. (August 7), 1½ mi. SW Sisal; ♀, 40751, imm., 31.2 gm. (August 18), 2 km. WSW Sisal; ♀, 40752, ovary 7 × 3 mm., 40 gm. (August 9), 4.3 km. WSW Sisal; ♀, 40753, 31.0 gm. (August 11), 6½ km. WSW Sisal.

Melanoptila glabrirostris cozumelana (Paynter): Black Catbird.—Apparently the only previous record of breeding by this species was Paynter's (1955b) mention of a male from Quintana Roo with enlarged gonads on June 26. The three adults in the collection here reported on were in nearly full reproductive activity.

Specimens (4): ♂, 40764, imm., 40.5 gm. (August 8), ♀, 40767, testis 8 × 4 mm., 42.0 gm., heavy fat (August 8), ♀, 40765, ovary active (oviduct enlarged), brood patch, 35.2 gm. (August 10), and ♂, 40766, testis 9 × 6 mm., 35 gm. (August 10), from 2½-3½ km. N San Miguel, Isla Cozumel.

Mimus gilvus (Vieillot): Tropical Mockingbird.—The only breeding record heretofore is by Paynter (1955a:226) of newly-fledged juveniles taken on May 26 and 29. Gonads in our adults were moderately active; feathers were extremely worn, but molting was not evident.

Specimens (4): ♂, 40771, testis 9 × 6 mm., 51.0 gm. (July 9), 5 km. S Champotón; ♀, 40770, ovary moderately active (ova to 2 mm.), brood patch, 42 gm., moderate fat (August 9), 3½ km. N San Miguel, Isla Cozumel; ♀, 40768, imm., 45.2 gm., moderate fat (August 18), 2 km. WSW Sisal; ♂, 40769, testis 10 × 5 mm., 51.8 gm. (August 9), 13 km. WSW Sisal. Mallophaga: *Myrsidea* sp., July 9.

Toxostoma guttatum (Ridgway): Cozumel Thrasher.—Our specimen had enlarged testes and seems to represent the first record of breeding activity in the species.

Specimen (1): ♂, 40772, testis 7 × 4 mm., 49.5 gm. (August 10), 3½ km. N San Miguel, Isla Cozumel.

Turdus grayi Bonaparte: Clay-colored Robin.—Four adults were in full breeding condition.

Specimens (6): ♂, 40780, testis 13 × 8 mm., brood patch (July 10), 5 km. S Champotón; ♀, 40781, ova to 8 mm., 79.6 gm. (July 15), 5 km. SW Escárcega; ♀, 40776, 61.3 gm. (July 21), Pisté; ♀,

40777, imm., 63.4 gm. (July 20), 6½ km. W Pisté; ♂, 40779, testis 14 × 8 mm., brood patch, 68.5 gm. (July 30), and ♂, 40778, testis 13 × 11 mm., 71.5 gm. (July 28), Pueblo Nuevo X-can.

Polioptila caerulea (Linnaeus): Blue-gray Gnatcatcher.—A fledgling taken at Pisté was barely flying with remiges and rectrices ensheathed basally. Previous breeding records are for April 11 and 27 (Paynter, 1955a:231). A male taken on August 10 on Isla Cozumel had nearly completed molting into winter plumage.

Specimens (8): ♀, 40788, fledgling, 5.0 gm. (July 20), 6½ km. W Pisté; ♂, 40787, testis 2 × 1 mm., 5.6 gm. (July 21), ♂, 40785, juv., 5.8 gm. (July 22), and ♀, 40786, 5.6 gm. (July 22), Pisté; ♀, 40791, juv., 5.6 gm. (August 8), ♂, 40790, juv., 5.8 gm. (August 8), ♀, 40789, 5.7 gm. (August 9), and ♂, 40792, 5.3 gm., molting—7th primaries ensheathed (August 10), from {2½}-{3½} km. N San Miguel, Isla Cozumel.

Polioptila albiloris Lawrence: White-lored Gnatcatcher.—This species was abundant in the arid scrub along the coast in the vicinity of Sisal.

Specimens (2): ♂, 40783, testis 1 mm., 6.2 gm. (August 7), 1½ mi. S Sisal; ♂, 40784, testis 1 mm., 5.8 gm. starting to molt—1st and 2nd primaries ensheathed (August 10), 13 km. WSW Sisal.

Ramphocaenus rufiventris (Bonaparte): Long-billed Gnatwren.—Specimen (1): ♀, 40793, imm. skull, 9.8 gm. (July 15), 7½ km. W Escárcega.

Cyclarhis gujanensis insularis Ridgway: Rufous-browed Pepper-shrike.—Specimen (1): ♂, 40794, testis 2 mm., 37.8 gm., molting—4th primaries ensheathed (August 9), 4 km. N San Miguel, Isla Cozumel.

Vireo bairdii (Ridgway): Cozumel Vireo.—Specimens (4): ♀, 40795, ovary inactive, 12.7 (August 8), ♂, 40796, testis 2 mm., 12.6 gm., molting—3rd and 4th primaries ensheathed (August 10), ♀, 40797, ovary inactive, 12.5 gm., molting—3rd primaries ensheathed (August 10), and ♂, 47098, imm., 13.1 gm. (August 10), from 2½-3½ km. N San Miguel, Isla Cozumel.

Vireo pallens semiflavus (Salvin): Mangrove Vireo.—Paynter (1955a:236) noted breeding by this species from April 7 through June.

Specimens (2): ♀, 40800, ova to 3 mm., oviduct enlarged (July 8), Isla del Carmen; ♀, 40799, ovary inactive, 11.1 gm., molting—4th primaries ensheathed (August 2), Isla Mujeres.

Vireo flavoviridus flavoviridus (Cassin): Yellow-green Vireo.—Paynter's (1955a:238) data indicate breeding in this species from late May through June; our records indicate that the species breeds at least through July.

Specimens (12): ♂, 40812, testis 10 × 4 mm., 17.1 gm., molting—1st, 2nd, and 3rd primaries ensheathed (July 17), and ♂, 40813, testis 7 × 4 mm., 18.2 gm. (July 17), 1 km. N, 13 km. W Escárcega; ♀, 40803, ovary 9 × 5 mm., ova to 1 mm., brood patch (July 21), ♂, 40805, testis 11 × 6 mm., 18.5 gm. (July 21), ♂, 40804, 18 gm. (July 21), and ♀, 40802, ovary slightly enlarged,

molting—2nd and 3rd primaries ensheathed (July 21), all from Pisté; ♂, 40806, 17.5 gm., molting—1st primaries ensheathed (July 21), 6½ km. W Pisté; ♀, 40808, ovary 5 × 3 mm., 17.4 gm. (July 28), ♂, 40807, testis 5 × 3 mm., 17.7 gm., molting—3rd and 4th primaries ensheathed (July 28), ♂, 40809, testis 2 × 1 mm., 17.5 gm. (July 29), and ♂, 40810, testis 3 × 2 mm., 18.7 gm., molting—1st, 2nd, 3rd, and 4th primaries ensheathed (July 30), from Pueblo Nuevo X-can; ♂, 40811, testis 3 × 1 mm., 18.7 gm., molting—4th, 5th, and 6th primaries and middle pair of rectrices ensheathed (August 14), 4 km. NNE Felipe Carrillo Puerto. Mallophaga: *Philopterus* sp. July 21.

Vireo magister (Lawrence): Yucatán Vireo.—Breeding on the peninsula has not been recorded previously. A male, beginning to molt, taken on August 10 on Isla Cozumel had enlarged testes, which were apparently regressing.

Specimens (3): ♀, 40814, ovary inactive, 17.7 gm. (August 2), Isla Mujeres; sex? 40815, 19.5 gm. (August 9), and ♂, 40816, testis 6 × 3 mm., 20.2 gm., molting—1st, 2nd, and 3rd primaries ensheathed (August 10), 3½ km. N San Miguel, Isla Cozumel.

Cyanerpes cyaneus carneipes (Sclater): Blue Honeycreeper.—Paynter (1955a:283) collected specimens that were breeding in April. Testes were fully enlarged in two August-taken specimens and courtship rituals were observed in two pairs seen on August 3 at Puerto Juarez.

Specimens (3): ♂, 40817, 15.5 gm. (July 21), 6½ km. W Pisté; ♂, 40818, testis 12 × 6 mm., 12.1 gm. (August 3), 4 km. WSW Puerto Juarez; ♂, 40819, testis 8 × 6 mm., 11.6 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Coereba flaveola caboti (Ridgway): Bananaquit.—Specimen (1): ♀, 40820, ovary inactive, 5 × 3 mm., 11.0 gm., molting—1st and 2nd primaries ensheathed, 3rd and 4th primaries missing (August 10), 3½ km. N San Miguel, Isla Cozumel.

Dendroica petechia rufivertex (Ridgway): Yellow (Golden) Warbler.—Specimens (5): ♀, 40831, ovary inactive, 8.0 gm. (August 8), sex?, 40832, imm. (fresh, first winter plumage), 10 gm. (August 8), ♀, 40830, ovary inactive, 10.0 gm., molting—4th and 5th primaries ensheathed (August 9), ♀, 40833, ovary inactive, 8.5 gm. (August 9), and ♀, 40834, ovary inactive, 7.8 gm. (August 10), all from 3½-4 km. N San Miguel, Isla Cozumel.

Dendroica petechia bryanti (Ridgway): Yellow (Mangrove) Warbler.—Previous records of breeding by this species are available for March 29 and 30 and May 16 (Paynter, 1955a:247). Breeding apparently continues at least into July. An adult male with moderately enlarged testes (probably regressing) was taken on July 7 at Zacatel, Campeche, and a juvenile was obtained 13 km. WSW Sisal on August 10. The male at Zacatal was in mangroves alongside the ferry landing (for the ferry from Isla del Carmen) and seems to be the first specimen of this subspecies recorded for the state.

Specimens (7): ♂, 40829, testis 4 × 2 mm., 11.1 gm., molting—1st, 2nd, and 3rd primaries ensheathed (July 7), Zacatal, Campeche; ♂, 40823, imm., 10.0 gm. (August 9), ♂, 40824, testis 1 mm., 13.0 gm., molting—4th and 5th primaries and middle three rectrices ensheathed (August 9), ♂, 40826, juv., 10.1 gm. (August 10), ♂, 40827, imm. (fresh, first winter plumage), 10.2 gm. (August 10), sex?, 40825, 10.3 gm. (August 10), and ♂, 40828, testis 2 mm., molting—7th, 8th, and 9th primaries, 2nd, and 3rd secondaries and outer pair of rectrices ensheathed (August 11), all from 13 km. WSW Sisal.

Seiurus motacilla (Vieillot): Louisiana Waterthrush.—Our specimen, apparently an early migrant, was taken near the aguada at Rancho San Miguel.

Specimen (1): ♂, 40835, testis minute, 19.9 gm. (August 14), 4 km. NNE Felipe Carrillo Puerto.

Tangavius aeneus aeneus (Wagler): Red-eyed Cowbird.—A male having enlarged testes taken on August 14 seems to be the first record of breeding in the species for the peninsula.

Specimens (2): ♂, 40838, testis 11 × 7 mm., 66.9 gm. (August 14), and ♀, 40839, ovary 6 mm., 60 gm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Cassidix mexicanus (Gmelin): Boat-tailed Grackle.—Specimen (1): ♂, 40840, 223.3 gm. (July 9), 1 km. SW Puerto Real, Isla del Carmen.

Dives dives dives (Deppe): Sumichrast Blackbird.—This species previously has been known to breed in May (Paynter, 1955a:263). The specimens from July had moderately active ovaries.

Specimens (2): ♀, 40842, ovary 8 × 4 mm., 92 gm. (July 11), 5 km. SW Champotón; ♀, 40841, ovary 11 × 5 mm., 88.6 gm. (July 21), Pisté.

Icterus prosthemelas (Strickland): Black-cowled Oriole.—Specimens (2): ♀, 40843, ovary 5 × 3 mm., 28.8 gm., molting—extensive body molt, 1st, 2nd, and 3rd primaries ensheathed (August 3), 4 km. WSW Puerto Juarez; ♂, 40844, testis 2 × 1 mm., 31.0 gm., molting 1st, 2nd, 3rd, and 4th primaries ensheathed (August 16), 4 km. NNE Felipe Carrillo Puerto.

Icterus mesomelas (Wagler): Yellow-tailed Oriole.—Our specimens extend the known breeding season; previous records are for April and May (Paynter, 1955a:265).

Specimens (4): ♂, 40848, testis 11 × 5 mm. (July 14), 7½ km. W Escárcega; ♂, 40846, juv. (rectrices and remiges ensheathed basally), 30.3 gm. (July 29), and ♂, 40847, testis 12 mm., 38.0 gm. (July 29), Pueblo Nuevo X-can; ♀, 40845, ovary 6 × 3 mm., 32.5 gm. (August 4), 4 km. WSW Puerto Juarez.

Icterus auratus Bonaparte: Orange Oriole.—Paynter (1955a:266) reported breeding specimens taken in April and May. Two males taken in late July had fully enlarged testes.

Specimens (2): ♂, 40849, testis 10 × 6 mm., 32.5 gm. (July 28), Pueblo Nuevo X-can; ♂, 40850, testis 11 × 7 mm., 33.0 gm. (July 30), 1½ km. S, 1 km. E Pueblo Nuevo X-can.

Icterus gularis (Wagler): Black-throated Oriole.—Breeding in this species was reported by Paynter (1955a:267) only for the month of April. Breeding was apparently nearing an end in late July at Pisté, where several juveniles were taken. Adult males had moderately enlarged testes.

Specimens (8): ♂, 40858, testis 5 × 3 mm., 67.2 gm. (July 20), 6½ km. W Pisté; ♂, 40853, 59.0 gm. (July 21), ♀, 40851, imm., 49.9 gm. (July 21), ♂, 40852, 56.4 gm. (July 21), ♀, 40855, imm., 49.9 gm. (July 22), ♀, 40856, ovary inactive, 50.0 gm. (July 22), ♂, 40854, testis 6 × 4 mm., 63.8 gm. (July 22), and ♂, 40857, juv. (all rectrices and remiges ensheathed basally), 30.4 gm. (July 27), all from Pisté.

Icterus cucullatus Nelson: Hooded Oriole.—This species has not heretofore been recorded as breeding on Isla Cozumel; testes were nearly fully enlarged but probably regressing in the only specimen taken there. It had been banded (USF&WS no. 601-87003) on the island in 1961 as an adult. According to Paynter (1955a:269) there are no breeding records for this species on the mainland later than April, March 25 being the earliest date. The species was observed nesting on Isla del Carmen and adult males taken there and 5 km. S Champotón in early July were in full breeding condition.

Specimens (6): ♂, 40863, testis 11 × 7 mm., 26.3 gm. (July 8), ♀, 40864, 31.4 gm. (July 8), and ♂, 40862, testis 11 × 5 mm., 24.7 gm. (July 8), 1 km. SW Puerto Real, Isla del Carmen; ♂, 40860, 26.5 gm. (July 9), and ♂, 40861, testis 10 × 5 mm., 20.9 gm. (July 11); 5 km. S Champotón; ♂, 40859, testis 8 × 5 mm., molting—7th primaries ensheathed, 27.0 gm. (August 8), 3.5 km. N San Miguel, Isla Cozumel.

Tanagra affinis affinis Lesson: Lesson Euphonia.—Specimens (2): ♀, 40866, 8.8 gm. (July 22), Pisté; ♂, 40865, testis 3 × 2 mm., 10.0 gm. (August 3), 4 km. WSW (Aeropuerto) Puerto Juarez.

Tanagra lauta lauta Bangs and Penard: Thick-billed Euphonia.—According to Paynter (1955a:272), the only breeding record previously available is that of a male having slightly enlarged testes on February 12. Males taken on July 15 and on August 14 had fully enlarged testes; the gonads of several other specimens were apparently regressing, two specimens had begun to molt, and juveniles were molting into first winter plumage.

Specimens (9): ♂, 40874, testis 7 × 4 mm. (July 15), and ♀, 40875, ova to 1 mm. (July 15), 7½ km. W Escárcega; ♂, 40869, testis 6 × 4 mm., 14.5 gm. (August 14), ♂, 40870, testis 2 mm., 14.5 gm., molting—5th primaries ensheathed (August 14), ♂, 40867, imm., 12.6 gm. (August 14), ♀, 40868, imm., 14.4 gm. (August 14), ♂, 40871, testis 2 mm., 14.4 gm., molting—2nd, 3rd, and 4th primaries ensheathed (August 14), ♀, 40872, ovary granular, 7.8 gm. (August 14), and ♀, 40873, ovary granular, 13.0 gm. (August 15), all taken 4 km. NNE Felipe Carrillo Puerto.

Thraupis abbas (Deppe): Yellow-winged Tanager.—Paynter (1955a:273) reported breeding in this species in late April and late June. Gonads in our specimens were moderately active.

Specimens (2): ♂, 40877, testis 6 × 4 mm., 43.0 gm., molting—1st and 2nd primaries ensheathed (July 15), 1 km. N, 13 km. W Escárcega; ♀ 40876, ovary 7 × 4 mm., (ova to 1 mm.), 42.1 gm. (July 29), Pueblo Nuevo X-can.

Spindalis zena benedicti Ridgway: Stripe-headed Tanager.—Two males in advanced molt but with enlarged gonads were taken on August 9 and 10 and seem to be the first records indicating breeding in this species on Isla Cozumel.

Specimens (3): ♂, 40878, testis 9 × 7 mm., 32 gm., molting—5th primaries and middle pair of rectrices ensheathed (August 9), ♂, 40880, testis 5 × 3 mm., 30.0 gm., molting—3rd, 4th, 5th primaries and middle two pairs of restrices ensheathed (August 10), and ♀, 40879, ovary inactive, 28.1 gm., molting—remiges are new; secondary coverts ensheathed (August 10), 3½ km. N San Miguel, Isla Cozumel.

Piranga roseogularis (Cabot): Rose-throated Tanager.—Breeding has been previously recorded from March 17 through May 11 (Paynter, 1955a:276). Our only specimen, a male in advanced molt, had enlarged (regressing) testes.

Specimen (1): ♂, 40881, testis 7 × 5 mm., 24.2 gm., molting—4th and 5th primaries ensheathed (August 15), 4 km. NNE Felipe Carrillo Puerto.

Habia gutturalis (Sclater): Red-throated Ant-tanager.—The only breeding records previously available for this species on the peninsula are for May 18 (Paynter, 1955a:280) and June 25 (Paynter, 1955b). Specimens taken between July 14 and August 2 were in full breeding condition. A male (40882) and female (40883) taken 7½ km. W Escárcega were known to be mated. Plumages in all specimens are worn and for that reason specimens were not identified to subspecies.

Specimens (6): ♂, 40882, testis 14 × 9 mm., 38.9 gm. (July 14), ♀, 40883, ovary 5 × 5 mm., 29.0 gm. (July 14), and ♂, 40887, testis 10 × 7 mm. (July 16), 7½ km. W Escárcega; ♂, 40885, juv. (rectrices and remiges ensheathed basally) (July 28), and ♀, 40886, ovary moderately active, 30.5 gm., molting—2nd primaries ensheathed (July 28), Pueblo Nuevo X-can; ♂, 40884, testis 15 × 8 mm. (August 2), 4 km. WSW Puerto Juarez.

Saltator atriceps (Lesson): Black-headed Saltator.—Previously, breeding has been noted in this species in February, March, and April (Paynter, 1955a:284). A male taken on July 16 was in full breeding condition.

Specimens (3): ♂, 40895, testis 15 × 9 mm., 80.4 gm. (July 16), and ♀, 40896, 73.5 gm. (July 17), 7½ km. W Escárcega; ♂, 40894, 71.6 gm. (July 29), Pueblo Nuevo X-can.

Saltator coerulescens (Vieillot): Gray Saltator.—The only previous breeding record for this species is for April 26. Our one specimen, No. 40897, a juvenal male barely able to fly, taken on July 21 at Pisté, weighed 43.8 grams.

Richmondena cardinalis (Linnaeus): Cardinal.—The only record of breeding previously reported is of a male with enlarged testes taken on June 4 (Paynter, 1955a:287). Adult males with enlarged testes were obtained on July 11 and August 10, and three juveniles were taken southwest of Sisal on August 10, 16, and 18.

Specimens (7): ♂, 40903, testis 9 × 7 mm., 39.7 gm. (July 11), and ♀, 40904, 34.0 gm. (July 11), 5 km. S Champotón; ♂, 40898, testis 7 × 4 mm., 33.8 gm. (August 10), and ♀, 40899, juv. (rectrices and remiges ensheathed basally), 32.8 gm. (August 10), 13 km. WSW Sisal; ♂, 40900, fledgling, 18.4 gm. (August 18), 2 km. WSW Sisal; ♀, 40901, ovary granular, 37.4 gm., molting—1st primaries ensheathed (August 15), and ♂, 40902, imm., 34.0 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Cyanocompsa parellina (Bonaparte): Blue Bunting.—Specimens (2): ♂, 40906, imm. (July 15), and ♂, 40905, testis 10 × 7 mm., 15.2 mm. (July 15), 7½ km. W Escárcega.

Tiaris olivacea pusilla (Swainson): Yellow-faced Grassquit.—The only records of breeding, thus far, are by Paynter (1955a:291) for March 12 and June 14. A male (40907) taken 4 km. NNE Felipe Carrillo Puerto on August 14 had fully enlarged testes (8 × 5 mm.).

Tiaris olivacea intermedia (Ridgway): Yellow-faced Grassquit.—Although females taken on Isla Cozumel exhibited no reproductive activity, two males had moderately enlarged testes. These seem to be the first records of breeding in this subspecies, which is endemic to Isla Cozumel.

Specimens (5): ♂, 40908, testis 6 z 4 mm., 10.5 gm. (August 8), ♀, 40912, ovary inactive, 9.5 gm. (August 8), ♀, 40909, ovary inactive, 10.4 gm. (August 9), ♂, 40910, testis 5 × 3 mm., 11.5 gm., molting—1st primaries ensheathed (August 9), and ♂, 40911, 11.5 gm. (August 10), all from {2½}-{3½} km. N San Miguel, Isla Cozumel.

Sporophila torquiola morelleti (Bonaparte): White-collared Seedeater.—Breeding is known for this species in May and a male collected on September 2 was in breeding condition (Paynter, 1955a:293). Our records seem to be the first for the summer. Specimens taken in July and August were breeding.

Specimens (7): ♀, 40918, 9.2 gm. (July 8), 1 km. SW Puerto Real, Isla del Carmen; ♂, 40919, testis 7 × 6 mm., 8.2 gm. (July 15), 7½ km. W Escárcega; ♀, 40913, ovary inactive, 7.9 gm. (August 4), 4 km. WSW Puerto Juarez; ♂, 40914, testis minute, 7.8 gm. (August 14), ♀, 40915, ova to 6 mm. (August 15), ♀, 40917, ovary moderately active, 7.0 gm. (August 16), and ♂, 40916, testis 7 × 5 mm., 7.6 gm. (August 16), 4 km. NNE Felipe Carrillo Puerto.

Volatinia jacarina splendens (Vieillot): Blue-black Grassquit.—The only previous record of breeding is a male having slightly enlarged testes taken on June 1 (Paynter, 1955a:293). Our specimens showed various stages of reproductive activity when taken on July 10.

Specimens (6): ♂, 40926, 8.9 gm. (July 10), and ♂, 40925, testis 2 × 1 mm., 8.5 gm. (July 10), 1 km. S Puerto Real, Isla del Carmen; ♂, 40924, testis 4 × 2 mm. (July 10), ♂, 40922, testis 6 × 4 mm., 8.3 gm. (July 10), ♀, 40923, ova to 2 mm., 10.3 gm. (July 10), and ♂, 40921, 8.2 gm. (July 10), 5 km. S Champotón.

Arremonops rufivirgata verticalis Ridgway: Olive Sparrow.—Apparently the only previous record of breeding was the laying female on June 14 reported by Paynter (1955a: 294). Males collected in July and August had enlarged testes; a juvenile, barely able to fly, was taken on August 14. Two specimens were beginning to molt.

Specimens (9): ♀, 40932, ova to 1 mm., 20.8 gm. (July 21), and ♂, 40933, testis 8 × 6 mm., 21.2 gm. (July 21), Pisté; ♀, 40930, ovary moderately active, 23.2 gm. (July 26), and ♂, 40931, imm., 22.7 gm. (July 26), 3½ km. N Pisté; ♂, 40934, testis 6 × 4 mm., 24.5 gm., molting—1st and 2nd primaries ensheathed (August 14), ♂, 40935, juv. (remiges and rectrices ensheathed basally), 17.7 gm. (August 14), ♀, 40936, imm., 25.0 gm (August 14), ♀, 40937, ovary granular, 22.6 gm., molting—2nd primaries ensheathed (August 15), and ♂, 40938, testis 7 × 5 mm. (August 15), 4 km. NNE Felipe Carrillo Puerto.

Arremonops chloronota chloronota (Salvin): Green-backed Sparrow.—Evidence presented by Monroe (1963) indicates that *A. chloronota* and *A. conirostris* are not conspecific. Specimens collected in breeding condition in July seem to be the first breeding records of this species on the peninsula.

Specimens (7): ♀, 40942, ova to 3 mm., 29.6 gm. (July 11), 5 km. S Champotón; ♂, 40944, testis 10 × 6 mm., 27.0 gm. (July 14), ♂, 40943, testis 5 × 3 mm., 23.1 gm. (July 14), and ♂, 40945, testis 7 × 4 mm., 25.5 gm. (July 15), 5-{7½} km. W Escárcega; sex? 40939, 22.9 gm. (July 20), 6½ km. W Pisté; ♂, 40940, imm., 21.5 gm. (August 4), 4 km. WSW Puerto Juarez; ♀, 40941, 26.5 gm., extensive body molt, (August 15), 4 km. NNE Felipe Carrillo Puerto.

TABLE 2. An Alphabetical List of Species of Mallophaga Removed from Birds Collected on the Yucatán Peninsula in 1962.

MALLOPHAGA	Hosts	KU Catalogue Nos. of specimens of hosts
Actornithophilus ochraceus	Snowy Plover	40426, 40431

Amyrisidea spicula	Chachalaca	Specimen not preserved
Austromenopon sachlebeni	Willet.	40441
Carduiceps zonarius	Sanderling	40443, 40444
Ciconiphilus obscurus	American Egret	40402
Colpocephalum foetens	Black Vulture	Specimen not preserved
Colpocephalum megalops	King Vulture	40403
Columbicola macrourae	Zenaida Dove	40399
Columbicola sp.	Red-billed Pigeon	40457
Craspedorrhy sp.	Gray Hawk	40415
Lunaceps holophaeus actophilus	Sanderling	40444
Myrsidea sp.	Tropical Mockingbird	40771
Myrsidea sp.	Cave Swallow	40690, 40704
Myrsidea sp.	Sulphury Flat-billed Flycatcher	40685
Philopterus excisus	Cave Swallow	40697
Philopterus sp.	Sulphury Flat-billed Flycatcher	40682, 40686
Philopterus sp.	Great Kiskadee	40664
Philopterus sp.	Turquoise-browed Motmot	Specimen not preserved
Philopterus sp.	Yellow-green Vireo	40804
Penerirmus sp.	Red-capped Green Woodpecker	40594

Quadraceps assimilis major	Snowy Plover	40431
Quadraceps assimilis major	Wilson Plover	40432, 40436
Quadraceps carrikeri	Willet	40442
Quadraceps ravus	Spotted Sandpiper	40438
Quadraceps sp.	Laughing Gull	40449
Saemundssonia brevicornis	Cabot Tern	40452

SUMMARY

Locality records are given for each of 136 species of birds represented by 493 specimens and sight records are given for eight additional species.

The Yellow-headed Vulture is reported apparently for the first time from the peninsula. The specimens of the Streak-headed Woodhewer and the Louisiana Waterthrush are the second ones of each species taken on the peninsula. The Purple Martin taken on August 14, the Barn Swallow on August 18, and the Louisiana Waterthrush on August 14 represent earliest known autumn dates for these transients.

Evidence for breeding is given for 20 species for the first time and extensions of the known breeding seasons are presented for 41 species.

Fourteen genera, representing about 19 species, of Mallophaga are reported for 20 different species of bird hosts.

At Pisté and Puerto Juarez, species of birds such as the Blue Honeycreeper and the Red-capped Manakin, normally thought of as characteristic of more humid areas, were found breeding in numbers near *cenotes*. However, they were not seen to venture far into the surrounding deciduous forest. The availability of suitable habitat brought on by the rainy season and the regular occurrence of *cenotes* helps to explain the presence of such species far outside the Rain Forest zone.

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