XI. THE BIRDS OF THE ISLE OF PINES.

By W. E. Clyde Todd.

Incorporating the Substance of Field-notes by Gustav A. Link.

(Plates XXII–XXVII.)

Introduction.

Although the West Indian Islands were among the first regions of the New World to be visited by explorers with a scientific turn of mind, their fauna thus early becoming known to the naturalists of Europe, and although subsequent researches have greatly increased our knowledge, it is only in comparatively recent years that systematic attempts have been made to investigate the islands from the standpoint of the zoögeographer, and with the same painstaking care as has been used in the case of certain sections of continental America. The West Indian Islands present a most inviting field for further investigation and, indeed, so far as their avifauna is concerned, an exhaustive treatise on the subject remains to be written. The importance of a study of island-life, considered in its bearing upon the various problems connected with the evolution of species, and their present distribution and relationships, has during the past four decades come to be realized. It is more and more felt that the study of the organism in relation to its environment, constituting the new science of ecology, is of equal importance with the study of form and function, and that carefully recorded data as to the habits and life-history of a given species are often more valuable, even from the standpoint of the pure systematist, than a large series of finely prepared and accurately labelled specimens.

It is with such considerations as these in mind that the present paper has been prepared, and is submitted as a contribution to a faunal survey of the West Indies, along lines similar to those followed by the writer in an earlier paper on the ornithology of the Bahama Islands (Annals Carnegie Museum, VII, 1911, 388–464). It is primarily based on a collection of birds made in the Isle of Pines by Mr. Gustav A. Link, of the taxidermic force of the Carnegie Museum,

during his residence there for a year, beginning in June, 1912. Mr. Link is entitled to great credit for making such a fine collection, working as he did under unusual embarrassments, due in part to ill health, on account of which he had been ordered by his physician to a warmer climate. Although he succeeded in covering the island fairly well, it is to be regretted that he was unable to devote more time to the investigation of the southern coast and the eastern part of the Cienaga, or Central Swamp, the avifauna of which sections proved to be unusually interesting. Unfortunately, too, because of inexperience in recording observations, his field-notes are somewhat meager, and leave much to be desired. In many cases they have been supplemented in the preparation of this paper by the published observations of other parties, particularly those of Mr. Arthur C. Read, a local observer, and the late Mr. Walter R. Zappey. Under each species all published references have been collated, so far as they relate to the Isle of Pines.

In addition to the material brought back by Mr. Link, the writer has had the opportunity of examining many of the more interesting specimens collected by Mr. Zappey in 1904, for which privilege he is indebted to Mr. Outram Bangs. The critical study and comparison of this new material has served to fix with greater certainty a number of doubtful cases of status and relationships among the forms involved, while it has also incidentally revealed the existence of some additional geographical variants in the adjoining island of Cuba. It is evident that much remains to be done even in Cuba before a full and accurate understanding of its ornis can be reached. For the loan of specimens from the West Indies for use in this connection the writer is indebted not only to Mr. Bangs, as mentioned, but also to Mr. Charles T. Ramsden, of Guantánamo, Cuba, Mr. Frank M. Chapman, of the American Museum of Natural History, Mr. Charles B. Cory, of the Field Museum of Natural History, and Dr. Charles W. Richmond, of the U. S. National Museum. He is further under obligations to Messrs. William Palmer and Joseph H. Riley for the use of their field-notes made during a visit to the Isle of Pines in 1900, and to Mr. Riley and Dr. Richmond for additional data and information. Mr. Robert Ridgway has very generously permitted him to describe here the new form of *Columba inornata* from the Isle of Pines in advance of the appearance of the forthcoming part of that author's *Birds of North and Middle America*, while Dr. Jonathan Dwight, Dr. Louis B. Bishop, and Mr. Henry

W. Henshaw have kindly furnished measurements of certain specimens from collections under their care. Miss Sophie G. Keenan, of Nueva Gerona, Isle of Pines, has courteously supplied some much needed information concerning sundry localities, together with an authentic map of the island. Dr. Otto E. Jennings, Curator of Botany in the Carnegie Museum, is responsible for that part of the present paper which deals with the physiographic and major botanical features of the island. And finally, acknowledgments are due to Mr. Arthur C. Read, of Santa Barbara, Isle of Pines, for a set of his articles on birds published in a local newspaper, and for his cheerful compliance with requests for information concerning his work.

GEOGRAPHY AND PHYSIOGRAPHY.

The Isla de Pinos, or Isle of Pines, lies off the southern coast of Cuba, to which it belongs both politically and geographically. It is situated about midway of the concavity formed by the western end of that island, from the nearest point of which it is distant only about thirty-five miles, while the channel between is dotted with numerous small islands or cays. Its area is approximately eight hundred square miles, and its outline roughly rectangular, with the corners cut off. On the west coast there is a deep indentation, known as Siguanea Bay, and a smaller one on the east coast, directly opposite. Between these two inlets stretches an immense fresh-water morass, the Cienaga de Lanier, which divides the island from east to west into two parts, the southern portion being approximately one-half the size of the northern. The latter is irregularly oblong in shape, about twenty-five miles in an east and west direction by twenty miles north and south. The southern portion is about thirty-five miles long and not over eight miles across at the widest part, with its western end curving to the northwest, around Siguanea Bay, for a considerable distance beyond the westernmost point of the northern portion. The "south coast," as it is called, is almost uninhabited and very imperfectly known, but the northern portion of the island has been laid out into tracts of greater or less size, some of which have been cleared and given over to the cultivation of citrus-fruits, pineapples, etc. The total population is said to be about four thousand, and Nueva Gerona, in the north-central part of the island, is the principal town, between which and Batabanó, Cuba, there is regular communication by steamer.

The surface of the northern portion of the island consists of an essentially level plain, from which rise abruptly a number of isolated mountain ridges and peaks, constituting prominent landmarks. Of these ridges the best known are the two in the neighborhood of Nueva Gerona, running parallel with each other in a general north and south direction, on either side of the town. The ridge lying to the westward is known as the Sierra de Casas or Casas Mountains (Pl. XXII, fig. 1), while the eastern and longer ridge is the Sierra de Caballos or Caballos Mountains, which extend out into the sea to the northward in a high rocky promontory, Punta del Colombo. The Caballos Mountains reach a height in some places of about a thousand feet, the Casas Mountains being considerably lower. Geologically speaking, these ridges are composed mainly of a crystalline marble, the strata dipping to the east-northeast, so that the western slopes are generally steeper than the eastern, with precipitous cliffs exposed in many places. Elsewhere the slopes are covered from base to summit with a dense tangle of partly deciduous vegetation (Pl. XXII, fig. 2). Among the prominent forest-trees are *Casearia sylvestris*, *Trichilia hirta*, *Amyris balsamifera*, *Banisteria laurifolia*, *Spondias Monbin*, and *Guazuma Guazuma*. Everywhere the trees are looped with vines, while their upper and more exposed branches are covered with air-plants of various kinds, and the ground beneath is choked with bushes and herbaceous growths. In these woody tangles, especially near the foot of the mountains, the most characteristic bird is perhaps the Isle of Pines Lizard Cuckoo, while among the other species partial to this particular habitat may be mentioned the Ani, Red-legged Thrush, Black-whiskered Vireo, Cuban Tody, Cuban Spindalis, Ricord Emerald, and Isle of Pines Pygmy Owl. A little higher up on the slopes the Isle of Pines Trogon becomes fairly common, while among the cliffs near the summit, where the trees begin to thin out, the Cuban Cliff Swallow and Turkey Buzzard are accustomed to nest.

Besides the two ridges just described, there is another, the Sierra de la Cañada or Cañada Mountains, in the southwestern part of the northern section of the island, a few miles east of Los Indios. This is almost as high as the Caballos ridge, but unlike it is composed of an impure mica schist, the southwestern exposure being quite steep and precipitous. It is covered with a sparse growth of pines (*Pinus caribæa*) and star-palms (*Cocothrinax Miraguano*), and from its foot a level sandy or gravelly plain, supporting a similar open pine-forest, stretches away

to the western coast. Indeed, this sandy, pine-covered plain occupies the entire southwestern portion of the northern island, as far north almost as Santa Barbara. Excepting for a fringe along the streams, where the prevailing vegetation is of a different kind, denser and more jungle-like, the pines are very characteristic of this section (Pl. XXIV, fig. 1). The bird-life here, however, is neither rich nor varied. These open pine-lands are the favorite haunts of the Cuban Crane and several species of pigeons and doves, but barring the La Sagra Flycatcher, Gray Kingbird, and certain winter-resident species of warblers in their season, birds are rather scarce.

Over the greater portion of the northern island, however, the soil is largely the Mal Pais Gravel, a yellowish red or brownish red gravelly clay, which becomes very firm during the dry season, and which in depressions is replaced by a light yellow or somewhat gray sandy loam. Over much of this part of the inland plain, as for instance in the vicinity of Nueva Gerona and Santa Fé, the land has been in use at least for grazing purposes for a long time, and the original vegetation has been greatly modified. Bush-fires have frequently been started as a means of clearing the land, and at the present time considerable areas are under cultivation. In these cultivated tracts are found the Cuban Meadowlark, Isle of Pines Lizard Cuckoo, and Isle of Pines Woodpecker, with an occasional flock of the Isle of Pines Grackle, but few other of the woodland species have occasion to venture into such situations. Outside of these cultivated areas the vegetation is mainly a palmetto-pine scrub (Pl. XXIII, fig. 1), partly deciduous in the dry season, and in the lower spots quite dense and difficult to penetrate. As a rule this straggling shrubbery is from eight to fifteen feet in height, and among others the following species are represented: *Curatella americana* (sandpaper leaf), *Byrsonima crassifolia*, *Tabebouia lepidophylla*, *Brya ebenus* (known locally as "majagua," and forming dense thorny thickets), and several kinds of palmetto. Mixed with these, but rising considerably above the general level of the shrubby vegetation, are varying numbers of *Pinus caribæa* (Caribbean Pine), *Muntingia calabura*, *Cocothrinax Miraguano* (star-palm), *Sabal parviflora* (cabbage-palm), *Paurotis Wrightii* (bottle-palm) (Pl. XXIII, fig. 3), and *Copernicia Curtisii*, and in the lower places *Oreodoxia regia* (royal palm) (Pl. XXIII, fig. 2). The Isle of Pines Parrot, Isle of Pines Woodpecker, and Cuban Sparrow Hawk are characteristic birds in this sort of country, while certain other species,

such as the Cuban Quail, Cuban Oriole, Cuban Mourning Dove, Cuban Ground Dove, and three species of flycatchers—the Cuban Petchary, Gray Kingbird, and La Sagra Flycatcher — are also more or less common here, as well as in the thickets on the mountain side. In the more open situations, and along the edges of the scrubby growth, are found the Cuban Meadowlark and Yellow-faced Grassquit.

The rivers of the northern island diverge in every direction from the central plain, from which to the seacoast there is a fall of about two hundred feet. The Rio de las Nuevas, or New River, is the largest of these streams, and drains an extensive area in the northwestern part. All the rivers are very low in the dry season, some of them, indeed, being reduced to a mere succession of pools, the channels then being called " arroyos." " There appears to have been in recent times an elevation of the island sufficient to have enabled the streams to cut down steep channels, at least in the lower part of their courses, so that subsequent depression to the present level has resulted in submerging the lower courses of the rivers, thus making them subject to tide-water for often eight or nine miles from the mouth. The forests of the mangrove formation have at the same time advanced upon the lower parts of the depressed plain " (Jennings, *American Fern Journal*, I, 1911, 131). This mangrove-swamp, which is so characteristic a feature of numerous other islands and coasts about the Gulf of Mexico, forms a fringe around the greater part of the Isle of Pines (Pl. XXIV, fig. 2), and extends inland along the river-courses for several miles, or until the water becomes fresh. Two species are represented, *Rhizophora mangle*, the true mangrove, and *Avicennia nitida*, the white mangrove, growing together in a dense and tangled mass, extending well out into the water. There is a chain of islands lying off to the northwest from Punta del Potrero on the east coast which are composed entirely of this mangrove growth, while the islands in Siguanea Bay are also of the same formation. The Cuban Yellow Warbler is entirely confined to the mangroves, and they are the favorite haunts of the Isle of Pines Clapper Rail, and several species of herons and other water-birds.

Above tidewater the river-bank fringe of mangroves gives way as the land rises to a jungle-like growth with considerable low vegetation and many vines. The trees are mainly evergreen species, among which are *Anona squamosa*, *Hirtella mollicoma*, *Morinda Roioc*, *Eugenia punicifolia*, etc. This same jungle, with modifications, extends also

along the banks of the arroyos, becoming less dense and less evergreen on the drier ground. Here occur such trees as *Xylopia grandiflora*, *Pithecolobium arboreum*, *Dendropanax cuneifolium*, *Tetrazygia bicolor*, and *Ternstræmia obovalis*. On the low plain back of the mangroves, as for instance along the coast north of Nueva Gerona, there is a considerable seepage even during the dry season from the higher ground, so that this same fresh-water jungle occurs in many cases as an inner fringe to the mangrove forest, and may even be found also along the north side of the Cienaga de Lanier. It is in this dense tropical jungle that bird-life is most abundant and varied. Here occur as representative species the Isle of Pines Green Woodpecker, Cuban Wood Pewee, Black-whiskered Vireo, Isle of Pines Pygmy Owl, Isle of Pines Trogon, Ricord Emerald, Red-legged Thrush, and Cuban Spindalis, in addition to numerous other less common kinds, while several species of winter-resident warblers find here congenial haunts in their season.

Lagoons and marshes are not infrequent in certain parts of the northern island, especially near the coast, and several of the larger of these were visited on one or more occasions by Mr. Link. A large lagoon on the Bibijagua tract, near Punta Primera de Salinas, proved to be a favorite resort for several species of shore-birds, its sandy and muddy southern beach being a great attraction. So much of the actual coast-line of the island is taken up with the mangroves that there are comparatively few stretches of beach, one of the most extensive of which lies to the east of Punta de la Bibijagua. The lagoon just referred to, known locally as " Rincon " Lagoon, lies a little way behind this beach, parallel with the shore-line. It is quite shallow, and the water is brackish, supporting in places a growth of aquatic plants, and fringed in others with the inevitable mangroves. The El Bobo Lagoon, which lies just east of the mouth of the Nuevas River, is of a similar character, being an area of shallow, brackish water closed in by mangroves and receiving an overflow from the sea at very high tide. Santa Rosalia Lagoon, which is situated just south of the Caballos Mountains not far from the town of Columbia, is of a different character, the water being fresh, the shores muddy, and with a rank growth of marsh-grasses farther back. All these lagoons become very low in the dry season. They are favorite resorts for the various species of herons and certain other aquatic birds.

The Cienaga de Lanier, the great marsh which extends across the

southern part of the Isle of Pines, virtually dividing it into two islands, partakes largely of the character of the coast for some distance from its western end, and probably at its eastern end also. The water is more or less brackish, and the mangroves follow up this condition. Towards the central portion, however, the water becomes fresh, and even at the Paso de Piedras, the only available crossing-place, it is two or three feet deep in the dry season. In its general character this great swamp closely resembles the Florida Everglades (Pl. XXV, fig. 1). Marshy areas with grasses and sedges alternate with open shallow pools filled with water-lilies, or, on the other hand, with island-like "hummocks," supporting a dense growth of broad-leaved shrubs, low trees, and palms. As might naturally be expected, the Cienaga has a very characteristic bird-fauna of its own, some species, as for example the Cuban Red-wing and Purple Gallinule, being practically confined to its limits. Herons of several kinds, the White Ibis, Cuban King Rail, Limpkin, Antillean Tree Duck, and West Indian Jacana are among the birds commonly observed here. It is to be regretted that there was not sufficient time to give this interesting region a more thorough investigation.

South of the Cienaga lies the "south coast"—a region quite different in character from the main island, consisting of a fairly level coral-limestone formation, the overlying soil being thin, but rich, supporting in places a tangle of broad-leaved, partly deciduous trees, shrubs, and vines, such as *Pithecolobium arboreum*, *Tecoma pentaphylla*, *Metopium toxiferum*, *Bucida Buceras*, and *Lysiloma bahamensis*, some of which are not known from the northern island. There are no pines here, and barring a few cocoanut and royal palms along the coast near habitations, the only palm noticed was *Thrinax Wendlandiana*, which is particularly abundant along the tops of the cliffs facing the sea. Scattered through this section there are numerous good-sized lagoons, only one of which, however, the Laguna de Piedras, a short distance south of Pasadita, was visited by Mr. Link, who reports that it was of the same general character as the Cienaga itself. He was able also to make an overland trip from Bogarona, on Siguanea Bay, to Caleta Grande, and thence to Caleta Cocodrilos. Along this portion of the coast the surf beats against jagged perpendicular cliffs, which in some places were perhaps eighty or ninety feet in height. A narrow shelf, with numerous projecting jagged rocks, extends out from the coast for a short distance, beyond which the water deepens

very rapidly, the thousand-fathom line lying only about seven miles offshore. Unfortunately it was not possible to explore any of the long stretch of coast-line between Caleta Cocodrilos and Punta del Este (Pl. XXV, fig. 2), which part is considered too dangerous for small vessels to approach, and this remains, ornithologically speaking, a *terra incognita* which is bound to repay future investigation, judging from the indications afforded by the western end. The Cuban Bullfinch was not encountered elsewhere in the island, and the Cuban Crow, Helena Hummingbird, and certain species of shore-birds were also quite numerous. The islands in Siguanea Bay proved to be favorite resorts for certain sea-birds, particularly one known locally as " Bird Island," where is a large colony of Man-o'-war Birds and Florida Cormorants.

CLIMATE.

" The climate of the island is, of course, oceanic and quite equable. [This is due to its comparatively small size, exposed position, and level contour, without any high or extensive mountain ridges, such as exert a modifying influence in Cuba, for example.] The latitude being but about twenty-one degrees north, the extreme range of the thermometer lies between about 50° and 100° F. The temperatures experienced by the writer during his sojourn on the island in May, with the sun exactly overhead at noon, were from 82° to 92° F. during the day, while at night, temperatures as low as 70° F. were rarely experienced. The temperature of the ocean water on the beaches was 80°–82° F., while a mineral spring at Santa Fé was said to register 88° F. The well and spring waters, so far as tested, ranged generally from about 68° to 80° F. as they came from the ground. The island has a dry season, with showers very rarely, from November to May, while during the latter month, or about the first of June, there begins a wet season, with torrential rains, which fill to the brim the sharply cut channels of the rivers, and flood portions of the low-lying plains " (Jennings, *American Fern Journal*, I, 1911, 132). Hurricanes visit the island at intervals, doing immense damage to buildings and crops. The island is free from both yellow and malarial fevers, but the hordes of insect-pests make life in the open almost unendurable, except to those inured to such persecution, and are one of the causes for the tardy development of its natural resources. Most of the land is in the hands of companies of promoters, whose roseate representations

are leading many an unwary *bona fide* settler into an unprofitable venture, the potential capacity of the soil being by no means the only factor entering into the case.

PREVIOUS WORK.

The well-known Cuban naturalist, the late Dr. John Gundlach, was in January, 1854, apparently the first ornithologist to visit the Isle of Pines. For a period of forty years thereafter his notes, published in various periodicals and sometimes at second-hand, remained our only source of information concerning its avifauna. According to Mr. Cory, to whom he furnished a manuscript list of the birds observed, Gundlach again visited the island in April, 1892, but whether in the intermediate period does not appear. Gundlach, however, failed to recognize the importance of a comparative study of the bird-life of the island, which he evidently regarded as not essentially different from that of Cuba, and while his latest work abounds in references to the Isle of Pines, in almost every case it is merely to mention incidentally the occurrence there of certain Cuban species.

In 1900 Messrs. William Palmer and Joseph H. Riley of the U. S. National Museum, made a brief collecting trip to the island, from June 27 to July 13 inclusive. Practically all of their work was done in the vicinity of Nueva Gerona, except for part of two days which Mr. Palmer spent at Manigua, a plantation about ten miles west of that town, in the pines. A list of fifty-one species was made on this trip; all well-known forms.

In March, 1902, the late Mr. Walter R. Zappey visited the island and made a small collection of birds, which went to the Rothschild Museum at Tring, England, where up to date they have not been reported upon. In 1904, however, the same collector visited the island again, remaining from April 18 to June 4 inclusive. His route appears to have been from Nueva Gerona, Bibijagua, etc., to Santa Fé, El Hospital, and Pasadita to the south coast at Playa Larga, and he seems to have been the first naturalist to visit the Cienaga. His material, amounting to two hundred and sixty-seven specimens, went into the collection of Messrs. E. A. and O. Bangs (now in the Museum of Comparative Zoölogy), and together with his field-notes was the basis of the first systematic account of the birds of the island. In this paper, published in 1905, Messrs. Bangs and Zappey pointed out for the first time the distinctness of several of the birds from the Isle

of Pines, and later Mr. Bangs characterized a few additional forms from the same collection.

In December, 1908, Mr. Arthur C. Read, an enthusiastic amateur ornithologist of Toledo, Ohio, went to the Isle of Pines, where he has ever since resided. He soon began to send back notes for publication, mainly to the *Oölogist* of Albion, New York. Many of his articles are merely lists of species seen at various times and places. Unfortunately, however, in some instances Mr. Read's earlier identifications were erroneous, as is shown by the corrections which he himself makes. Some of the records, which up to the present he has allowed to stand, appear doubtful to the writer, and to have been admitted to his lists on insufficient grounds. In reply to an inquiry addressed to Mr. Read he writes that some of these records which seem open to question were based on the actual capture of specimens, but that the specimens were not in every case preserved; moreover, that he lost his entire collection of skins in the flood and hurricane of 1910, and has not started a new one since. This circumstance is very unfortunate, as it makes it impossible to authenticate the correctness of his determinations in cases of doubt. The list of a part of Mr. Read's collection, and a copy of some of his field-notes, have been kindly loaned by him for examination, and have been freely used in the preparation of the present report.

THE EXPEDITION OF 1912–13.

In May, 1910, a party of four from the staff of the Carnegie Museum was engaged for a few weeks in making collections of the plants and reptiles of the Isle of Pines. No particular attention was paid to the birds on this expedition, but, as the island seemed to promise good results for work in this line, Mr. Gustav A. Link of the taxidermic staff of the museum was detailed in 1912 to undertake the making of a representative collection of the birds of the island, and left in June of that year, accompanied by his son, Mr. John Link, as assistant. Beginning work at Nueva Gerona on June 26, he continued until July 12, when interference from the Cuban officials caused a suspension of his activities for over two months. He then went to Los Indios, in the southwestern part of the main island, which he made his headquarters until January 25, 1913, making in the meantime several trips from there to points on Siguanea Bay and the "south coast." Los Indios and its vicinity proved to be a much better collecting-ground than the country about Nueva Gerona, this latter section being so

much more extensively cleared and cultivated than the other. Intermittent work was carried on at Nueva Gerona, however, from January 26 until April 9, the mountains in the vicinity being repeatedly visited, and several side-trips being made to certain lagoons on the north coast in search of water-birds. Returning to Los Indios on April 10, Mr. Link made a second trip to the "south coast," and also put in some time at the western end of the Cienaga, near Siguanea. May 10 to 21 was spent at Nueva Gerona, after which he undertook a trip to the eastern end of the Cienaga, at Pasadita, where he collected from May 23 to 28, returning to Nueva Gerona the next day, and leaving the island on June 5. The collection of birds brought back amounts to eight hundred and forty-two well-prepared specimens, representing one hundred and three species, including all of the forms peculiar to the island, and a larger series of aquatic forms than most collectors would think of taking.

SEASONAL OCCURRENCE.

One hundred and forty-two species are admitted to the present list of the birds of the Isle of Pines, or twenty-two more than were given by Messrs. Bangs and Zappey in 1905. For nearly all of these additions the work of Mr. Link is responsible, and there are specimens to support most of the new records. In every case the evidence for the occurrence of a given species has been carefully weighed, especially with reference to its known status in Cuba, and doubtful records have been relegated to the hypothetical list. A few species have been admitted to the list solely on the basis of Gundlach's records as given by Mr. Cory. The voluminous notes made in the last few years by Mr. Arthur C. Read have somewhat perplexed the writer. Published in an amateur journal, the scientific names in many cases not being given, or else so mangled by the printer as to be almost beyond recognition, and with no indication that the author was aware of the very unusual character of certain of his observations, or of the necessity for their full authentication, there would seem to be ample justification for ignoring them entirely in a paper like the present. Nevertheless in spite of the defects, which are evident, it is plain that the good faith of Mr. Read cannot be called into question, and that there is much of interest and value in his notes. An effort therefore has been made to sift them, utilizing such as seem to rest on a sound basis, and calling attention to such as seem dubious, so that they may either be verified or corrected in the future.

As might be expected in the case of a locality lying so far within the Tropical Zone as the Isle of Pines, its avifauna is composed mainly of two classes of species as regards seasonal status, permanent residents and winter visitants. Ninety-two species are included in the first category, all of which are known, or presumed, to breed in the island, and to remain (as a species) the year around. Not a few of the species in this list, however, are known to be more or less migratory, some of them being more numerous in the dry season, when their numbers are augmented by winter migrants from the north; while others are regularly more abundant, or at least more frequently observed, in the breeding season, most of the individuals retiring at its close to other parts. Some of these forms are more or less local in their distribution. Following is the list:

Colymbus dominicus dominicus
Podilymbus podiceps
Anhinga anhinga
Phalacrocorax auritus floridanus
Pharacrocorax vigua mexicanus
Pelecanus occidentalis
Fregata magnificens
Ixobrychus exilis exilis
Ardea occidentalis repens
Ardea herodias adoxa
Herodias egretta
Dichromanassa rufescens
Florida cærulea
Egretta thula thula
Hydranassa tricolor ruficollis
Butorides virescens cubanus
Butorides brunescens
Nycticorax nycticorax nævius
Nyctanassa violacea
Ajaia ajaja
Guara alba
Mycteria americana
Phœnicopterus ruber
Dendrocygna arborea
Cathartes aura aura
Rostrhamus sociabilis
Urubitinga gundlachii
Falco sparverioides
Polyborus cheriway
Pandion haliaëtus carolinensis
Colinus cubanensis
Rallus elegans ramsdeni
Rallus longirostris leucophæus
Gallinula chloropus cachinnans
Ionornis martinica
Aramus vociferus
Grus mexicana nesiotes
Sterna maxima
Sterna antillarum
Himantopus mexicanus
Oxyechus vociferus rubidus
Pagolla wilsonia wilsonia
Jacana spinosa violacea
Starnœnas cyanocephala
Geotrygon chrysia
Geotrygon montana
Chœmepelia passerina aflavida
Zenaida zenaida zenaida
Zenaidura macroura macroura
Columba leucocephala
Columba squamosa
Columba inornata proxima

Ara tricolor
Aratinga euops
Amazona leucocephala palmarum
Crotophaga ani
Saurothera decolor
Glaucidium siju vittatum
Gymnasio lawrencii exsul
Asio stygius
Tyto perlata furcata
Setochalcis cubanensis
Todus multicolor
Xiphidiopicus percussus insulæpinorum
Centurus superciliaris murceus
Priotelus temnurus vescus
Streptoprocne zonaris pallidifrons
Tachornis phœnicobia yradii
Calypte helenæ
Riccordia ricordii ricordii
Tyrannus dominicensis dominicensis
Tyrannus cubensis
Tolmarchus caudifasciatus
Myiarchus sagræ sagræ
Blacicus caribæus
Mimus polyglottos orpheus
Myadestes elisabeth
Mimocichla rubripes rubripes
Corvus nasicus
Vireo gundlachii gundlachii
Petrochelidon fulva fulva
Teretistris fernandinæ
Dendroica petechia gundlachi
Sturnella magna hippocrepis
Agelaius assimilis
Icterus hypomelas
Ptiloxena atroviolacea
Holoquiscalus caymanensis dispar
Spindalis pretrei
Melopyrrha nigra
Tiaris olivacea olivacea
Tiaris canora

Of true summer residents there appear to be only three species, as follows:

Chordeiles virginianus minor
Vireosylva calidris barbatula
Progne cryptoleuca

This makes a total of ninety-five species known, or reasonably presumed, to breed in the island, or two-thirds of its known ornis.

There are forty-two species which occur as winter visitants from continental North America. Further work in the island should result in adding a considerable number to this list, judging from the many records of this class from Cuba and the other Antilles. That practically all the migratory birds which regularly or casually visit Cuba should likewise reach the Isle of Pines seems entirely probable. Several of the birds in the following list have been observed more frequently during the season of migration than through the winter months.

Pelecanus erythrorhynchos
Botaurus lentiginosus
Querquedula discors
Chen hyperborea nivalis

Circus hudsonius
Falco peregrinus anatum
Falco columbarius
Fulica americana
Sterna sandvicensis acuflavida
Gallinago delicata
Limnodromus griseus griseus
Pisobia minutilla
Totanus melanoleucus
Totanus flavipes
Catoptrophorus semipalmatus semipalmatus
Actitis macularia
Squatarola squatarola
Oxyechus vociferus vociferus
Charadrius semipalmatus
Arenaria interpres morinella
Antrostomus carolinensis
Streptoceryle alcyon alcyon
Sphyrapicus varius varius
Mimus polyglottos polyglottos
Dumetella carolinensis
Polioptila cærulea cærulea
Vireo griseus griseus
Setophaga ruticilla
Geothlypis trichas trichas
Seiurus noveboracensis notabilis
Seiurus aurocapillus
Dendroica palmarum palmarum
Dendroica discolor
Dendroica dominica dominica
Dendroica virens
Dendroica coronata
Dendroica cærulescens cærulescens
Compsothlypis americana usneæ
Mniotilta varia
Passerina cyanea
Ammodramus savannarum australis
Passerculus sandwichensis savanna

The remaining five species belong to the class of transient visitants, appearing only during the migrations in spring and fall, on the way to and from their breeding-grounds. Future research may add a number of species to this list also.

Hirundo erythrogastra
Dendroica striata
Tringa solitaria
Chordeiles virginianus virginianus
Dolichonyx oryzivorus

FAUNAL AFFINITIES.

Geographically speaking, the Isle of Pines is so closely related to Cuba that a rise of only about fifty feet would suffice to connect the two islands. Even now the channel between is dotted with numerous cays, forming a chain of islands which would surely present no especial difficulties to the passage of birds, even those of weak flight. It does not appear whether the Isle of Pines received its bird population from Cuba in this manner, or before its separation from that island took place; in either case we would expect to find their respective avifaunas closely related. An analysis shows that of the one hundred and twenty-six species on the list of breeding birds for western Cuba, no

less than eighty-five are common to both islands, while eight others are represented in the Isle of Pines by recognizably distinct forms, at least one of which is so different from the original-stock form as to merit (in the writer's judgment) the rank of a species. These Cuban forms, with their respective representatives in the Isle of Pines, are as follows:

WESTERN CUBA.	ISLE OF PINES.
Rallus longirostris cubanus	*Rallus longirostris leucophæus*
Columba inornata inornata	*Columba inornata proxima*
Amazona leucocephala leucocephala	*Amazona leucocephala palmarum*
Saurothera merlini	*Saurothera decolor*
Glaucidium siju siju	*Glaucidium siju vittatum*
Xiphidiopicus percussus percussus	*Xiphidiopicus percussus insulæ-pinorum*
Centurus superciliaris superciliaris	*Centurus superciliaris murceus*
Priotelus temnurus temnurus	*Priotelus temnurus vescus*

On the other hand, there are at least thirty-one species of western Cuban breeding birds which have not as yet been recorded from the Isle of Pines, as follows:

* *Sula leucogastra*
* *Phaëthon americanus*
* *Plegadis autumnalis*
* *Erismatura jamaicensis*
* *Nomonyx dominicus*
* *Aix sponsa*
* *Pœcilonetta bahamensis*
Chondrohierax wilsonii
Buteo borealis umbrinus
Buteo platypterus cubanensis
Accipiter gundlachi
Accipiter striatus fringilloides
Limnopardalus maculatus inoptatus
* *Porzana flaviventris*
* *Anous stolidus stolidus*
* *Sterna fuscata*
* *Sterna anætheta*
* *Sterna dougalli*
* *Larus atricilla*
* *Hæmatopus palliatus*
Geotrygon caniceps
* *Melopelia asiatica asiatica*
Campephilus bairdii
Nesoceleus fernandinæ
Colaptes chrysocaulosus chrysocaulosus
Nephœcetes niger niger
Corvus minutus
Dendroica pityophila
Cyanerpes cyaneus ramsdeni
Agelaius humeralis
Ammodramus savannarum subsp.

Almost half of the species in this list (designated by an asterisk) are of more or less wide distribution, so that their absence is of no especial significance. No doubt in due time a number of them will be found in the Isle of Pines. Just how far a like probability may be

assumed for the remaining forms is an open question. At all events, negative evidence must count for little at present, and the chances are that, other conditions being equal, the majority of the species of this latter category extend their range to the Isle of Pines. Some of them, indeed, have even been reported therefrom, on what appears at present, however, to be insufficient grounds.

The avifauna of Cuba itself, it may be noted in passing, is not entirely homogeneous, there being at least six cases (two of which are pointed out for the first time in the present paper) where the eastern and western parts of the island respectively are inhabited by different although closely allied forms of certain birds. Without exception in such cases the Isle of Pines bird is like that of western Cuba. So that, while we might perhaps be inclined to accept the theory of isolation as the dominant factor in the development of the distinctive races of the Isle of Pines, it is evident that such an explanation will not account for the differentiation of two distinct forms in Cuba. It is altogether likely, therefore, that the actual difference in environmental conditions in the Isle of Pines, as evidenced in its peculiar physiographic and climatic features, as compared with those of Cuba, has had more to do in the evolution of its several indigenous forms of birds than mere segregation.

LIST OF LOCALITIES.

In order to facilitate the use of the map which accompanies this report in studying the local distribution of the avifauna, all the locality names appearing in the text are here duly listed, with a brief indication of their position and application. The American invasion of the island is responsible for the confusing mixture of English and Spanish names. Certain names appearing in Messrs. Bangs and Zappey's paper, too, are incorrectly spelled, while others are of more or less uncertain application. A map furnished by Mr. Link, showing his route and collecting-stations, happily puts his work on a much better basis in this respect.

Almacigos.—More properly *Los Almacigos*, which see.

Arroyo del Pino (*Pine River*).—A river in the western part of the main island, visited by Mr. Read on a few occasions.

Arroyo ("*Rio*") *Santiago.*—A small river or creek flowing into the Cienaga near its eastern end, referred to by Mr. Zappey.

Bibijagua (or *Vivijagua*).—A town-site, with a hotel and several

concrete houses, situated on the north coast about a mile and a half southeast of the point of the same name. There is a sandy beach about a mile long at this place, while immediately to the westward a wooded ridge, which reaches a height of two hundred and fifty feet, runs parallel with the shore-line. The slopes of this ridge were well explored by Mr. Link, and proved to be quite rich in bird-life, and the locality was visited by Mr. Zappey also, who incorrectly spells the name " Bibeyhagua."

Bird Island.—A small mangrove island in the southern part of Siguanea Bay, so called because of the presence there of nesting colonies of the Man-o'-war-bird and Florida Cormorant. Visited by Mr. Link on two occasions, and more recently by Mr. Read.

Bogarona.—A landing on the south coast of Siguanea Bay, used by vessels plying to and from Los Indios. Mr. Link collected a few specimens at this place.

Caballos Mountains.—See *Sierra de Caballos.*

Cabo (Punta) Frances.—The western extremity of the " south coast," at the entrance to Siguanea Bay.

Caleta Cocodrilos (Crocodile Inlet).—A small inlet, fringed with mangroves, on the western part of the " south coast," visited by Mr. Link.

Caleta Grande (Grand Inlet).—A small bay or inlet on the " south coast," near its western end, visited by Mr. Link. A sandy beach all around makes this a favorite resort for several species of shore-birds in season, while Brown Pelicans also find it a good place to pursue their fishing.

" *Callebonita.*"—A misspelling for *Cayo Bonito*, which see.

Cañada Mountains.—See *Sierra de la Cañada.*

Casas Mountains.—See *Sierra de Casas.*

Casas River.—See *Rio Sierra de Casas.*

Cayo Bonito.—An old plantation, lying along a river of the same name, within a mile of the town of Santa Fé. Erroneously given as " Callebonita " by Messrs. Bangs and Zappey.

Cayo Frances.—A small island just off Cabo Frances, where Mr. Link once made a brief stop, collecting a few birds. It is almost surrounded with mangroves, but has a stretch of sandy beach.

Cerro de Santa Barbara (Santa Barbara Mountain).—An isolated hill in the western part of the island, about two hundred feet high, referred to by Mr. Read.

Cienaga de Lanier.—Usually referred to merely as the "Cienaga." An immense swamp or morass, running from east to west across the southern part of the island, and separating it into two portions. See description on page 152.

Columbia.—An American colony or town in the northeastern part of the main island, west of the Rio Jucaro.

Crocodile Inlet.—See *Caleta Cocodrilos.*

El Bobo Lagoon.—A good-sized salt-water mangrove lagoon near the coast, east of the mouth of the Nuevas River. A favorite resort for various species of herons and shore-birds. Visited by Mr. Link on March 14 and 15, 1913.

El Canal.—A tract of land in the southern part of the main island, traversed by Mr. Link in his trip to the Cienaga in May, 1913.

El Hospital.—A tract of land adjoining El Canal on the south, traversed by both Mr. Zappey and Mr. Link.

Ensenada de la Siguanea (*Siguanea Bay*).—A large but comparatively shallow bay indenting the western part of the island, and opening to the northwest. It is about ten miles wide by fourteen miles long, and its shores are almost everywhere fringed with mangroves, while mangrove islands line its southern shore.

Grand Inlet.—See *Caleta Grande.*

Guanabana.—(Misspelled "Guanawana" by Messrs. Bangs and Zappey). The name applied to a small tract of land just east of Santa Rosalia Lagoon, visited by Mr. Zappey.

Hato.—The site of a house on the trail about midway between Bogarona and Caleta Grande, on the "south coast," south of Siguanea Bay. A few birds were collected here by Mr. Link, who reports that the surrounding country is all jungle.

Hospital.—More properly *El Hospital,* which see.

Jacksonville.—The name applied to a small settlement on the "south coast," about midway between Caleta Grande and Caleta Cocodrilos, visited by Mr. Link.

Jucaro.—A landing on the south bank of the river of the same name, used by the steamer plying between the Isle of Pines and Cuba. Visited by Mr. Zappey.

La Ceiba.—A fine plantation, about four miles west-southwest of Santa Fé, referred to by Messrs. Bangs and Zappey. The name is applied also, in a larger sense, to the original tract of which this is a part.

Laguna de Piedras.—A large lagoon, in character much resembling the Cienaga, situated in the southern portion of the island not far from Pasadita, and visited by Mr. Link on one occasion.

Laguna Grande.—The exact position of this lagoon, which was visited by Mr. Zappey, is not ascertainable, but it is evidently near Santa Fé, since birds were shot at both places on the same day, April 21.

La Vega.—A contraction, used by Messrs. Bangs and Zappey, of *San Francisco de la Vega*, which see.

Los Almacigos.—An extensive tract lying west of the town of Santa Fé, the name being more particularly applied to the old plantation situated near the center of the tract in question. Referred to by Messrs. Bangs and Zappey merely as "Almacigos."

Los Indios.—A town-site along the lower course of the river of the same name, in the southwestern part of the main island. This locality was very thoroughly worked by Mr. Link, it being his headquarters, from which excursions were made to surrounding sections, during the greater part of his stay in the island. There are extensive marshes in the vicinity, also areas of dry pasture-land, jungle, pine-woods, etc., with growths of mangrove along the river for a considerable distance from its mouth, and lining a larger salt-water lagoon which lies just back of the coast to the southward. This diversity of conditions makes the locality an ideal one for collecting birds.

Los Tres Hermanos Mountains.—A name applied by Mr. Read to the three northernmost peaks of the Casas range, close to Nueva Gerona.

Majagua River.—See *Rio de la Majagua.*

Mal Pais.—The name applied to the region along the river of the same name, visited by Mr. Zappey.

"*Managua.*"—A misspelling of *Manigua.*

Manigua.—A famous plantation along the Rio de las Nuevas, a few miles above McKinley, visited by Mr. William Palmer in 1900, in which year it was abandoned.

McKinley.—A town-site, with a number of scattering houses, along the Rio de las Nuevas, a few miles from its mouth. It is a locality frequently mentioned in Mr. Read's articles.

Morrillo del Diablo.—An island off the north coast, east of the high promontory, Punta del Colombo, and famous as a resort of the Florida Cormorant.

New River.—See *Rio de las Nuevas.*

Nueva Gerona.—The capital, port of entry, and chief town of the island, situated in the northern part, on the west bank of the Rio Sierra de Casas. It was officially founded in 1830, and now has a population of about twelve hundred. The land in the vicinity of the town is cleared for the most part and some of it is under cultivation, but there remain considerable wooded areas at the base of the Casas Mountains immediately to the westward. Most of the specimens labeled by Mr. Link as coming from "Nueva Gerona" were really secured on the slopes and bases of the Casas and Caballos Mountains, or else along the river above the town. The locality was worked also by Messrs. Palmer and Riley during their visit in 1900, and by Dr. Gundlach in 1854.

Nuevas River.—See *Rio de las Nuevas.*

Pasadita.—The site of a house which formerly stood on the south shore of the Cienaga, just west of the Paso de Piedras. This house was destroyed in the hurricane of 1910, and at the time of Mr. Link's visit in 1913 the owner had built a new one on the other side of the Cienaga. Mr. Zappey did some collecting here in 1904.

Paso de Piedras.—The name given to a stretch of ground about midway of the Cienaga de Lanier, where only it is possible to cross from the main island to the southern part. Even during the dry season the water here is from one to three feet deep, with occasional dry islands.

Pine River.—See *Arroyo del Pino.*

Placer de Playa Larga.—The name applied to an extensive area of beach and shallows on the southeastern shore of the "south coast." Called "Plaza Larga" by Messrs. Bangs and Zappey.

"*Plaza Larga.*"—See *Placer de Playa Larga.*

Port McKinley.—A landing a few miles above the mouth of the Rio de las Nuevas, referred to by Mr. Read.

Pueblo Nuevo.—The name given to the inferior "native" suburb, on the western outskirts of Nueva Gerona. Referred to by Messrs. Bangs and Zappey.

Punta del Colombo.—A high promontory jutting out into the sea, forming the termination of the Sierra de Caballos.

Punta del Este.—The easternmost point of the "south coast." There is an area of sandy beach here, while on the south exposure the same coral rock prevails as is found all over the "south coast" in general.

Very few birds, however, were noticed here on the occasion of Mr. Link's visit, March 22 and 23, 1913. Mr. Zappey seems to have penetrated thus far on his second expedition, since the locality is mentioned once in his report.

Punta del Potrero.—The easternmost point of the northern or main island.

Punta de la Bibijagua.—A point on the northeastern coast of the island.

Punta Primera de Salinas.—A point on the coast, east of Punta de la Bibijagua, which is probably the locality referred to by Messrs. Bangs and Zappey under the name "Salina." It is probably the same as Rincon Lagoon, so called by Mr. Link.

Punta Frances.—See *Cabo Frances.*

Rincon Lagoon.—A large lagoon adjacent to the coast, east of Bibijagua, visited by Mr. Link, and probably the same as the locality called "Salina" by Messrs. Bangs and Zappey. For a fuller description see page 152.

Rio de la Majagua (*Majagua River*).—A small river in the southwestern part of the main island, northwest of Los Indios, visited by Mr. Link on several occasions. Like all the rivers of this part, its lower course is fringed with mangroves.

Rio de las Nuevas (*Nuevas* or *New River*).—The longest river in the island, draining a large part of the central and northwestern section. It is too shallow, however, to permit the ascent of any but small vessels, and is fringed with mangroves as far up as the town of McKinley, beyond which the jungle comes to the water's edge.

Rio del Mal Pais.—One of the tributaries of the Rio Jucaro, rising near the center of the main island, and flowing in a northeast direction.

Rio Jucaro.—A good-sized river in the northeastern part of the main island, formed by the junction, near Jucaro, of several smaller streams.

"*Rio*" *Santiago.*—See *Arroyo Santiago.*

Rio Sierra de Casas (*Casas River*).—A river in the northern part of the main island, navigable for small steamers for about two miles from its mouth, or to the town of Nueva Gerona.

"*Salina.*"—See *Punta Primera de Salinas.*

San Francisco de la Vega.—An unsurveyed tract adjoining the Cienaga, visited in 1904 by Mr. Zappey, who refers to it merely as "La Vega."

San Juan.—An extensive tract of land in the eastern part of the main island. The name is also applied, in a more restricted sense, to the old Garcia homestead, the former headquarters of the tract. It is mentioned by Messrs. Bangs and Zappey as a collecting-station.

Santa Ana.—A tract of land about four miles west of Santa Rosalia, where Mr. Link found a few species of water-birds at a small lagoon on one occasion.

Santa Barbara.—The name originally applied to a tract of about fifteen thousand acres, lying west of the Rio de las Nuevas, but more recently given to a settlement in its south-central part. As used by Mr. Read, the name refers to the tract, but both the tract and the town were formerly called West McKinley by the promoting land-company.

Santa Barbara Mountain.—See *Cerro de Santa Barbara.*

Santa Fé.—The oldest settlement on the island, situated on the river of the same name, in the east-central part.

Santa Rosalia.—A town-site in the northeastern part of the island, about halfway between Nueva Gerona and Santa Fé.

Santa Rosalia Lagoon.—A large fresh-water lake, situated a short distance northwest of Columbia, close to the Caballos Mountains. The water is shallow, and during the dry season the lake is of course much reduced in extent. The shores are muddy, and support a rank growth of grasses and sedges. Several species of water-birds were encountered here by Mr. Zappey and Mr. Link.

Santa Sevilla.—This locality, mentioned by Messrs. Bangs and Zappey, cannot be found on any map consulted. Possibly it is an error for "*Santa Cecilla.*"

Sierra de Caballos (*Caballos Mountains*).—A mountain ridge in the northern part of the main island, east of Nueva Gerona, running north and south, parallel with the Rio Sierra de Casas, and terminating in a headland on the coast known as Punta del Colombo. For a fuller description see page 149.

Sierra de Casas (*Casas Mountains*).—A ridge lying west of the town of Nueva Gerona, and about two and one-half miles in length, from north to south. See description on page 149.

Sierra de la Cañada (*Cañada Mountains*).—An elevated ridge in the southwestern part of the main island, rising to a height of nine hundred and eighty-five feet (*fide* O. E. Jennings). For a further description see page 149. Visited by both Mr. Read and Mr. Link.

Siguanea.—A town-site at the southwestern extremity of the main island. As the name is used by Mr. Link, it covers the coast in the immediate vicinity, and the western end of the Cienaga for a distance of several miles.

Siguanea Bay.—See *Ensenada de la Siguanea.*

Vivijagua.—See *Bibijagua.*

West Mc Kinley.—A name used by the promoting land-company for the tract and settlement on the west side of the Rio de las Nuevas, later on called Santa Barbara, which see. Many of Mr. Read's observations were made here.

LIST OF SPECIES.

The order of the present list follows that laid down for the higher groups by Mr. Robert Ridgway in the first volume of his *Birds of North and Middle America.* The actual sequence of the species, however, so far as it has appeared in the body of that work, has been reversed, and in the groups not yet treated by that author arranged as well as may be to correspond. In matters of nomenclature the aim has been to follow the latest and best authorities, save only where the facts seem to justify a different course. While certain of the rulings of the International Commission on Zoölogical Nomenclature, as for example the one which requires the original spelling to be followed in the duplication of the final " i " in patronymic names, are decidedly objectionable to the writer, he proposes to waive his personal prejudices for the sake of uniformity. Such species as in the judgment of the writer are not fully authenticated as birds of the Isle of Pines are included in their proper places, but are printed in smaller type, and without a number prefixed. All measurements are in millimeters, and in every case the length of the bill is that of the exposed culmen. Free use has been made of Mr. Ridgway's *Color Standards and Color Nomenclature* in discussing color variations and preparing descriptions. As regards the names in the reference lists under the several species, it should be explained that variations in orthography or abbreviation do not appear under separate entries, all such having been combined under one head, so long as the intention of the author is clear. The formal citation of vernacular names in this connection is of course defensible, in a faunal paper such as this, on the ground of tending to completeness. The locality names in the references have for the most part been given in corrected form.

1. **Colymbus dominicus dominicus** Linnæus. SAINT DOMINGO GREBE.

"Least Grebe" READ, Oölogist, XXVII, 1910, 15, and XXX, 1913, 131 (I. of Pines, Dec. 25, 1909); XXVIII, 1911, 114 (West McKinley).

Colymbus dominicus READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).

One specimen: Caleta Grande.

This example, the only one observed, was shot in a small lagoon on November 28. It is an adult male in full winter dress, with a white throat. In size it agrees with Cuban specimens, measuring as follows: wing, 96; culmen, 26. Mr. Read has recorded the species in the northwestern part of the island, and writes that he shot a specimen April 14, 1910, along the Nuevas River. It is evidently not a very common bird on the island, and by reason of its secretive habits readily eludes observation.

2. **Podilymbus podiceps** (Linnæus). PIED-BILLED GREBE.

Podilymbus podiceps BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 184 (Nueva Gerona, breeding, *fide* Palmer & Riley; Laguna Grande, March).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

"Pied-billed Grebe" READ, Oölogist, XXVI, 1909, 102 (I. of Pines).—READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, May 7).—READ, Oölogist, XXVIII, 1911, 113 (West McKinley).

One specimen: Los Indios.

Recently Mr. Outram Bangs has described the Pied-billed Grebe of the Antilles as a distinct subspecies, *Podilymbus podiceps antillarum* (*Proceedings New England Zoölogical Club*, IV, 1913, 89). After an examination of the type-specimen and certain other material I find myself unable to indorse this separation on any grounds whatever. The type is no smaller than a female specimen from northern Brevard County, Florida, in the collection of the Carnegie Museum, taken at just about the same date. Females of this species, besides being smaller, seem to have on an average a more restricted black throat-patch than males, and I have reason to believe that the black marking on the side of the bill is a variable character, dependent largely upon season, and not especially correlated with locality. A breeding specimen from Great Inagua, Bahama Islands, is certainly in nowise distinguishable from continental examples. According to Baird, Brewer, & Ridgway (*Water Birds of North America*, II, 1884, 441), South American examples are not tangibly different, contrary to what might be expected in the case of such a wide-ranging species.

There are only a few records for this species for the Isle of Pines, where it is evidently not a common bird. Mr. Link did not meet with it at all, the single example recorded above having been forwarded to the Carnegie Museum by Mr. Frederic F. Baggesen, who secured it at Los Indios on October 16, 1913. Mr. Zappey saw none in 1904, and but two in March, 1902, at Laguna Grande. That the species breeds on the island, however, is attested by Mr. Riley, who says that he found an adult and three downy young of fair size at Santa Rosalia Lagoon, southeast of Nueva Gerona, early in July, 1900. "One of the downy young was secured, but the other two and the adult eluded me, as they could swim and dive faster than I could wade." Mr. Read enters this species on his list as a rare resident.

3. **Anhinga anhinga** (Linnæus). WATER TURKEY.

Anhinga anhinga CORY, Cat. W. Indian Birds, 1892, 84 (I. of Pines, in geog. distr.). —GUNDLACH, Orn. Cubana, 1895, 310 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 (Nueva Gerona [*fide* Palmer & Riley] and the Cienaga). —READ, Oölogist, XXVI, 1909, 165 (Nuevas River; habits); XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Dec. 20, 1913 (descr.; habits).

"Anhinga" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVIII, 1911, 6, 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 130 (I. of Pines).

Although recorded by almost all the observers who have studied the avifauna of the Isle of Pines, the Anhinga or Water Turkey does not seem to be a very common bird there. Mr. Zappey found it only in the region of the Cienaga, where he says that individuals might be seen almost any day, perched on dead branches of trees. A single adult bird, still retaining some of the lengthened feathers of the crown and nape, was shot by Mr. Link on the Los Indios River on December 18. He saw others also on the Majagua River, and near Siguanea, at the eastern end of the Cienaga. There are, however, numerous records from the northern part of the island as well, to which may be added those of individuals seen near Bibijagua and Santa Ana by Mr. Link. Mr. Read has given us an entertaining account of the fishing habits of this species as observed by him on the Nuevas River. The natives consider the flesh of this bird very palatable.

4. **Phalacrocorax auritus floridanus** (Audubon). FLORIDA CORMORANT.

Phalacrocorax floridanus POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—GUNDLACH, Orn. Cubana, 1895, 305 (I. of Pines).

Phalacrocorax dilophus floridanus CORY, Cat. W. Indian Birds, 1892, 85 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 (I. of Pines, coastwise).—(?) READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Apr. 25, 1914 (Bird I., Siguanea Bay).

"Florida Cormorant" (?) READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, Dec. 6).—(?) READ, Oölogist, XXVI, 1909, 58 (I. of Pines); (?) XXVIII, 1911, 10 (Nuevas River, May 17), 146 (Morrillo del Diablo); XXX, 1913, 123 (north coast, off Nuevas River), (?) 125 (Santa Barbara), (?) 130 (I. of Pines), (?) 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

Nine specimens: Los Indios.

Only two of these are adults in full black glossy plumage, neither of which, however, although taken in the breeding season, show any sign whatever of lateral crests. One specimen is abnormal in possessing *fourteen* rectrices.

Cormorants of this species are common all along the coast and about the outlying cays; in fact, it is in such situations one of the most abundant and characteristic water-birds. It breeds in colonies at certain points, the nests being built in the mangroves at a low elevation, and composed merely of a few sticks. Two eggs are the usual complement; they are dull bluish green in color, with rough, chalky shells. The species seems to have an extended breeding season, eggs and downy young having been found at a colony in Bird Island, in Siguanea Bay, at such widely separated dates as October 18 and April 16. At another colony, in a lagoon south of Los Indios, eggs were secured on October 7, and a month later downy young, possibly two weeks old. The island of Morrillo del Diablo, on the north coast, off Punta del Colombo, is another favorite resort of this species. Although partial to the salt water, individuals occasionally ascend the rivers for a little distance, one having been shot on January 21 on the Los Indios River, three miles from its mouth.

It is possible that some of Mr. Read's records above quoted may refer to the following species.

5. **Phalacrocorax vigua mexicanus** (Brandt). MEXICAN CORMORANT.

Phalacrocorax vigua mexicana (*sic*) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 (Pasadita, May; meas.; crit.).

One specimen: Bibijagua.

The only one observed by Mr. Link was shot near the coast at Bibijagua on July 4. Mr. Zappey secured a specimen at Pasadita in May. These two occurrences are at present the only certain records

for the island, where it evidently is not common. Unlike *P. auritus floridanus*, it is wont to frequent fresh as well as salt water. Specimens are indistinguishable from typical examples from Mexico. Its distribution in the West Indies is apparently restricted to Cuba, the Isle of Pines, and Watlings Island of the Bahaman group.

6. **Pelecanus occidentalis** Linnæus. BROWN PELICAN.

Pelecanus fuscus POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 85 (I. of Pines, in geog. distr.). —BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 ("south coast").

"Brown Pelican" READ, Oölogist, XXVIII, 1911, 10 (Nuevas River), 13 (I. of Pines); XXX, 1913, 131 ("south coast").

Pelecanus occidentalis READ, I. of Pines News, VI, Apr. 25, 1914 (Caleta Grande).

Six specimens: Caleta Grande.

Four different plumages are represented. There are two in juvenal dress (November 26), with white under parts and grayish heads and necks. Two others taken at the same time are obviously immature, showing the neck-pattern of the adult in brownish gray instead of chestnut, the under parts, however, being dark-colored. The series available for study being insufficient to illustrate the sequence of plumages in this species, I am a little uncertain as to the exact age of these two examples, but believe them to be in first nuptial dress, assuming that the species breeds in the second year, or, if it does not, in a plumage which corresponds to this in time. Both of these specimens show fresh gray feathers mixed with the worn brown ones characteristic of the juvenal plumage, the moult affecting the rectrices also. There are two spring specimens (April 18 and 23), one of which has the back of the neck chestnut, while in the other the head and neck all around are white. This latter corresponds to the description of the adult in winter plumage, and compares favorably with non-breeding specimens from Costa Rica and Colombia. Mr. Ogilvie-Grant (*Catalogue Birds British Museum*, XXVI, 1898, 478), however, says that "nearly mature" birds "do not assume the dark velvety-brown neck in the breeding-season, these parts remaining white like those of the adult in winter-plumage." But, if I am correct as to the stage of plumage represented by the immature birds described above, it would be strange indeed to find them assuming the pattern of the adult for the first breeding-season, only to lose it for the second. It is well known that this species has an extensive breeding-season, nesting along the Cuban coast, according to Gundlach, from June to

September, while on Pelican Island, Florida, two broods are said to be raised, one in May and one in September. The difference in the time of nesting would readily account for the presence of birds in winter or non-breeding plumage at the same season as those in full nuptial dress.

Although the Brown Pelican has been occasionally noted in the northern part of the Isle of Pines, it is far more numerous about the "south coast." Mr. Link found it to be very common at Caleta Grande on November 26 and 27, and again in April, fishing in the shallow water. Individuals were noted also at Cabo Frances, Los Indios, the Majagua River, and at Punta del Este, at the southeastern corner of the island. It is evident that the breeding-place of these birds must be somewhere along this coast, but it was not discovered, nor did any of the natives seem to be aware of its location. Probably it is in some retired inlet or lagoon, or perhaps on one of the isolated cays not yet visited by any ornithologist.

7. **Pelecanus erythrorhynchos** Gmelin. WHITE PELICAN.

Pelecanus erythrorhynchus CORY, Cat. W. Indian Birds, 1892, 85 (I. of Pines, in geog. distr.), 136 (I. of Pines, *ex* ——?).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 (I. of Pines, *ex* Cory).

The claim of the White Pelican to a place in the present list rests solely on the authority of Mr. Cory, as above. I have been unable to discover upon what grounds his record is based. There is but one authentic record for Cuba, and if it occurs in the Isle of Pines at all it can only be as a very rare and irregular winter visitor.

8. **Fregata magnificens** Matthews. MAN-O'-WAR-BIRD.

Fregata aquila POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 85 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 185 (Manigua, *fide* Palmer & Riley, Santa Fé, and "south coast").

"Frigate Bird" READ, Oölogist, XXVIII, 1911, 13, and XXX, 1913, 130 (I. of Pines).—READ, I. of Pines News, VI, Apr. 25, 1914 (Siguanea Bay).

Fifteen specimens: Bird Island.

This species, although apt to be seen flying over on occasion almost anywhere in the island, inland as well as coastwise, is not known to breed locally, except on a small mangrove cay near the head of Siguanea Bay, known as Bird Island. Here a colony of several hundred individuals is established, occupying an extensive area on the south side of the island, while the Florida Cormorants are confined to another

part. This colony was first visited on October 18 and 19. The adult birds proved to be rather shy on this occasion, but a series of young in juvenal plumage was secured, some still showing remains of the natal down in places. Although practically fully grown, some of the young birds were still confined to the nest, and could only be forced to leave by the use of considerable persuasion. Numerous dead young were noticed, caught by the neck in the fork of a branch, where they had fallen out of the nests, which are so small and frail that one wonders how the young contrive to remain in them at all. Should they drop into the water below they at once fall victims to the waiting crocodiles. A second visit to this same spot, made on April 16 and 17, found the birds with eggs and downy young, some of which were secured, as well as a series of adults. Both sexes incubate, and the brooding birds are very loath to leave their eggs or young. The half of the birds off duty at any given time are wont to keep swinging about overhead in graceful circles, when not actually engaged in fishing.

9. **Botaurus lentiginosus** (Montagu). BITTERN.

Botaurus lentiginosus CORY, Cat. W. Indian Birds, 1892, 89 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 192 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (I. of Pines, *ex* Cory and Gundlach).—COOKE, Bull. Biol. Survey, No. 45, 1913, 26 (I. of Pines, *ex* Gundlach).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines [*ex* Cory and Gundlach]).

A winter visitant, apparently rare, the only records being the indefinite ones cited above, which doubtless all rest on the authority of Gundlach. The species has been recorded as a casual or accidental visitant to Jamaica and Porto Rico, and according to Gundlach is not rare in western Cuba, so that further records from the Isle of Pines may be anticipated.

10. **Ixobrychus exilis exilis** (Gmelin). LEAST BITTERN.

Ardetta exilis BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (Cienaga).

"Least Bittern" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, and XXVII, 1910, 15, and XXVIII, 1911, 7 (I. of Pines); XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 113 (West McKinley).

Ixobrychus exilis READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

One specimen: Siguanea.

April 28 is the date of capture, which at least raises a strong presumption of this being a breeding bird, contrary to what Messrs. Bangs and

Zappey indicate. The specimen, an adult male, is rather smaller than the average (wing, 110 mm.), although it is in fresh plumage; its posterior under parts are much whiter, in fact, pure white medially down to the under tail-coverts. Examination of a considerable series of this species, however, shows that such pale birds are not localized in their distribution, but occur at such widely separated points as Sacramento, California (No. 33,353, Collection Museum Comparative Zoölogy), Fort Snelling, Minnesota (No. 189,493, Collection U. S. National Museum), and Lake Harney, Florida (No. 152,913, Collection U. S. National Museum), so that they can have no geographical significance. One other individual was seen by Mr. Link, at Los Indios early in October, while Mr. Read sets it down in his list as a common winter resident. In a letter from Mr. Charles T. Ramsden, of Guantánamo, Cuba, he expresses the opinion that it would be very difficult to distinguish breeding examples from winter-resident birds (if, indeed, the northern birds come to Cuba at all), for the reason that he has found partly incubated eggs on December 10, while it is improbable that a specimen shot May 10 was other than a breeding bird. Mr. Zappey found the Least Bittern common in the Cienaga in March, 1902. Jamaica seems to be its southern breeding limit in the Antilles.

11. **Ardea occidentalis repens** Bangs and Zappey. CUBAN GREAT WHITE HERON.

Ardea repens BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 186 (Cienaga and cays off coast; orig. descr.; type now in coll. Mus. Comp. Zoöl.).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review).—READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines, rare).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines, rare; descr.).

"Great White Heron" READ, Oölogist, XXVI, 1909, 75 (I. of Pines).—READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, Mar. 13).

"Cuban White Heron" READ, Oölogist, XXVII, 1910, 5, and XXVIII, 1911, 10 (Nuevas River), 146 (Bibijagua); XXX, 1913, 123 (Pine River), 125 (Santa Barbara), 131 (I. of Pines, Mar. 13).

Ardea herodias repens BANGS, Auk, XXXII, 1915, 484, part (I. of Pines; crit.).

One specimen: El Bobo Lagoon.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
13241[1]	♀	Cienaga, I. of Pines	440	156	144	172
41205[2]	♀	El Bobo Lagoon, I. of Pines	413	152	121	154

[1] Collection E. A. and O. Bangs. Type.

[2] Collection Carnegie Museum.

The measurements of this, the second specimen of this rare bird recorded from the Isle of Pines, show that it is smaller than the type. Although apparently fully grown, it is certainly immature, as indicated by the shreds of downy filaments still adhering to some of the feathers of the occiput, and by the dark-colored upper mandible. The type-specimen, which has been examined in this connection, also looks like an immature, or at least a non-breeding bird, having a dark upper mandible, and lacking any trace of occipital, scapular, and jugular plumes. It is of course to be expected that fully adult males in breeding dress would average somewhat larger, and resemble the Florida bird in their ornamentation. The smaller size being apparently the only character separating it from the latter, I prefer to let it stand as a subspecies. My views regarding the specific distinctness of *Ardea occidentalis* coincide with those of Mr. Oberholser (*Proceedings United States National Museum*, XLIII, 1912, 541), but it may be worth while to point out that in the matter of size *A. occidentalis occidentalis* bears exactly the same relation to *A. occidentalis repens* as does *A. herodias wardi* to its West Indian representative, *A. herodias adoxa* —a circumstance which may or may not be significant.[3] Additional specimens of the present form are naturally very desirable. The iris in the specimen taken by Mr. Link is marked as "straw-color."

This heron is rather rare throughout the island, and very shy and difficult to approach. It is found mostly in the open marshy country, where there is not enough cover to conceal the movements of the hunter. The individual secured was surprised near El Bobo Lagoon, northeast of McKinley, on March 7. Another was repeatedly observed in October and November along the Majagua River, but eluded all efforts to approach it within gunshot. Towards the western end of the Cienaga as many as three were observed together on one occasion (November 14). One was noted flying overhead near Nueva Gerona. Although it may readily be distinguished in life from the Egret by its superior size, it is possible that some of Mr. Read's records above quoted may refer to the latter species. Messrs. Palmer and Riley

[3] This was written before the appearance of Mr. Bangs's recent paper (*Auk*, XXXII, 1915, 481–484), in which he contends that *Ardea occidentalis* is merely a white phase of *Ardea herodias wardi*. Although he presents no new evidence bearing on the case, it must be admitted that the presumption in favor of his view is by no means weak, reasoning by analogy. But it would seem to be a matter which can be settled only by further and detailed observations in the field.

saw a few about the cays, and it is probable that the species breeds on some of the more retired of these islands.

12. **Ardea herodias adoxa** Oberholser. WEST INDIAN BLUE HERON.

Ardea herodias (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1851, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 89 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat. XXXIX, 1905, 186 (cays off coast and the Cienaga; crit.).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines, not common; descr.).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

"Ward's Heron" (error) READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 130 (I. of Pines, rare); XXVIII, 1911, 10 (Nuevas River), 113 (West McKinley, rare); XXX, 1913, 123 (Pine River).

Ardea herodias adoxa OBERHOLSER, Proc. U. S. Nat. Mus., XLIII, 1912, 544 (I. of Pines, in geog. distr.).—COOKE, Bull. Biol. Survey, No. 45, 1913, 37 (I. of Pines; crit.).

"Great Blue Heron" READ, Oölogist, XXX, 1913, 125 (Santa Barbara), 168 (Los Indios).—READ, I. of Pines News, VI, Apr. 25, 1914 (Pine River).

Ardea herodias wardi? READ, Oölogist, XXVIII, 1911, 11 (I. of Pines); XXX, 1913, 132 (Nuevas River).

Ardea herodias repens (not of Bangs and Zappey?) BANGS, Auk, XXXII, 1915, 484, part (I. of Pines; crit.).

One specimen: Los Indios.

This bird, shot November 23, is in immature dress, with much more rufescent suffusion below than in any of the specimens of *A. h. herodias* and *A. h. wardi* of the same age available for comparison, although no especial difference in the color of the upper parts is observable. The middle wing-coverts are old and worn, while the greater and most of the lesser series are fresh. Without additional material I do not attempt to discuss the claims of this particular form to recognition, further than to state that it certainly cannot be confused with *A. h. wardi*.

Great Blue Herons are rather common throughout the island, and were noted at almost all the localities visited by Mr. Link, wherever there was water. They unquestionably breed on certain of the outlying cays, whence young in the downy stage brought back by fishermen were examined. No nests were discovered on the mainland, although there is no reason why the birds should not breed there upon occasion. Mr. Read has also observed them frequently in the course of his peregrinations in the northern part of the island, but his identification of the individuals seen as belonging to the Florida form is obviously in error. He writes that he took but one specimen, which he shot at Pine River on July 12, 1911.

13. **Herodias egretta** (Gmelin). EGRET.

Ardea egretta CORY, Cat. W. Indian Birds, 1892, 89 (I. of Pines, in geog. distr.).
Herodias egretta GUNDLACH, Orn. Cubana, 1895, 181 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 186 (I. of Pines, inland and coastwise; Nueva Gerona, *fide* Palmer & Riley; La Vega; formerly abundant).—READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines, rare; descr.).
"American Egret" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines) —READ, Oölogist, XXVI, 1909, 124, and XXX, 1913, 131 (I. of Pines).

Three specimens: Pasadita.

Only one of these (No. 41,405, May 28) is in (worn) breeding dress. The other two, shot on May 23, may also be adults, but they show no signs of dorsal plumes.

On the Isle of Pines, as elsewhere throughout its range, the Egret has suffered sadly from the persecution of the plume-hunters, until its numbers are now but a fraction of what they formerly were. The few birds which remain, although protected by law, are shot at by the natives surreptitiously at every opportunity, until they have become so shy that it is now only by chance that they can be approached at all. As many as seven together were seen on one occasion at a lagoon east of the mouth of the Nuevas River, but they easily eluded the efforts of four gunners to get within range. It is not known precisely where the local breeding-grounds of this species are at the present time. Mr. Zappey speaks of seeing Egrets on the coast as well as inland, but Mr. Link did not observe any except about fresh water.

14. **Dichromanassa rufescens** (Gmelin). REDDISH EGRET.

Ardea rufescens POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

A single individual of this species was identified by Mr. Link in a salt-water marsh at Los Indios on October 7, but eluded capture. Poey's record above quoted seems to be the only other known instance of its occurrence on the island.

15. **Florida cærulea** (Linnæus). LITTLE BLUE HERON.

Ardea cærulea POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 90 (I. of Pines, in geog. distr.).
Florida cærulea GUNDLACH, Orn. Cubana, 1895, 186 (I. of Pines).
"Little Blue Heron" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines). —READ, Oölogist, XXVI, 1909, 75, and XXX, 1913, 130 (I. of Pines, common); XXVII, 1910, 5, and XXVIII, 1911, 6, 10, and XXX, 1913, 123 (Nuevas River); XXVIII, 1911, 113 (West McKinley), 146 (Bibijagua); XXX, 1913, 125, 127 (Santa Barbara).

Florida cærulea cærulescens BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 187 (Guanabana, the Cienaga, and seacoast, common).—READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines; descr.).

Eleven specimens: Los Indios and Majagua River.

The series comprises seven white and four blue birds, but only one of the latter is without any scattering white feathers. These blue individuals, together with another from Porto Rico, are quite indistinguishable from Florida examples, so far as I can see. Mr. Riley (*Smithsonian Miscellaneous Collections*, Quarterly Issue, XLVII, 1904, 279) has adopted the name *cærulescens* of Latham, based on birds from Cayenne, as the subspecific appellation of the Little Blue Herons of the Greater and Lesser Antilles and of Central and South America, alleging that they are much darker than those of Florida and farther north. I have not seen any Cayenne examples, but can find no characters to distinguish Colombian birds, while the series of Florida specimens studied certainly shows a considerable degree of individual variation in depth of coloration. But as such variation in the West Indian birds is fully as great, there is no reason for thinking that it has any geographical significance.

All observers agree that the Little Blue Heron is the commonest species of its tribe in the island, both on the coast, cays, and in the inland districts, wherever there is water. It is particularly numerous in the Cienaga, however, and is also partial to the brackish lagoons along the coast. According to Mr. Link's experience, the blue and white phases are about equally common at all seasons. He found several nests in process of construction early in May, all in the mangroves along the Los Indios River. Except in the breeding-season, the species was frequently observed in small parties, wading about on the edges of lagoons, the margins of rivers, and the open marshes. Not being persecuted as are some of the other herons, it is as a rule not nearly so shy.

16. **Egretta thula thula** (Molina). SNOWY EGRET.

Leucophoyx candidissima BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 187 (Jucaro and the Cienaga).

"Snowy Heron" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, and XXX, 1913, 130 (I. of Pines); XXVIII, 1911, 6 (Nuevas River), 113 (West McKinley); XXX, 1913, 125, 127 (Santa Barbara), 164 (Santa Barbara to Nueva Gerona).

Herodias candidissima READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

Egretta candidissima READ, Oölogist, XXX, 1913, 132 (I. of Pines).
Ardea candidissima READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines; descr.).

Messrs. Bangs and Zappey state that "the Snowy Heron is now very rare on the Isle of Pines, having been killed off for its plumes. One was seen in the Cienaga, and at Jucaro a native had a wounded bird that was kept alive in confinement." Aside from this, the only records are those by Mr. Read, above quoted. He writes that he took a specimen December 1, 1909, on the Nuevas River, and that he has since seen several along this same stream. But the possibility of confusing this species with the white phase of the Little Blue Heron is so great that it is very doubtful if it occurs as frequently as a perusal of Mr. Read's notes would lead us to believe. Mr. Link, indeed, made a special search for this species, going in pursuit of every small white heron that he saw, but all turned out to be Little Blue Herons in the white phase.

17. **Hydranassa tricolor ruficollis** (Gosse). LOUISIANA HERON.

Ardea leucogaster POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).
Ardea tricolor ruficollis CORY, Cat. W. Indian Birds, 1892, 89 (I. of Pines, in geog. distr.).
Hydranassa tricolor ruficollis GUNDLACH, Orn. Cubana, 1895, 183 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 187 (seacoast, Cienaga, etc.).—HELLMAYR, Nov. Zoöl., XIII, 1906, 50 (I. of Pines,; meas.).—READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines; descr.).
"Louisiana Heron" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 130 (I. of Pines); XXVIII, 1911, 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 125 (Santa Barbara).
Hydranassa tricolor (not of Müller) READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

Four specimens: Los Indios and Bird Island.

Two of the Los Indios examples, dated October 1 and 4 respectively, are in worn breeding dress, while a third, taken May 8, is in full nuptial plumage. The specimen from Bird Island, shot on October 18, is in juvenal plumage, the neck and breast being deep rufous, and the pileum, hind neck, and flanks still bearing remains of the natal down. All of these specimens have rather more rufous on the throat than the average Florida bird, possibly indicating divergence in the direction of the subspecies *rufimentum*, described from Trinidad by Mr. Hellmayr.

Although not so common in the Isle of Pines as the Little Blue Heron, this bird is still fairly numerous. It is seldom found away from the salt and brackish waters of the coastal lagoons and the lower courses of the rivers, where it may often be found in company with the Little Blue Heron. Mr. Zappey secured a single specimen in the Cienaga, but the species was observed there by Mr. Link only at its western end, near Siguanea. No nests were found, but it probably breeds in May, as does the Little Blue Heron.

18. **Butorides virescens cubanus** Oberholser. CUBAN GREEN HERON.

Ardea virescens (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Butorides virescens maculata (not of Boddaert) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (Bibijagua and Santa Fé; crit.).—THAYER & BANGS, Bull. Mus. Comp. Zoöl., XLVI, 1905, 142 (Bibijagua and Santa Fé; meas.; crit.).—READ, Bird-Lore, XIII, 1911, 44 (McKinley).—READ, Oölogist, XXVIII, 1911, 11, and XXX, 1913, 132 (I. of Pines).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines, common; descr.).

"Green Heron" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVIII, 1911, 146 (Bibijagua); XXX, 1913, 123 (Nuevas River).

"Southern Green Heron" READ, Oölogist, XXVII, 1910, 5, and XXVIII, 1911, 6, 10 (Nuevas River), 3 (McKinley), 113 (West McKinley); XXX, 1913, 127 (Santa Barbara), 130 (I. of Pines).

"Little Green Heron" READ, Oölogist, XXVIII, 1911, 5 (Santa Barbara Mountain, etc.).

Butorides virescens cubanus OBERHOLSER, Proc. U. S. Nat. Mus., XLII, 1912, 557 (Santa Fé, Bibijagua, and Nueva Gerona; meas.; crit.).

Butorides virescens brunescens (not *Ardea brunescens* Lembeye ?) BANGS, Auk, XXXII, 1915, 484, part (I. of Pines; crit.).

Six specimens: Los Indios, Nueva Gerona, Jacksonville, and Siguanea.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
41271[4]	♀	Jacksonville, I. of Pines	166	61	64	48
41308[4]	♂	Siguanea, I. of Pines	165	61	64	47
39054[4]	♂	Guayama, Porto Rico	179	61	58	53
39205[4]	♂	Adjuntas, Porto Rico	175	64	54	47
39305[4]	♀	Utuado, Porto Rico	164	58	56	45
28693[5]	(♂?)	Martinique	181	70	61	49
28694[5]	(♂?)	Martinique	179	64	56	53
Eight adult males from eastern U. S., average			179	65	61	51

[4] Collection Carnegie Museum.

[5] Collection Museum Comparative Zoölogy.

Only two of the above are fully mature; the others all show more or less brownish suffusion on the posterior under parts, a condition very well marked in No. 39,932 (Nueva Gerona, December 31), which approaches *B. brunescens* very closely in this respect, and is moreover entirely purplish brown above.

The two adults, together with a few examples from other localities, included for comparison, measure as shown in table on page 182.

In discussing the relationships of the Bahaman form of *Butorides virescens* not long since (ANNALS CARNEGIE MUSEUM, VII, 1911, 410), I ventured the opinion that the West Indian bird was scarcely or not at all separable from the typical form. More recently, since the receipt of the specimens above recorded, I have been led to look into the question anew, in the light of the rather startling conclusions reached by Mr. Oberholser in his late revision of the races of this species (*Proceedings U. S. National Museum*, XLII, 1912, 529–577). It is not my purpose at this time to critically review the paper in question, lacking as I do sufficient material to serve as a basis for a full discussion, but merely to call attention to several points suggested by the study and comparison of these specimens. Mr. Riley (*Smithsonian Miscellaneous Collections*, Quarterly Issue, XLVII, 1904, 278) was apparently the first to note the somewhat smaller size and slightly different coloration of the Green Heron of the West Indies, for which he adopted the subspecific name *maculata* Boddaert. Later Mr. Clark (*Proceedings Boston Society of Natural History*, XXXII, 1905, 234) and Messrs. Thayer and Bangs (*Bulletin Museum Comparative Zoölogy*, XLVI, 1905, 143) confirmed Mr. Riley's observations as to the smaller size from independent investigation. Mr. Oberholser now proposes to split up the birds from the Greater and Lesser Antilles into no less than *eight* different races, based on slight variations in color and relative proportions, the only alternative (so he claims) being to merge all the West Indian birds, including even those from the Bahama Islands, with true *virescens*. Our present concern is with the bird of the Isle of Pines, which, together with those of Haiti and Porto Rico, Mr. Oberholser refers to the Cuban form, which he calls *cubanus*. This is described as smaller than true *virescens*, with the neck and sides of the head usually lighter, more rufescent, less purplish, and the abdomen also averaging paler. From *maculatus*, which name is restricted to the bird of Martinique, it is said to differ in its smaller size (except the bill), and in its darker, less purplish neck

and sides of head. The natural inference would be, therefore, that *maculatus* and *virescens* approximate each other in their characters! Through the courtesy of Mr. Bangs I have before me the two adult specimens from Martinique upon which Mr. Oberholser has based his comparisons. They prove to be very poor skins, with necks unduly stretched—a feature which makes the colors of the feathers of this part appear less intense. The measurements (which I have confirmed), it will be noted, are fully up to those of true *virescens*, and, although the neck and sides of the head are slightly paler, it is true, than the average specimen of that form, it is easy to match their colors in a series. Even on the assumption that additional material from Martinique would bear out the trifling differences indicated, formal separation would seem scarcely justifiable. Admitting that Green Herons from the West Indies (collectively considered) average slightly smaller and paler than those from eastern North America, and are thus possibly worthy of subspecific recognition, it is confusing to find the only specimens from the type-locality of *maculatus*, the earliest name available for the birds of this region, differing so little. Two male examples from Porto Rico, also, are larger, instead of smaller, than the average. In short, the variation in size seems so great, on the whole, and the range in color so subtle and inconstant in character, even in specimens from the same locality, that it is only provisionally, and with great reluctance, that I here recognize the Cuban and Porto Rican bird as distinct subspecifically. In any case, it is certainly far less trenchantly defined than the Bahaman race, contrary to Mr. Oberholser's implication. After a study of his paper it is difficult to avoid the impression that he has carried subdivision too far. Surely the use of trinomials, for which the American school of ornithologists has contended so long, was never designed to cover such a case as this. Even admitting that this is largely a matter of individual opinion, it would nevertheless seem true as a general proposition that a certain amount of variation ought to be allowed a given species without thereby subjecting it to formal division. There are limits in refinement beyond which it does not seem profitable to go, and while, as previously remarked, I am not now in a position to go into further details in this particular case, I suspect that the acquisition of fresh material may eventually necessitate a revision of present conclusions.[6]

[6] In this connection I may add that Dr. Thomas Barbour has advised me that it is absolutely certain, from repeated and extensive observations, that neither the

The Cuban Green Heron is one of the most abundant of its tribe in the Isle of Pines, where it prefers the fresh or brackish water of the rivers or lagoons to the seacoast. In its habits it is not especially different from the bird of the United States. Messrs. Palmer and Riley found a nest near Nueva Gerona on July 8, containing two eggs on the point of hatching. Nests in process of construction, believed to belong to this species, were found by Mr. Link at Los Indios and Siguanea in March and April, built in the mangroves over the water.

19. **Butorides brunescens** (Lembeye). CUBAN BROWN HERON.

Butorides brunescens BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (Nueva Gerona, *fide* Palmer and Riley).—OBERHOLSER, Proc. Biol. Soc. Washington, XXV, 1912, 53 (Nueva Gerona; descr.; crit.).—COOKE, Bull. Biol. Survey, No. 45, 1913, 60 (I. of Pines, in geog. distr.).—READ, Oölogist, XXX, 1913, 131 (I. of Pines), 132 (West Coast Section, *i. e.*, Santa Barbara).—READ, I. of Pines News, VI, Dec. 27, 1913 (Los Indios and west coast, fairly common; rare in interior; descr.).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

"Cuban Green Heron" READ, Oölogist, XXVIII, 1911, 13 (I. of Pines), 114 (West McKinley); XXX, 1913, 123 (Pine River), 125, 127 (Santa Barbara).

Butorides virescens brunescens BANGS, Auk. XXXII, 1915, 484, part (I. of Pines; crit.).

Five specimens: Los Indios and Nueva Gerona.

Two of these are adult males (October 9 and 28), one with many of the scapular plumes glaucous gray, while in the other they are almost entirely bottle-green. The other three specimens are young birds in various stages of the postjuvenal moult, which involves only the body-plumage and wing-coverts. In two specimens shot September 30 this moult is just beginning, but in a third, taken February 1, it is far advanced. The iris is marked as "light yellow."

For a full account of this species the paper by Mr. Oberholser, above quoted, should be consulted. While I agree with his conclusions as to the status of this form it may be well to call attention again to the brown-bellied specimen of *Butorides virescens cubanus* noted under the head of that species, and which suggests an approach to the present form.

Described originally from Cuba, where it was said by Gundlach to be very rare, it has long been suspected to be merely a color-phase

Green Heron nor any other heron breeds on Swan Island, in the Caribbean Sea, the few individuals which have been observed there being unquestionably migrants, remaining for but a few days at a time. This circumstance of course disposes definitely of *Butorides virescens saturatus* as a resident form peculiar to the island in question.

of the Green Heron of that island, and as very little seems to have been put on record concerning its habits, and as so few specimens have found their way into collections, its true status has been open to considerable doubt, the more so as dichromatism in this family is of such frequent occurrence. Two specimens were taken by Messrs. Palmer and Riley near Nueva Gerona, and after comparing these and a few others from Cuba with examples of the various forms of *Butorides virescens*, Mr. Oberholser is satisfied that they are specifically distinct. Quite recently, however, Mr. Bangs, in a paper to which the reader is referred above, re-asserts his views to the contrary, putting forth some new and interesting evidence on the point at issue.

So far at least as the Isle of Pines is concerned, the present species is far from being the rare bird it has hitherto been supposed to be. Mr. Read has noted what he believes to have been this form on several occasions, and Mr. Link found it not uncommon at Los Indios. Its favorite haunts were in the mangroves along the seacoast, where it contrived to keep well concealed, slipping through the roots when disturbed in the manner of the Clapper Rail, instead of seeking to escape by flight, as does the Cuban Green Heron under similar circumstances. Its alarm-note or "squawk," too, is so different from that of the other species as to be unmistakable. All of these points in its life-history are interesting, tending to confirm its claim to specific distinctness.

20. **Nycticorax nycticorax nævius** (Boddaert). BLACK-CROWNED NIGHT HERON.

Nycticorax vulgaris POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Nycticorax nycticorax nævius CORY, Cat. W. Indian Birds, 1892, 90 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (Bibijagua; Poey's record).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines; descr.). —READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

Nycticorax nævius GUNDLACH, Orn. Cubana, 1895, 193 (I. of Pines).

"Black-crowned Night Heron" READ, Oölogist, XXX, 1913, 123 (Pine River), 125 (Santa Barbara), 131 (I. of Pines), 168 (Los Indios).

One specimen: Los Indios.

This species is apparently not nearly so common as the Yellow-crowned Night Heron in the Isle of Pines. Although recorded by both Poey, Cory, and Gundlach, it seems to have been noted but infrequently by Mr. Read, while Mr. Link secured only one specimen, a

young bird, much tinged with rusty on the upper parts and wing-coverts, shot at Los Indios on October 2. However, he found it rather numerous, but for some reason very shy, in the Cienaga near Siguanea in November and April. Mr. Zappey saw a flock at a fresh-water lagoon in the northern part of the island in March, 1902, and two others at Bibijagua. Nothing is known at present regarding its breeding haunts in the island.

21. **Nyctanassa violacea** (Linnæus). YELLOW-CROWNED NIGHT HERON.

Nycticorax violaceus POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 90 (I. of Pines, in geog. distr.).—READ, I. of Pines News, VI, Dec. 27, 1913 (I. of Pines; descr.).

Nyctherodius violaceus GUNDLACH, Orn. Cubana, 1895, 194 (I. of Pines).

Nyctanassa violacea BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (I. of Pines, *ex* Poey, Cory, and Gundlach).—READ, Oölogist, XXX, 1913, 132 ("south coast").

"Yellow-throated [*sic*] Night Heron" READ, Oölogist, XXVIII, 1911, 6 (Nuevas River).

"Yellow-crowned Night Heron" READ, Oölogist, XXVIII, 1911, 13, and XXX, 1913, 131 (I. of Pines), 123 (Pine River), 125 (Santa Barbara).

Six specimens: Los Indios, Majagua River, and Caleta Grande.

All but two of this series are in juvenal dress, and even these two are not fully mature, as shown by the brownish feathers of the pileum and the dusky tinge of the back. These were secured in late October and early November. The individual from Caleta Grande, although otherwise in immature dress, is acquiring the long white occipital plumes. The series of this species examined shows much variation, which, however, is quite independent of locality. Needless to add, I can see no ground for assuming a color-change in the feathers themselves to account for any of this variation, as suggested by Baird, Brewer, & Ridgway (*Water Birds of North America*, I, 1884, 63).

In addition to the localities above quoted, Mr. Link saw this species at Bibijagua on the north coast, while at the western end of the Cienaga, near Siguanea, it was quite common (but very shy) in November, occurring sometimes singly, but more often in small parties, about the edges of the marsh or in the mangroves. Nothing was learned concerning its breeding haunts or habits.

22. **Ajaia ajaja** (Linnæus). ROSEATE SPOONBILL.

Platalea ajaja POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—GUNDLACH, Orn. Cubana, 1895, 195 (I. of Pines).

Ajaia ajaja CORY, Cat. W. Indian Birds, 1892, 88 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (I. of Pines; Poey's record).—COOKE, Bull. Biol. Survey, No. 45, 1913, 12 (I. of Pines, *ex* Poey).

"Roseate Spoonbill" READ, Oölogist, XXX, 1913, 130 (I. of Pines, *fide* G. A. Link).

One specimen: Los Indios.

Mr. Link was so fortunate as to secure a fine adult of this species, shot in the swampy country near Los Indios, October 3, 1912. Within a few days of this date a few others were seen in the vicinity, all very shy, however. Poey recorded the species many years ago, but the supposition was that it had been extirpated, so that the present record becomes of more than usual interest. The natives say that it breeds in the island, which seems not unlikely.

23. **Guara alba** (Linnæus). WHITE IBIS.

Ibis alba POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Guara alba CORY, Cat. W. Indian Birds, 1892, 88 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 199 (I. of Pines).—COOKE, Bull. Biol. Survey, No. 45, 1913, 14 (I. of Pines, *ex* Bangs and Zappey).

Eudocimus albus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 188 (Pasadita and the Cienaga; habits).

"White Ibis" READ, Oölogist, XXVIII, 1911, 6, 10, and XXX, 1913, 123 (Nuevas River); XXVIII, 1911, 13, and XXX, 1913, 130 (I. of Pines), 125 (Santa Barbara), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

Twelve specimens: Los Indios, Bibijagua, and Siguanea.

According to Baird, Brewer, & Ridgway (*Water Birds of North America*, I, 1884, 90), this species exhibits a range of individual variation in size not exceeded by that in any member of the family. The examination of a series of carefully sexed specimens from various sections shows that this difference is not individual, but sexual, males being decidedly larger than females, the bill especially. Audubon (*Ornithological Biography*, III, 1835, 176) remarks that the male has *five* outer primaries tipped with black, while the female has but *four* thus marked, these figures holding good with but four exceptions in a series of one hundred individuals examined (the exceptions being very old females, which were like the males). Not one of the specimens before me, however, shows more than four primaries with dark tips, while two specimens, both females, have but three. Most of the Isle of Pines series are immature birds, with the dusky-spotted head

and neck and dark back and wings characteristic of this stage. Individuals in first nuptial dress are like the adults except for the dusky mottling of the head and neck, which persists from the juvenal plumage, and similar indications on the subterminal portion of the outer primaries. Several of the immature birds above recorded show scattered white feathers in the dark areas, but I am not sure that such indicate the onset of a moult; they were more probably acquired at the same time with the others, showing as they do the same degree of wear.

This is one of the commonest and most characteristic water-birds of the island. Although of course not found in the dry parts of the interior, it is generally distributed wherever there is water, particularly about the coastal lagoons and the larger streams, where it affects the mangrove growths. It is naturally very abundant in the Cienaga, flocks of forty or fifty having often been seen near Pasadita by Mr. Zappey. This observer says that the inhabitants sometimes catch and tame the young birds, which will associate with the domestic fowls and feed on table scraps. Mr. Link found the White Ibis very numerous at the western end of the Cienaga, near Siguanea, in October and April, at both of which seasons it was observed in flocks. No nests were found, nor yet any very young birds. Its food consists of crabs, snails, frogs, and lizards. Its flesh is regarded as very good.

24. **Mycteria americana** Linnæus. WOOD IBIS.

Tantalus loculator CORY, Cat. W. Indian Birds, 1892, 89 (I. of Pines, in geog. distr.). —BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (I. of Pines, *ex* Cory).

Mycteria americana COOKE, Bull. Biol. Survey, No. 45, 1913, 22 (I. of Pines, *ex* Cory).

There is of course no reason why the Wood Ibis should not occur in the Isle of Pines as well as in Cuba, but the only published record is the very indefinite one above quoted. It was described to Mr. Link by one of his guides as having been seen on one occasion near the Casas Mountains shortly after the close of the Spanish War, but none have been observed for many years.

25. **Phœnicopterus ruber** Linnæus. FLAMINGO.

Phœnicopterus ruber CORY, Cat. W. Indian Birds, 1892, 88 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 255 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (Punta del Este and Bibijagua).—COOKE, Bull. Biol. Survey, No. 45, 1913, 10 (I. of Pines, *ex* Gundlach).

Although the Flamingo is attributed to the Isle of Pines by Mr. Cory, presumably on the authority of Gundlach, as well as by Gundlach

himself, the first definite and circumstantial record is that given by Messrs. Bangs & Zappey: "A few Flamingoes inhabit Punta del Este and Bibijagua. None were seen alive, but one morning the tracks of about a dozen were found in the mud, and on another occasion three individuals that had just been shot by a native were examined." Mr. Link made special search and inquiry for this species, but without result. There is a considerable area on the "south coast" and in the Cienaga, however, which still remains a *terra incognita*, ornithologically speaking, and it is entirely possible that Flamingoes may yet be found breeding somewhere in these parts, since it seems unlikely that they would stray all the way from Cuba.

26. **Querquedula discors** (Linnæus). BLUE-WINGED TEAL.

Querquedula discors BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (Cienaga).

Two specimens: Rincon Lagoon.

A winter resident in the Isle of Pines, as elsewhere in the West Indies. Mr. Zappey found it in considerable numbers in the Cienaga in March, 1902, although none were seen on his second trip, all probably having already gone north. Mr. Link met with the species but once (February 21), on which occasion he shot two fine adult males from a flock of twelve birds encountered at a lagoon near Bibijagua.

27. **Dendrocygna arborea** (Linnæus). ANTILLEAN TREE DUCK.

Dendrocygna arborea CORY, Cat. W. Indian Birds, 1892, 87 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (Santa Fé and the Cienaga; habits).—READ, Oölogist, XXVI, 1909, 190, and XXVIII, 1911, 11 (I. of Pines).

"West Indian Tree Duck" READ, Oölogist, XXVIII, 1911, 6, and XXX, 1913, 123 (Nuevas River); XXVIII, 1911, 114 (West McKinley); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

Six specimens: Siguanea.

One shot November 14 is in worn and faded breeding dress, but the other five, taken April 26 and 28, are in perfectly fresh plumage. All were shot at the western end of the Cienaga near Siguanea, where the species was quite common. Mr. Zappey found it numerous also in May, in the eastern part of the Cienaga. "During the day it keeps concealed in the Cienaga, but in the evening, toward dusk, it leaves the swamps to feed in the royal palms, alighting on the trees and picking off the berries. One night a half a dozen or so alighted in the palms in the plaza at Santa Fe. The call note of this bird is

much like that of the Wood Duck (*Aix sponsa*)." Mr. Read has noted it several times in the northern part of the island, along the Nuevas River. Mr. Link observed a few at Rincon Lagoon, also along the Los Indios River, and at Pasadita. It was never seen swimming about in the water like other ducks, but usually wading about in the swamps, or perched in the adjoining mangroves. The stomachs of those examined contained grass. The natives sometimes tame the young birds, several of which were seen running about the houses like domestic ducks. No nesting records were obtained.

28. **Chen hyperboreus nivalis** (Forster). GREATER SNOW GOOSE.

Chen hyperborea nivalis CORY, Cat. W. Indian Birds, 1892, 87 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 189 (I. of Pines, *ex* Cory and Gundlach).—COOKE, Bull. Biol. Survey, No. 26, 1906, 67 (I. of Pines [*ex* Gundlach]).

Chen hyperboreus GUNDLACH, Orn. Cubana, 1895, 257 (I. of Pines).

According to Gundlach this species has appeared in Cuba as a winter resident in considerable numbers, and he records it from the Isle of Pines without special comment, although it has not been detected there by any of the more recent workers. It has been recorded from Jamaica, however, as well as from Porto Rico, but according to Prof. Cooke is not common as a rule anywhere south of North Carolina.

29. **Cathartes aura aura** (Linnæus). SOUTHERN TURKEY VULTURE.

Cathartes aura POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach; habits).—CORY, Cat. W. Indian Birds, 1892, 98 (I. of Pines, in geog. distr.).—NELSON, Proc. Biol. Soc. Washington, XVIII, 1905, 122 (I. of Pines; crit.).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

Cathartes aura aura BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 190 (Santa Fé; crit.; meas.).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

(?)"Carrion Crow" READ, Oölogist, XXVI, 1909, 58 (I. of Pines), 102 (crit.; "probably an immature Turkey Buzzard").

"Turkey Buzzard" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 84 (Los Tres Hermanos Mountains); XXX, 1913, 123 (McKinley).

"Southern Turkey Buzzard" READ, Oölogist, XXVII, 1910, 5, and XXVIII, 1911, 6, 10 (Nuevas River), 3 (McKinley), 5 (Santa Barbara Mountain, etc.), 7 Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 125 (Santa Barbara), 130 (I. of Pines), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

(?) *Catharista uruba* [*sic*] READ, Oölogist, XXVIII, 1911, 11 (crit.; "possibly an immature Turkey Buzzard").

One specimen: Los Indios.

Mr. Nelson refers specimens of the Turkey Vulture from the Isle of Pines, Cuba, southern Mexico, and Central America to true *aura* of Linnæus, which he distinguishes from the northern form (*C. a. septentrionalis* Wied) by its smaller size, narrower and less well-marked brown borders to the feathers of the back, and the usually lighter color of the shafts of the primaries. The Los Indios skin (a female) measures as follows: wing, 495; tail, 245; tarsus, 60. It is appreciably darker and blacker below, especially posteriorly, than any of the northern examples with which I have been able to compare it, and while it has less brown above than the average northern bird, it can be matched very closely by a skin from Colorado. The only other specimen of supposedly true *aura* at present available is a female from Mamatoco, near Santa Marta, Colombia. This measures as follows: wing, 502; tail, 257; tarsus, 65. It is absolutely the same as northern birds in color, and exceeds several of them in size. Although the series of this species at hand for study is admittedly small, it leaves the impression that the characters relied on to distinguish the two supposed races are too slight and inconstant to justify any such formal separation. At any rate, not one of the individuals measured is as large as those referred to by Mr. Nelson, although several are in fine fresh plumage. No Brazilian skins have been seen; they are said to be decidedly smaller.

This is one of the most common and universally distributed large birds of the island. Poey refers at some length to the habits of this vulture as observed on the north coast, and the references above listed will serve as a summary of the numerous published records of later observers. As elsewhere in the tropical regions of the New World, it is numerous in the vicinity of towns and cultivated lands, where it is seldom molested, being valued so highly for its services as a scavenger. Mr. Link in the month of June found it frequenting crevices in the rocks near the top of the Casas Mountains, where it was doubtless nesting.

30. **Rostrhamus sociabilis** (Vieillot). EVERGLADE KITE.

Rostrhamus sociabilis CORY, Cat. W. Indian Birds, 1892, 98 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 14 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (Cienaga and Santa Rosalia Lagoon; food).
"Everglade Kite" READ, I. of Pines News, VI, May 30, 1914 (I. of Pines).

Gundlach says that this species is very common in the Zapata Swamp in Cuba and in the Isle of Pines. Mr. Zappey found it

common in the Cienaga, where, however, it was not met with by Mr. Link, although he made special search. It may be of very local distribution, or possibly its numbers have been reduced in the last few years almost to the vanishing point. Mr. Read seems not to have encountered it either, and it is difficult to account for its apparent absence.

31. **Circus hudsonius** (Linnæus). MARSH HAWK.

"Marsh Hawk" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 7 (I. of Pines, Nov. 26), 114 (West McKinley, Oct.); XXX, 1913, 130 (I. of Pines, winter).

Circus hudsonius READ, Oölogist, XXVIII, 1911, 11 (I. of Pines); I. of Pines News, VI, May 30, 1914 (I. of Pines, winter).

One specimen: Los Indios.

A winter resident, apparently not very common. Mr. Link saw a few in the marshy country around Los Indios and the Majagua River from October on, securing a single bird on January 13. Mr. Read has observed it several times in the northwestern part of the island, his earliest fall record being October 12 (1909). According to Gundlach it is not rare in Cuba, although not known from any of the other Antilles.

Buteo platypterus cubanensis Burns. CUBAN BROAD-WINGED HAWK.

"Broad-winged Hawk" READ, Oölogist, XXVII, 1910, 84 (Los Tres Hermanos Mountains); XXX, 1913, 131 (I. of Pines).

Buteo platypterus cubanensis BURNS, Wilson Bull., XVIII, 1911, 148, in text (diag.), 195 ([Los] Tres Hermanos Mountains, *fide* Read).

Buteo platypterus READ, I. of Pines News, VI, May 30, 1914 (I. of Pines).

Mr. Frank L. Burns has ventured to separate (provisionally at least) the Broad-winged Hawk of Cuba and Porto Rico under the above name. The only record for the Isle of Pines is based on a field-glass identification by Mr. Read, who says that he saw a pair circling about the crown of Los Tres Hermanos Mountains, near Nueva Gerona, on April 3, 1910. While there is of course nothing intrinsically improbable in the occurrence of this species in the island, it is deemed best not to formally admit it to the present list until more conclusive evidence is adduced.

32. **Urubitinga gundlachii** (Cabanis). CUBAN CRAB HAWK.

Hypomorphus gundlachi POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Urubitinga anthracina (not *Falco anthracinus* Lichtenstein) CORY, Cat. W. Indian Birds, 1892, 99 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 18, 19 (I. of Pines; nesting).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (I. of Pines, *ex* Poey; crit.).

Urubitinga gundlachii BANGS, Auk, XXII, 1905, 307 (I. of Pines, *ex* Gundlach; crit.).—READ, Oölogist, XXX, 1913, 131 (I. of Pines); I. of Pines News, VI, May 30, 1914 (Cienaga and "south coast;" descr.; nesting).

"Cuban Crab Hawk" READ, Oölogist, XXX, 1913, 125 (Santa Barbara), 168 (Los Indios).

Seven specimens: Los Indios and Caleta Grande.

Many years ago Poey recorded this species from the Isle of Pines on the authority of Gundlach, which author later speaks of having found a nest there, built in a "jucaro" tree, and constructed of twigs like those of other hawks. "The egg was dirty white with a greenish tinge. At the larger end were some very pale lilac spots. The dimensions were 58 by 45 millimeters." (Translation.) Mr. Zappey failed to meet with the species in the island, however, and in the absence of specimens Mr. Bangs was perforce obliged to follow Gundlach and other authors in considering it the same as the continental species, *U. anthracina*. Shortly thereafter, however, the receipt of a fine pair of adults from the coast of Cuba afforded the much desired opportunity for comparison, which showed that the Cuban and continental forms were quite distinct. The present series, which includes two adult birds, abundantly confirms this conclusion, although I cannot agree with Mr. Bangs that *U. gundlachii* is only distantly related to *U. anthracina*. In form, proportions, and style of coloration the two species are practically alike, but they may be separated at a glance by their different colors. *U. gundlachii* is chocolate-brown, with a slight purplish gloss, where *U. anthracina* is black, except the tail, which is about the same color in both. The bases of the remiges are broadly white underneath in *U. gundlachii*, but merely mottled with white in *U. anthracina*. With a fairly representative series of the latter before me, I fail to appreciate any constant differences in the position and extent of the white bands on the tail, to which Mr. Bangs calls attention. In fact, this is a variable character in *U. anthracina* at least, and little importance can be attached to it. The feathers of the upper parts are decidedly paler basally in *U. gundlachii* than in *U. anthracina*, and the outer webs of the primaries lighter gray. Immature birds, too, are duller in color than those of *U. anthracina*, and the barring on the tibiæ and tail is not so coarse. The iris is given as dark brown in the adults and light brown in the young.

Mr. Link met with this species only in the southwestern part of the

island, at Caleta Grande, Los Indios, and near the mouth of the Majagua River. Invariably it was found among the mangroves, on the lookout for the various kinds of crabs which constitute its main article of diet. It was singularly tame and unsuspecting, and could be approached without special precautions. It was usually observed singly, and never more than two together. About a dozen or fifteen individuals in all were observed, so that it can scarcely be considered a common bird. Mr. Read claims to have seen it on the Santa Barbara tract.

33. **Falco peregrinus anatum** Bonaparte. DUCK HAWK.

Falco peregrinus anatum BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (I. of Pines).

"Duck Hawk" READ, I. of Pines News, VI, May 30, 1914 (I. of Pines).

A winter resident in the West Indies. The only Isle of Pines record is that quoted above, which refers to a bird examined in March, 1902, by Mr. Zappey, under somewhat unusual circumstances. It had "struck and killed a hen, and being either unable or unwilling to let go, was chopped to pieces by some natives with their machetes."

34. **Falco columbarius columbarius** Linnæus. PIGEON HAWK.

Falco columbarius CORY, Cat. W. Indian Birds, 1892, 99 (I. of Pines, in geog. distr.).

Hypotriorchis columbarius GUNDLACH, Orn. Cubana, 1893, 29 (I. of Pines).

Falco columbarius columbarius BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (I. of Pines, *ex* Cory and Gundlach).

Like the last a winter resident, but much more numerous, having been repeatedly observed by Mr. Link at Los Indios in September, following the immense flocks of doves which were frequenting the open country at that season. On one occasion an individual was noted in pursuit of a pair of the larger pigeons (*Columba inornata proxima*). None were noticed in the spring, however.

35. **Falco sparverioides** Vigors. CUBAN SPARROW HAWK.

Falco sparverius (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Cerchneis sparveria dominicensis (not *Falco dominicensis* Gmelin) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (Santa Fé, San Juan, Jucaro, Laguna Grande, and Los Almacigos; plum.; habits).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines); I. of Pines News, VI, May 30, 1914 (I. of Pines; descr.; habits).

"Cuban Sparrow Hawk" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, 102, and XXX, 1913, 130 (I. of Pines); XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley

and Santa Barbara Mountain, etc.), 6, 10, 123 (Nuevas River), 7 (Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 123 (Nuevas River), 125 (Santa Barbara).

Falco sparverioides READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

Falco sparverius sparveroides BANGS, Auk, XXXII, 1915, 484 (I. of Pines; crit.).

Thirteen specimens: Bibijagua, Los Indios, and Nueva Gerona.

Three of the males have the back immaculate, but in the other males it is spotted, and in one case as heavily barred as in *F. sparverius loquacula* of Porto Rico. The spotting on the sides is prominent in some specimens, but absent in others. The tail-pattern, however, is fairly constant—far more so than in the Porto Rican bird. The rufous crown-spot is barely indicated in a few of the males, but in several of the females it is large and prominent. In only one of the females do the markings of the under surface approximate in intensity the average of those in true *F. sparverius*. Males taken July 9 and 11 are in the midst of the postnuptial moult. Only one specimen of this series is in the dark phase.

If this form is a distinct species, as ranked by most authors, its distribution is certainly most peculiar, occupying as it does an area between that of two other forms which are unquestionably merely geographic races of *F. sparverius*, the range of which thereby becomes discontinuous. According to Mr. Cory (*Catalogue of West Indian Birds*, 1892, 139) the Santo Domingo bird (*Falco dominicensis* Gmelin) is separable from that of Cuba, differing in having no dark phase, as well as in other respects. Mr. Cory bases his statement on the examination of no less than forty-six specimens from Haiti and Santo Domingo. If he is correct, there can remain no valid reason for refusing recognition to *dominicensis* as an insular race of *sparverius*. A due regard for consistency would require also that the light phase of the Cuban bird (to which Mr. Ridgway applied the name *leucophrys* in 1870), be recognized in a similar way, but complications immediately arise upon attempting to include the dark phase in such an arrangement. The case has been very fully discussed by Mr. Chapman (*Bulletin American Museum of Natural History*, IV, 1892, 295), who points out that the dichromatism in this species is unusual in that it involves also certain changes in the pattern of coloration. That such a striking variation should have developed in only a comparatively restricted portion of the range of the *Falco sparverius*

group makes the case all the more remarkable and interesting, and suggests that while the light phase is probably subspecifically related to *F. sparverius*, as already intimated, the dark phase may be in reality a distinct species, which is common in Cuba and rare in the Isle of Pines, but does not extend to Haiti and Santo Domingo. Indeed, this was substantially the view of the case accepted by the earlier authors. As far back as 1855, however, Gundlach (*Journal für Ornithologie*, "1854," 1855, extraheft, p. lxxxiv), insisted that such could not be the case, since he had found the two supposed species paired together. On the strength of a series of specimens sent by him to the U. S. National Museum Mr. Ridgway (*Auk*, VIII, 1891, 113) accepted this conclusion, which so far as I am aware has not been seriously questioned since. It is significant, however, that Mr. Chapman, in the paper referred to above, says that of all the Sparrow Hawks secured or observed by him in Cuba, light and dark, on no occasion did he find birds of different phases mated. That such unions occasionally occur, however, can scarcely be questioned in view of Gundlach's testimony, but the fact need in no way militate against the view here advanced that two species may be involved. The variability of the dark birds would then be explainable by what we now know of the laws of inheritance, and even the fact (if it *is* a fact) alleged by Mr. Cory, that light and dark birds have been taken from the same nest, on a similar hypothesis. This is certainly a case demanding further investigation in the field, as in no other way can a final conclusion be reached. While I do not venture at present to make the formal nomenclatural shift indicated, I predict that this will eventually be found necessary.

The recognition of a genus *Cerchneis* for the American Sparrow Hawks, while doubtless justifiable, seems to me to involve also the raising of certain other groups of *Falco* to generic rank, and as I have neither the time nor the material for an investigation of this kind, I follow for the present the nomenclature of the American Ornithologists' Union *Check List of North American Birds*.

This is the commonest hawk in the Isle of Pines, being generally distributed in the drier parts, back from the coast and the rivers. Nests with young birds were found about Nueva Gerona and Los Indios in April and May, built in holes in dead palm- and pine-trees, twenty or thirty feet up. The birds of this species are wont to follow the fires kindled by the natives in clearing the land of brush and

grass, feeding on the lizards dislodged by the flames. Mr. Zappey saw but a single individual in the dark phase, Mr. Link only one, and Messrs. Palmer and Riley none at all, which circumstance tends to show how rare it is in the island as compared with Cuba.

36. **Polyborus cheriway** (Jacquin). AUDUBON CARACARA.

Polyborus vulgaris POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Polyborus cheriway CORY, Cat. W. Indian Birds, 1892, 99 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 191 (Santa Fé; habits).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45 (Santa Barbara); I. of Pines News, VI, May 30, 1914 (I. of Pines).

"Caracara" READ, Oölogist, XXVIII, 1911, 114 (West McKinley); XXX, 1913, 125 (Santa Barbara), 130 (I. of Pines).

One specimen: Nueva Gerona.

The Caracara is confined in the West Indies to Cuba and the Isle of Pines, where it is not a common bird, and is moreover shy and difficult of approach. Messrs. Palmer and Riley saw one each at both Manigua and Nueva Gerona, and Mr. Link secured a single immature example at the latter locality on January 29. Others were observed at Los Indios and Bibijagua, and on one occasion, near Santa Fé, as many as a half-dozen together, feeding on the carcass of a cow. Individuals were repeatedly seen following in the wake of the fires started to burn off the old crop of grass, in search of the bodies of the lizards, snails, etc., which were left behind. The specimen secured by Mr. Zappey near Santa Fé is said to be indistinguishable from Florida examples.

37. **Pandion haliaëtus carolinensis** (Gmelin). OSPREY.

Pandion haliaëtus carolinensis CORY, Cat. W. Indian Birds, 1892, 99 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 192 (I. of Pines, *ex* Cory).

"Fish Hawk" READ, I. of Pines News, VI, May 30, 1914 (I. of Pines).

This species is recorded by Mr. Cory, but was not observed either by Mr. Zappey or Messrs. Palmer and Riley, nor has Mr. Read ever met with it. The single individual noted by Mr. Link was seen at Caleta Grande on April 21, sailing about high overhead. It is unaccountably rare in this section.

38. **Colinus cubanensis** (Gould). CUBAN BOB-WHITE.

Colinus cubanensis CORY, Cat. W. Indian Birds, 1892, 96 (I. of Pines, in geog, distr.).—GUNDLACH, Orn. Cubana, 1895, 171 (I. of Pines).—BANGS & ZAPPEY. Am. Nat., XXXIX, 1905, 192 (Santa Fé, Nueva Gerona, and Cayo Bonito).—READ, Oölogist, XXVI, 1909, 102, and XXVIII, 1911, 13 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, VI, Apr. 18, 1914 (I. of Pines; habits).

"Bob-white" READ, Oölogist, XXVI, 1909, 57 (I. of Pines).

"Quail" READ, Oölogist, XXVI, 1909, 58 (I. of Pines), 102 (crit.).

"Cuban Bob-white" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 13 (West McKinley).

"Cuban Quail" READ, Oölogist, XXVIII, 1911, 3, 5 (McKinley; nesting), 10, and XXX, 1913, 123 (Nuevas River), 125, 127 (Santa Barbara), 130 (I. of Pines), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

Twelve specimens: Bibijagua, Los Indios, and Nueva Gerona.

No two of the males in this series are exactly alike. Several have the under surface from the breast down more or less spotted with buffy white in irregular pattern: these are doubtless younger birds in first winter or first nuptial dress, according to season. But even in the case of individuals presumably adult there is much variation as regards the character and extent of the black streaking on the lower breast.

Although given by some authors as a subspecies of *C. virginianus*, this form is clearly entitled to rank as a full species, being indeed closer to some of the Mexican forms than to that of peninsular Florida. The latter, however, has been introduced into Cuba, where it has interbred with the native species to such an extent that in many localities it is now difficult, so Dr. Thomas Barbour tells me, to secure specimens which do not show traces of such mixed ancestry. The Isle of Pines birds, however, are presumably pure-bred.

Except in the breeding season, which extends from May to July, the Cuban Bob-white is generally found in coveys or family groups, frequenting the dry pastures, especially where there are low palmettos for shelter. In notes and habits it closely resembles *C. virginianus*. A nest with ten eggs was found July 10, 1912, on the El Bobo plantation northeast of McKinley, and Mr. Read mentions having found young birds just able to fly on August 1, near the same place. Indeed he claims that this species breeds more than once in a season. The eggs are pure white, unmarked, like those of *C. virginianus*. The species is common and generally distributed throughout the dry interior of the island, but is of course absent from the region south of the Cienaga. Being one of the recognized game-birds, it is hunted

by the inhabitants for food and sport during the open season, from September to April inclusive. In spite of this, and of the death of many young birds which perish during the rainy season, it appears to be holding its own fairly well. It is like the Bob-white of the north in being a great destroyer of noxious insects, and a covey on a plantation is an invaluable asset.

39. **Rallus elegans ramsdeni** Riley. CUBAN KING RAIL.

Rallus elegans? (not of Audubon) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 192 (Cienaga).

(?) "Virginia Rail?" READ, Oölogist, XXVIII, 1911, 7, 13, and XXX, 1913, 131 (I. of Pines).

Two specimens: Siguanea.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus
41304[7]	♀	Siguanea, I. of Pines	141	53	46	52
41305[7]	♂	Siguanea, I. of Pines	150	60	57	54
233478[8]	♂	Guantánamo, Cuba	149	53	57	54.5
Four adult males from eastern U. S., average			166	68	58.5	58.5

Although the King Rail was long ago recorded as resident in Cuba by Gundlach, no specimens seem to have found their way into collections until quite recently, when Mr. Charles T. Ramsden sent a small series to the U. S. National Museum for examination. Mr. Joseph H. Riley was thus enabled to prove the correctness of his surmise as to the distinctness of the Cuban bird, which he accordingly named in honor of Mr. Ramsden (*Proceedings Biological Society of Washington*, XXVI, 1913, 83). As might be expected, the Isle of Pines bird also belongs to the same small, pale race. The two specimens above recorded, although not actually compared with the type of *ramsdeni*, differ from examples from the eastern United States in the chief respects pointed out in Mr. Riley's diagnosis. Besides being smaller, they have much whiter throats and bellies, and the color of the breast also is decidedly paler, less rufescent, than in the dullest colored skins of true *elegans* available. The statement "sides of head behind eye paler" holds only for the female, the male being different, more like *elegans*, in this respect, so that this can scarcely be used as a diagnostic character.

Besides the pair taken at Siguanea, several others were seen there,

[7] Collection Carnegie Museum.

[8] Collection U. S. National Museum; measurements as given by Mr. Riley.

all in fresh or nearly fresh water. It was found at Los Indios also, about three miles up the river from the coast, and one was shot at Pasadita, in the Cienaga, the latter part of May, but not preserved. Mr. Zappey secured several specimens at the latter locality in March, 1902, but because he did not chance to get any on his second trip he inferred that the species did not breed in the island. We now know, however, that it is a resident in the fresh-water marshes of both Cuba and the Isle of Pines, and doubtless all the birds seen by Mr. Link were breeding at the time. The "Virginia Rail" mentioned by Mr. Read as having been noted on sundry occasions (in fresh-water sloughs only) is doubtfully referred to the present species, no specimens having been taken.

40. **Rallus longirostris leucophæus** Todd. ISLE OF PINES CLAPPER RAIL.

(?) "Virginia Rail?" READ, Oölogist, XXVIII, 1911, 146 (Bibijagua).

Rallus longirostris leucophæus TODD, Proc. Biol. Soc. Washington, XXVI, 1913, 174 (Majagua River; orig. descr.; type in coll. Carnegie Museum).

Eight specimens: Los Indios and Majagua River.

Type, No. 39,717, Collection Carnegie Museum, adult male; Majagua River, Isle of Pines, November 7, 1912; Gustav A. Link.

Description.—General color of upper parts deep clove-brown or brownish black with an olivaceous shade, all the feathers margined with neutral gray, giving a streaked appearance, these edgings very broad and prominent on the scapulars and tertiaries; tail like the back; wings dull brown, the upper coverts strongly shaded with buffy brown, the under coverts and axillaries dusky, narrowly barred with white; crown and back of the neck like the back, but duller, and the gray edgings indistinct; sides of head and neck dull grayish; suborbital spot and supraloral streak dull buffy white; throat white; lower throat and upper breast suffused with ochraceous buff; lower breast and abdomen (medially) dull white, the sides of the latter dusky, barred with white; under tail-coverts mostly white, with indistinct broad dusky barring; "iris dark brown."

MEASUREMENTS OF ADULTS.

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
39571	♂	Los Indios	144	55	61	54
39684	♂	Los Indios	148	58	62	55
39717	♂	Majagua River	147	60	61	55
39610	♀	Los Indios	132	59	58	48
39627	♀	Los Indios	132	54	55	49

Some individuals show more or less decided traces of white bars on the upper wing-coverts also. Immature birds differ from adults in the color of the under parts, which are much darker, and suffused with grayish buffy.

The discovery of the Clapper Rail in the Isle of Pines, and that the birds of this species occurring there represent a new and very distinct form, is of more than passing interest. The new race, while closely resembling *R. l. waynei* of the South Atlantic coast in the color of the upper surface, is much whiter below than any of the other known forms of this group. That a sedentary species such as the Clapper Rail, which throughout its West Indian range has a habitat and environment practically the same—the mangrove swamps—should vary to such an extent is surprising enough, but that the Isle of Pines form should differ so widely from that of the neighboring island of Cuba, resembling instead certain other more remote forms, is a problem requiring consideration, suggesting that in the case of the Clapper Rail segregation has been a factor in the evolution of the species.

Since I wrote my review of Bahaman birds I have had occasion to alter my views as to the status of the various forms of this group. I now believe they should all stand as subspecies of the South American *Rallus longirostris.*

The present form is based upon a series of five adult and three immature birds, collected by Mr. Link at Los Indios and the Majagua River. It was confined to the mangroves, and seemed to be fairly common there, judging from the number which were daily heard. It proved to be very difficult to secure, however, preferring to seek safety when disturbed more by dodging through the thick growth rather than by flight. Young in the down were seen on several occasions along the sea-beach near the mouth of the Majagua River, upon being alarmed disappearing into the mangroves, where they were safe from pursuit. While not actually observed at any other locality than the two above mentioned, the species doubtless occurs at other points along the coast, in salt-water lagoons, wherever the mangroves grow, and it was probably this species which was recorded by Mr. Read from Bibijagua under the name " Virginia Rail."

41. **Gallinula chloropus cachinnans** Bangs.[9] FLORIDA GALLINULE.

Gallinula galeata (not of Lichtenstein) CORY, Cat. W. Indian Birds, 1892, 91 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 192 (Santa Rosalia Lagoon).

"Florida Gallinule" READ, Oölogist, XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines).

Mr. Zappey found a few Florida Gallinules in Santa Rosalia Lagoon in March, 1902, but saw none on his later trip. In Cuba, according to Gundlach, it is a regular breeder, so that it is entirely probable that in due time it will be found breeding in the Isle of Pines likewise. It seems, however, to be a rare bird there at any season. Mr. Read says that he saw a pair in the Santa Barbara tract in September, and while Mr. Link did not actually meet with a living bird, he found the remains of an individual at Los Indios in October, doubtless one which had been killed by a hawk.

42. **Ionornis martinica** (Linnæus). PURPLE GALLINULE.

Ionornis martinica CORY, Cat. W. Indian Birds, 1892, 91 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 192 (Pasadita; meas.; crit.).

Four specimens: Pasadita.

This is a fairly common species in the Cienaga at Pasadita, where specimens were collected by both Mr. Zappey and Mr. Link. Its local range, however, seems to be quite restricted, since it has not been detected at other points in the island, not even at the western end of the Cienaga, which Mr. Link explored carefully.

Messrs. Bangs and Zappey call attention to the large size of the birds collected by the latter as compared with specimens from the southern United States. With only a few specimens from South Carolina and Florida before me, however, it appears that several of these are quite as large as the Isle of Pines birds, the males of which fall below the measurements given by the authors in question. Females are somewhat smaller than males.

43. **Fulica americana** Gmelin. COOT.

Fulica americana CORY, Cat. W. Indian Birds, 1892, 91 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 249 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 193 (I. of Pines, *ex* Cory and Gundlach).

Gundlach appears to have been the only observer to record this species from the Isle of Pines, and his is merely a casual reference. He

[9] Mr. Bangs (*Proceedings New England Zoölogical Club*, V, 1915, 96) appears to have made out a good case for the subspecific status of the North American form.

says that in Cuba it comes from the north in large numbers for the winter, leaving in April, but that a few remain to breed. Under such circumstances it is odd that there are no more records from the Isle of Pines, where there are certainly many places suited to its needs.

44. **Aramus vociferus** (Latham). LIMPKIN.

Aramus gaurauna [*sic*] POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Aramus giganteus CORY, Cat. W. Indian Birds, 1892, 90 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 237 (I. of Pines).—READ, Oölogist, XXVI, 1909, 149 (I. of Pines; habits); XXVIII, 1911, 11 (I. of Pines); XXX, 1913, 122 (McKinley; habits).—READ, I. of Pines News, VI, Jan. 31, 1914 (descr.; habits).

Aramus giganteus holostictus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 194 (Cienaga; crit.; *ex Notherodius holostictus* Cabanis).

"Limpkin" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5, and XXVIII, 1911, 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (Nuevas River), 127 (Santa Barbara), 130, 131 (I. of Pines), 164 (Santa Barbara to Nueva Gerona).

Three specimens: Nueva Gerona and Pasadita.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
4342	♂	Melbourne, Florida	308	126	121	115
4343	♀	Melbourne, Florida	303	133	110	116
26959	♂	Bebedero, Costa Rica	325	146	120	122
27438	♀ im.	Lower Kissimmee R., Florida	300	127	104	112
27458	♂	Bassenger, Florida	319	140	131	126
39410	♂	Utuado, Porto Rico	306	139	——	103
41126	♀	Nueva Gerona, I. of Pines	310	134	121	120
41197	♂	Nueva Gerona, I. of Pines	318	149	118	125
41385	♀	Pasadita, I. of Pines	323	144	125	125

From the above table of measurements it must be obvious that West Indian specimens of this species vary in dimensions fully as much as do Florida birds, the variation in both being considerable. Nor, after careful comparison, can I detect any constant difference in color between the two series, such variation as exists seeming to depend largely on season, birds in fresher plumage being generally darker. Florida examples, it is true, seem to have rather more white on the under wing-coverts, but this is such a variable feature that I believe its value would disappear in a larger series. Some individuals have the under tail-coverts distinctly streaked with white, in others these

feathers are plain. Under the circumstances I am forced to the conclusion that the individual described by Messrs. Bangs and Zappey from the Isle of Pines was an unusually small, perhaps immature, bird, and that therefore their recognition of a subspecies *holostictus* from the West Indies, on the strength of this specimen, cannot stand.

So far at least as Mr. Link's experience goes, this is not a very common bird in the Isle of Pines. Two were shot at a lagoon northeast of Nueva Gerona, and one in the Cienaga at Pasadita. A few others were seen at the latter locality, as well as at El Canal, on the route between Santa Fé and the Cienaga, where they were observed in the dry uplands, in a plowed field. Mr. Zappey, however, saw none outside of the Cienaga. Messrs. Palmer and Riley heard several in the vicinity of Nueva Gerona, and Mr. Read has noted the species repeatedly at various points in the northwestern part of the island, remarking that it is solitary in its habits, and is oftener heard than seen. The fresh-water snails which abound in the rivers and lagoons constitute its principal food. " In the night it is a noisy bird, making weird, mysterious cries, from which it gets its name " [of " Crying Bird "]. Its ordinary alarm-note in the daytime is a frog-like croak. Nothing is yet on record regarding its breeding on the island.

45. **Grus mexicana nesiotes** Bangs & Zappey. CUBAN SANDHILL CRANE.

Grus poliophæa (not of Wagler) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Grus canadensis (not of Linnæus) GUNDLACH, Journ. für Orn., 1875, 293 (I. of Pines; habits).—GUNDLACH, Contr. Orn. Cubana, 1876, 143 (I. of Pines).

Grus mexicana (not of Müller) CORY, Cat. W. Indian Birds, 1892, 90 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 175 (I. of Pines).—COOKE, Bull. U. S. Dept. Agric., No. 128, 1914, 10 (I. of Pines, *ex* Gundlach).

Grus nesiotes BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 193 (La Vega and Pasadita; orig. descr.; type now in coll. Mus. Comp. Zoöl.; habits; crit.).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines); XV, 1913, 45 (Santa Barbara).—READ, I. of Pines News, VI, Feb. 7, 1914 (I. of Pines; habits).

"Sand-hill Crane" READ, Oölogist, XXVI, 1909, 58 (I. of Pines), 102 (syn.).

"Cuban Crane" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 7 (Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 123 (Pine River), 125 (Santa Barbara), 130 (I. of Pines).

Three specimens: Los Indios.

The measurements given in the following table, having been taken by different individuals, are possibly not entirely comparable, although

doubtless sufficiently so to show the relative size and proportions of the three forms under consideration.

Grus mexicana mexicana:

No	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
36115[12]	♂	Plymouth, Ohio	490	196	152	230
162903[11]	♂	Lake Trafford, Florida	505	200	131	258
162904[11]	♂	Fort Thompson, Florida	485	185	129	252
175530[11]	♂	Lake Kissimmee, Florida	503	185	128	258
17451[13]	♂	Bassenger, Florida	525	179	142	258
17452[13]	♀	Bassenger, Florida	501	174	138	237
175408[11]	♀	Sawgrass I., Polk Co., Florida	470	164	127	231
239548[11]	♀	Elk River, Minnesota	515	195	130	223
1990[13]	♀	Towner Co., North Dakota	577	196	134	240
24641[14]	♀	Manatee Co., Florida	510	232	127	215

Grus mexicana nesiotes:

13238[10]	♂	La Vega, I. of Pines	474	187	125	209
13239[10]	♂	Pasadita, I. of Pines	460	171	123	204
39675[12]	♀	Los Indios, I. of Pines	425	162	100	188
39676[12]	♀	Los Indios, I. of Pines	431	171	110	198
41323[12]	♀	Los Indios, I. of Pines	432	165	107	187
211220[11]	♀	Puerto Principe, Cuba	475	171	124	214

Grus canadensis:

21614[12]	♂	Emporia, Kansas	490	183	118	199
193556[11]	♂	Ft. Resolution, Mackenzie	480	173	109	227
58485[11]	♂	Ft. Kenai, Alaska	485	187	96	208
9937[13]	♂	Nome, Alaska	463	161	82	161
18587[13]	♂	Nome, Alaska	487	173	88	202
24639[14]	♂	Carmon, Manitoba	541	192	124	217
33063[14]	♂	Cameron Co., Texas	512	175	107	197
33062[14]	♀	Cameron Co., Texas	490	207	97	200
38524[12]	♀	Hooper Bay, Alaska	475	184	103	193
193555[11]	♀	Slave River, 20 mi. above Ft. Resolution, Mackenzie	444	166	97	209
184977[11]	♀	La Barca, Jalisco, Mexico	430	148	89	198
———[11]	♀	Nushagak, Alaska	430	158	88	184
25979[13]	♀	Keith Co., Nebraska	458	154	90	184

The present series, secured by Mr. Link after strenuous and repeated efforts, has served as a basis for further and independent comparisons

[10] Collection E. A. and O. Bangs.

[11] Collection U. S. National Museum.

[12] Collection Carnegie Museum.

[13] Collection Louis B. Bishop.

[14] Collection Jonathan Dwight.

in an effort to determine the true status and relationships of the Sandhill Crane of Cuba and the Isle of Pines. Although known from the latter locality for many years, having been recorded by Poey (on Gundlach's authority) as far back as 1854, specimens have apparently been wanting in collections. In 1904, however, Mr. Zappey was successful in securing two male birds, which were described the following year under the name *Grus nesiotes*. The smaller size was given as the chief point of difference between the new form and *G. mexicana*, the differences in color being insignificant. As shown in the foregoing table of measurements, the two birds collected by Mr. Zappey, although in rather worn plumage, average somewhat larger than the three females taken by Mr. Link. Nevertheless, the bird represented by these five skins seems worthy of distinction from *G. mexicana* of the mainland, being so much smaller that its recognition is easy, but it is a curious fact (and one apparently ignored by the describers) that by this very token it approaches *G. canadensis*. Even in the small series of these two forms examined the measurements inosculate. But while in general size the two appear to be about the same, the bill in *nesiotes* seems to average relatively longer. The range of variation in this respect is nevertheless considerable in both forms, so much so that it is very doubtful if they can invariably be discriminated by any fixed differences in size or proportions. The status of *G. canadensis* has indeed been in the past the subject of considerable dispute, into the history of which it is here unnecessary to go; suffice it to say that current usage, as reflected by the American Ornithologists' Union *Check List of North American Birds*, accords it specific rank. Authorities are agreed that *G. canadensis* and *G. mexicana* can be distinguished from each other only by size, both species varying greatly in color, this variation affecting mainly the mantle, which is often strongly washed with brown. According to Messrs. Bangs and Zappey this brown wash is characteristic of the breeding-season, at least in the case of *G. mexicana*. Birds taken in May are quite appreciably browner than those taken in October, although the variation in this respect is not nearly so marked as in the other two forms, and it is of course possible that this difference may prove to be sufficiently constant to be used as a diagnostic character. It is of course inconceivable that *nesiotes* is a subspecies of the boreal and western *G. canadensis*, its real affinities being rather with *G. mexicana*, the range of which it approximates. To reduce it to a subspecies of the latter,

while at the same time keeping *G. canadensis* specifically distinct, may seem an inconsistent course to pursue; nevertheless, in the writer's judgment it more nearly expresses the facts of the case than to recognize it as a full species or (to go to the other extreme) to sink it as a synonym of *G. mexicana*. Indeed, Messrs. Bangs and Zappey seem to have been kept from following the arrangement here adopted merely by the consideration that the name *mexicana* has probably been improperly applied, a question on which I can at present express no opinion.

It may be added that future research may show that the bird of Cuba is not the same as that of the Isle of Pines. The measurements of the single Cuban example above given are those of an individual which died in captivity.

While the Cuban Sandhill Crane can by no means be considered a common species in the Isle of Pines, it nevertheless is a well-known and generally distributed bird. It has repeatedly been observed in the northern portion of the island by Mr. Read and Mr. Link, and by the latter at Pasadita also, where Mr. Zappey took one of his specimens. Three fine specimens were secured by Mr. Link at Los Indios. The two shot October 24 were taken by the ingenious device of dressing in green clothing and cautiously creeping towards the birds on hands and knees, their attention being distracted meanwhile by the manœuvers of another party at a distance, in the opposite direction. Frequenting the more open situations, as they invariably do, and being such wild and wary birds, it is seldom that they can be approached within gunshot, except by some such subterfuge as that just described. Their flesh is esteemed as food by the inhabitants, and they are shot for this purpose at every possible chance, but in spite of this persecution they have succeeded in holding their own fairly well. Mr. Link estimates that he saw as many as twenty-five individuals during his stay on the island. On one occasion a group of five were seen together, but as a rule not more than two or three were observed in company. In the latter case he believes that a pair with their young were represented. The Crane lays two eggs, but it is seldom that more than one young bird is raised, owing to the destruction caused by the ants, which often kill the young first hatched, while the one hatched later may escape. No nests were actually discovered, but broken egg-shells were found, and on several occasions young birds were seen in captivity, indicating that the eggs are laid early in May.

When taken young the Crane is easily tamed, and makes a very interesting pet. It feeds on worms, insects, lizards, etc., and may often be observed in recently burnt tracts, picking up the lizards which have perished in the fire. It is a very noisy bird, and also has a peculiar way of dancing, strutting around with bill pointed straight up, the wings spread, while all the time it utters its loud discordant notes.

46. **Sterna maxima** Boddært. ROYAL TERN.

Sterna cayennensis POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Sterna maxima CORY, Cat. W. Indian Birds, 1892, 82 (I. of Pines, in geog. distr.). —BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 196 (seacoast and cays).

Thalasseus maximus GUNDLACH, Orn. Cubana, 1895, 287 (I. of Pines).

"Royal Tern" READ, Oölogist, XXX, 1913, 130 (I. of Pines), 168 (Los Indios).—READ, I. of Pines News, VI, Apr. 25, 1914 (Punta Frances).

Four specimens: Los Indios, Majagua River, and Cayo Frances.

Specimens shot September 27 and November 7 show moult of the primaries in progress, while an individual taken November 30 is in full dress.

The Royal Tern is found at various points along the seacoast and among the outlying cays. In addition to the localities above specified, it was noted off Punta del Este and about the island known as Morrillo del Diablo, on the north coast. Probably, however, none of these birds were breeding at the time. In May, 1910, a nest with two eggs was found near the sea-beach, east of the mouth of the Nuevas River.

47. **Sterna sandvicensis acuflavida** Cabot. CABOT TERN.

Three specimens: Los Indios.

A few were noted at Los Indios on September 27, in company with the Royal Tern, and three specimens were secured. One of these is an adult in winter dress; the other two are immature birds. The species has long been known from Cuba, Jamaica, and Porto Rico, but this is the first record for the Isle of Pines. So far as I have been able to discover there are no breeding records for Cuba, although Gundlach claims to have taken young in the first plumage in August.

48. **Sterna antillarum** (Lesson). LEAST TERN.

About a dozen of these birds were observed in May, 1910, about a sea-beach east of the mouth of the Nuevas River, under circumstances which indicated that they were breeding at the time, as were the Royal Terns, with which they were associated. The species was found

also in some numbers at Cayo Largo, an island some fifty miles east of the Isle of Pines, during a brief visit the latter part of May, and a specimen was secured.

49. **Himantopus mexicanus** (Müller). BLACK-NECKED STILT.

Himantopus mexicanus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 195 (Bibijagua).

Mr. Zappey has been the only observer to meet with this species in the Isle of Pines. Two were seen, one of which was secured, in the "Salina" at Bibijagua on May 15, 1904. According to Prof. Cooke (*Bulletin Biological Survey*, No. 35, 1910, 20), "the species is a tolerably common resident of the entire West Indies," a statement confirmed by Gundlach (*Ornitología Cubana*, 1895, 222), so that its occurrence in the Isle of Pines is no more than was to be expected.

50. **Gallinago delicata** (Ord). WILSON SNIPE.

"Wilson Snipe" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

Gallinago delicata READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

The Wilson Snipe is a winter resident in the Isle of Pines, living in fresh-water swamps, where there is always plenty of suitable covert. The brush and marsh-grasses in these situations make shooting much more difficult than in the north, and although individuals were seen from time to time, none were actually secured. The first was observed at Bogarona on October 17, and others were noted in a marshy tract near the Caballos Mountains at intervals through the winter months. Mr. Read has recorded its arrival in fall migration as early as September 2 (1913), other records being September 18 (1912), October 3 (1911) and 21 (1909). No spring dates of departure are on record.

51. **Limnodromus griseus griseus** (Gmelin). DOWITCHER.

Seven specimens: Los Indios, Rincon Lagoon, and El Bobo Lagoon.

A single individual, the only one seen at the time, was shot at Los Indios on November 23. Several good-sized flocks were seen at Rincon Lagoon on February 21 and 22, and three weeks later (March 14 and 15) it was found in considerable abundance at El Bobo Lagoon. All of the specimens secured are in full winter dress with the exception of one from this latter locality, in which the prenuptial moult of the body-plumage is in progress, the bird presenting a curious pied appearance. The species is to be set down as a winter resident in the Isle of Pines, as elsewhere in the West Indies.

52. **Pisobia minutilla** (Vieillot). LEAST SANDPIPER.

"Least Sandpiper" READ, Oölogist, XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines).

Eight specimens: Los Indios and Siguanea.

Three birds taken September 27 are immature, one of them showing signs of moult of the body-plumage. Four others, ranging in date from September 30 to November 22, are in full winter dress, the earliest bird just completing the moult of the remiges. The single example from Siguanea, shot April 30, is in full nuptial plumage.

This diminutive species is a common winter resident, mainly on or near the coast, occurring in immense flocks, usually associated with other species of shore-birds. It was one of the most abundant species at Rincon Lagoon in February. September 27 was the earliest date of record for the fall of 1912, although Mr. Read seems to have noted it a little earlier that season, on September 24. In the fall of 1913 the same observer saw it first on September 26.

Ereunetes pusillus (Linnæus). SEMIPALMATED SANDPIPER.

(?) "Semipalmated Sandpiper" READ, Oölogist, XXVIII, 1911, 7, 13 (I. of Pines); XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines).

Mr. Read records this species, as above, saying that he saw several on September 4, 1910. In reply to an inquiry he writes that on the date in question he watched a flock of small sandpipers on a sand-bar along the Nuevas River, which from their partially webbed tracks he felt sure belonged to the present species. While there is no reason why this species should not occur as a winter resident in the Isle of Pines, as elsewhere in the West Indies, its formal admission to the list should await a more positive identification.

53. **Totanus melanoleucus** (Gmelin). GREATER YELLOW-LEGS.

Totanus melanoleucus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 196 (Bibijagua). —READ, Oölogist, XXVI, 1909, 190, and XXVIII, 1911, 11 (I. of Pines).

"Greater Yellow-legs" READ, Oölogist, XXVII, 1910, 15, XXVIII, 1911, 7, and XXX, 1913, 131 (I. of Pines; migr.).

Probably a winter resident in the Isle of Pines, as elsewhere in the West Indies, but the few available records pertain apparently to migratory birds only, or at least to individuals observed during the season of migration. Mr. Zappey secured a single female at the "Salina" near Bibijagua on May 15, 1904, and Mr. Read reports having seen a few on September 18, 1909, and September 7, 1910. Mr. Link failed to meet with the species.

54. **Totanus flavipes** (Gmelin). YELLOW-LEGS.

Totanus flavipes BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 195 (I. of Pines, March).

"Yellow-legs" READ, Oölogist, XXX, 1913, 127 (Santa Barbara).

Six specimens: El Bobo Lagoon and Siguanea.

These specimens were collected on March 14 and 15 and April 30, flocks of considerable size having been met with on each occasion, frequenting the marshes back of the mangroves. On February 21 and 22 large flocks were observed at Rincon Lagoon, near Bibijagua. According to Prof. Cooke (*Bulletin Biological Survey*, No. 35, 1910, 56, 57) the species is rare as a winter resident so far north, although known to arrive in the Gulf States as early as March, so that the present record becomes of interest. Mr. Zappey also collected some specimens in March, 1902. All of the birds taken by Mr. Link show prenuptial moult of the body-plumage going on, and practically completed in the one shot April 30. One of the March specimens is renewing the outer primaries, and looks more like a bird just going into winter dress. Mr. Read writes that he has taken specimens of both this and the preceding species in fall shooting.

55. **Tringa solitaria solitaria** (Wilson). SOLITARY SANDPIPER.

Helodromas solitarius solitarius BANGS & ZAPPEY, Am. Nat., XXXIX, 905, 196 (Jucaro).

"Solitary Sandpiper" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, May 3).—READ, Oölogist, XXVI, 1909, 102 (I. of Pines); XXVII, 1910, 15 (I. of Pines, Oct. 27); XXVIII, 1911, 7 (I. of Pines, Aug. 20), 10 (Nuevas River), 114 (West McKinley); XXX, 1913, 125, 127 (Santa Barbara), 131 (I. of Pines).

Helodromas solitarius READ, Oölogist, XXVIII, 1911, 11 (I. of Pines; migr.).

So far as known the Solitary Sandpiper is only a transient visitant in the Isle of Pines, although it is entirely possible that it may winter occasionally. Mr. Zappey secured a single bird at Jucaro on May 11, 1904, and Mr. Read has noted it (in the "West Coast" section) as early as March 25 (1913) and as late as May 18 (1910). Fall migration dates culled from his notes lie between August 20 (1910) and October 27 (1909).

56. **Catoptrophorus semipalmatus semipalmatus** (Gmelin). WILLET.

Totanus semipalmatus POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Symphemia semipalmata CORY, Cat. W. Indian Birds, 1892, 94 (I. of Pines, in geog. distr.).

Catoptrophorus semipalmata [*sic*] *semipalmata* BANGS & ZAPPEY, Am. Nat. XXXIX, 1905, 196 (I. of Pines, *ex* Poey).

Five specimens: Siguanea.

Judging from the measurements, these specimens belong to the typical eastern form. While agreeing well with an example from Amelia Island, Florida, taken May 8, they seem to differ slightly from a small series of breeding birds from Cobb's and Smith's Islands, Virginia, in having the under parts rather less heavily marked, and in the barring on the upper tail-coverts being less pronounced, or in one case even obsolete. The Virginia birds, however, vary somewhat among themselves in these respects, and possibly seasonal changes due to wear may be responsible for the observed differences.

The dates of collection of these birds (April 30–May 2) would at least suggest the possibility of their being breeding individuals. Moreover, the species was noted at Los Indios still later by several days. Gundlach says that he has observed the Willet at Guantánamo, Cuba, in June and July, and believes that a few breed there. Those noted in the Isle of Pines were invariably found in the marshes behind the fringe of mangroves, either singly or two or three together. The only other specific record is that of Poey, above quoted, based on Gundlach's observations near Nueva Gerona, which are doubtless the basis for Mr. Cory's reference also.

57. **Actitis macularia** (Linnæus). SPOTTED SANDPIPER.

Actitis macularia BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 196 (I. of Pines, coastwise).—READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).

"Spotted Sandpiper" READ, Oölogist, XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 6 (Nuevas River), 7 (I. of Pines; migr.); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

Ten specimens: Los Indios, Santa Rosalia Lagoon, Bogarona, and Siguanea.

No. 39,699, October 29, is moulting the remiges. No. 39,760, November 16, is an adult completing the postnuptial moult, and still retaining the old wings and tail, as well as numerous black-spotted breast-feathers. Another individual, shot February 18, is renewing the remiges. All the birds taken between April 25 and 30 are in full nuptial dress.

A common winter resident, both inland and coastwise, although naturally not observed in the wooded parts of the Cienaga. The first was taken at Los Indios on September 30, but its real arrival evidently took place a month earlier, since Mr. Read has recorded it as early as August 29 (1913), August 31 (1910), and September 1 (1911). It was usually observed singly, although occasionally a small flock was encountered.

Pluvialis dominicus dominicus Müller. GOLDEN PLOVER.

(?) "Golden Plover" READ, Oölogist, XXX, 1913, 131 (I. of Pines, Sept. 18).

"On September 17, 1912, I took two specimens which I identified at the time as Golden Plover." These were "identified from Cory's 'How to know the Shore Birds,' and had the rudimentary hind toe." [!] The rudimentary hind toe being characteristic of the Black-bellied Plover, and not of the Golden Plover, there is ground for querying the record in question. Although the Greater Antilles are presumed to lie considerably off the regular migration route of the Golden Plover, Gundlach records it from Cuba without special comment, and, if it occurs there, it should also occur in the Isle of Pines.

58. **Squatarola squatarola** (Linnæus). BLACK-BELLIED PLOVER.

(?) "Black-bellied Plover" READ, Oölogist, XXX, 1913, 127 (Santa Barbara).

Seven specimens: Los Indios, Caleta Grande, and Rincon Lagoon.

After examining an unusually fine series of breeding and winter adults of this species from various parts of its North American range, together with a few European specimens, I find such a variation in size in both that I do not feel justified in recognizing the birds from the respective continents as subspecifically distinct (at least on the ground of size alone), as proposed by Messrs. Thayer and Bangs (*Proceedings New England Zoölogical Club*, V, 1914, 23). Nor does the supposed form "*hypomelus*" appear to rest on a much more satisfactory basis.

Two adults shot October 14 have completed the postnuptial moult, with the exception of one and two outer primaries respectively. Two young birds, dated respectively November 19 and 26, however, are still in juvenal dress, so badly worn that the buffy spotting of the upper parts is mostly scalloped out, and what remains faded to white; but still they show no signs of the onset of the postjuvenal moult. Three specimens shot February 21 and 22, and which look like winter adults, have the body-plumage much worn, while the wings, and also the tail, except in one individual, are quite fresh. The one exception referred to is a bird which is acquiring new feathers of the winter plumage on the back, and may be a young bird undergoing a late postjuvenal moult.

The Black-bellied Plover is a winter resident in the Isle of Pines, occurring usually wherever there are rocky or gravelly beaches exposed along the coast. Two or three individuals are ordinarily found together. At only one locality, Rincon Lagoon, near Bibijagua, February 21 and 22, was it ever observed in flocks of any size. October 14 was the earliest date recorded for it by Mr. Link, while a few individuals were observed at Siguanea as late as May 2. These latter

appeared to have some black feathers underneath, but they were very shy, and unfortunately none were secured. Mr. Read records what he believes to have been this species, mentioning that he has seen it feeding in the dry uplands, in pine-apple tracts.

59. **Oxyechus vociferus vociferus** (Linnæus). KILLDEER.

Five specimens: Caleta Grande, Los Indios, Santa Ana, and Nueva Gerona.

These specimens, taken at dates ranging from November 27 to February 24, compare favorably with examples from the eastern United States in size and other characters, indicating that they were migrants from that section, come to the Isle of Pines to spend the winter. The species was especially numerous at Caleta Grande, where on one occasion a flock of six or eight was encountered, but as a rule it was met with singly, or two together.

60. **Oxyechus vociferus rubidus** Riley. WEST INDIAN KILLDEER.

Ægialitis vocifera (not *Charadrius vociferus* Linnæus) CORY, Cat. W. Indian Birds, 1892, 95 (I. of Pines, in geog. distr.).

Oxyechus vociferus GUNDLACH, Orn. Cubana, 1895, 231 (I. of Pines).

Oxyechus vociferus torquatus (not *Charadrius torquatus* Pontoppidan) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 195 (Nueva Gerona, *fide* Palmer & Riley, Bibijagua, and Laguna Grande; meas.; crit.; *ex Charadrius torquatus* Linnæus). —COOKE, Bull. Biol. Survey, No. 35, 1910, 88 (I. of Pines, in geog. distr.).

"West Indian Killdeer" READ, Oölogist, XXVI, 1909, 224, and XXX, 1913, 131 (I. of Pines), 123 (Pine River), 125, 127 (Santa Barbara).

"Antillean Killdeer" READ, Oölogist, XXVIII, 1911, 10 (Nuevas River).

Oxyechus vociferus rubidus READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

Four specimens: Santa Rosalia Lagoon, Hato, and Jacksonville.

These four skins are evidently representatives of the race of the Killdeer which is resident in the West Indies, and which is readily distinguishable by its smaller size and lighter, generally more rusty color of the upper parts and wing-coverts. Measurements are as follows:

No.	Sex.	Locality.	Wing.	Tail.	Bill.	Tarsus.
41154	♀	Santa Rosalia Lagoon	158	92	20.5	35
41157	♂	Santa Rosalia Lagoon	149	85	20	33
41258	♀	Hato	144	90	20	32
41274	♂	Jacksonville	141	82	20	34

All are rather more worn than the specimens of true *vociferus*.

In discussing the status of this form as a bird of the Bahama Islands (ANNALS CARNEGIE MUSEUM, VII, 1911, 414), I inadvertently overlooked Messrs. Bangs and Zappey's record for the Isle of Pines, where it is a tolerably common resident, with habits the same as those of the northern form. Mr. Zappey found a downy young at Bibijagua, and Mr. Read has recorded it frequently, although it is probable that at least some of his records refer to the northern form, which is practically indistinguishable from the other in the open.

61. **Charadrius semipalmatus** (Bonaparte). SEMIPALMATED PLOVER.

Twelve specimens: Los Indios.

Four of these, shot at dates ranging from September 30 to November 12, show the delayed postjuvenal moult in progress, but it is a curious fact that in the remainder of the series, although taken between the same dates, there is no sign of moult. The bird shot September 30 is shedding the remiges and rectrices, while one shot November 4 is just completing the renewal of the former. Two taken November 12 are in similar case, and in addition are beginning to acquire the black feathers of the neck-band and forehead characteristic of the next plumage.

The Semipalmated Plover is a very abundant winter resident in suitable situations, thronging the sandy beaches in immense flocks from September until early in May. It was particularly numerous at Rincon Lagoon the latter part of February, associated with other species of shore-birds. It was not observed anywhere in the interior.

62. **Pagolla wilsonia wilsonia** (Ord). WILSON PLOVER.

Octhodromus wilsonius rufinucha? BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 195 (Playa Larga).

Eleven specimens: Los Indios.

All are in immature (or winter?) dress, having been shot between September 27 and November 23. Two birds, shot October 14 and November 12, show new black feathers coming in on the breast-band. The remiges seem fresh enough in these, but the body-plumage generally is old and worn. None of the skins show any approach whatever in their characters to the alleged subspecies "*rufinucha*," the status of which has already been fully discussed in another connection (ANNALS CARNEGIE MUSEUM, VII, 1911, 415), but unfortunately no breeding examples were collected. A series of such will be required to determine the status of the resident birds.

This is a very common species on the coast, wherever there are sandy beaches, as at Punta del Este, Los Indios, and Rincon Lagoon. Except in the breeding-season, it was usually observed in large flocks, often associated with the Semipalmated Plover.

63. **Arenaria interpres morinella** (Linnæus). RUDDY TURNSTONE.

Three specimens: Caleta Grande.

These birds were shot on November 26 and April 18 on the coral-beach at Caleta Grande, and were all that were seen. They were found singly, and not associated with any other shore-birds. All are in winter dress, and in the November birds the remiges are very fresh, in one case the outer primary still having the sheath attached.

64. **Jacana spinosa violacea** (Cory). WEST INDIAN JACANA.

Jacana spinosa (not *Fulica spinosa* Linnæus) CORY, Cat. W. Indian Birds, 1892, 92 (I. of Pines, in geog. distr.).

Asarcia spinosa BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 196 (Santa Rosalia Lagoon, Laguna Grande, Pasadita, and the Cienaga; habits).

Eight specimens: Santa Ana and Pasadita.

The examination of a series of forty-six adult specimens of *Jacana spinosa*, brought together in order to determine the status of the bird of the Isle of Pines, shows conclusively that the sexes differ materially from each other in size, and also to a less extent in color. But unlike most birds, these differences are all in favor of the *female*, which is decidedly larger and somewhat more brightly colored than the male, and with a larger frontal lappet. The three exceptions to this rule in the series before me are unquestionably wrongly sexed specimens. So far as I have been able to discover, Gundlach (*Ornitología Cubana*, 1895, 237) was apparently the first author to note this fact, which is confirmed by Sharpe (*Catalogue Birds British Museum*, XXIV, 1896, 87) and Salvin and Godman (*Biologia Centrali-Americana*, Aves, III, 1903, 343). There is no sexual difference affecting the color of the inner secondaries, however, as intimated by the former author. These sexual differences must constantly be kept in mind when comparing birds for geographic variation, else confusion is bound to ensue, as was evidently the case with Mr. Elliot (*Auk*, V, 1888, 299) and with Baird, Brewer & Ridgway (*Water Birds of North America*, I, 1884, 177), who must have been dealing with incorrectly sexed specimens, and could find no differences correlated with locality. With the material before me, however, I find no difficulty in recognizing no

less than three geographic races of this species. Average measurements are as follows:

	Wing.	Tail.	Bill.	Tarsus.
Nine males from Mexico	117	41	29	49
Six males from Central America	115	40	30	51.5
Ten males from the West Indies	116.5	40	30	51.5
Six females from Mexico	133.5	46	31.3	51
Five females from Central America	131	43.5	32	53.5
Ten females from the West Indies	132	44	33	55.5

Sex for sex, Mexican examples are decidedly duller and darker below than those from the West Indies, in which the maroon color of the under parts is much brighter. In the former series the greenish black of the breast merges more gradually into the maroon of the abdomen, which is often overspread with a shade of brown, while in the West Indian birds the transition is more abrupt, and the brown shade lighter or absent. The color-differences are no less marked above, although their character is reversed, for while the upper parts in the Mexican birds are lighter, more rufescent (nearer Hessian brown of Mr. Ridgway's *Color Standards and Color Nomenclature*), in the West Indian skins they are darker and more purplish (nearer maroon). There is also a decided difference in the size of the frontal lappet in favor of the latter series.

Taking up now the Central American series, which includes examples from Honduras, Nicaragua, Costa Rica, and Panama, we find them almost exactly intermediate between the Mexican and West Indian birds. With a larger series the slight discrepancy in size between Central American and Mexican birds shown by the above table would doubtless disappear. The frontal lappet, however, certainly averages larger in the former, although not so large as in the West Indian birds. In the color of the upper surface the Central American birds most resemble those from Mexico, while below they are almost as bright as those from the West Indies. In short, if the latter are to be separated at all, as I believe they should be, it will be necessary to recognize three races of this species instead of two. While selected specimens may be very similar, the average collective differences are quite sufficient in my judgment to justify subspecific separation, certainly as much so as in some other groups, the Ground Doves for instance.

Before the question of names for these three forms can be decided it will be necessary to fix the type-locality of *Fulica spinosa* Linnæus,

1758. This was based on the figure and description of the "Spur-winged Water-hen" of Edwards, *Natural History of Birds*, I, 1743, 48, pl. 48. Edwards gave the locality for his bird as Carthagena, Colombia, but this was almost certainly an error, inasmuch as there are no unquestioned records for the species from anywhere south of Panama, and so far as known *Jacana nigra* is the only species of this genus occurring on the north Colombian coast. *Parra variabilis* of Linnæus, 1766, has exactly the same basis as his earlier name. *Parra gymnostoma* Wagler (*Isis*, 1832, 517), and *Parra cordifera* Lesson (*Revue Zoölogique*, 1842, 135) are both based on the Mexican bird, so that to reassign the type-locality on the basis of either of these authors would necessitate a new name for the Central American form. In order to obviate this, and to disturb the existing nomenclature as little as possible, I propose to fix the type-locality of *Fulica spinosa* Linnæus as Panama. This proceeding leaves Wagler's name available for the Mexican form.

Parra violacea Cory (*Bulletin Nuttall Ornithological Club*, VI, 1881, 130) is the only name so far proposed for the West Indian bird, the type coming from Haiti. The describer failed to compare his bird with continental examples, and neither the description nor the later plate (Cory, *Birds of Haiti and San Domingo*, 1885, pl. 19) are diagnostic. Indeed, in the latter volume Mr. Cory (page 159) refers his *P. violacea* to *P. gymnostoma* as a pure synonym, but later (*Auk*, V, 1888, 52) he provisionally restores it to the rank of a species, saying that Cuban specimens agree exactly with the Santo Domingo bird, being "considerably larger and brighter than specimens of *J. gymnostoma;* the coloration of the wattles is, I believe, also different." A few months later Mr. Elliot, in reviewing the species of this group (*Auk*, V, 1888, 299), repudiated the name in question, stating that he could find no differences between specimens of this species from various parts of its range. Unfortunately I have not been able to examine the type (which so far as I know is the only known specimen from Haiti) in this connection, but if the measurements given by Mr. Cory are correct it is evidently a female individual, and somewhat larger than the average, but equalled in this respect (except for length of tail) by an example from Trinidad, Cuba (No. 57,381, Collection American Museum of Natural History). Three males from this same locality also average larger than specimens of the same sex from western Cuba, the Isle of Pines, and Jamaica, notwithstanding which circumstance I consider them all as belonging to the same form.

The three forms here recognized may be diagnosed as follows:

Frontal lappets small; upper parts more rufescent; under parts darker and duller. (Mexico) ..... *Jacana spinosa gymnostoma.*

Frontal lappets medium; upper parts more rufescent; under parts rather brighter. (Central America) ..... *Jacana spinosa spinosa.*

Frontal lappets large; upper parts more purplish; under parts decidedly brighter. (West Indies) ..... *Jacana spinosa violacea.*

It will thus be seen that my conception of a subspecies is essentially different from that of Mr. Hellmayr (*cf. Novitates Zoölogicæ*, XIII, 1906, 53), who considers that *J.* " *melanopygia* " and *J. spinosa* should stand as races of *J. jacana*, although I fully agree with him that the recognition of a separate genus *Asarcia* for *J. spinosa*, as proposed by Sharpe, is quite unnecessary.

The Jacana is a fairly common bird in the Isle of Pines, being apt to occur in almost any fresh-water lagoon. Messrs. Palmer and Riley shot three individuals in the vicinity of Nueva Gerona, where Mr. Link also observed it on several occasions, securing one specimen at Santa Ana, about three miles distant. It was abundant in the Cienaga in the neighborhood of Pasadita, specimens having been secured there both by Mr. Zappey and Mr. Link. None were observed near the western end of the Cienaga, however, the water being rather too brackish there.

65. **Starnœnas cyanocephala** (Linnæus). BLUE-HEADED QUAIL DOVE.

Starnœnas cyanocephala BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 199 (Caballos Mountains and "south coast"?).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines, one record).

"Blue-headed Quail Dove" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 131 (I. of Pines).

Messrs. Bangs and Zappey include this species in their list on purely hearsay evidence, stating that while it has never actually been observed by any naturalist, " the natives who know it well positively assert that a few inhabit the Caballos Mountains and some point near the south coast." While there is no intrinsic reason why it should not be found in the Isle of Pines, just as in Cuba, this can scarcely be regarded as very satisfactory evidence from a scientific standpoint. Mr. Read, however, reports a single individual as having been secured on August 26, 1909, adding that it was so badly mutilated that no effort was made to save it, and it is mainly on the strength of this record that the species is allowed to remain on the list.

66. **Geotrygon chrysia** Salvadori. KEY WEST QUAIL DOVE.

Geotrygon martinica (not *Columba martinica* Linnæus) CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).

Geotrygon chrysia BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 198 (Pasadita).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines; descr.).

"Quail Dove" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 131 (I. of Pines); XXVIII, 1911, 113 (West McKinley).

One specimen: Nueva Gerona.

This is one of the rarer birds in the Isle of Pines. Mr. Zappey took but two specimens, both at Pasadita, remarking that it occurs only on one or two of the mountains and in the dense forest south of the Cienaga. Mr. Read asserts that he has taken specimens of this species, but that it is rare. Mr. Link secured but the one specimen listed above; this was taken on July 3 in the thick jungle on the Casas Mountains, and another was seen there on December 30. The bird secured was an adult female, containing well-developed eggs. It is markedly duller than a male bird from Cuba.

67. **Geotrygon montana** (Linnæus). RUDDY QUAIL DOVE.

Geotrygon montana CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (La Vega, Pasadita, and Cayo Bonito; habits), 203, in text (Santa Sevilla).—READ, Oölogist, XXVI, 1909, 149 (I. of Pines; habits); XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines; descr.).

"Ruddy Quail Dove" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 113 (West McKinley); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

"The Ruddy Quail-dove occurs in the Isle of Pines in the denser woods only, usually in rather moist places, where the ground is often flooded after heavy rains. It is nowhere abundant. When flushed from the ground it flies but a short distance and on alighting again runs along for a few feet and conceals itself among the vegetation much after the manner of the American Woodcock (*Philohela minor*), which it curiously resembles when started in the deep woods." (Bangs & Zappey.)

Mr. Read's account agrees well with the above. Mr. Link failed to meet with this species, although he heard of it on one occasion.

68. **Chæmepelia passerina aflavida** (Palmer & Riley). CUBAN GROUND DOVE.

Columba passerina (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Columbigallina passerina CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).

Columbigallina passerina aflavida BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (Cayo Bonito, El Hospital, Jucaro, and San Juan).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines; nesting).

"Ground Dove" READ, Oölogist, XXVI, 1909, 57, 58, 75 (I. of Pines).

"Cuban Ground Dove" READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McRinley and Santa Barbara Mountain, etc.), 5 (McKinley; nesting), 6 (Nuevas River), 7 (Cañada Mountains, etc.), 113 (West McKinley), 146 (Bibijagua); XXX, 1913, 123 (Nuevas River), 125, 127 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

"West Indian Ground Dove" READ, Oölogist, XXVII, 1910, 42 (I. of Pines; nesting).

Chæmepelia passerina aflavida READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—TODD, Ann. Carnegie Mus., VIII, 1913, 561 (I. of Pines; references), 599 (Jucaro, El Hospital, San Juan, Cayo Bonito, and "Nueva Gerona, etc.").

Twenty-three specimens: Bibijagua, Los Indios, and Nueva Gerona.

Several of Mr. Read's records above quoted are additional to those given by the writer under the head of this form in his late review of the present genus (ANNALS CARNEGIE MUSEUM, VIII, 1913, 561–562), while other references have been corrected. These were among the few that were not personally verified at the time.

A very common species everywhere, except, of course, in marshy country, and in dense woodland. At Caleta Grande, on the south coast, it was the only species of the family observed. It is very tame, not being subject to persecution as are the larger pigeons and doves, nor does it appear to go in flocks as do the latter. Mr. Link found two nests early in May containing eggs almost ready to hatch, while Mr. Read has recorded fresh eggs as early as January 20, and doubtless the species breeds here almost every month of the year, as elsewhere throughout its general range. Young in juvenal dress were taken in July, December, and February.

69. **Zenaida zenaida zenaida** (Bonaparte). ZENAIDA DOVE.

Columba zenaida POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Zenaida zenaida CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

Zenaida zenaida zenaida BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (Almacigos).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines).

"Zenaida Dove" READ, Oölogist, XXVIII, 1911, 10 (Nuevas River), 113 (West McKinley).

Ten specimens: Los Indios and McKinley.

These are indistinguishable from Bahaman specimens, although the individual variation is considerable. Females are noticeably duller than males.

The Zenaida Dove is generally distributed in the dry country north of the Cienaga, and is often found associated with the West Indian Mourning Dove, although only about half as numerous as the latter. Both kinds are shot for food during the open season. Only a few were seen about Nueva Gerona, but at Los Indios it was fairly common, occurring in good-sized flocks through the fall and early winter months. A nest supposed to belong to this species was found in the mangroves along the Los Indios River late in April.

70. **Zenaidura macroura macroura** (Linnæus). WEST INDIAN MOURNING DOVE.

Columba carolinensis (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Zenaidura macroura CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).

Zenaidura macroura bella BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (Rio Santiago and El Hospital; habits).

"Mourning Dove" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines).

"West Indian Mourning Dove" READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley), 10 (Nuevas River), 113 (West McKinley), 146 (Bibijagua); XXX, 1913, 123 (McKinley and Nuevas River), 125, 127 (Santa Barbara), 130 (I. of Pines), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).—READ, I. of Pines News, VI, Apr. 25, 1914 (Pine River).

Zenaidura macroura macroura READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

Zenaidura macroura marginata (*lapsus*) READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).

Zenaidura carolinensis marginata READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines, habits).

Eleven specimens: Bibijagua, Los Indios, and Bogarona.

After comparing these with a series from the eastern United States I must confess that I am not very favorably impressed with the claims of the respective forms to recognition as subspecies. The separation

is based on the average smaller size of the West Indian bird, and while this difference certainly exists, it scarcely seems so great as to demand formal recognition in nomenclature. I can discover no constant color-differences, the width of the tail-band, to which Messrs. Palmer and Riley call attention, being a variable character in birds from both localities.

" Throughout the island in the open pine woods, palmetto groves, and especially in old fields grown up to weeds, the Cuban Mourning Dove is an abundant bird. Several nests were found in low trees five or six feet from the ground " (Bangs & Zappey). Mr. Link confirms this statement, and adds that he found several nests in the mangroves along the Los Indios River late in April. In the fall and winter months the species is usually found in flocks, frequently in company with other kinds.

71. **Columba leucocephala** Linnæus. WHITE-CROWNED PIGEON.

Columba leucocephala POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 96 (I. of Pines, in geog. distr.). —BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (La Vega).—READ, Bird-Lore, XIII, 1911, 44 (McKinley).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines). —READ, I. of Pines News, VI, Feb. 21, 1914 (Bird I., Siguanea Bay).

"White-crowned Pigeon" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, 75 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 3 (McKinley), 6, 10 (Nuevas River), 7 (Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 123 (Pine River), 125, 127 (Santa Barbara; migr.), 131 (I. of Pines).

"White-head[ed] Pigeon" READ, Oölogist, XXVII, 1910, 5 (Nuevas River).

Seven specimens: Nueva Gerona, Los Indios, and Bogarona.

Most of the specimens secured show the same " patchy " condition of the plumage, apparently the result of irregular moult, which I have previously remarked in the case of Bahaman examples (ANNALS CARNEGIE MUSEUM, VII, 1911, 416).

This is a common species everywhere, except in the Cienaga, appearing in flocks late in February, and remaining until the last of September. Although a few stragglers may be seen through the winter months, the vast majority of the individuals withdraw at that season from their usual range, and according to native report resort to the " south coast," in great numbers. It is one of the most numerous birds of the various mountain ridges in the interior of the island during the breeding-season, which begins in May. The nest is usually built in the top of a royal palm, but along the Los Indios River the

birds were found nesting in the mangroves, rather low down. Mr. Read says that it was nesting abundantly in the mangroves on Bird Island in Siguanea Bay at the time of his visit, but Mr. Link failed to find it there in 1912–13. This pigeon is far shyer than the other kinds, with which it seldom associates, preferring as it does thicker covert. It is very fond of the fruit of the "cocoa-plum" (*Chrysobalanus Icaco*).

72. **Columba squamosa** Bonnaterre. SCALY-NAPED PIGEON.

Columba squamosa BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 197 (Nueva Gerona, *fide* Palmer and Riley).—READ, Oölogist, XXVIII, 1911, 13, and XXX, 1913, 131 (I. of Pines), 125, 127 (Santa Barbara; migr.; local range).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines, local).

(?) "El Bobo Pigeon" READ, Oölogist, XXVIII, 1911, 3 (Santa Barbara Mountain, etc.).

While this species is reported to be still rather common in Cuba, it is now rare in the Isle of Pines, having been almost exterminated in recent years. Indeed, Mr. Link failed to meet with it at all, nor did Messrs. Palmer and Riley actually see any individuals, although they heard a few. Mr. Read tells us that although it was formerly abundant all over the island, it is now rare and local, being found only at certain points on the west and south coasts. This scarcity has been brought about solely by shooting for food and sport, which bids fair to exterminate, sooner or later, all of the larger pigeons and doves in the island, unless some means can be found to curtail the practice before it is too late.

73. **Columba inornata proxima** Todd, subsp. nov. ISLE OF PINES PLAIN PIGEON.

Columba inornata (not of Vigors) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 97 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 196 (I. of Pines; Poey's record).—READ, Oölogist, XXVI, 1909, 224, and XXVIII, 1911, 11 (I. of Pines); XXVII, 1910, 5, and XXVIII, 1911, 6, 10 (Nuevas River); XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 5 (McKinley; nesting), 7 (Cañada Mountains, etc.), 114 (West McKinley).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, Oölogist, XXX, 1913, 123 (Nuevas River), 127 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).—READ, I. of Pines News, VI, Feb. 21, 1914 (I. of Pines).

Chlorœnas inornata GUNDLACH, Journ. für Orn., 1861, 416 (I. of Pines).—GUNDLACH, Repert. Fis.-Nat. I. Cuba, I, 1866, 29 (Santa Fé).—GUNDLACH, An. Soc. Esp. Hist. Nat. Madrid, II, 1873, 143 (Santa Fé).—GUNDLACH, Contr. Orn.

Cubana, 1876, 128 (I. of Pines).—GUNDLACH, Orn. Cubana, 1895, 155 (I. of Pines).

(?) *Zenaida zenaida* (*lapsus*) READ, Oölogist, XXVI, 1909, 148 (I. of Pines).

(?) "Zenaida Dove" (*lapsus*) READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines).

Columba inornata proxima TODD, Proc. Biol. Soc. Washington, XXVIII, 1915, 170 (Los Indios; orig. descr.).

Thirteen specimens: Los Indios.

Type, No. 39,892, Collection Carnegie Museum, adult male; Los Indios, Isle of Pines, December 13, 1912; Gustav A. Link.

Subspecific characters.—Differs from typical *inornata* of Cuba in its decidedly paler, grayer coloration, especially marked in the much less strongly vinaceous shade of the under surface. The white edgings of the median and greater wing-coverts are narrower.

Through the courtesy of the authorities of several different institutions I have been able to bring together a small series of this fast disappearing species, representing all the various islands included in its range. Even in this small series geographical variation is evident, each island apparently possessing a separate form with the exception of Haiti, the single bird from which is indistinguishable from Cuban examples. The Isle of Pines race is easily distinguished from the typical Cuban form by the characters above specified. It is of course conceivable that these characters may be shared by birds from western Cuba, a circumstance which might possibly affect the validity of the name here proposed. The Porto Rican form, to which Mr. Ridgway has recently applied the name *exsul* (*Proceedings Biological Society of Washington*, XXVIII, 1915, 106), is much deeper in general coloration, while the Jamaican bird is extreme in this respect.

The males in the Isle of Pines series, besides being slightly larger, average more "solid" vinaceous below than the females, while the vinaceous area on the wing-coverts is also deeper and larger. September specimens are in postnuptial moult. "Iris white; feet pink."

All of the earlier authorities on the birds of Cuba and the Isle of Pines agree as to the abundance of the Plain Pigeon in both islands, but of late years its numbers have become very much reduced in Cuba, and according to the statements of several reliable observers it is practically extinct in many parts of that island. In the Isle of Pines, however, it is still common locally, but, with the persecution to which it is being subjected by the inhabitants, it will be a question of only a few years before it will be as rare here as in Cuba. The

open season for shooting lasts from September until the end of April, and thus extends well into the breeding-season. Moreover, the birds are so easily shot that large bags are the rule. In the spring and fall months they are found in flocks of greater or less extent, scattered through the pine-lands, feeding on the fruit of the "cocoa-plum." At such times they may be approached with ease, paying little attention to an intruder, even after being repeatedly fired at, whence their common name of "El Bobo" (fool) Pigeon.[15] Many such flocks were seen at Los Indios for about a week during the latter part of September, after which they disappeared, and only a few odd birds were seen until the end of March, when the flocks began to appear, seeming to come from the south. The natives say that they retire to the "south coast" for the winter months, but this could not be verified. That there is a limited migration in both *Columba leucocephala* and the present species, however, is beyond question. In other sections of the island it is evidently not so common, Mr. Zappey having secured but a single specimen on his first trip, and none at all in 1904. Mr. Read speaks of finding a nest on April 29, 1910, built in a blown-over tree about twenty feet from the ground, and composed of a few loose sticks, like that of the Mourning Dove. This nest had eggs on May 4

74. **Ara tricolor** (Bechstein). CUBAN MACAW.

Ara tricolor CORY, Cat. W. Indian Birds, 1892, 101, 127 (I. of Pines).—GUNDLACH, Orn. Cubana, 1895, 151 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 200 (La Vega).—CLARK, Auk, XXII, 1905, 348 (I. of Pines, in geog. distr.).—ROTHSCHILD, Extinct Birds, 1907, 51 (I. of Pines, in geog. distr.; Bangs and Zappey's record).

The Cuban or Great Antillean Macaw, the range of which at one time included not only Cuba and the Isle of Pines, but also Haiti and Jamaica, has been extinct for many years, having been destroyed by the inhabitants because of its value for food. Gundlach attributes it to the Isle of Pines, and Messrs. Bangs and Zappey remark as follows: "It has been supposed that perhaps the Cuban Macaw still lingered in the Isle of Pines. Unfortunately this is not so. The last pair known in the island was shot at La Vega, near the Cienaga, about the year 1864, and none have been seen since. This information was

[15] Mr. Read claims that this name properly belongs to *Columba squamosa*, but Gundlach applies it to the present species, and Mr. Link indorses this procedure. Mr. Reed seems to have confused one or both of these pigeons with the Zenaida Dove during the early part of his work.

furnished by the man on whose plantation they were shot." The fate which has befallen this and other West Indian parrots bids fair to overtake additional species of this family.

75. **Aratinga euops** (Wagler). CUBAN PAROQUET.

Conurus guianensis (not *Psittacus guianensis* Gmelin) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Conurus euops GUNDLACH, Contr. Orn. Cubana, 1876, 126 (I. of Pines).—CORY, Cat. W. Indian Birds, 1892, 101 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 152 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 200 (I. of Pines).—CLARK, Auk, XXII, 1905, 310 (I. of Pines, in geog. distr.).

Gundlach, writing some twenty years ago, says that the Cuban Paroquet was formerly very abundant in the Isle of Pines, but at the rate it was being taken for the cage-bird traffic it would be merely a question of a few years more before it would be entirely exterminated. Hundreds of young birds were being exported every year, it seems. This prediction has been fulfilled, for neither Mr. Zappey nor Mr. Link met with the species during their respective visits to the island, nor did they even hear any reports of its occurrence. The outcome in this case will inevitably be that of other species in this family also, unless the traffic in living birds can in some way be stopped.

76. **Amazona leucocephala palmarum** subsp. nov. ISLE OF PINES PARROT.

Psittacus leucocephalus (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Chrysotis leucocephalus GUNDLACH, Contr. Orn. Cubana, 1876, 124 (I. of Pines?).—GUNDLACH, Auk, VIII, 1891, 189, in text (I. of Pines; plumage).—GUNDLACH, Orn. Cubana, 1893, 149 (I. of Pines).

Amazona leucocephala BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 201 (Pasadita and El Hospital; nesting).—READ, Oölogist, XXVIII, 1911, 11 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

"Green Parrot" READ, Oölogist, XXVI, 1909, 58 (I. of Pines).

"Cuban Green Parrot" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXX, 1913, 127 (Santa Barbara), 168 (Los Indios).

"Cuban Parrot" READ, Oölogist, XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 5 (McKinley; nesting), 6, 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (McKinley and Nuevas River), 125, 129, pl. (Santa Barbara; nesting), 130 (I. of Pines).

Twenty-four specimens: Bibijagua and Los Indios.

Type, No. 39,630, Collection Carnegie Museum, adult female; Los Indios, Isle of Pines, October 9, 1912; Gustav A. Link.

Subspecific characters.—Similar to *Amazona leucocephala leucocephala*

(Linnæus), but general color darker green; the abdominal purplish red patch averaging darker and more extensive; and the throat somewhat deeper red.

Measurements.—Male (ten specimens): wing, 190–196 (average, 194); tail, 110–122 (116); exposed culmen, 25–28 (26.6); depth of bill, 28–31 (29). Female (ten specimens): wing, 184–194 (187); tail, 102–119 (113.5); exposed culmen, 25–27 (26); depth of bill, 27–29 (27.6).

With a series of twenty-four specimens of the Isle of Pines *Amazona leucocephala* before me I find that they differ sufficiently from the average Cuban bird to bear formal separation. While it is true that there is considerable variation in the extent of the abdominal purplish red patch in both series (possibly dependent on age), the average difference between the two series in this respect is fairly well marked, and taken in connection with the other characters above mentioned is in my judgment sufficient to justify the recognition of the form from the Isle of Pines as distinct. Save that the latter seems to have a slightly longer tail, there is apparently no especial difference in size, so far at least as indicated by the series examined in this connection.

Numerous individuals in the present fine series show scattered green feathers on the throat and sides of the head, while in others the crown feathers along the posterior line of the white frontal patch are stained with yellow or crimson. A specimen shot July 6 is evidently a young bird in full moult, judging from its small size, differently colored bill, restricted white front, and small amount of red on the rectrices. Another taken September 21 is a very pale bird, in which the tertials are narrowly tipped with crimson, and the abdominal purplish red patch very extensive.

Judging from reports of the relative numbers annually exported, this parrot is more numerous at the present time in the Isle of Pines than is its relative in Cuba. One dealer in live birds was shipping about twenty-one hundred young parrots from the Isle of Pines in July, 1912, but in all Cuba had been able to secure only about a thousand birds for this purpose. According to his testimony, they were formerly much more abundant than at present, and of course will continue to decrease indefinitely unless this practice can be checked. So important had the business of trapping parrots become at one time that there grew up in many parts of the island a system of " parrot lines," to define the hunting rights of different individuals,

and these lines frequently figure in present-day boundary disputes. The parrot-hunters keep taking the young birds at every opportunity, and make a practice of removing the eggs or young of distant nests to nests of other pairs which chance to be nearer their own homes, so as to keep rival hunters from eventually securing them. Three or four eggs constitute the usual complement, but often a pair of birds is compelled to rear twice as many young for the sole benefit of the parrot-hunters. The nests are invariably built in an old woodpecker's hole in a bottle-palm, usually only fifteen or twenty feet from the ground, and the eggs are pure white. Mr. Link's first nest was found early in April, and on April 15 a set of three eggs was secured. Mr. Read records a nest still containing young as late as June 27. Parrots are fairly common throughout the drier parts of the island (except in the mountains), affecting the groves of pine and bottle-palms (Pl. XXIII, fig. 3). They feed on the cones and tender shoots of the pines, as well as on the seeds of the royal palm, and it is said that they also damage the cultivated grape-fruit, on which account they are considered a nuisance, and many are shot. Except in the nesting-season, they are found in large flocks, and are at all times very noisy and unsuspicious. The bulk of the individuals seem to disappear in September, however, and only a few odd birds are to be seen until the latter part of January. The natives say that during this interim they retire to the "south coast," like the pigeons, but this statement could not be confirmed.

77. **Crotophaga ani** Linnæus. ANI.

Crotophaga ani POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 102 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 200 (Cayo Bonito, Santa Fé, and Jucaro; habits).—READ, Oölogist, XXVI, 1909, 102 (I. of Pines; habits); XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

"Black Parrot" READ, Oölogist, XXVI, 1909, 58 (I. of Pines), 102 (crit.).

"Ani" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 223 (I. of Pines); XXVII, 1910, 5, and XXVIII, 1911, 6, 10 (Nuevas River), 3 (McKinley), 113 (West McKinley); XXX, 1913, 123 (McKinley and Nuevas River), 125 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

Thirteen specimens: Nueva Gerona and Los Indios.

These are precisely like specimens from other West Indian localities. There is one bird in juvenal dress, dated June 29.

The Ani was not detected in the Cienaga or in the country to the southward, but to the northward it is a very common and generally distributed species. It prefers the more open country, and is eminently gregarious in its habits, often being seen in pastures attending the cattle and other stock. Like the Caracara and some other birds, it is fond of following in the wake of brush-fires, picking up the roasted lizards, snails, and insects. On several occasions flocks were found roosting in the mangroves along the Los Indios River, attracting attention by their habit of huddling close together on the perch, like domestic fowls.

78. **Saurothera decolor** Bangs & Zappey. ISLE OF PINES LIZARD CUCKOO.

Saurothera merlini (not of D'Orbigny) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Saurothera merlini decolor BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 199 (La Vega, Cayo Bonito, and El Hospital; orig. descr.; type now in Mus. Comp. Zoöl.; habits; crit.).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines), 223 (I. of Pines; descr.; habits); XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, VI, Nov. 22, 1913 (I. of Pines; habits).

"Lizard Cuckoo" READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona).

"Isle of Pines Lizard Cuckoo" READ, Oölogist, XXVIII, 1911, 5 (Santa Barbara Mountain, etc.), 6, 10 (Nuevas River), 7 (Cañada Mountains, etc.), 114 (West McKinley); XXX, 1913, 123 (Nuevas River), 125, 130 (Santa Barbara), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

Twenty-one specimens: Nueva Gerona, Bibijagua, and Los Indios.

This is a very distinct form, differing so markedly from *S. merlini* of Cuba that I venture to raise it to the rank of a species. As stated in the original description, it seems in fact to be rather nearer to *S. bahamensis* in general coloration, resembling *S. merlini*, however, in having the primaries rufous. The series of adults is very uniform as a whole, the size and shape of the black markings on the tail being perhaps the most variable character. A number of young birds, distinguished by their duller and paler coloration, and by the lack of a subterminal black bar on the rectrices, were taken between June 28 and July 3.

Poey appears to have been the only author to record a *Saurothera* from the Isle of Pines previous to Messrs. Bangs and Zappey, whose specimens proved to belong to a form quite different from that of Cuba. With reference to its habits, they state that it is " a common

bird in rough, rocky country, wherever there is a thick growth of scrub and bushes, and is very tame. It has a habit of hopping from one branch to another till it reaches the top of a bush and then sailing down to the ground or the lower branches of another bush. Its usual call-note is a sort of laugh that begins low and slowly, and rapidly ascending, ends in a low chuckle. When two individuals are within sight of each other they often go through a curious performance, which consists in lowering the head and dropping the feathers of the throat which then looks like a large pouch, at the same time spreading the wings and tail to their fullest extent and repeating the loud chuckling notes that end the usual call. The stomachs of those taken contained the remains of small lizards, beetles, caterpillars, and large moths." It is a common species everywhere in the island, except in the Cienaga.

Coccyzus americanus (Linnæus). YELLOW-BILLED CUCKOO.

(?) "West Indian Yellow-billed Cuckoo" READ, Oölogist, XXVIII, 1911, 13 (I. of Pines), 114 (West McKinley); XXX, 1913, 131 (I. of Pines).

This is the only species of this genus known to regularly visit Cuba, so that it is presumably this form which is meant by Mr. Read under the above caption. He speaks of having seen individuals on April 29, 1910, and March 3, 1911, but, as some doubt attaches to the identification, the records are open to question.

Coccyzus erythrophthalmus (Wilson). BLACK-BILLED CUCKOO.

(?) *Coccyzus erythrophthalmus* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

(?) "Black-billed Cuckoo" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 131 (I. of Pines); XXVIII, 1911, 114 (West McKinley).

This species, migrating as it does through Mexico and Central America, is of merely accidental occurrence in Cuba, and unknown in the other Antilles. Mr. Read's records, above cited, refer to individuals noted on May 11, 1909, and in November, 1910, respectively. In reply to an inquiry he writes that the first one was actually secured, but as the specimen is unfortunately not now extant, and there is no way of confirming the record otherwise, it is deemed unwise to admit it under the circumstances.

79. **Glaucidium siju vittatum** Ridgway. ISLE OF PINES PYGMY OWL.

Noctua siju (not of D'Orbigny) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Glaucidium siju CORY, Cat. W. Indian Birds, 1892, 100 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 202 (Santa Fé and Cayo Bonito; habits).—READ, Oölogist, XXVI, 1909, 190; XXVII, 1910, 35 (I. of Pines; descr.; habits); XXVIII, 1911, 11 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, Oölogist, XXX, 1913, 122 (McKinley; habits).—READ, I. of Pines News, VI, Jan. 24, 1914 (descr.; habits).

"Cuban Pygmy Owl" READ, Oölogist, XXVII, 1910, 5, and XXVIII, 1911, 10 (Nuevas River), 5 (Santa Barbara Mountain), 7 (Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 123 (Nuevas River), 125 (Santa Barbara), 130 (I. of Pines).

Glaucidium siju vittatum RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 805 (Nueva Gerona; orig. descr.; type in coll. U. S. Nat. Mus.).

Eighteen specimens: Nueva Gerona, Bibijagua, and Los Indios.

Messrs. Bangs and Zappey could discover no particular difference between specimens of *Glaucidium siju* from Cuba and the Isle of Pines respectively, and it remained for Mr. Ridgway to distinguish the form from the latter island. Judging from the series brought back by Mr. Link, which I have had the opportunity of comparing with another series from various parts of Cuba, it is a well-marked geographic race, differing not only in its somewhat larger size, but also in its more grayish, less rufescent coloration, both above and below. There is some variation, it is true, of an apparently individual character, affecting the exact pattern of the markings of the under parts, which in some specimens tend to arrange themselves in bars, and in others partake more of the nature of streaks. Only one of the Cuban specimens before me is as gray above as the average Isle of Pines bird, and while half of the Cuban series are in the rufescent phase described by Mr. Ridgway, not a single specimen of the Isle of Pines series shows any approach to that condition of plumage.

This little owl is common and generally distributed in the Isle of Pines, and is one of the first birds to attract the attention of a newcomer, coming boldly as it does into gardens and the vicinity of houses, and showing little fear of man. It appears to feed mainly on grasshoppers, beetles, and lizards, although from the treatment it receives from small birds it is evident that these also enter to some extent into its bill of fare. Indeed, Mr. Read records a case in which one of these owls even attacked and killed a Cuban Meadowlark—a species larger than itself—only to be in its turn attacked and driven off by a half-dozen of the latter. In habits it is more diurnal than nocturnal, and its call, described by Mr. Read as a series of shrill, sharp, short whistles, high-pitched at first, and gradually descending the scale, is apt to be heard at any time of the day or night. It has a peculiar habit of nervously twitching its tail, sometimes even holding it erect, wren-fashion. Nothing appears to be on record concerning its nesting in the Isle of Pines, but Gundlach says that the Cuban

bird is wont to use the old holes of woodpeckers in palm-trees for this purpose, laying its eggs in March and April.

80. **Gymnasio lawrencii exsul** Bangs. ISLE OF PINES BARE-LEGGED OWL.

Noctua nudipes (not *Strix nudipes* Daudin) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Gymnasio lawrencii CORY, Cat. W. Indian Birds, 1892, 100 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 35 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 202 (Pasadita and Santa Sevilla; habits; crit.).—READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 679 (Pasadita and Santa Sevilla; meas.).—READ, I. of Pines News, VI, Jan. 24, 1914 (I. of Pines; descr.).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

Gymnasio lawrencii exsul BANGS, Proc. New England Zoölogical Club, IV, 1913, 91 (Santa Sevilla; orig. descr.; type now in coll. Mus. Comp. Zoöl.; meas.; crit.).—STONE, Auk, XXX, 1913, 453, in text (review).

Two specimens: Nueva Gerona.

Besides the above, I have before me two of the birds collected by Mr. Zappey, and the type-specimen of *Gymnoglaux lawrencii* Sclater and Salvin (No. 39,111, Collection U. S. National Museum; Remedios, Cuba, October 30, 1863; N. H. Bishop), as well as six other specimens from Cuba, kindly loaned by Messrs. Bangs and Ramsden. There is some variation in both series, but the general differences between the two, pointed out by Mr. Bangs, are obvious at a glance. The specimens from eastern and central Cuba are much more rufescent both above and below than those from the Isle of Pines, while the white spotting on the back and wings, as well as the light barring on the tail, is much less pronounced. There is no especial difference in size, however. A skin from San Francisco de Morales, in western Cuba, agrees better with the Isle of Pines birds than with those from eastern Cuba, so that it is probable that this is the form inhabiting the entire western part of the island. Although Mr. Ridgway sinks *exsul* as a synonym of *lawrencii*, and it is of course possible that with a larger series the characters relied on for their discrimination might break down, or prove to have no especial geographical significance, I have no other alternative than to recognize it for the present.

This species is rare in the Isle of Pines, but being strictly nocturnal, this rarity may be more apparent than real. Mr. Zappey secured three specimens in all, at Pasadita and Santa Sevilla, finding a brood of three half-grown young at the latter locality, the nest being in a hole in a

tree. The pair of birds brought back by Mr. Link were taken in a small cave on the slope of the Caballos Mountains near Nueva Gerona on February 15. The female showed no signs of breeding at this date.

81. **Asio stygius** (Wagler). STYGIAN OWL.

Asio stygius CORY, Cat. W. Indian Birds, 1892, 100 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 33 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 658 (La Vega, in geog. distr.; crit.).

Nyctalops stygius siguapa BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 201 (La Vega; crit.; *ex Otus siguapa* D'Orbigny).—READ, I. of Pines News, VI, Jan. 24, 1914 (I. of Pines, rare).

One specimen: Pasadita.

This is a rare bird in the Isle of Pines, and does not appear to be much, if at all, more numerous in Cuba. Mr. Zappey, who was fortunate enough to secure a fine adult male at La Vega on May 25, 1904, reports that it is found only in the heaviest and densest forests, and because of its strictly nocturnal habits it is extremely hard to obtain. Mr. Link secured a single young bird on May 28, at Pasadita. This specimen, being in moult from the downy stage, is useless for comparison, but Messrs. Bangs and Zappey say that their specimen differs from continental examples in being much paler, and they accordingly adopt D'Orbigny's name, based on the Cuban bird, as the proper subspecific appellation of the supposed form. But Mr. Ridgway, while admitting the peculiarities of their Isle of Pines specimen, finds himself unable to satisfactorily divide the species on this basis, and it seems a safer course to follow this conclusion for the present.

82. **Tyto perlata furcata** (Temminck). WHITE-WINGED BARN OWL.

Strix furcata POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Strix pratincola furcata CORY, Cat. W. Indian Birds, 1892, 100 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 202 (Santa Sevilla; food).—READ, I. of Pines News, VI, Jan. 24, 1914 (I. of Pines; habits).

"Cuban Barn Owl" READ, Oölogist, XXVIII, 1911, 13, and XXX, 1913, 125 (Santa Barbara), 130 (I. of Pines), 164 (Santa Barbara to Nueva Gerona).

Tyto perlata furcata RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 602 (Santa Sevilla, in geog. distr.; meas.).

Six specimens: McKinley, Nueva Gerona, Los Indios, and Pasadita.

Two of these six skins are very pale above as compared with the others, while the amount of spotting below also varies to some extent. Only one individual shows any dark marking on the tail, and this is

confined to some brown shaft-spots, and fine mottling at the tips of some of the feathers.

Poey recorded this species many years ago from the Isle of Pines, and Mr. Read also has occasionally observed it, a specimen collected by him at McKinley being now in the collection of the Carnegie Museum. The five fine specimens sent in by Mr. Link were secured in every case during moonlight nights, in the vicinity of poultry-houses, where these owls often come in search of their prey. On such occasions they are readily attracted by making any kind of a squeaking noise, when they come up and circle about overhead, presenting a fair shot. They seem to be strictly nocturnal, and for this reason they are seldom observed, and may be far more common than is apparent. Mr. Read says that they are accustomed to spend the day in the thick tops of the bottle-palms, and adds that they are often attracted in the night-time by the brilliant headlights of an automobile, and fly down in front of the machine. The stomachs of all the individuals examined contained feathers, whence it is evident that small birds constitute a larger proportion of the food of this species than in the case of the Barn Owl of continental North America, which feeds so largely on small mammals. The single example shot by Mr. Zappey had been eating a Ruddy Quail Dove. Nothing appears to be on record concerning its nesting habits, so far as the Isle of Pines is concerned.

83. **Chordeiles virginianus virginianus** (Gmelin). NIGHTHAWK.

Chordeiles virginianus virginianus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (Santa Fé; meas.).—OBERHOLSER, Bull. U. S. Nat. Mus., No. 86, 1914, 517 (Santa Fé; crit.).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 562 (Santa Fé, in geog. distr.).

The only positive record for the typical form of the Nighthawk from the Isle of Pines appears to be that above quoted, which refers to a single specimen shot by Mr. Zappey at Santa Fé on May 10, 1904, and which proved to be exactly like examples from New England. Gundlach says that it occurs regularly in Cuba during migration, in October and May, so that it is doubtless a regular migrant in the Isle of Pines also, but may often have been confused with the smaller resident form.

84. **Chordeiles virginianus minor** (Cabanis). CUBAN NIGHTHAWK. (Plate XXVI.)

Chordeiles minor CORY, Cat. W. Indian Birds, 1892, 105 (I. of Pines, in geog. distr.). —GUNDLACH, Orn. Cubana, 1895, 101 (I. of Pines).

Chordeiles virginianus minor BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (Los Almacigos, Santa Fé, and El Hospital; plum.; habits).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, I. of Pines News, VI, Jan. 3, 1914 (habits).—OBERHOLSER, Bull. U. S. Nat. Mus., No. 86, 1914, 82 (Nueva Gerona, El Hospital, and Los Almacigos; meas.; crit.).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 576 (I. of Pines, in geog. distr.).

"Nighthawk" READ, Forest and Stream, LXXIII, 1909, 75 (I. of Pines).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines).

"Antillean Nighthawk" READ, Oölogist, XXVIII, 1911, 7 (I. of Pines; migr.), 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 124 (Pine River), 125 (Santa Barbara; migr.), 168 (Los Indios).

"Cuban Nighthawk" READ, Oölogist, XXX, 1913, 131 (I. of Pines, summer; migr.).

"West Indian Nighthawk" READ, Oölogist, XXX, 1913, 159–162, 4 pls. (Santa Barbara; figs. nest and eggs).

Three specimens: Bibijagua, McKinley, and Los Indios.

This is the race of *Chordeiles virginianus* which is a summer resident in the Greater Antilles. It may readily be distinguished by its small size, and is furthermore peculiar in having a rufescent phase of plumage entirely independent of age, sex, or season. In the present series there is one female in this rufescent phase, and another more grayish, also one male in the gray phase. The significance of this dichromatism is no more understood than in other cases in which it occurs. Mr. Oberholser has given reasons for believing that *C. v. minor* is probably the nearest living representative of the "original-stock" form, and it is certainly a very strongly marked subspecies, if not indeed worthy of higher rank.

A very common bird in the Isle of Pines, the generally open character of much of the country being very well suited to its needs. In its habits it closely resembles the northern form, flying mostly in the morning and evening in dry weather, but throughout the day during rainy weather, at which times scores may be in sight at once. It is a summer resident only, but arrives very early, Mr. Link's first specimen having been taken February 6, while Mr. Read recorded it in 1912 on March 14. It lays its eggs on the ground in open situations, and the young are hatched in May. Plate XXVI shows the incubating bird, and is reproduced from a photograph made by Mr. Read, a cut pre-

pared from which has been kindly loaned by Mr. R. M. Barnes, the editor of *The Oölogist.* None were seen after the last of September. Its winter home appears to be still unknown.

85. **Setochalcis cubanensis** (Lawrence). CUBAN WHIP-POOR-WILL.

Caprimulgus vociferus? (not of Wilson) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Antrostomus vociferus? BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (I. of Pines, *ex* Poey; crit.).

Antrostomus cubanensis BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (Cienaga). —READ, Oölogist, XXVII, 1911, 12 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 513 (I. of Pines, in geog. distr.).

"Whip-poor-will" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 124 (I. of Pines); XXVIII, 1911, 113 (West McKinley).

"Cuban Whip-poor-will" READ, Oölogist, XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

Inasmuch as the common Whip-poor-will is unknown in the West Indies (except for a single accidental occurrence in Porto Rico), it is practically certain that Poey's record above quoted refers to the present species, which otherwise is known only from Cuba, and seems to be rare in collections. Mr. Zappey shot a single bird in June, in the dense woods south of the Cienaga, but unfortunately it was too much mangled to be preserved. Mr. Link did not meet with this species, but Mr. Read says that he has noted it on a few occasions in the northwestern part of the island, and writes that he has even found it nesting there.

86. **Antrostomus carolinensis** (Gmelin). CHUCK-WILL'S-WIDOW.

Antrostomus carolinensis CORY, Cat. W. Indian Birds, 1892, 105 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 103 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 506 (I. of Pines, in geog. distr.).

According to Gundlach, the present species is not rare in Cuba, occurring every year, presumably as a winter resident. He attributes it also to the Isle of Pines without special comment, this being the only record so far available. It should be looked for in suitable covert at the proper season.

87. **Todus multicolor** Gould. CUBAN TODY.

Todus portoricensis POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Todus multicolor CORY, Cat. W. Indian Birds, 1892, 103 (I. of Pines, in geog. distr.). —BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 201 (Santa Fé and Cayo Bonito;

habits).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines); XXVII, 1910, 62 (I. of Pines; descr.; habits); XXVIII, 1911, 13 (I. of Pines); XXX, 1913, 123 (McKinley).—READ, Bird-Lore, XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, V, Nov. 7, 1913 (descr.; habits).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 443 (Nueva Gerona, Cayo Bonito, and Santa Fé; meas.).

"Cuban Tody" READ, Oölogist, XXVIII, 1911, 5 (Santa Barbara Mountain, etc.); XXX, 1913, 125, 127 (Santa Barbara), 130 (I. of Pines).

Eighteen specimens: Nueva Gerona and Los Indios.

Compared with a small series from Cuba, the Isle of Pines birds differ only in having the sides of the neck rather deeper blue, but the difference is slight and not entirely constant. There is some individual variation observable in the color of the breast, which in some individuals is tinged with pink.

This brilliant little bird is an inhabitant of the thickets, and is very common in such situations throughout the island, being particularly numerous on the mountain slopes. It feeds on insects, darting out after them like a flycatcher, the wings making a buzzing sound like a hummingbird's. Its call-note is a rattling sound likened by Messrs. Bangs and Zappey to that made by striking two small pebbles together. It is the reverse of shy, manifesting much curiosity over an intruder into its haunts, and sometimes following for a little distance. It seems to have a special antipathy towards the Ricord Hummingbird, driving it off at every opportunity. Mr. Link did not succeed in finding any nests.

88. **Streptoceryle alcyon alcyon** (Linnæus). BELTED KINGFISHER.

Alcedo alcyon POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Ceryle alcyon BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 201 (I. of Pines, winter). —READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

"Belted Kingfisher" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines). —READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 7 (I. of Pines; migr.), 113 (West McKinley); XXX, 1913, 125, 127 (Santa Barbara), 130 (I. of Pines).

Two specimens: Los Indios and Nueva Gerona.

A winter resident, fairly common along the rivers, but not seen along the coast. A few were noted also in the Cienaga, near Siguanea. It arrives from the north in September, the earliest date recorded by Mr. Read being September 12, 1913. It was observed at Los Indios as late as the first half of April.

89. **Sphyrapicus varius varius** (Linnæus). YELLOW-BELLIED WOODPECKER.

Picus varius POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Sphyrapicus varius CORY, Cat. W. Indian Birds, 1892, 104 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 139 (I. of Pines).

Sphyrapicus varius varius BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 206 (I. of Pines; Poey's record).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 274 (I. of Pines, in geog. distr.).

Poey lists this species among those observed by Gundlach near Nueva Gerona, and it is also given by Gundlach himself from the Isle of Pines. It is a regular winter visitant to Cuba. Mr. Zappey saw a few in March, 1902, but none were noted on his later trip. Neither Mr. Link nor Mr. Read appear to have met with it, so that it cannot be a very common or regular visitant to the Isle of Pines.

90. **Xiphidiopicus percussus insulæ-pinorum** Bangs. ISLE OF PINES GREEN WOODPECKER.

Picus percussus (not of Temminck) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Xiphidiopicus percussus CORY, Cat. W. Indian Birds, 1892, 104 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 140 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 206 (Santa Fé, Cayo Bonito, and Jucaro).—READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 124, and XXVIII, 1911, 12 (I. of Pines).—READ, I. of Pines News, VI, Jan. 17, 1914 (descr.; habits).

"Cuban Green Woodpecker" READ, Oölogist, XXVII, 1910, 5, and XXVIII, 1911, 6, 10 (Nuevas River), 3 (McKinley), 5 (Santa Barbara Mountain, etc.); XXX, 1913, 125, 127 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

Xiphidiopicus percussus insulæ-pinorum BANGS, Proc. Biol. Soc. Washington, XXIII, 1910, 173 (Santa Fé; orig. descr.; type now in coll. Mus. Comp. Zoöl.; meas.).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 185 (Nueva Gerona, Santa Fé, Jucaro, and Cayo Bonito, *ex* Bangs & Zappey; diag.).

Twenty-nine specimens: Nueva Gerona and Los Indios.

Not all of the alleged differences pointed out by Mr. Bangs appear to hold good upon comparison, but the smaller size, more restricted red throat-patch, and generally narrower streaking of the under parts are excellent diagnostic characters of this very distinct insular subspecies. Moreover, the median throat-stripe is wholly black, while in the specimens of true *percussus* examined it is tinged with red almost to the chin. The extent of the streaking on the under surface is a

variable character, as is also the width of the median black throat-band. Females would seem on an average to have the outer rectrices more decidedly barred than males. Two females in juvenal dress, taken on May 3 and June 28 respectively, have the feathers of the pileum (except anteriorly) tipped with red, as in the adult male. The crimson patch on the breast is lacking, and the general coloration duller, but otherwise they are like adults.

Although by no means so abundant as the other native woodpecker, the present species is nevertheless a common bird, preferring the depths of the jungle, however, to the palm-groves. Its call-note is not unlike that of the Yellow-bellied species. It is a much less noisy bird than the *Centurus*, and thus is more apt to escape observation. The natives accuse it of injuring fruit in the same manner as the other species, but it is very doubtful if the charge is justified, since it is not accustomed to frequent the orange and grape-fruit groves to any great extent. Two nests were discovered, one at Los Indios, the other at Siguanea. Both were excavated in mangroves, and contained young at the time (April and May). Mr. Read, however, says that it usually nests in the pines at the very edge of the jungle.

91. **Centurus superciliaris murceus** Bangs. ISLE OF PINES WOODPECKER.

Colaptes superciliaris (not *Picus superciliaris* Temminck) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Centurus superciliaris GUNDLACH, Orn. Cubana, 1895, 141 (I. of Pines).—READ, Oölogist, XXVI, 1909, 102 (I. of Pines; syn.); XXVIII, 1911, 12 (I. of Pines).—READ, I. of Pines News, VI, Nov. 29, 1913 (descr.; habits).

Melanerpes superciliaris BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 206 (San Juan, Jucaro, Nueva Gerona, and Los Almacigos; plum.; meas.; crit.).

"Red-bellied Woodpecker" READ, Oölogist, XXVI, 1909, 58 (I. of Pines).

"Cuban Red-bellied Woodpecker" READ, Forest and Stream, LXXIII, 1909, 445 (I. of Pines).—READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley and Santa Barbara Mountain), 5 (McKinley; nesting), 6, 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (Nuevas River), 125, 127 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

Centurus superciliaris murceus BANGS, Proc. Biol. Soc. Washington, XXII, 1910, 173 (San Juan; orig. descr.; type now in coll. Mus. Comp. Zoöl.; meas.).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, VI, 1914, 61 (Nueva Gerona, Santa Fé (?), San Juan, Jucaro, and Los Almacigos, *ex* Bangs & Zappey; diag.).

Thirty-six specimens: Nueva Gerona, Los Indios, and Santa Rosalia Lagoon.

Save for the changes incident to wear and fading, this series is fairly uniform. The greatest variation observable is that affecting the barring on the outer rectrices, which is very conspicuous in some individuals, in others almost obsolete. The middle rectrices vary somewhat also, the outer webs sometimes having a stripe of white along the shaft, and sometimes a row of spots. These variations occur in both sexes. Four nestlings from Los Indios, taken May 8, are interesting as showing that in juvenal dress the female has more or less red on the crown, thus approximating the pattern of the adult male, as in other species of this family.

Compared with specimens of true *superciliaris* from Guantánamo, Cuba, kindly loaned by Mr. Charles T. Ramsden, males from the Isle of Pines are somewhat smaller, but are little different in color, contrary to the claim of Mr. Bangs. The forehead, throat, and sides of the head average more brownish, less whitish, however, and the supraorbital black patch seems to average larger. Females of the two forms are of the same size, and the colors about the same also; in fact, the only distinguishing mark I can find is the much greater width of the black band on the crown in the birds from the Isle of Pines.

This woodpecker is one of the most abundant and generally distributed birds on the island, in spite of the persecution to which it is subjected by the inhabitants, because of the damage which it is said to do to grape-fruit, oranges, and guavas. The injury in question is done by puncturing the fruits to reach the soft, sweet pulp, for which the birds manifest a special fondness. As they are by no means shy, it is a simple matter to kill them under such circumstances. The nest is invariably built in a bottle-palm or royal palm, sometimes as low as four feet from the ground. Two sets, of five and six eggs respectively, were taken at Los Indios on May 3 and 5, while another nest found May 8 contained young not quite ready to fly.

92. **Priotelus temnurus vescus** Bangs & Zappey. ISLE OF PINES TROGON.

Trogon temnurus (not of Temminck) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Priotelus temnurus CORY, Cat. W. Indian Birds, 1892, 103 (I. of Pines, in geog. distr.).

Priotelus temnurus vescus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 204 (Los Almacigos, Pueblo Nuevo, Pasadita, and Cayo Bonito, orig. descr.; type now

in coll. Mus. Comp. Zoöl.; meas.; crit.; habits).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines), 223 (I. of Pines; descr.; habits); XXVIII, 1911, 13 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, V, 1911, 795 (Los Almacigos, Pueblo Nuevo, Pasadita, and Cayo Bonito, *ex* Bangs & Zappey; diag.).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, Oölogist, XXX, 1913, 122 (McKinley; habits).—READ, I. of Pines News, Nov. 8, 1914 (descr.; habits). "Isle of Pines Trogon" READ, Oölogist, XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 5 (McKinley; nesting); XXX, 1913, 123 (Nuevas River), 130 (I. of Pines), 168 (Los Indios).

Twelve specimens: Nueva Gerona, Hato, and Los Indios.

There is one female in juvenal dress, shot July 2. It resembles the adult, but is of course duller, the pileum with little bluish gloss, and the red of the under parts paler and mostly confined to the under tail-coverts. The tail and wings are not different from those of the adult, except that the white on the tips of the tertiaries is much reduced and confined to an oblong spot on the outer web.

MEASUREMENTS.

Priotelus temnurus temnurus:

No.	Sex.	Locality.	Wing.	Tail.	Bill.
261[16]	♂	Guantánamo, Cuba	129	123	18
772[16]	♂	Guantánamo, Cuba	120	114	17.5
1019[16]	♂	Holguin, Cuba	120	115	
14925[17]	♂	Holguin, Cuba	123.5	120.5	18.5
14927[17]	♂	Holguin, Cuba	124	118	19
14928[17]	♂	Holguin, Cuba	123	118	17.5
11976[17]	♂.	El Guama, Cuba	124	120.	20

Priotelus temnurus vescus:

39476[18]	♂	Nueva Gerona, I. of Pines	111	100	18
41131[18]	♂	Nueva Gerona, I. of Pines	115	118	17.5
41220[18]	♂	Nueva Gerona, I. of Pines	113	108	18
41246[18]	♂	Los Indios, I. of Pines	116	109	18
41340[18]	♂	Los Indios, I. of Pines	118	106	17
13250[17]	♂	Los Almacigos, I. of Pines	113.5	104	19.5
13251[17]	♂	Los Almacigos, I. of Pines	115	104	19
13254[17]	♂	Cayo Bonito, I. of Pines	114	106	19.5
13255[17]	♂	Cayo Bonito, I. of Pines	113	110	18.5
13258[17]	♂	Pueblo Nuevo, I. of Pines	114	108	18.5

[16] Collection Charles T. Ramsden.

[17] Collection E. A. and O. Bangs.

[18] Collection Carnegie Museum.

After actually comparing a series of specimens in the same seasonal plumage I must confess that I am not very favorably impressed with the claim of the bird from the Isle of Pines to recognition by name. There is certainly not the slightest difference in color, and the average difference in size seems scarcely of sufficient importance to justify formal separation. Mr. Ridgway speaks of the red color beneath being appreciably lighter, but I am persuaded that he was dealing with examples in more or less faded dress. This red area seems to average smaller, however, than in the Cuban birds I have examined, although this may be due to the make-up of the skins. Both Mr. Bangs' measurements (some of which I have quoted in the above table), Mr. Ridgway's, and my own, averaging substantially the same as they do, seem scarcely to afford sufficient ground, in my judgment, for the recognition of two subspecies, and I admit such only provisionally.

This brilliant species is common in the jungles, or dense tropical forests found in the river valleys and on the mountain slopes. For a perch it chooses an exposed situation, whence it sallies forth after passing insects, returning to the same branch, in the manner of a flycatcher. Small wild fruits are also eaten at times. As a rule it occurs in pairs, or occasionally three or four may be seen together. "It is a stupid sluggish bird and very tame," scarcely deigning to move out of the way when approached. It has a loud call, repeated at intervals, which has given rise to its native name of "Tocororo." The nest is doubtless built in hollow trees, as is the case with other species of this group; at any rate, Mr. Read mentions having flushed a bird of this species from an old woodpecker's hole in a bottle-palm, on June 25, 1910.

Nephœcetes niger niger Gmelin. BLACK SWIFT.

(?) "Chimney Swift" (error) Read, Oölogist, XXVI, 1909, 58, 102 (I. of Pines).

(?) *Cypseloides niger?* READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines). —READ, Oölogist, XXVI, 1909, 125, and XXVIII, 1911, 12, and XXX, 1913, 131 (I. of Pines).

Although this species has long been known from Cuba, where, however, it appears to be rare and local, the above records for the Isle of Pines are admittedly doubtful, resting as they do on imperfect identifications of individuals noted by Mr. Read on at least two occasions. The actual capture of specimens is the only sufficient ground for the admission of such a species as this to the Isle of Pines list.

93. **Streptoprocne zonaris pallidifrons** (Hartert). ANTILLEAN COLLARED SWIFT.

Hemiprocna [*sic*] *zonaris pallidifrons?* BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (Nueva Gerona, *fide* Palmer & Riley).

Streptoprocne zonaris pallidifrons READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 12, and XXX, 1913, 131 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, V, 1911, 701 (Nueva Gerona, *ex* Bangs & Zappey).

Messrs. Palmer and Riley say that "a large swift with some white beneath was seen around the [Casas or Caballos] mountains on several occasions." This description will not fit any known species of this family from the West Indies other than the present, which it is fair to presume was the one in question. Mr. Link did not meet with this or any other swift, but Mr. Read claims to have observed it on at least one occasion (January 31, 1909). Its range is known to include Cuba, Haiti, and Jamaica, and thus inferentially the Isle of Pines, but specimens from the latter island are naturally very desirable in order to support the present not entirely satisfactory records.

94. **Tachornis phœnicobia yradii** (Lembeye). CUBAN PALM SWIFT.

Tachornis phœnicobia (not of Gosse) READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—Read, Oölogist, XXVI, 1909, 124, and XXVIII, 1911, 12 (I. of Pines).

"Palm Swift" READ, Oölogist, XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 113 (West McKinley); XXX, 1913, 131 (I. of Pines).

Mr. Read appears to be the only observer to have noted this species, which he records as "common in summer," being in evidence just before and just after a rain. In reply to a request for further information he writes as follows: "I have seen it closely on many occasions and have watched it for a considerable time in clearings along the Nuevas River. I see three or four pairs of these birds almost daily in the Santa Barbara nursery, where they are nesting in the stub of a royal palm. This bird is readily recognized and is very tame, not paying the least attention to an intruder, and although it is always seen on the wing it cannot be mistaken for any other swift because of its small size and very noticeable white throat and rump." Such a circumstantial account as this leaves little room for doubt as to identification, but specimens are still desiderata. Although Mr. Link was constantly on the lookout for swifts during his stay in the island, he did not see a single one. There are numerous Cuban records for the present species.

95. **Calypte helenæ** (Lembeye). HELENA HUMMINGBIRD.

(?) "Black-throated Hummer?" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 75, and XXVIII, 1911, 12 (I. of Pines), 113 (West McKinley).

Ten specimens: Caleta Grande and Los Indios.

Mr. Read's records above quoted, so he writes me, presumably refer to this diminutive species, which has not heretofore been recorded from the Isle of Pines. Mr. Link found it tolerably common in April and May at Caleta Grande and Los Indios, feeding among the red blossoms of the *Jatropha glaucovirens*. Between this species and the Ricord Emerald a great antipathy exists, the former being driven off from its feeding-grounds by the other whenever they come together. The series secured includes but one adult male, which I am unable to distinguish in any way from specimens collected in eastern Cuba; the females from the two islands are also precisely alike. Most of the published records for Cuba seem to pertain to the eastern part of the island.

96. **Riccordia ricordii ricordii** (Gervais). RICORD EMERALD.

Orthorhynchus ricordii POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Riccordia ricordii BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 203 (Los Almacigos and Santa Fé; habits).—READ, Oölogist, XXVI, 1909, 190, and XXVIII, 1911, 12 (I. of Pines); XXVII, 1910, 61 (I. of Pines; descr.; habits).

"Ricord's Hummer" READ, Oölogist, XXVIII, 1911, 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 125 (Santa Barbara), 130 (I. of Pines).

Riccordia ricordii ricordii RIDGWAY, Bull. U. S. Nat. Mus., No. 50, V, 1911, 543 (Los Almacigos and Santa Fé, *ex* Bangs & Zappey; meas.).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

Seventeen specimens: Los Indios, Siguanea, and Nueva Gerona.

Although at one time (*cf.* ANNALS CARNEGIE MUSEUM, VII, 1911, 424) I had doubts as to the distinctness of the Bahaman form of *Riccordia ricordii*, comparison with the present fine series has served to dispel them, so that the trinomial name is very properly employed here.

This hummingbird is a very common species in the Isle of Pines, occurring almost everywhere, except in the swampy country. It is particularly numerous on the wooded slopes of the Casas Mountains, frequenting the flowers which grow so profusely there during the rainy season, and is common also in the country back of Caleta Grande.

"It is a noisy little bird and its mouse-like, squeaking note is uttered at frequent intervals, especially when anything attracts its attention." A nest found by Mr. Link at Los Indios early in May was built in a grape-fruit tree, three or four feet from the ground, and at that time contained two eggs, highly incubated. Another found on the slopes of the Casas Mountains in June, and containing young, was also similarly placed at a low elevation.

97. **Tyrannus dominicensis dominicensis** (Gmelin). GRAY KINGBIRD.

Tyrannus dominicensis CORY, Cat. W. Indian Birds, 1892, 108 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVIII, 1911, 7, 12 (I. of Pines; habits; nesting).—READ, I. of Pines News, VI, Jan. 10, 1914 (I. of Pines, summer; descr.).

Tyrannus dominicensis dominicensis BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (Santa Fé, El Hospital, Cayo Bonito, and Jucaro).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 706 (I. of Pines; meas.).

"Gray Kingbird" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 42 (I. of Pines; nesting), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 7 (I. of Pines), 10 (Nuevas River), 113 (West McKinley); XXX, 1913, 125 (Santa Barbara; migr.)

"Cuban Gray Kingbird" READ, Oölogist, XXX, 1913, 181 (I. of Pines, summer).

Four specimens: Bibijagua, Los Indios, and Nueva Gerona.

This species is well known to be migratory in the northern part of its range, and even in Cuba Gundlach says that it is only a summer resident from March to September. Mr. Read claims a similar seasonal status for the species in the Isle of Pines, but Mr. Link actually secured specimens on December 11, January 18, and February 5, thus showing that its occurrence through these months is at least proven. It is an inhabitant of the more open situations, the pine woodlands, palmetto-growths, and citrus-groves, where it comes in contact with the Cuban Petchary, which it very closely resembles in habits. Mr. Read mentions having found a nest with eggs on April 11, 1909, placed in a low tree only six feet from the ground, and close to a building. Messrs. Palmer and Riley found a nest near Nueva Gerona on July 8, 1900, containing two eggs on the point of hatching.

98. **Tyrannus cubensis** Richmond. GIANT KINGBIRD.

Tyrannus magnirostris (not of Swainson) CORY, Cat. W. Indian Birds, 1892, 108 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 80 (I. of Pines).

Tyrannus cubensis BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (Santa Fé, La Vega, Los Almacigos, and Mal Pais).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 711 (I. of Pines; meas.).—READ, Oölogist, XXVI, 1909, 124,

and XXVIII, 1911, 12 (I. of Pines), 8 (Nuevas River; habits).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, VI, Jan. 10, 1914 (I. of Pines, summer, not common).

"Giant Kingbird" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 7 (I. of Pines), 10 (Nuevas River); XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines).

Two specimens: Los Indios.

All observers agree as to the comparative scarcity of this large flycatcher in the Isle of Pines. Indeed, Mr. Link met with it on but one occasion, securing a pair at Los Indios early in May. These are both in worn breeding dress, and the male is apparently not fully mature, lacking attenuated tips to the outer primaries. Mr. Zappey secured five specimens in the eastern part of the island—all shot in the vicinity of water. Mr. Read says that it is "fairly common along the Nuevas River, where it may often be seen catching insects over the water and occasionally minnows which are swimming near the surface, returning to an overhanging branch to swallow its prey after the fashion of a Kingfisher." The stomachs examined by Messrs. Zappey and Link, however, contained nothing but insects and a few berries. Despite Mr. Read's statement that this species is exclusively a summer resident, there can be no question as to its occurrence in the Isle of Pines throughout the year as in Cuba, since there are no records of its being found to the southward.

99. **Tolmarchus caudifasciatus** (D'Orbigny). CUBAN PETCHARY.

Tyrannus caudifasciatus POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Pitangus caudifasciatus GUNDLACH, Orn. Cubana, 1895, 83 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 206 (Santa Fé, El Hospital, Jucaro, and Cayo Bonito).

Tolmarchus caudifasciatus RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 679 (Nueva Gerona; Santa Fé, El Hospital, Jucaro, and Cayo Bonito, *ex* Bangs and Zappey; meas.).—READ, Oölogist, XXVIII, 1911, 7 (I. of Pines; habits); XXX, 1913, 122 (McKinley; habits).—READ, I. of Pines News, V, Oct. 25, 1913 (descr.; habits).

(?) "Kingbird" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, 102, and XXVIII, 1911, 12 (I. of Pines).

"Cuban Kingbird" READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley and Santa Barbara Mountain, etc.), 5 (McKinley; nesting), 6, 10 (Nuevas River), 7 (Cañada Mountains, etc.), 113 (West McKinley), 146 (Bibijagua); XXX, 1913, 123 (Nuevas River), 125 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

Thirteen specimens: Bibijagua, Los Indios, Siguanea, and Santa Rosalia Lagoon.

This species is subject to much variation from wear and fading, which render the upper parts darker and duller, remove the pale greenish yellow edgings of the remiges, and turn the same color on the under tail-coverts into white. In fresh plumage the back is glossed with olivaceous green.

A very common bird throughout the drier parts of the island, frequenting the more open situations, where it is usually found in pairs or family groups. In its notes and general habits it closely resembles the Kingbird of the north, and like that species will chase any large bird which happens to invade its territory, even the Turkey Buzzard being an object of its antipathy. It is said to be very fond of the "bibijagua" ant, on occasion alighting on the ground to devour the winged females, as they emerge in swarming time. According to Mr. Read it begins to nest about the middle of April, building a frail structure of twigs and rootlets in a low tree. Two nests found by Mr. Link near Nueva Gerona had eggs in May.

100. **Myiarchus sagræ sagræ** (Gundlach). LA SAGRA FLYCATCHER.

Myiarchus sagræ BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (Santa Fé, Cayo Bonito, and Jucaro).—READ, Oölogist, XXVIII, 1911, 8, 12 (I. of Pines; habits).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

Myiarchus sagræ sagræ RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 636 (I. of Pines; meas.).

(?) "Phoebe?" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVIII, 1911, 13 (I. of Pines), 113 (West McKinley).

"Cuban Crested Flycatcher" READ, Oölogist, XXVI, 1909, 224 (I. of Pines), XXVIII, 1911, 6, 11 (Nuevas River), 7 (Cañada Mountains, etc.), 114 (West McKinley); XXX, 1913, 125, 127 (Santa Barbara), 130 (I. of Pines).

Nine specimens: Los Indios, Majagua River, Cayo Frances, and Nueva Gerona.

These birds agree well with specimens from eastern Cuba. Both series differ from the Bahaman form (*lucaysiensis*) not only in the respects pointed out by Mr. Ridgway in his diagnosis, but also in having less rufous on the rectrices, the outer one (in all but two specimens) having practically no rufous apparent, except at the base.

Mr. Zappey did not meet with this flycatcher, except in the pine-woods, where it was common in April, May, and June, but according

to Mr. Link's experience it is by no means confined to such situations, being apt to occur in almost any kind of woods, where it is not swampy. Near the mouth of the Majagua River, as well as on Cayo Frances, it was even found in the mangroves, while at Los Indios it frequented the same dense thicket where the Cuban Wood Pewee was so much in evidence. Until now no nests appear to have been discovered in the Isle of Pines.

101. **Blacicus caribæus** (D'Orbigny). CUBAN WOOD PEWEE.

Muscipeta caribæa POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Blacicus caribæus CORY, Cat. W. Indian Birds, 1892, 109 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 87 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (San Juan and Santa Fé).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 533 (San Juan and Santa Fé, *ex* Bangs and Zappey; meas.; crit.).—READ, Oölogist, XXVIII, 1911, 9, 12 (I. of Pines; habits).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

"Cuban Wood Pewee" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River).

"Cuban Pewee" READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley), 5 (Santa Barbara Mountain, etc.), 7 (Cañada Mountains, etc.), 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (Nuevas River), 125, 127 (Santa Barbara), 131 (I. of Pines).

Twelve specimens: Los Indios.

The specimens measured agree well with those from this island handled by Mr. Ridgway in being slightly smaller than Cuban examples. They all came from Los Indios, where the species was found to be common in a dense thicket at the edge of a pasture. Some were also seen near Nueva Gerona, while Mr. Zappey's and Mr. Read's records pertain to other sections of the island, so that the species appears to be quite generally distributed, except in the swampy country. In its general habits it resembles the common Wood Pewee, usually perching rather low down, however, and being very tame and unsuspicious. There appear to be no actual records of its nesting in the Isle of Pines, but according to Gundlach it builds a nest on a horizontal branch, much after the style of the common Wood Pewee.

Empidonax flaviventris (Baird). YELLOW-BELLIED FLYCATCHER.

(?) "Yellow-bellied Flycatcher" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, Apr. 28).—READ, Oölogist, XXVI, 1909, 102, and XXVIII, 1911, 12, and XXX, 1913, 131 (I. of Pines).

This species is generally believed to migrate entirely through Mexico, avoiding the West Indies. The above records published by Mr. Read are therefore open to question.

102. **Mimus polyglottos polyglottos** (Linnæus). MOCKINGBIRD.

One specimen: Nueva Gerona.

A single specimen, unquestionably referable to the continental form, was shot by Mr. Link at Nueva Gerona on December 30. This is a female, comparing favorably in size, grayish coloration, and color-pattern of rectrices with birds of that sex from Florida, and it doubtless is a winter migrant from that State. In this specimen even the outer webs of the outer rectrices are somewhat blackish, and the flanks show obsolete streaks.

103. **Mimus polyglottos orpheus** (Linnæus). JAMAICAN MOCKINGBIRD.

Mimus polyglottos orpheus CORY, Cat. W. Indian Birds, 1892, 121 (I. of Pines, in geog. distr.).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 231 (I. of Pines, in geog. distr.).

Mimus orpheus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (I. of Pines, *ex* Cory; "south coast").

One specimen: Nueva Gerona.

Mr. Cory records this species from the Isle of Pines without comment, and this record, doubtless given on Gundlach's authority, has been quoted by Mr. Ridgway and Messrs. Bangs and Zappey. The latter authors add that "the mockingbird is said by the natives to inhabit the south coast in small numbers." Whether or not this statement is true, nothing is more certain than that the bird is rare on the island, so that Mr. Link's record, pertaining to an individual shot in a palmetto growth near Nueva Gerona on March 10, is valuable as the first circumstantial record. The individual taken was a male, perfectly typical of this form. More recently Mr. Read writes that he has seen four individuals, two together at La Ceiba at the foot of the mountains, and the other two singly in Santa Barbara proper. One of the latter was secured, and through the courtesy of the U. S. National Museum, to which the specimen was sent, is now before me for examination. It was shot April 8, 1915, is marked as a male, "shot while singing," and measures as follows: wing, 100; tail, 101. In size it thus agrees best with *orpheus*, but in color-characters it is quite indistinguishable from true *polyglottos*, so that I am at a loss as to which form it should really be referred.

104. **Dumetella carolinensis** (Linnæus). CATBIRD.

Turdus carolinensis POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Galeoscoptes carolinensis CORY, Cat. W. Indian Birds, 1892, 121 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 51 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 207 (I. of Pines; Poey's, Cory's, and Gundlach's records).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 218 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

"Catbird" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December) —READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 15, and XXVIII, 1911, 7 (I. of Pines; migr.), 118 (West McKinley); XXX, 1913, 123 (McKinley), 130 (I. of Pines, winter).

Two specimens: Caleta Grande and Los Indios.

A common winter resident, arriving from the north, according to Mr. Read, in October (October 16, 1909; October 27, 1910) or even earlier (September 19, 1913), and remaining until May at least. Mr. Link saw a few near Nueva Gerona the middle of May, while a straggler was noted at Pasadita as late as May 25—a date when the bird has eggs in Pennsylvania. Mr. Read writes that he saw flocks of twenty-five or thirty birds on April 17, 1915, these being the first migrating flocks noticed that season. During its winter sojourn in the island it inhabits the same general kind of situations as in its summer home—bushy thickets, where it keeps well concealed, although its presence is usually revealed by its characteristic notes, uttered when its haunts are invaded. Its spring song was not heard at any time.

105. **Myadestes elisabeth** (Lembeye). CUBAN SOLITAIRE.

Myiadestes elisabeth GUNDLACH, Journ. für Orn., 1856, 2 (I. of Pines [error; *cf.* GUNDLACH, Journ. für Orn., 1872, 429, and STEJNEGER, Proc. U. S. Nat. Mus., V, 1882, 27]).—CORY, Cat. W. Indian Birds, 1892, 122 (I. of Pines, in geog. distr. [error]).—GUNDLACH, Orn. Cubana, 1895, 89 (no valid record from I. of Pines).

Myiadestes elisabeth retrusus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 208 (Pasadita; orig. descr.; type now in Mus. Comp. Zoöl.; habits).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review; crit.).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, IV, 1907, 173 (I. of Pines; descr.; syn.).

Mr. Charles T. Ramsden has sent me a small but very interesting series of *Myadestes elisabeth* from eastern Cuba, which I have been able to compare directly with the type and only known specimen of the alleged subspecies *retrusus*. Three of these Cuban specimens are

decidedly olivaceous brown above and shaded with grayish below. Two of these are completing the postnuptial moult (August 29), and the third is in comparatively fresh plumage (March 22). A fourth specimen, however, although taken only a day later than the last, is a precise counterpart in all respects of the type of *retrusus*. This latter individual is somewhat worn (May 25), and I believe that its pale coloration is due to fading rather than to any geographical variation. At all events, until its characters can be substantiated by additional specimens in fresh plumage, I cannot see my way clear to accord recognition to the form it is supposed to represent.

The Solitaire was reported from the Isle of Pines by Gundlach many years ago, on what he discovered later was unreliable authority, The capture of a single specimen by Mr. Zappey at Pasadita therefore constitutes the first authentic record for the island. "The Isle of Pines Solitaire is very rare and occurs in the densest forests only, where, on account of its retiring habits and dull coloration, it is very hard to shoot. Its loud, ringing song can be heard a great distance. and is almost startling in the still forests in which the bird lives. The stomach of the only specimen taken contained a few berries and the remains of insects." A bird believed to have been of this species was seen by Mr. Link at Hato, on the "south coast," on October 17, 1912, but was unfortunately not secured. The natives here appear to be acquainted with the bird, but say it is very rare.

106. **Mimocichla rubripes rubripes** (Temminck). RED-LEGGED THRUSH.

Turdus rubripes POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Mimocichla rubripes CORY, Cat. W. Indian Birds, 1892, 122 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 49 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 13 (I. of Pines); XXX, 1913, 122 (McKinley; habits).

Mimocichla rubripes rubripes BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 208 (Santa Fé, San Juan, El Hospital, and Cayo Bonito; habits; crit.).—READ, Oölogist, XXVI, 1909, 124 (I. of Pines; nesting).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, V, Oct. 18, 1913 (descr.; habits).

"Red-legged Thrush" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 42 (I. of Pines; nesting), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley), 5 (McKinley and Santa Barbara Mountain; nesting), 6, 11 (Nuevas River), 113 (West McKinley), 146 (Bibijagua); XXX, 1913, 123 (Pine River), 125, 127 (Santa Barbara), 130 (I. of Pines), 164 (Santa Barbara to Nueva Gerona), 168 (Los Indios).

Twenty-two specimens: Nueva Gerona, Los Indios, and McKinley.

The series exhibits considerable variation in the depth and extent of the abdominal tawny ochraceous area (not depending on sex, however), while the amount of white streaking on the throat is another variable character.

A very common species in the Isle of Pines, taking the place of the Robin in the north, and closely resembling it in general habits. While it is perhaps more partial to the woodland areas than the Robin, it often comes familiarly about the houses and cultivated grounds, and frequently builds its nest in such situations. Mr. Read writes of a pair which built a nest on a rafter in an unfinished house, removing it later to another situation, and Mr. Link saw the same thing happen on one occasion. The nest, too, is like that of the Robin in general appearance, except that it lacks the lining of mud, fibrous roots doing duty instead, and the eggs are laid in April and May. Three or four eggs appear to be the usual complement; they are pale greenish, finely spotted with several shades of brownish. During the nesting-season the males are accustomed to sing in the morning and evening, their song again reminding one of that of the Robin, but being much weaker. At other seasons the birds are nearly silent, merely giving utterance to a sharp note of alarm when disturbed, nor do they come about houses to the same extent. Berries and insects constitute their food, and Mr. Read mentions having seen a lizard fed to the young on one occasion.

Hylocichla ustulata swainsonii (Cabanis). OLIVE-BACKED THRUSH.

(?) "Olive-backed Thrush" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, Jan. 14).—READ, Oölogist, XXVI, 1909, 58, and XXVIII, 1911, 7 (I. of Pines; migr.), 113 (West McKinley).

(?) *Hylocichla ustulata swainsonii* READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).

Mr. Read claims to have observed this species on a few occasions, in October and even in January (!), but as no specimens appear to have been preserved, and the species is not known to migrate through the West Indies, and is merely accidental in Cuba, it seems possible that his records are due to misidentifications, which are very easy to make in this group.

107. **Polioptila cærulea cærulea** (Linnæus). BLUE-GRAY GNATCATCHER.

Culicivora cærulea POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Polioptila cærulea CORY, Cat. W. Indian Birds, 1892, 120 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 54 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 205 (I. of Pines, March; Poey's record).

Both Poey, Cory, and Gundlach record the Blue-gray Gnatcatcher from the Isle of Pines, and Mr. Zappey found it there in March, 1902, but not on his later trip. Mr. Link did not chance to meet with it. It is obviously a winter resident, as in Cuba, where according to Gundlach it is abundant.

108. **Corvus nasicus** Temminck. CUBAN CROW.

Corvus jamaicensis? (not of Gmelin) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Corvus nasicus CORY, Cat. W. Indian Birds, 1892, 110 (I. of Pines, in geog. distr.). —GUNDLACH, Orn. Cubana, 1895, 126 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (La Vega and Pasadita; habits).

"Cuban Crow" READ, Oölogist, XXX, 1913, 130 (I. of Pines, *fide* G. A. Link).

Eleven specimens: Caleta Grande, Caleta Cocodrilos, Jacksonville, and Pasadita.

A common species in the Cienaga at Pasadita, where it was found by both Mr. Zappey and Mr. Link. The latter observer failed to meet with it at the western end of the Cienaga, near Siguanea, although it was noted in comparative abundance on the "south coast." A nest was discovered at Jacksonville on April 21, containing one addled egg and three newly hatched young. The egg resembles that of the Common Crow, but the ground-color is much paler. The nest was a mass of sticks, bark, etc., placed on a star-palm about twenty feet from the ground. The Cuban Crow is less wary and difficult of approach than the northern species, and has a great variety of notes and calls, reminding one of the Raven in this respect.

109. **Vireo gundlachii gundlachii** Lembeye. GUNDLACH VIREO.

Vireo gundlachi CORY, Cat. W. Indian Birds, 1892, 116 (I. of Pines, in geog. distr.). —GUNDLACH, Orn. Cubana, 1893, 45 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (Cayo Bonito; crit.).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

"Gundlach's Vireo" READ, Oölogist, XXVIII, 1911, 11 (Nuevas River), 13 (I. of Pines); XXX, 1913, 123 (McKinley), 125 (Santa Barbara), 130 (I. of Pines).

Six specimens: Caleta Grande and Nueva Gerona.

A single example of this interesting species was secured by Mr. Link at Caleta Grande on November 29. Later, in February and March, it was encountered near Nueva Gerona also, and a few additional specimens were obtained, the series being very uniform in coloration. All of these were shot in bushy thickets, similar to those in which the Black-whiskered Vireo was found. The species appears to be rather

uncommon, however, and has been recorded by Mr. Read on only a few occasions. Mr. Zappey secured a pair at Cayo Bonito on May 3, these being the only ones he saw on his second trip. These examples proved on comparison with Cuban specimens to differ in certain particulars, suggesting that subpecific separation might eventually become necessary. I have been able to compare the present series with a good series of Cuban birds, comprising specimens taken from both the eastern and the western parts of the island. Considerably to my surprise I find that the bird of western Cuba is readily separable from that of the eastern part (Guantánamo and Santiago de Cuba), the Isle of Pines specimens naturally agreeing with the western form, averaging merely a trifle duller. Lembeye (*Aves de la Isla de Cuba*, 1850, 29, pl. 5, fig. 1) does not specify any particular type-locality for his *Vireo gundlachii*, although he mentions that he first saw the species near Cienfuegos, so that we are doubtless justified in accepting this as the type-locality. No specimens from this point are available, but nine skins from Trinidad, some forty miles to the eastward, kindly placed at my disposal by Mr. Frank M. Chapman, while obviously intermediate in their characters, seem best referred to the western form. The bird of eastern Cuba I therefore propose to call

Vireo gundlachii orientalis subsp. nov.

Type, No. 44,219, Collection Carnegie Museum, adult male; Arroyo Hondo, "Los Caños," Guantánamo, Cuba, October, 1913; Charles T. Ramsden.

Subspecific characters.—Similar to *Vireo gundlachii gundlachii* of western Cuba and the Isle of Pines, but general coloration duller; under parts much duller yellow, with more buffy suffusion and dark shading on the sides; lores and postocular spot paler yellow; and upper parts decidedly grayish, less greenish.

Vireo gundlachii is thus shown to vary precisely as do certain other closely related species, but in this case the variation is strictly correlated with locality, which is not true with *V. carmioli*, *V. ochraceus*, or even *V. crassirostris*.

110. **Vireo griseus griseus** (Boddaert). WHITE-EYED VIREO.

Vireo griseus griseus READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

Two specimens: Caleta Grande and Nueva Gerona.

Gundlach says that the White-eyed Vireo is rare in Cuba, where it occurs as a winter visitor. Under such circumstances Mr. Link's records, referring to single individuals killed at Caleta Grande on November 27, and at Nueva Gerona on February 26, are of especial interest, as going to show that the species has a similar seasonal status in the Isle of Pines also. Mr. Read claims to have observed it at Santa Barbara on December 13, 1912.

Lanivireo flavifrons (Viellot). YELLOW-THROATED VIREO.

(?) "Yellow-throated Vireo" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, May 8).—READ, Oölogist, XXVI, 1909, 102, and XXX, 1913, 131 (I. of Pines); XXVIII, 1911, 113 (West McKinley).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Vireo flavifrons* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

The Yellow-throated Vireo is of merely casual appearance in the West Indies, migrating as it does through Mexico and Central America, so that Mr. Read's records above quoted, all apparently referring to a single individual noted May 8, 1909, cannot be received with that degree of confidence necessary to assure the species a place on the list.

111. **Vireosylva calidris barbatula** (Cabanis). BLACK-WHISKERED VIREO.

Vireo calidris barbatulus CORY, Cat. W. Indian Birds, 1892, 115 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

Vireosylvia barbatula GUNDLACH, Orn. Cubana, 1895, 41 (I. of Pines).

Vireosylva calidris barbatula RIDGWAY, Bull. U. S. Nat. Mus., No. 50, III, 1904, 141 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (Jucaro, Cayo Bonito, and Santa Fé).

"Black-whiskered Vireo" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVII, 1910, 42 (I. of Pines; nesting), 84 (Los Tres Hermanos Mountains); XXVIII, 1911, 7 (I. of Pines), 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 125 (Santa Barbara; migr.; habits), 131 (I. of Pines; migr.).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Ten specimens: Nueva Gerona.

These are precisely like Bahaman specimens. *V. c. barbatula* differs from *V. c. calidris*, in addition to the characters usually recognized, in having the under tail-coverts paler yellow.

A summer resident, arriving about the middle of March, and remaining until October, although according to Mr. Read a few stragglers may stay through the dry season. It is a common inhabitant of the low thickets and jungles, where its song, which is a sweet warble not unlike that of the Red-eyed species, is a constant reminder

of its presence. Mr. Read records a nest found on April 24, 1909, while Mr. Link reports that he found one containing two eggs the second week in June, placed about fifteen feet from the ground, on a horizontal branch of a hardwood tree. Mr. Link did not meet with this species except in the neighborhood of Nueva Gerona, where it was particularly numerous on the slopes and at the foot of the Casas and Caballos Mountains, but Mr. Zappey and Mr. Read have recorded it from sundry other parts of the island.

Vireosylva olivacea (Linnæus). RED-EYED VIREO.

(?) "Red-eyed Vireo" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, April 21).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 7 (I. of Pines; migr.), 113 (West McKinley); XXX, 1913, 131 (I. of Pines; migr.). —READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Vireo olivaceus* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

This is another species admitted to Mr. Read's list on what are probably insufficient grounds, since it does not appear that specimens were taken or preserved. Like the Yellow-throated Vireo, the Red-eyed species migrates through Mexico and Central America, and its occurrence anywhere in the West Indies is merely casual. Indeed, Gundlach says that in all his experience in Cuba he secured but a single specimen.

112. **Hirundo erythrogastra** Boddaert. BARN SWALLOW.

"Barn Swallow" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, April 11).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 7, and XXX, 1913, 131 (I. of Pines; migr.).—READ, I. of Pines News, VI, Apr. 11, 1914 (I. of Pines, migrant).

Hirundo erythrogastra READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

Two specimens: Los Indios and Nueva Gerona.

A transient visitant only, apparently not common. Its seasonal occurrence is doubtless the same here as in Cuba, where Gundlach says it comes from the north in August, remaining but a short time, however, and reappearing in its northward migration in April and May. The first specimen secured by Mr. Link, however, was shot at the rather late date of November 4, at Los Indios. It is an immature male, with the wings and tail fresh and unworn, the white edgings very prominent. A few new chestnut feathers have come in on the forehead, but there are no other signs of moult in progress. Another example was shot at Nueva Gerona on May 12, being one of several seen. Mr. Read has recorded it as early in the spring as March 18 (1912) and April 11 (1909), and as late as May 8 (1910).

Riparia riparia (Linnæus). BANK SWALLOW.

(?) "Bank Swallow" READ, I. of Pines News, VI, Apr. 11, 1914 (I. of Pines, March 4, 1914.)

The Bank Swallow is a rare transient in the West Indies, and the only record we have of its occurrence in the Isle of Pines is the one by Mr. Read above quoted, which, however, does not appear to be based on an actual capture. Mr. Link says that a swallow which he took to be this species was nesting in holes in low banks along the Casas River in May, but no specimens were taken, and the identification is open to question. The locality is certainly beyond the known southern breeding range of the Bank Swallow, while the Rough-winged Swallow is not even known from the West Indies, so that the identity of these particular birds is problematical, and specimens are very desirable.

113. **Petrochelidon fulva fulva** (Vieillot). CUBAN CLIFF SWALLOW.

Petrochelidon fulva fulva RIDGWAY, Bull. U. S. Nat. Mus., No. 50, III, 1904, 53 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (Nueva Gerona, *fide* Palmer and Riley).

"Cuban Cliff Swallow" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines). —READ, Oölogist, XXVI, 1909, 102, and XXVIII, 1911, 7 (I. of Pines), 6 (Nuevas River), 114 (West McKinley); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines, summer; migr.).

Petrochelidon fulva AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Check List N. Am. Birds, ed. 3, 1910, 292 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, I. of Pines News, VI, Apr. 11, 1914 (Nueva Gerona; descr.; habits).

Four specimens: Bibijagua and Nueva Gerona.

The seasonal status of the present species appears to be the same as that of the Cuban Martin, a summer resident only, of which the winter habitat is still unknown. Mr. Read records its arrival in 1914 on March 4, and Gundlach says that in Cuba it comes at the end of February or early in March. Messrs. Palmer and Riley found it common in the lowlands in the vicinity of Nueva Gerona in July, at which time the young had begun to collect in flocks on the telegraph wires. Mr. Link found it common here also in May and June, and was fortunate in discovering its nesting-grounds in the Casas and Caballos Mountains. As early as April 6, in the latter locality, the birds were observed going in and out of holes in the cliffs near the tops of the mountains, where they evidently had eggs or young. These nesting-places were quite inaccessible by ordinary means, but a little later, in the Casas Mountains, some pairs were found with nests only about twenty feet up the face of an exposed cliff. Mr. Read speaks of having seen the birds gathering nesting-material in the shape of little pellets of clay from the edges of water-holes in Nueva Gerona.

114. **Progne cryptoleuca** Baird. CUBAN MARTIN.

Progne cryptoleuca BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (Manigua *fide* Palmer and Riley).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, I. of Pines News, VI, Apr. 4, 1914 (I. of Pines, summer; habits).

"Cuban Martin" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 5 (McKinley; nesting), 7 (I. of Pines; migr.), 11 (Nuevas River), 114 (West McKinley); XXX, 1913, 125 (Santa Barbara; migr.), 128, pl. (Santa Barbara; fig. of nesting site), 130 (I. of Pines, summer; migr.).

Two specimens: Los Indios.

Swallows believed to belong to this species were repeatedly observed along the Casas River at Nueva Gerona, but no specimens were procured except at Los Indios, where a pair were shot on April 12. Mr. Zappey noted it on several occasions, and Messrs. Palmer and Riley found it in small colonies in the pines at Manigua. Mr. Read appears to be the only observer to have met with it in any numbers. He states that it is a summer resident only, appearing as early sometimes as February 8 (1914), March 12 (1912), and March 28 (1910), and remaining until about the first of November. This agrees with what is known concerning its seasonal status in Cuba, where Gundlach says that it disappears towards the end of August and does not return until February. What becomes of it in the intervening months remains an unexplained mystery, since it is a species scarcely known outside of its recognized breeding-range. Mr. Read has also had the good fortune to find it breeding. The nest appears to be built in an old woodpecker's-hole in a bottle-palm or pine-tree, and the four or five white eggs are laid in May.

115. **Setophaga ruticilla** (Linnæus). REDSTART.

Muscicapa ruticilla POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Setophaga ruticilla CORY, Cat. W. Indian Birds, 1892, 120 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 211 (I. of Pines, March; Poey's record).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45 (Santa Barbara).

"American Redstart" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, 75 (I. of Pines; XXVII, 1910, 5 (Nuevas River), 15 (I. of Pines; migr.); XXVIII, 1911, 5 (Santa Barbara Mountain, etc.), 7 (Cañada Mountains, etc.; migr.), 113 (West McKinley); XXX, 1913, 123 (McKinley), 130 (I. of Pines, winter).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Six specimens: Los Indios.

A bird shot December 5 presents a curious case of asymmetrical development. It is a male in first winter plumage, in which the remiges and rectrices on one side are marked with pale orange, as in the adult, while the corresponding markings on the other side are yellow, as is normal at this stage.

The Redstart is very common as a winter resident throughout the island. Although Gundlach says that in Cuba it is one of the first species to arrive in the fall migration, it so happens that the earliest records for that season in the Isle of Pines are all in October (October 16, 1909; October 11, 1910; October 8, 1912). In the spring of 1913 it was observed at Siguanea up to April 25. Its haunts and habits in its winter home are very similar to those in summer, except that it has no song. It seemed to be particularly fond of the mangrove-growths along the Los Indios and Majagua Rivers, while in the vicinity of Nueva Gerona it frequented the bushy thickets on the sides of the Caballos Mountains.

116. **Geothlypis trichas trichas** (Linnæus). MARYLAND YELLOW-THROAT.

Sylvia trichas POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Geothlypis trichas CORY, Cat. W. Indian Birds, 1892, 119 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 73 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, *ex* Poey; crit.).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

"Maryland Yellow-throat" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December).—READ, Oölogist, XXVI, 1909, 58, 75 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 15 (I. of Pines; migr.).

"Florida Yellow-throat" READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 7 (I. of Pines, October 1), 113 (West McKinley, winter); XXX, 1913, 123 (McKinley), 127 (Santa Barbara), 130 (I. of Pines, winter).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Geothlypis trichas ignota (not of Chapman) READ, Bird-Lore, XIII, 1911, 44 (McKinley); XVI, 1914, 50 (Santa Barbara).

Twelve specimens: Majagua River, Los Indios, Bibijagua, and Nueva Gerona.

After careful comparison of the adult birds of this series I refer them all without hesitation to true *trichas*, and not to *ignota*, to which Messrs. Bangs and Zappey intimate the Isle of Pines birds may prove to belong, since a series of Yellow-throats from western Cuba were so identified by Mr. Ridgway. The color of the flanks is a little

browner than Bahaman specimens comparable as to season, but not more so than in winter skins from Central America. Three males and a female shot April 5 and 8 are just completing the prenuptial moult, as shown by the fresh feathers on the throat.

A common winter resident, according to Mr. Link's experience, throughout the northern part of the island, but not observed in the Cienaga or on the "south coast." It was recorded by Poey, but curiously enough Mr. Zappey did not chance to meet with it. Mr. Read's earliest fall records are October 1, 1910, and October 3, 1909, while Mr. Link's last specimen was shot April 8. Here, as at the north, it is an inhabitant of the low, wet thickets, where it contrives to keep well concealed.

117. **Teretistris fernandinæ** (Lembeye). FERNANDINA WARBLER.

Helmitheros blandus (not of Lichtenstein) POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Teretistris fernandinæ CORY, Cat. W. Indian Birds, 1892, 119 ("Pine Island," in geog. distr.).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 649 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (Pasadita and Cayo Bonito).—SHARPE, Hand-List Birds, V, 1909, 113 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines); XXVIII, 1911, 7 (Cañada Mountains, etc.), 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45 (Santa Barbara).—READ, Oölogist, XXX, 1913, 130 (I. of Pines).

"'Chillina' Warbler" READ, Oölogist, XXVIII, 1911, 5 (Santa Barbara Mountain, etc.), 11 (Nuevas River), 113 (West McKinley).

Eight specimens: Siguanea and Los Indios.

A species peculiar to western Cuba, whence it extends to the Isle of Pines, having been recorded by Poey many years ago. Mr. Zappey secured it at Pasadita and Cayo Bonito, while Mr. Link found it not uncommon in the western end of the Cienaga, near Siguanea. It was noted at Los Indios also, and at Hato on the "south coast," while Mr. Read has observed it occasionally in the northwestern part of the island. It is a "ground" warbler, keeping to the densest covert in the thick, damp woods, where it is naturally difficult to observe and still more difficult to shoot. Nothing is yet on record regarding its nesting so far as the Isle of Pines is concerned.

[**Seiurus motacilia** (Vieillot). LOUISIANA WATER-THRUSH.

(?) "Louisiana Water-Thrush" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December 14).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 15 (I. of Pines; migr.); XXVIII, 1911, 7 (I. of Pines, September 30), 113 (West McKinley); XXX, 1913, 130 (I. of Pines, January).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Seiurus motacilla* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara, December 25).

From an examination of the available evidence it would appear that this water-thrush is much the rarer of the two in the West Indies, the general trend of its migration, according to Prof. W. W. Cooke, being southwestward. Mr. Link did not detect it in the Isle of Pines, and Mr. Read's records above cited constitute the sole basis for its supposed occurrence. In reply to an inquiry he writes that his identifications were based on specimens taken from time to time, but unfortunately not preserved. As he is admittedly not quite clear in discriminating between the two species, however, it is deemed wise to delay the admission of the present species to the list until specimens can be examined. Mr. Read considers it to be a winter resident, arriving the latter part of August (August 24, 1909; August 21, 1911; August 29, 1913), and remaining through March or into April, April 4, 1910, being the latest recorded date in the spring.]

118. **Seiurus noveboracensis notabilis** Ridgway. GRINNELL WATER-THRUSH.

Seiurus noveboracensis (not of Gmelin) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 119 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 72 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, March; Poey's record).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

"Water-Thrush" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December 15).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 14 (I. of Pines; migr.); XXVIII, 1911, 7 (I. of Pines, October), 113 (West McKinley, December); XXX, 1913, 127 (Santa Barbara), 130 (I. of Pines, January).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Four specimens: Los Indios.

Although Prof. Cooke, in discussing the winter range of the Water-Thrush (*Bulletin Biological Survey*, No. 18, 1904, 103) says that the West Indian records "unquestionably relate to the eastern bird," I would refer the four specimens from the Isle of Pines before me to *notabilis* with but little hesitation. These were shot between September 30 and November 16 at Los Indios, where the species was found to be common, as well as at Siguanea, frequenting the bushy mangroves along the water's edge. At this latter locality it was recorded as late as the first of May, while Mr. Read has noted its arrival in his district in the fall movement as early as August 20 (1909). It is included in the lists of both Poey, Cory, and Gundlach, and was noted also by Mr. Zappey on his first trip to the island.

119. **Seiurus aurocapillus** (Linnæus). OVEN-BIRD.

"Oven-bird" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, February). —READ, Oölogist, XXVI, 1909, 102 (I. of Pines); XXVII, 1910, 15 (I. of Pines, October 24); XXVIII, 1911, 113 (West McKinley); XXX, 1913, 130 (I. of Pines, winter).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Seiurus aurocapillus READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

One specimen, Nueva Gerona.

The Oven-bird is a winter resident in the Isle of Pines, but apparently is not common. Mr. Link saw a few at the foot of the Caballos Mountains, securing a single specimen on February 27. Mr. Read has noted it on various occasions at this season, and it is known as a regular and common winter resident throughout the Greater Antilles.

120. **Dendroica palmarum palmarum** (Gmelin). PALM WARBLER.

Dendroica palmarum CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1893, 67 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

Dendroica palmarum palmarum BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, March; Cory's record).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

"Palm Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, January).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 15 (I. of Pines; migr.), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 7 (I. of Pines, October 2), 113 (West McKinley, winter); XXX, 1913, 123 (McKinley).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

"Yellow Palm Warbler" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 114 (West McKinley); XXX, 1913, 127 (Santa Barbara), 130 (I. of Pines, winter).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Dendroica palmarum hypochrysea (not of RIDGWAY) READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

Nine specimens: Los Indios, Nueva Gerona, and Hato.

This warbler is possibly the most abundant of all those which visit the Isle of Pines during the winter months. It occurs in scattered flocks, frequenting the more open situations, groves of bottle-palms and margins of thickets, keeping on or near the ground. Mr. Read has noted it as early as September 25, and Mr. Link's specimens were all shot between September 30 and April 17, dates which correspond very well with the records of the migration of the species from nearby regions, as given by Prof. Cooke. A young bird taken February 20 shows no sign of moult, although sundry specimens from other sections

are undergoing prenuptial moult at this season. Another example shot April 17, however, is in moult, and has almost completed the chestnut cap.

As *Dendroica palmarum hypochrysea* is merely a straggler in the winter season south of Florida, and as it is practically impossible for any one, even an expert, to distinguish it in the field from true *palmarum* with any degree of certainty, I refer all of Mr. Read's records to *D. palmarum*.

121. **Dendroica discolor** (Vieillot). PRAIRIE WARBLER.

Sylvia discolor POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Dendroica discolor CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 70 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, *ex* Poey).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

"Prairie Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 7 (I. of Pines, November), 113 (West McKinley); XXX, 1913, 131 (I. of Pines, December).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Twenty-two specimens: Los Indios, Nueva Gerona, Bibijagua, and Caleta Grande.

A common winter resident, of which the first specimen was taken on September 26, and the last on April 19, these dates probably including the usual average time of its stay. Mr. Read recorded it in 1915, however, as late as April 28. Only a few of the series secured appear to be adult, brightly colored birds, comparable with those from the southern United States, Porto Rico, etc. The balance seem to be immature; at any rate, they are dull and dark-colored, and many of them show considerable gray on the sides of the head, while the superciliaries also are dull-colored. Some of these birds, too, are so worn as to suggest that they had but recently been breeding, but this is of course exceedingly improbable. The favorite haunts of this species in the Isle of Pines are in tracts of low scrub and brushy places, where it contrives to keep well hidden, dodging about close to the ground.

122. **Dendroica striata** (Forster). BLACK-POLL WARBLER.

"Black-poll Warbler" READ, Oölogist, XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Three specimens: Caleta Cocodrilos and Los Indios.

These were all shot in low brush, on April 24 and May 7 respectively, the latter a later date than is recorded by Gundlach for Cuba. The first ones taken were in very poor condition, and one of these shows a few yellowish feathers below, evidently left over from a previous plumage. Mr. Read has seen birds in the fall migration which he has identified as belonging to the present species.

123. **Dendroica dominica dominica** (Linnæus). YELLOW-THROATED WARBLER.

Sylvia pensilis POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Dendroica dominica CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 69 (I. of Pines).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

Dendroica dominica dominica RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 578 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, March; Poey's record).

"Yellow-throated Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, January).—READ, Oölogist, XXVI, 1909, 58, and XXVIII, 1911, 7 (I. of Pines), 3 (Santa Barbara Mountain, etc.).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) "Sycamore Warbler" READ, Oölogist, XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines, October 20).

Twelve specimens; Los Indios.

A winter resident, fairly common, having been first recorded by Poey many years ago, and later by Messrs. Zappey, Read, and Link. The latter observer did not notice it, however, except in the vicinity of Los Indios, where it was rather numerous from September 19 to December 18. The series secured includes several birds of the year, readily distinguishable by their paler colors and yellowish or brownish wash below, especially on the flanks. Two of these immature birds have rather small bills and practically white superciliaries, and might readily be referred to *D. d. albilora*, while others are intermediate in these respects. All immature specimens of typical *D. dominica* before me have decidedly yellow superciliaries, so that the birds in question look very suspicious, coming as they do from a locality not far remote from the winter home of *D. d. albilora*.

No unquestioned migration dates for this warbler for the Isle of Pines are on record thus far. It is known to leave its summer home very early, however, usually in July, and to pass northward again in March. While in the island it seems to prefer the palms, keeping rather high up.

[**Dendroica fusca** (Müller). BLACKBURNIAN WARBLER.

(?) "Blackburnian Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December 8).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVIII, 1911, 113 (West McKinley); XXX, 1913, 131 (I. of Pines, December 8).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Dendroica blackburniæ* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

In view of the fact that the Blackburnian Warbler is unknown in the West Indies proper, and has occurred but twice as an accidental visitor during migration in the Bahamas, it is scarcely necessary to discuss the reasons for treating Mr. Read's record of a bird *seen* in December as doubtful.

Dendroica cerulea (Wilson). CERULEAN WARBLER.

(?) "Cerulean Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, February).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 113 (West McKinley); XXX, 1913, 131 (I. of Pines, February 11).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Dendroica cærulea* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

This is another species of warbler which habitually avoids the West Indian islands in migration, the few records we have from there falling within the category of accidental occurrences. Mr. Read says that he secured a specimen on February 11, 1909, but as it is not now extant it seems better to leave the record for the present in the doubtful column.]

124. **Dendroica virens** (Gmelin). BLACK-THROATED GREEN WARBLER.

Sylvia virens POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Dendroica virens GUNDLACH, Contr. Orn. Cubana, 1876, 64 (I. of Pines).—CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 62 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 562 (I. of Pines, in geog. distr.).—COOKE, Bull. Biol. Survey, No. 18, 1904, 87 (I. of Pines, *ex* Cory).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, *ex* Poey and Gundlach).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

"Black-throated Green Warbler" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15 (I. of Pines, October); XXVIII, 1911, 114 (West McKinley, October); XXX, 1913, 131 (I. of Pines, October).—READ, I. of Pines News, VI, Feb. 14, 1914, (I. of Pines).

Although there are only a few scattering records for this warbler in the West Indies, its place on the list of Isle of Pines birds is apparently secure. Poey refers to it as having been observed by Gundlach near Nueva Gerona, and Gundlach himself says that his first specimen of the species was taken in the island in January, 1855 (*lege* 1854). This record, which has been quoted by other authors, was apparently the only basis for attributing the present species to the island until recently, when Mr. Read has reported its occurrence at West McKinley

on October 21, 26, and 28, 1909, a specimen having been shot on the last date. His note-book also contains a record of several seen on November 18, 1912.

125. **Dendroica coronata** (Linnæus). MYRTLE WARBLER.

"Myrtle Warbler" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 114 (West McKinley); XXX, 1913, 131 (I. of Pines; migr.).

Dendroica coronata READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

While the above records by Mr. Read may perhaps be open to the same criticism as certain others of his published observations, there can be no question as to the probability of the occurrence of this warbler in the Isle of Pines as a winter resident, since it is well known to be common at that season in the Bahamas and all of the Greater Antilles. Mr. Link, however, did not meet with it during his stay.

126. **Dendroica cærulescens cærulescens** (Gmelin). BLACK-THROATED BLUE WARBLER.

Sylvia cærulescens POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Dendroica cærulescens CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 63 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, March; Poey's and Cory's records).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

Dendroica cærulescens cærulescens RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 541 (I. of Pines, in geog. distr.).

"Black-throated Blue Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, January).—READ, Oölogist, XXVI, 1909, 58, and XXVII, 1910, 15 (I. of Pines, winter); XXVIII, 1911, 7 (I. of Pines; migr.), 113 (West McKinley); XXX, 1913, 130 (I. of Pines, winter).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Four specimens: Caleta Grande, Los Indios, and Nueva Gerona.

Common as a winter resident, frequenting the thicker covert, and usually keeping rather low down. It was found to be particularly numerous on the wooded slopes of the Caballos Mountains, where it was observed as late as the third week in May. No dates for its arrival in the fall migration are available, nor do any such seem to be on record for any of the West Indies thus far. Mr. Link's first specimen was shot November 30. Mr. Read says that while this warbler was very common in his section in December, 1908, none were seen during the winter of 1909–10.

Dendroica tigrina (Gmelin). CAPE MAY WARBLER.

(?) "Cape May Warbler" READ, Oölogist, XXX, 1913, 131 (I. of Pines, March 25, 1911).

This is one of the characteristic, if less common, winter-resident warblers throughout the West Indies, and while its occurrence as such in the Isle of Pines is entirely probable, Mr. Read's identification is unfortunately not susceptible of verification.

Dendroica magnolia (Wilson). MAGNOLIA WARBLER.

(?) "Magnolia Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVIII, 1911, 113 (West McKinley).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Dendroica maculosa READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

In discussing the winter range of the present species Prof. Cooke (*Bulletin Biological Survey*, No. 18, 1904, 66) says that "there is no positive record of the occurrence in either" the Bahamas or Cuba. It is thus probable that Mr. Read, who claims to have observed "a few" on December 12, 1908, was mistaken in his identification.

127. **Dendroica petechia gundlachi** Baird. CUBAN YELLOW WARBLER.

Sylvia petechia (not of Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Dendroica petechia gundlachi CORY, Cat. W. Indian Birds, 1892, 118 (I. of Pines, in geog. distr.).—READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, VI, Apr. 25, 1914 (Pine River).

Chrysocantor petechia gundlachi BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, *ex* Poey and Cory).

"Mangrove Warbler" READ, Oölogist, XXX, 1913, 130 (I. of Pines), 168 (Los Indios).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Eight specimens: Los Indios, Bird Island, Majagua River, and Siguanea.

These prove upon comparison to be fairly distinct from specimens from the Bahama Islands (*D. p. flaviceps*) and Porto Rico (*D. p. cruciana*), being much darker and more greenish than either. Several younger females, with white and gray feathers intermixed, are included.

This is a bird of the mangroves, to which it is apparently exclusively confined. It is accordingly most numerous along the coast and about the islands of Siguanea Bay, where the mangroves are so constant and pronounced a feature. Mr. Read has observed it along the Pine River also, but it is apparently a rare bird in the northern part of the island, judging from the dearth of records, and, indeed, it cannot be called a common bird at any locality as yet visited. Two nests were found, both in mangroves within a few feet of the water, during the third week in April, but as yet without eggs.

128. **Compsothlypis americana usneæ** Brewster. NORTHERN PARULA WARBLER.

Sylvia americana (not *Parus americanus* Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (I. of Pines, *fide* Gundlach).

Compsothlypis americana CORY, Cat. W. Indian Birds, 1892, 117 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 210 (I. of Pines, March; Poey's record).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

Parula americana GUNDLACH, Orn. Cubana, 1895, 57 (I. of Pines).

"Parula Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, January).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 5 (Nuevas River), 15, and XXVIII, 1911, 7 (I. of Pines; migr.), 113 (West McKinley, winter); XXX, 1913, 130, 131 (I. of Pines).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

Five specimens: Los Indios.

This dainty warbler was noted several times by Mr. Link at Los Indios from September 25 to November 20, but was not encountered elsewhere. From other available sources we learn, however, that it is a regular winter resident in the island, as elsewhere in the West Indies. It has been so recorded by Mr. Read, and was noted in March, 1902, by Mr. Zappey, but how much later in the season it remains is an undetermined question. The specimens brought back appear referable to the present form, but the colors both above and below are overlaid with paler feather-tips.

Vermivora bachmani (Audubon). BACHMAN WARBLER.

(?) "Bachman Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, February 6).—READ, Oölogist, XXVI, 1909, 58, and XXX, 1913, 131 (I. of Pines); XXVIII, 1911, 113 (West McKinley).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Helminthophila bachmanii* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

This rare warbler is known to winter in Cuba, and may extend its migration to the Isle of Pines as well. Mr. Read says that he took a specimen on February 6, 1909, but as the example in question is unfortunately not now in existence, and a mistake might very readily be made in a case like this, it would seem best to keep the species in the hypothetical list for the present.

Vermivora peregrina (Wilson). TENNESSEE WARBLER.

(?) "Tennessee Warbler" READ, Oölogist, XXVI, 1909, 224 (I. of Pines); XXVII, 1910, 15, and XXVIII, 1911, 7 (I. of Pines; migr.), 114 (West McKinley); XXX, 1913, 131 (I. of Pines; migr.).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Helminthophila peregrina* READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).

This is another species the occurrence of which in the Isle of Pines is problematical, since it is merely casual or accidental as a migrant in the West Indies. Mr. Read writes that he secured a specimen, but as it is not now extant to authenticate his record, it is, I think, inadmissible under the circumstances.

Protonotaria citrea (Boddaert). PROTHONOTARY WARBLER.

(?) "Prothonotary Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, January 25).—READ, Oölogist, XXVI, 1909, 58, and XXX, 1913, 131 (I. of Pines); XXVIII, 1911, 113 (West McKinley).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

(?) *Protonotaria citrea* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

This species is entered on Mr. Read's list on the strength of a single example (which he writes me was secured, but not preserved) recorded under date of January 25, 1909. There must be some mistake here, since this warbler is well known to avoid the West Indies during migration, and in any case the date of the supposed occurrence would argue against the correctness of the identification, since the species is not known to winter north of Nicaragua.

Helmitheros vermivorus (Gmelin). WORM-EATING WARBLER.

(?) "Worm-eating Warbler" READ, Oölogist, XXVIII, 1911, 13, and XXX, 1913, 131 (I. of Pines).—READ, I. of Pines News, VI, Feb. 14, 1914 (I. of Pines).

The Worm-eating Warbler is said to be a regular winter resident in Cuba, so that there is no intrinsic reason why it should not occur in the Isle of Pines also. The above records apparently all refer to an individual which Mr. Read reports that he shot on January 9, 1910, the specimen being subsequently lost.

129. **Mniotilta varia** (Linnæus). BLACK AND WHITE WARBLER.

Mniotilta varia POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 117 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 57 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 209 (I. of Pines, March; Poey's record).—READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).

'Black and White Warbler" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines, December).—READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 15 (I. of Pines; migr.); XXVIII, 1911, 7 (I. of Pines, October), 113 (West McKinley); XXX, 1913, 127 (Santa Barbara), 131 (I. of Pines, winter).

Two specimens: Los Indios and Nueva Gerona.

This warbler occurs as a regular winter resident, is generally distributed, but apparently not very common. The earliest record for its arrival in the fall migration is August 23 (1909), according to Mr. Read, but doubtless the bulk arrive later, probably in October. Mr. Link's latest spring date for this species was May 5. During its stay it is apt to occur almost anywhere in the woodland, and was found in the mangroves on at least one occasion.

130. **Dolichonyx oryzivorus** (Linnæus). BOBOLINK.

Dolichonyx oryzivorus CORY, Cat. W. Indian Birds, 1892, 110 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 117 (I. of Pines).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 213 (I. of Pines, *ex* Cory and Gundlach).

"Boḅolink" READ, Oölogist, XXVIII, 1911, 7, 13, and XXX, 1913, 131 (I. of Pines; migr.).

An abundant migrant throughout the West Indies, although actually recorded from the Isle of Pines on but a few occasions. Gundlach casually refers to its occurrence there, and it is included in Mr. Cory's list as found in the island, doubtless on the authority of Gundlach. Mr. Read says that he observed a flock of twenty birds on May 9, 1910, which were gone by the next day, and a few also in the fall migration, on September 24 of the same year.

131. **Sturnella magna hippocrepis** (Wagler). CUBAN MEADOWLARK.

Sturnella hippocrepis POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).—CORY, Cat. W. Indian Birds, 1892, 110 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 121 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 368 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 212 (Santa Fé, Jucaro, and Cayo Bonito; crit.).—READ, Oölogist, XXVI, 1909, 102 (syn.); XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

"Meadowlark" READ, Oölogist, XXVI, 1909, 58 (I. of Pines); XXVII, 1910, 84 (McKinley to Nueva Gerona); XXX, 1913, 122 (McKinley; habits).

"Cuban Meadowlark" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 42 (I. of Pines; nesting); XXVIII, 1911, 3 (McKinley), 6, 11 (Nuevas River), 7 (Cañada Mountains, etc.), 113 (West McKinley); XXX, 1913, 123 (McKinley and Nuevas River), 125, 127 (Santa Barbara), 130 (I. of Pines), 168 (Los Indios).

Seventeen specimens: Bibijagua and Los Indios.

Mr. Chapman (*Bulletin American Museum of Natural History*, IV, 1892, 305) contends that *hippocrepis* is more closely allied to *neglecta* than to any other form of the genus, and Mr. Ridgway has so far indorsed this view as to accord the former specific rank. I confess that after a study of this fine series in connection with ample and comparable material from other sections I fail to find the slightest justification for such an arrangement. As a matter of fact, *hippocrepis* is so close to its nearest geographical representative, *argutula* of southern Florida (as later admitted by Mr. Chapman himself—*cf. Bulletin American Museum of Natural History*, XIII, 1900, 300) that it is often difficult properly to assign a given specimen by virtue of its

characters alone. The yellow of the throat in *hippocrepis* does not invade the malar region to any more appreciable extent than is shown by Florida birds, although it is apparently on this character that Mr. Ridgway has mainly relied to place it near *neglecta*. Specimens in full plumage are quite as dark as Florida birds, but differ in averaging smaller, with the under parts more conspicuously streaked. The present form should stand, therefore, as an insular race of *S. magna*.

A characteristic bird of the open country in the Isle of Pines, frequenting the pastures, fields, and edges of the pine-woods, wherever there is a growth of low grasses or herbage, and the ground is dry. It is generally distributed in such situations over the entire northern part of the island, but is absent from the Cienaga and the country to the southward, where the conditions are unsuitable. During the breeding-season, or from March to June inclusive, it is seen in pairs, after which the young and old associate in family groups. Young in juvenal dress were taken at Bibijagua on July 5 and 10. Its notes are decidedly weaker than those of the northern Meadowlark, and it is a much tamer bird.

132. **Agelaius assimilis** Lembeye. CUBAN RED-WING.

Agelaius assimilis CORY, Cat. W. Indian Birds, 1892, 127 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 120 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 342 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 212 (Cienaga; habits; plum.; crit.).—SHARPE, Hand-List Birds, V, 1909, 493 (I. of Pines, in geog. distr.).—READ, Oölogist, XXX, 1913, 131 (I. of Pines).

Agelaius subniger BANGS, Proc. New England Zoöl. Club, IV, 1913, 92 (Cienaga; orig. descr.; type in coll. Mus. Comp. Zoöl.; meas.; crit.).—STONE, Auk, XXX, 1913, 453, in text (review).

"Cuban [Red]-wing" READ, Oölogist, XXX, 1913, 130 (Santa Barbara).

Fourteen specimens: Siguanea and Pasadita.

In addition to the present series of this rare species, I have been able to examine in this connection the specimens from Cuba and the Isle of Pines handled by Mr. Bangs, and upon the strength of which he separated the bird from the latter island under the name *Agelaius subniger*. Upon the status of this alleged form this new material throws considerable light. Taking up the males first, it appears that they naturally fall into two series, unquestionably representing different ages. The fully adult males are deep glossy black above and below, with the lesser wing-coverts crimson, and the greater wing-coverts buffy, as in *A. phœniceus*. In first nuptial dress, however,

the general coloration is much duller and browner, and the red area on the wing-coverts is also duller and much mixed with black, which in some cases spreads over all of these feathers except the innermost. All but one of the male specimens from the Isle of Pines in the Bangs Collection, as it turns out, are clearly in this immature stage, and the exception (No. 13,366) is *probably* immature also, having some black on the wing-coverts, and being considerably worn, like the others. On the other hand, the Cuban males are all fully adult birds, in nowise different, so far as color is concerned, from adults from the Isle of Pines, with which they have been directly and carefully compared. The culmen is slightly flatter, it is true, in the Cuban specimens, but I believe that even this difference would disappear in a large series; at any rate, it is certainly too trifling a difference upon which to base the recognition of even a subspecies.

The type of *A. subniger* is a female, and is obviously browner than Cuban females, but I am by no means sure that this is not the result of wear and fading, since I cannot discern any such striking difference between the latter and the series of Isle of Pines females collected by Mr. Link. This being the case, there would seem to be but one course open: to treat *A. subniger* as a pure synonym of *A. assimilis*, since it is clear that Mr. Bangs was misled by the circumstance of having only immature examples of the bird for comparison.

This species has a very restricted range, being known only from the Zapata Swamp in Cuba and the Cienaga in the Isle of Pines. Mr. Zappey's specimens were all shot in the eastern end of the Cienaga, probably not far from Pasadita, in April, 1904. At this season all the birds of this species from that vicinity were gathered into one flock, which kept to some large trees at the edge of the swamp. From the fact that the testes of the males were not enlarged, nor any very young birds seen, he inferred that the breeding-season was not near at hand nor recently over. As above noted, the examples he secured were all (with one possible exception) immature, in first nuptial plumage, and their development may not have been so rapid. At any rate, the birds which Mr. Link found at Pasadita a month later in the season, or during the latter part of May, were apparently all breeding at the time, being always found in pairs. One nest was discovered, built in the high grass at the edge of the swamp, about a foot above the water. It was constructed of grasses and fastened to the surrounding stems after the fashion of the Red-winged Blackbird of the north;

the eggs had not yet been laid. The species could not be called common, and the pairs were scattered. It was noted also in the Cienaga at Siguanea in small numbers in October and April, and one specimen was secured. Mr. Read claims to have observed it in the Santa Barbara tract in September, and it is reported from the island by Cory and Gundlach. Its notes "resemble those of the common Red-wing (*Agelaius phœniceus*), but are lower and more wheezy, sounding, when a number are calling together, much like the chirping of insects" (Bangs & Zappey).

133. **Icterus hypomelas** (Bonaparte). CUBAN ORIOLE.

Xantornus dominiscensis (not *Oriolus dominicensis* Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Icterus hypomelas CORY, Cat. W. Indian Birds, 1892, 110 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat. XXXIX, 1905, 211 (Jucaro, El Hospital, Cayo Bonito, and Santa Fé; habits; crit.).—READ, Oölogist, XXVI, 1909, 102 (I. of Pines), 148 (I. of Pines; habits); XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).—READ, I. of Pines News, VI, Dec. 13, 1913 (descr.; habits).

"Cuban Oriole" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 84 (McKinley to Nueva Gerona); XXVIII, 1911, 3 (McKinley), 5 (Santa Barbara Mountain, etc.), 6, 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (McKinley), 125, 130 (Santa Barbara).

Twenty-four specimens: Nueva Gerona, Bibijagua, and Los Indios.

As described by Mr. Ridgway (*Birds of North and Middle America*, II, 1902, 271), male birds in first nuptial plumage average brighter, and with more black on the head, throat, and posterior under parts than females at this stage. In juvenal dress both sexes are like the second-year female, but are still duller and browner, the black of the head scarcely or not indicated. Examples shot June 26 and July 6 are in this stage; some of those at the latter date, however, show postjuvenal moult. Adult males average more yellow on the crissum than adult females. Messrs. Bangs and Zappey remark that "in birds from the Isle of Pines the yellow color of [the] rump, thighs, and wing-coverts is a little paler than in Cuban examples, as is also the brownish yellow of [the] under tail-coverts and anal region, with less of this color and rather more black than in Cuban specimens; but these differences are not very tangible and the Isle of Pines bird is not different enough to be formally separated as a subspecies."

A very common and generally distributed species, inhabiting the thick woods as well as the palm and citrus-fruit groves, and often coming familiarly to the vicinity of houses, to feed in the gardens and among the vines. Several nests were found near Nueva Gerona, all in the tops of palm trees, attached to the under side of the broad leaves. This was during the first and second weeks in June. Young birds were on the wing the latter part of June, accompanied by their parents, and such family groups appeared to hold together until the following breeding-season. "The oriole feeds a good deal among the flowers of various shrubs and trees, and its head is often daubed with juice and pollen from these." (Bangs & Zappey).

134. **Ptiloxena atroviolacea** (D'Orbigny). D'ORBIGNY BLACKBIRD.

Quiscalus atro-violaceus POEY, Mem. Hist. Nat. Cuba, 1854, 427 (Nueva Gerona, *fide* Gundlach).

Dives atroviolaceus CORY, Cat. W. Indian Birds, 1892, 111 (I. of Pines, in geog. distr.).—GUNDLACH, Orn. Cubana, 1895, 123 (I. of Pines).

Ptiloxena atroviolacea RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 252 (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat. XXXIX, 1905, 211 (I. of Pines, *ex* Poey and Gundlach).—SHARPE, Hand-List Birds, V, 1909, 507 (I. of Pines, in geog. distr.).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines); XXVII, 1910, 5 (Nuevas River); XXVIII, 1911, 12 (I. of Pines), 114 (West McKinley); XXX, 1913, 131 (I. of Pines).

(?) "Rusty Blackbird?" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).—READ, Oölogist, XXVI, 1909, 58, and XXVIII, 1911, 12 (I. of Pines), 113 (West McKinley).

This is said to be a common species in Cuba, but it must be much less numerous in the Isle of Pines, since, while given by Gundlach as a native of the island, it was not encountered there by either Mr. Zappey or Mr. Link, although Mr. Read claims to have observed it on sundry occasions. He writes that the "Rusty Blackbird" of his earlier articles was probably this species.

135. **Holoquiscalus caymanensis dispar** subsp. nov. ISLE OF PINES GRACKLE.

Quiscalus barytus (not *Gracula barita* Linnæus) POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Quiscalus gundlachii (not of Cassin) GUNDLACH, Orn. Cubana, 1895, 124, part (I. of Pines).

Holoquiscalus gundlachii RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 226, part (I. of Pines, in geog. distr.).—BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 211 (Santa Fé; habits; meas.; crit.).—SHARPE, Hand-List Birds, V, 1909, 509,

ERRATUM.

Page 276, line 32, for **Holoquiscalus caymanensis dispar** read **Holoquiscalus caymanensis caribæus,** the name *dispar* having already been applied to another member of this genus. The same correction is to be made on page 159, line 17; page 277, line 31, and page 280, line 15.

part (I. of Pines, in geog. distr.).—READ, Oölogist, XXVI, 1909, 190 (I. of Pines); XXVIII, 1910, 15 (syn.); XXVIII, 1911, 12 (I. of Pines).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara). —READ, I. of Pines News, V, Nov. 15, 1913 (descr.; habits).

"Grackle" READ, Oölogist, XXVI, 1909, 58, and XXVIII, 1911, 13 (I. of Pines).

"Florida Grackle" (error!) READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines).

Quiscalus quiscula aglæus (not of Baird) READ, Oölogist, XXVI, 1909, 101 (I. of Pines; habits).

"Cuban Grackle" READ, Oölogist, XXVII, 1910, 5 (Nuevas River), 42 (I. of Pines; nesting), 84 (McKinley to Nueva Gerona), XXVIII, 1911, 3 (McKinley), 6, 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (McKinley and Nuevas River), 125, 127, 130 (Santa Barbara), 168 (Los Indios).

Twenty-five specimens: Bibijagua, Los Indios, and Nueva Gerona.

Type, No. 41,199, Collection Carnegie Museum, adult male; Nueva Gerona, Isle of Pines, February 28, 1913; Gustav A. Link.

Subspecific characters.—Similar in general to *Holoquiscalus caymanensis caymanensis* (Cory), but of larger size, and the gloss of the plumage in the adult male almost entirely steel-blue, without any purplish tinge.

In the following table of measurements of this and allied forms only adult males have been included.

Holoquiscalus caymanensis caymanensis:

No.	Locality.	Wing.	Tail.	Bill.
111185[19]	Grand Cayman	135	113	30
30019[20]	Grand Cayman	134	112	30
30015[20]	Grand Cayman	135	114	30
30034[20]	Grand Cayman	138	117	29
30055[20]	Grand Cayman	135	119	28
30045[20]	Grand Cayman	133	112	31

Holoquiscalus caymanensis dispar:

39859[21]	Los Indios, I. of Pines	145	128	32
39893[21]	Los Indios, I. of Pines	138	118	31.5
41199[21]	Nueva Gerona, I. of Pines	143	123	33
41237[21]	Los Indios, I. of Pines	141	120	32.5
41250[21]	Los Indios, I. of Pines	140	119	33
41328[21]	Los Indios, I. of Pines	140	120	33
171414[19]	El Guama, Cuba	139	115	31
171415[19]	El Guama, Cuba	140	124	31.5
171417[19]	El Guama, Cuba	146	121	34
171418[19]	El Guama, Cuba	140	119	33
171419[19]	El Guama, Cuba	140	121	31.5

Holoquiscalus jamaicensis gundlachii:

1262[22]	San Carlos (Estate), Guantánamo, Cuba	149	129	35
1273[22]	San Carlos (Estate), Guantánamo, Cuba	152	127	35
1369[22]	San Carlos (Estate), Guantánamo, Cuba	152	126	35
57248[23]	Trinidad, Cuba	152	132	33
57249[23]	Trinidad, Cuba	150	129	32
57250[23]	Trinidad, Cuba	152	129	34
57252[23]	Trinidad, Cuba	156	130	33
57253[23]	Trinidad, Cuba	150	126	32
57255[23]	Trinidad, Cuba	150	127	31
57256[23]	Trinidad, Cuba	142	118	35
57257[23]	Trinidad, Cuba	151	132	34
172648[19]	Guanaja, Cuba	149	128	34
177832[19]	Baracoa, Cuba	154	123	35

The Isle of Pines *Holoquiscalus*, as represented by the above fine series, was naturally at first referred to the recognized Cuban species, *H. gundlachii*, but the remarks of Messrs. Bangs and Zappey with reference to the variation which obtains in that form led me to look into the matter a little further, with wholly unlooked-for results. In the course of this investigation it became necessary to examine all of the Greater Antillean forms of this genus, which the latest reviser of the group (Ridgway, *Birds of North and Middle America*, II, 1902, 222 *et seq.*) treats as distinct species, apparently on the ground that as insular forms they cannot be expected to intergrade. I have always felt doubt as to the propriety of such an arrangement, and the acquisition of a series of grackles from Porto Rico and the Isle of Pines has been made the occasion for a renewed study of this group, the conclusions from which I present herewith. This study has been made possible only through the loan of a considerable number of specimens from other sources, as elsewhere indicated.

Comparison of the series of adult males from the Isle of Pines with a similar series from Trinidad, on the south coast of Cuba, shows at once that the two series represent entirely distinct forms, differing not only in size (except for the bill), but also in color. In the Isle of Pines specimens the gloss is a dark steel-blue, very pronounced both

[19] Collection U. S. National Museum.
[20] Collection Field Museum of Natural History.
[21] Collection Carnegie Museum.
[22] Collection Charles T. Ramsden.
[23] Collection American Museum of Natural History.

above and below, while in the Trinidad skins it is decidedly purplish or violaceous. These color-differences are very conspicuous when a series of adults are compared, while measurements show that the Isle of Pines birds are constantly smaller. Moreover, specimens from Baracoa, at the eastern extremity of Cuba, and from Guanaja, on the north coast, prove to be the same as the Trinidad birds, while skins from El Guama, in the Province of Pinar del Rio, on the other hand, cannot be distinguished (allowing for their somewhat different condition) from those from the Isle of Pines. It is evident, therefore, that as distinctions go in this genus two different species inhabit the island of Cuba, one the eastern and middle, the other the western portion. The differences here pointed out, while perfectly obvious and constant, seem to have escaped the notice of previous writers on this group, or at least to have been discounted as having any geographical significance. While Messrs. Bangs and Zappey, it is true, speak of the great variation among Cuban birds, they seem not to have suspected that this variation was correlated with locality. The question of names for the two forms naturally comes up for determination at this point. Fortunately, the type of Cassin's *Quiscalus gundlachii* is still extant in the museum of the Academy of Natural Sciences of Philadelphia, and Mr. Witmer Stone has very courteously at my request compared it with material which I forwarded for the purpose. He reports that the type-specimen agrees precisely with the purplish bird. This fixes the name *gundlachii* on the form from eastern Cuba, and leaves that from western Cuba and the Isle of Pines to be provided with a new name, which I here supply. Different as it is from *gundlachii*, it is so closely related to the Grand Cayman form that it is best considered as conspecific. Besides averaging considerably larger than *caymanensis*, it is somewhat different in color, the plumage lacking almost entirely the purplish sheen which is present in that form, although by no means conspicuous. While these differences are, it is true, more or less bridged over by individual variation in both forms, the average difference between the respective series is in my judgment sufficient to entitle the bird of western Cuba and the Isle of Pines to recognition by name.

The form from Grand Cayman is not only decidedly smaller than the forms from eastern Cuba and Jamaica respectively, but also has very little of the purplish gloss of the plumage, so pronounced and characteristic a feature in those forms. The latter agree with each

other so well in their general characters that I propose to unite them as conspecific. Indeed, all the Greater Antillean forms are so closely related that they might be regarded as conspecific without doing violence to the facts in the case, so far as can be judged from the examination of specimens. Whether their habits differ in any essential manner I do not know. The Haitian and Porto Rican forms, too, have so many characters in common that in my judgment they should stand as subspecies of a third specific type. According to my views, arrived at after a careful study and comparison of a series of all the various forms involved, these should stand as follows, the diagnostic characters being based on the adult males alone.

a. Body-plumage strongly glossed with dark steel-blue, with little or no violaceous shade.

b. Larger; steel-blue gloss more pronounced. (Western Cuba and Isle of Pines) ..... *Holoquiscalus caymanensis dispar.*

bb. Smaller; gloss of plumage with a slight violaceous shade. (Grand Cayman) ..... *Holoquiscalus caymanensis caymanensis.*

aa. Body-plumage strongly glossed with violaceous.

c. Violaceous gloss more intense; bill relatively longer and slenderer. (Eastern Cuba) ..... *Holoquiscalus jamaicensis gundlachii.*

cc. Violaceous gloss less intense; bill relatively shorter and stouter. (Jamaica) *Holoquiscalus jamaicensis jamaicensis.*

aaa. Body-plumage glossed with dark purplish black, especially posteriorly.

d. Bill wider, relatively longer, with the tip less strongly decurved. (Haiti) *Holoquiscalus niger niger.*

dd. Bill more compressed, relatively shorter, with the tip more strongly decurved. (Porto Rico) ..... *Holoquiscalus niger brachypterus.*

The above seems to me a more logical arrangement than that at present in vogue, but in any case, should one or more of these six forms be held to be of specific value, a due regard for consistency would require all to be so treated. The various forms from the Lesser Antilles would also seem to require revision along the same lines, but I have no occasion to discuss this matter further in the present connection.

The males of the lot from the Isle of Pines are divided readily into two series when regard is had to the amount of glossiness of the general plumage. The less glossy birds closely resemble the fully adult females in color, but are of course larger. These I take to be birds in first nuptial plumage. The females also differ among themselves in a corresponding manner. Most of the specimens from western Cuba which I have seen chance to be in this immature dress; they thus

naturally differ more from eastern Cuban birds than do adults. The Bibijagua specimens, shot July 9 and 10, are in juvenal plumage, while adults, taken October 13 and 14, are just completing the postnuptial moult. The iris is marked as " straw-color " in the male, not brown, as given by Mr. Ridgway for *gundlachii*.

The Grackle is an abundant resident species, traveling in flocks, except in the breeding-season. It is found throughout the island, in the more remote districts as well as in the cultivated sections, frequenting the open country, the vicinity of streams, etc. It has a bad reputation for destroying rice, but is a useful species nevertheless. It follows the plow as does the Crow Blackbird in the north, which species it otherwise resembles in notes and general habits. According to Mr. Read and Mr. Zappey it is wont to alight on the backs of horses and cattle to pick off the ticks with thich they are often infested. " The male, owing to the vertically placed feathers in the tail, presents a curious appearance when on the wing." A number of nests in process of construction were found in the Cienaga near Siguanea the last week in April; in every case they were situated in the mangroves, only a few feet above the water, and were built of dry sticks and stems of weeds, lined with fine rootlets. Gundlach says that in Cuba they nest in the palm-trees, sometimes several together, and Mr. Read speaks of having found a nest forty feet up in a " jucaro " tree. The eggs are four or five in number, and are colored like those of the Crow Blackbird.

136. **Spindalis pretrei** (Lesson). CUBAN SPINDALIS.

Tanagra pretrei POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Spindalis pretrei CORY, Cat. W. Indian Birds, 1892, 114 (I. of Pines, in geog. distr.). —GUNDLACH, Orn. Cubana, 1895, 77 (I. of Pines).—RIDGWAY, Bull. U. S. Nat. Mus., No. 50, II, 1902, 68 (I. of Pines; meas.; crit.).—READ, Oölogist, XXVI, 1909, 189, 190 (I. of Pines; descr.; habits); XXVIII, 1911, 12 (I. of Pines).

Spindalis pretrei pinus BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 213 (Santa Fé, Jucaro, Cayo Bonito, Pasadita, and San Juan; orig. descr.; type now in coll. Mus. Comp. Zoöl.; meas.; crit.; habits).—ALLEN, Auk, XXII, 1905, 329, in text (review).—EDITORS, Ibis, 1905, 631, in text (review).—SHARPE, Hand-List Birds, V, 1909, 380 (ref. orig. descr.; I. of Pines, in geog. distr.).—READ, Oölogist, XXVII, 1910, 15 (syn.).—READ, Bird-Lore, XV, 1913, 45 (Santa Barbara).—READ, I. of Pines News, VI, Dec. 6, 1913 (descr.; habits).

"Isle of Pines Tanager" READ, Oölogist, XXVIII, 1911, 5 (Santa Barbara Mountain, etc.), 11 (Nuevas River), 114 (West McKinley); XXX, 1913, 125 (Santa Barbara), 131 (I. of Pines).

Ten specimens: Los Indios, Siguanea, Caleta Grande, and Bibijagua.

After having compared the above with a series from eastern Cuba, kindly placed at my disposal by Mr. Charles T. Ramsden, I find myself unable to admit the alleged subspecies *pinus* to recognition. True, the Isle of Pines birds average a little larger, as shown by Mr. Ridgway and by Messrs. Bangs and Zappey, but the difference is certainly slight, the measurements overlapping, and does not in my judgment justify formal separation. Moreover, as regards color, when specimens taken at the same season are compared absolutely no differences between the two series are observable. Messrs. Bangs and Zappey, in their original description, admit that their Cuban specimens (in the case of females at least) were not comparable as to season with those from the Isle of Pines, and it seems as if this circumstance might readily account for the differences to which they call attention. Mr. Ridgway says that he cannot distinguish specimens from the Isle of Pines from those from western Cuba.

The seasonal variations in color in this species are well marked. Males taken in November are more deeply colored than those shot in April and May. A young bird dated September 26 is completing the postjuvenal moult, which apparently involves the rectrices.

The Cuban Spindalis is a tolerably common resident species in the Isle of Pines, both throughout the northern part and the portion south of the Cienaga. During the breeding-season it is usually seen in pairs, feeding among the buds and blossoms, particularly of *Jatropha glaucovirens*, in company with the two species of hummingbirds and the Cuban Bullfinch. At other seasons it may be found in small parties in the jungles. According to Messrs. Read and Link it is an unusually silent bird, and likely to be overlooked were it not for the conspicuous colors of the male, but Mr. Zappey says that both sexes sing at times, the song being a low, weak warble. We have so far no information concerning the breeding habits of this species in the Isle of Pines.

137. **Passerina cyanea** (Linnæus). INDIGO BUNTING.

"Indigo Bunting" READ, Forest and Stream, LXXIII, 1909, 452 (I. of Pines April 20).—READ, Oölogist, XXVI, 1909, 75 (I. of Pines); XXVIII, 1911, 7 (I. of Pines, October 20 [18], 113 (West McKinley); XXX, 1913, 131 (I. of Pines). *Cyanospiza cyanea* READ, Oölogist, XXVIII, 1911, 12 (I. of Pines).

A not uncommon species in Cuba in the winter, according to Gundlach, and recorded from the Isle of Pines on a few occasions by Mr. Read, who has noted it as early in the fall as October 18, and as late in the spring as April 20, these dates corresponding fairly well with

what is known of its migration in neighboring regions. Mr. Link saw a single individual at Caleta Grande, on the "south coast," about April 19.

138. **Melopyrrha nigra** (Linnæus). CUBAN BULLFINCH.

Melopyrrha nigra BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 215 (Punta del Este). "Cuban Bullfinch" READ, Oölogist, XXX, 1913, 130 (I. of Pines, *fide* G. A. Link).

Eight specimens: Caleta Grande and Hato.

All but two of these are adult males, not one of which shows any intermixture of black on the primary-coverts, such as is said to differentiate *M. nigra* on the one hand from *M. taylori* on the other. A series of Cuban specimens, which I have been able to examine in this connection, are absolutely indistinguishable from the Isle of Pines specimens. It is evident, therefore, that Mr. Ridgway's use of this particular character in his diagnosis of the two forms in question (*Birds of North and Middle America*, I, 1901, 562) must have been based on immature birds, for it is certainly quite misleading.

A female in juvenal plumage, dated April 22, is duller than the adult, and the feathers of the back, wings, and posterior under surface are edged and tipped with rufescent brown.

This species was only encountered on the "south coast," where it was not common. Most of the specimens were shot in the low shrubby thickets, feeding among the blossoms of *Jatropha glaucovirens*. It "appears to be restricted in the Isle of Pines to the dry, brushy country south of the Cienaga and even there is not at all common." Mr. Zappey's only specimen was taken at Punta del Este.

139. **Tiaris olivacea olivacea** (Linnæus). YELLOW-FACED GRASSQUIT.

Tiaris olivacea olivacea BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 214 (Santa Fé and Cayo Bonito; meas.; crit.; habits).—READ, Bird-Lore, XIII, 1911, 44 (McKinley); XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

Tiaris olivacea READ, Oölogist, XXVI, 1909, 190 (I. of Pines; descr.; habits); XXVIII, 1911, 12 (I. of Pines).

"Yellow-faced Grassquit" READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 45 (Santa Barbara Mountain, etc.), 6, 11 (Nuevas River), 113 (West McKinley); XXX, 1913, 123 (Pine River), 125, 127 (Santa Barbara), 130 (I. of Pines).

Twenty-six specimens: Bibijagua, Los Indios, Nueva Gerona, and Caleta Grande.

This series shows considerable variation as regards the size of the

black pectoral area in the male, depending possibly upon age, as well as a variation in the exact shade of the upper parts. In the female there is even more variation in the first mentioned respect, some individuals having the black area well marked, while in others there is no trace of it; in the case of the latter, which I take to be younger birds, the yellow of the throat and superciliaries is also duller and more restricted. A female in juvenal dress, taken July 11, is dull grayish olive above, and paler below; the superciliaries and chin-spot indicated in dull buffy; the remiges and rectrices are edged with greenish as in the adult bird, but the color is duller.

The type-locality of this form is Santo Domingo, and according to Mr. Ridgway (*Birds of North and Middle America*, I, 1901, 531) birds from this island differ in certain minor respects from Cuban specimens, and Messrs. Bangs and Zappey confirm this with reference to Isle of Pines examples also. But the differences are very slight, and I agree with these authors in considering them as unworthy of recognition by name.

The Yellow-faced Grassquit is a very common bird, possibly the most abundant bird in the island. It occurs in large scattered flocks during most of the year, frequenting the bushy pastures, citrus-groves, pineapple-fields, etc. In fact it is found almost everywhere, except in the jungles and swamps. In its habits it recalls the Junco of the north, spending most of its time on the ground, and flying up into the trees when disturbed. It feeds on the seeds of various grasses and weeds, and according to Mr. Read occasionally on grasshoppers and crickets. As early as February the flocks break up into pairs, and nesting begins in March. The nests are built low down in a bush or shrub, not necessarily in secluded places, however, as the birds often select the vicinity of houses for this purpose, like the Chipping Sparrow in the north. The nest is a globular affair constructed of dry grasses and other vegetable fibers, with an entrance on one side. Four or five eggs are the usual complement; they are pale blue in color, with small brownish and blackish spots on the larger end.

140. **Tiaris canora** (Gmelin). MELODIOUS GRASSQUIT.

Passerina collaris POEY, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona, *fide* Gundlach).

Euetheia canora CORY, Cat. W. Indian Birds, 1892, 113 (I. of Pines, in geog. distr.). —RIDGWAY, Bull. U. S. Nat. Mus., No. 50, I, 1901, 536 (Cory's record).

Tiaris canora BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 215 (I. of Pines?, *ex* Poey and Cory).—READ, Bird-Lore, XV, 1913, 45, and XVI, 1914, 50 (Santa Barbara).

"Melodious Grassquit" READ, Oölogist, XXVII, 1910, 84 (McKinley to Nueva Gerona); XXVIII, 1911, 13, and XXX, 1913, 131 (I. of Pines), 123 (McKinley), 125 (Santa Barbara).

A species peculiar to Cuba, and which has been attributed to the Isle of Pines by Poey, on the authority of Gundlach, who, however, says nothing about such an occurrence himself. This appears to be the sole basis for its inclusion in Mr. Cory's list, to which Mr. Ridgway refers. Messrs. Bangs and Zappey, however, "consider this a very doubtful record, probably due to confusion of names," for the reason that Poey does not include the common Yellow-faced Grassquit in his list, while the present species was not detected either by Mr. Zappey or by Messrs. Palmer and Riley. Mr. Read writes that he has identified this species on a few occasions in the "West Coast" section, and has taken specimens. It was noted in small flocks, and he considers it a rare bird.

141. **Ammodramus savannarum australis** Maynard. GRASSHOPPER SPARROW.

Coturniculus savannarum passerinus (not *Fringilla passerina* Bechstein) BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 215 (I. of Pines, March).

Ammodramus savannarum (not *Fringilla savannarum* Gmelin) READ, Oölogist, XXVIII, 1911, 13 (I. of Pines).

"Grasshopper Sparrow" READ, Oölogist, XXX, 1913, 131 (I. of Pines, December).

Ammodramus savannarum australis READ, Bird-Lore, XVI, 1914, 50 (Santa Barbara).

Two specimens: Los Indios.

These were both shot in an open pasture, on October 25 and November 21 respectively, and were the only individuals seen on the entire trip. They are precisely similar to winter specimens from Florida, and evidently represent a normal extension of the winter range of the present form. It is of course possible that there may be a resident form of *Ammodramus savannarum* in the Isle of Pines, as in several of the other West Indian islands.

142. **Passerculus sandwichensis savanna** (Wilson). SAVANNAH SPARROW.

Passerculus sandwichensis savanna BANGS & ZAPPEY, Am. Nat., XXXIX, 1905, 215 (I. of Pines, March).

This is only a winter resident, but is apparently not common, Mr. Zappey being the only observer who has been so fortunate as to

meet with it. Specimens were taken by him in March, 1902, but it was not encountered during his second trip. The Isle of Pines seems to be about the southern limit of the winter range of the species.

BIBLIOGRAPHY.

The following chronological list of titles embraces all in which there have been found any references, however trivial, to the birds of the Isle of Pines. The list is believed to be practically complete, and includes not only original references, but also papers containing allusions to or quotations from such sources. More than half of the titles are credited to Mr. Arthur C. Read, some of whose articles appeared in a local newspaper, a file of which is unobtainable, and most of the remainder in an amateur ornithological journal, seldom cited by systematic authorities. The writer of course is aware that it is not customary to consider newspaper articles in compiling a scientific bibliography, especially in such a case as this, where they are not available for general reference, and they are given here merely for the sake of completeness, and because some of the matter they contain has been used in preparing the present paper. All titles have been transcribed literally, and the place and date of publication given in full.

1854. POEY, FELIPE. Apuntes sobre la Fauna de la Isla de Pinos.—*Memorias sobre la Historia Natural de la Isla de Cuba*, I, Chapter XXXVIII, June, 1854, 424–431.

Contains a nominal list (pages 426–7) of sixty-three species of birds observed by Gundlach during a six days' stay in the vicinity of Nueva Gerona. As we learn from other sources, this was in January, 1854, and numerous winter resident birds are naturally included in the list.

1856. GUNDLACH, JOHANNES, and CABANIS, JEAN. Dr. J. Gundlach's Beiträge zur Ornithologie Cuba's. [Part IV].—*Journal für Ornithologie*, IV, January, 1856, 1–16.

Myiadestes elisabeth (wrongfully) attributed to the Isle of Pines (page 2). (*Cf. Journal für Ornithologie*, XX, 1872, 429).

1861. GUNDLACH, JOHANNES. Zusätze und Berichtigungen zu den "Beitragen zur Ornithologie Cuba's." [Part I].—*Journal für Ornithologie*, IX, November, 1861, 401–416.

Contains a reference (page 416) to *Chlorœnas inornata* as a bird of the Isle of Pines.

1866. GUNDLACH, JUAN. Revista y Catálogo de Aves Cubanas.—*Repertorio Fisico-Natural de la Isla de Cuba*, I, [iii], February, 1866, 281–302.

Contains but a single reference to the Isle of Pines—*Chlorœnas inornata* (page 298).

1873. GUNDLACH, JUAN. Catalogo de las Aves Cubanas.—*Anales de la Sociedad Española de Historia Natural*, Madrid, II, 1873, 81–191.

Differs but little from his 1866 catalogue. *Chlorœnas inornata* from the Isle of Pines, page 143.

1875. GUNDLACH, ["JEAN"] JOHANNES. Neue Beiträge zur Ornithologie Cubas. [Part VI].—*Journal für Ornithologie*, XXIII, July, 1875, 293–340.

Grus "canadensis" (= *nesiotes*) attributed to the Isle of Pines (page 293).

1876. GUNDLACH, JUAN. Contribución á la Ornitología Cubana. Havana, 1876, pp. 364.

This was published in a series of supplements (probably separately paged) to the *Anales de la Academia de Ciencias médicas, fisicas y naturales de la Habana*, beginning in 1873 (1871 according to Mr. Charles T. Ramsden), and continuing for about three years. Unfortunately no unbound set of this publication is available at present, so that the exact dates of publication of the various parts are not now ascertainable. The above is the title of the completed volume, issued in 1876. There are Isle of Pines references for *Dendroica virens* (page 64), *Chrysotis leucocephalus* (page 124), *Conurus enops* (page 126), *Chlorœnas inornata* (page 128), and *Grus "canadensis"* (page 143).

1891. GUNDLACH, JOHN. Notes on Some Species of Birds of the Island of Cuba.—*Auk*, VIII, April, 1891, 187–191.

Contains a note on an abnormally colored example of *Chrysotis leucocephalus* from the Isle of Pines.

1892. CORY, CHARLES B. Catalogue of West Indian Birds. Boston, 1892, pp. 163, 1 map.

In the systematic portion of this work (pages 81–122) are listed all the then known forms of West Indian birds, with an indication of the various islands included in the range of each. The Isle of Pines records herein cited are doubtless (in part at least) from a manuscript list of birds observed on the island during the month of April, 1892, by Dr. Gundlach, and by him placed at the author's disposal (*cf.* statement on page 35).

1895. GUNDLACH, JUAN. Ornitología Cubana, ó Catálogo descriptivo de todas las especies de Aves tanto indígenas como de paso anual ó accidental observadas en 53 años. Havana, 1895, pp. 328, 14 pls.

"The last work of this distinguished Cuban ornithologist, containing many references to the birds of the Isle of Pines." With but few exceptions, however, these references are mere indications of the occurrence there of certain species. The work was published in parts or signatures of sixteen pages each, as monthly supplements to the *Archivos de la Policlinica*, commencing some time in 1893, and concluding in 1895. The title quoted is that of the completed volume.

1901. RIDGWAY, ROBERT. The Birds of North and Middle America. Part I.—*Bulletin United States National Museum*, No. 50, October 24, 1901, pp. xxxii + 715, 20 pls.

The only reference to the Isle of Pines in this volume is the quotation of Mr. Cory's record under the synonymy of *Euetheia canora*, page 537.

1902. RIDGWAY, ROBERT. The Birds of North and Middle America. Part II.—*Bulletin United States National Museum*, No. 50, October 16, 1902, pp. xx + 834, 22 pls.

Contains sundry references to the Isle of Pines in specifying the ranges of certain species. Measurements of Isle of Pines specimens of *Spindalis pretrei* on page 69.

1904. COOKE, WELLS W. Distribution and Migration of North American Warblers.—*Bulletin Biological Survey, United States Department of Agriculture*, No. 18, 1904, pp. 142.

Quotes Mr. Cory's record for *Dendroica virens* from the Isle of Pines (page 88).

1904. RIDGWAY, ROBERT. The Birds of North and Middle America. Part III. —*Bulletin United States National Museum*, No. 50, December 31, 1904, pp. xx + 801, 19 pls.

Refers to Isle of Pines specimens of *Petrochelidon fulva fulva* (page 53), and quotes several references from other authors bearing on the birds of the island.

1905. BANGS, OUTRAM, and ZAPPEY, WALTER R. Birds of the Isle of Pines.—*American Naturalist*, XXXIX, April, 1905, 179–215. Review, *Ibis*, 1905, 630; *Auk*, XXII, 1905, 329.

The first authoritative and important annotated list of the birds of the island, based on a collection made by the junior author in the spring and early summer of 1904, together with some data secured on an earlier trip, in March, 1902. With this original information are incorporated the previously published records of Messrs. Cory, Gundlach, and Poey, bringing the whole number of species in the Isle of Pines list up to one hundred and twenty. Six of these are here described as new, and critical notes on others are added. Much interesting and valuable information on the habits, local distribution, etc., of the various species is included. There is an introduction treating of the physical features, climate, etc., of the island, a map, and a number of half-tones illustrating characteristic scenery.

1905. NELSON, EDWARD W. Notes on the Names of certain North American Birds.—*Proceedings Biological Society of Washington*, XVIII, April 18, 1905, 121–126.

Cathartes aura is divided into a northern and southern race, specimens from the Isle of Pines being referred to the latter.

1905. BANGS, OUTRAM. The Cuban Crab Hawk, *Urubitinga gundlachii* (Cabanis). —*Auk*, XXII, July, 1905, 307–309.

Contains a translation of Gundlach's remarks on this species in his *Ornitología Cubana*, 1895, 18–19, in which he refers to a nest found in the Isle of Pines.

1905. CLARK, AUSTIN H. The Genus Conurus in the West Indies.—*Auk*, XXII, July, 1905, 310–312.

Refers to *Conurus euops* as formerly an inhabitant of the Isle of Pines.

1905. THAYER, JOHN E., and BANGS, OUTRAM. The Mammals and Birds of the Pearl Islands, Bay of Panama.—*Bulletin Museum of Comparative Zoölogy*, XLVI, September, 1905, 137–160.

Measurements given of Isle of Pines specimens of *Butorides virescens maculata* (pages 142–143).

1905. CLARK, AUSTIN H. The West Indian Parrots.—*Auk*, XXII, October, 1905, 337–344.

The Isle of Pines included in the range of the genus *Ara*.

1905. CLARK, AUSTIN H. The Greater Antillean Macaws.—*Auk*, XXII, October, 1905, 345–348.

Ara tricolor is set down as recently extinct in Cuba and the Isle of Pines.

1906. HELLMAYR, CARL E. On the Birds of the Island of Trinidad.—*Novitates Zoölogicæ*, XIII, February, 1906, 1–60.

Measurements given of Isle of Pines specimens of *Hydranassa tricolor ruficollis* (page 50).

1906. COOKE, WELLS W. Distribution and Migration of North American Ducks, Geese, and Swans.—*Bulletin Biological Survey, United States Department of Agriculture*, No. 26, 1906, pp. 90.

Reference is made to the only Isle of Pines record for *Chen hyperborea nivalis* (page 68).

1907. RIDGWAY, ROBERT. The Birds of North and Middle America. Part IV.—*Bulletin United States National Museum*, No. 50, July 1, 1907, pp. xxii + 973, pls. 34.

Critical notes, measurements, and references to a number of Isle of Pines species of Turdidæ, Mimidæ, and Tyrannidæ are included.

1907. ROTHSCHILD, WALTER. Extinct Birds. London, 1907, pp. 244, pls. 42.

Includes a reference to Bangs & Zappey's record of *Ara tricolor* from the Isle of Pines (page 51).

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, April 15, 1909, 57–58.

A nominal list (common names only) of forty-four species observed during the course of a two months' stay on the island. Several of these were admittedly imperfectly identified, while others are obviously so.

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, May 15, 1909, 75.

An addendum of twelve species to his previous list, including among others the Cerulean Warbler and Red-eyed Vireo (!).

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, July 15, 1909, 101–102.

Notes on the habits of the "Florida" (= Isle of Pines) Grackle and Ani; list of additional species observed (including such questionable records as Yellow-bellied Flycatcher, Yellow-throated Vireo, and Black-billed Cuckoo); and corrections of identifications in his previous lists.

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, Aug. 15, 1909, 124–125.

Notes on the habits of the Red-legged Thrush, and additions to the list of species recorded from the island. The "Chimney Swift" of his previous list is here set down as probably the Black Swift.

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, September 15, 1909, 148–149.

Interesting notes on the habits of the Cuban Oriole, "Zenaida Dove"

(i. e., the Isle of Pines Plain Pigeon), Limpkin, and Ruddy Quail Dove.

1909. READ, ARTHUR C. Birds on [*sic*] the Isle of Pines.—*Forest and Stream*, LXXIII, September 18, 1909, 452.

A nominal list of species seen between December 6, 1908, and July 19, 1909. English names are used almost entirely, and there are numerous erroneous and incomplete identifications.

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, October 15, 1909, 165–166.

An account of the habits of the Anhinga.

1909. SHARPE, R. BOWDLER. A Hand-List of the Genera and Species of Birds. Volume V. London, 1909, pp. xx + 694.

Specific references to the Isle of Pines as included in the ranges of a few species.

1909. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVI, November 15, 1909, 189–190.

Brief descriptions and notes on the habits of the "Isle of Pines Tanager" (Cuban Spindalis) and Yellow-faced Grassquit, with a list of additional species observed.

1909. READ, ARTHUR C. The Lizard Cuckoo.—*Oölogist*, XXVI, December 15, 1909, 223.

As observed in the Isle of Pines.

1909. READ, ARTHUR C. Isle of Pines Trogon.—*Oölogist*, XXVI, December 15, 1909, 223.

Brief description and notes on its habits, as observed in the Isle of Pines.

1909. READ, ARTHUR C. Additions.—*Oölogist*, XXVI, December 15, 1909, 224.

A nominal list of nine additional species, of which at least two may be classed as doubtful.

1910. READ, ARTHUR C. A Paddle Down the Nuevas River, November 20, 1909. —*Oölogist*, XXVII, January 15, 1910, 5.

A nominal list of thirty-two species.

1910. READ, ARTHUR C. From [the] Isle of Pines.—*Oölogist*, XXVII, February 15, 1910, 14–15.

Migration dates of various species for the fall of 1909.

1910. READ, ARTHUR C. A Correction.—*Oölogist*, XXVII, February 15, 1910, 15.

Referring to his previous article in this publication for November 15, 1909, and correcting the names of three species therein mentioned.

1910. READ, ARTHUR C. The Cuban Pigmy Owl.—*Oölogist*, XXVII, March 15, 1910, 35.

A brief description and account of its habits, as observed in the Isle of Pines.

1910. READ, ARTHUR C. A Few Isle of Pines Nesting Records For 1909.—*Oölogist*, XXVII, April 15, 1910, 42.

Dates of nesting for seven species.

1910. READ, ARTHUR C. From the Isle of Pines.—*Oölogist*, XXVII, May 15, 1910, 61–62.

On the Ricord Hummingbird and Cuban Tody, as observed in the Isle of Pines.

1910. READ, ARTHUR C. From [the] Isle of Pines. A Field Trip to Las [Los] Tres Hermanas [Hermanos] Mountains, April 4, 1910.—*Oölogist*, XXVII, June 15, 1910, 84.

A nominal list of twenty species observed.

1910. AMERICAN ORNITHOLOGISTS' UNION COMMITTEE. Check List of North American Birds. * * * Third Edition (Revised). New York, August, 1910, pp. 430, 1 map.

Petrochelidon fulva attributed to the Isle of Pines (page 292).

1910. COOKE, WELLS W. Distribution and Migration of North American Shorebirds.—*Bulletin Biological Survey, United States Department of Agriculture*, No. 35, October 6, 1910, pp. 100, 4 pls.

Oxyechus vociferus torquatus given as breeding in the Isle of Pines (page 88), doubtless on the authority of Messrs. Bangs and Zappey.

1910. BANGS, OUTRAM. Two New Woodpeckers from the Isle of Pines, West Indies.—*Proceedings Biological Society of Washington*, XXIII, December 29, 1910, 173–174.

Descriptions of *Centurus superciliaris murceus* and *Xiphidiopicus percussus insulæ-pinorum*, from specimens in the collection of the Museum of Comparative Zoölogy, collected by Walter R. Zappey.

1911. READ, ARTHUR C. Bird-Life of a Small Pond at McKinley, Isle of Pines, Cuba.—*Oölogist*, XXVIII, January 15, 1911, 3, 2 pls.

Sixteen species recorded.

1911. READ, ARTHUR C. Birds of Santa Barbara Mountain and Vicinity, Isle of Pines, Cuba.—*Oölogist*, XXVIII, January 15, 1911, 3–4.

A description of the mountain, with a list of twenty species of birds observed there in October.

1911. READ, ARTHUR C. Nesting Records, McKinley, Isle of Pines, Cuba, for 1910.—*Oölogist*, XXVIII, January 15, 1911, 5.

Dates of nesting for nine species.

1911. READ, ARTHUR C. Sundry Trips.—*Oölogist*, XXVIII, January 15, 1911, 5–7.

A nominal list of the birds observed on two trips from McKinley to the mouth of the Nuevas River, August 16 and November 14 (year not stated), and another list covering the species observed on December 4 on a trip from McKinley to the Cañada Mountains.

1911. READ, ARTHUR C. Migration Notes From The Isle of Pines.—*Oölogist*, XXVIII, January 15, 1911, 7.

The records run from April 14 to November 26. The year is not stated, but is probably 1910. Several species are recorded which are not known to occur in the West Indies except as accidental visitants, and such records are naturally open to suspicion.

1911. READ, ARTHUR C. The Flycatchers of the Isle of Pines.—*Oölogist*, XXVIII, January 15, 1911, 7–9.

Brief notes on the habits and nesting of five species.

1911. READ, ARTHUR C. A Trip Down the Nuevas to the Sea.—*Oölogist*, XXVIII, January 15, 1911, 9–11.

A nominal list of forty-three species observed between McKinley and the mouth of the Nuevas River, May 17–19 (1910?).

1911. READ, ARTHUR C. List of Birds Observed by A. C. Read On The Isle of Pines, Cuba, From December 1908, to December 1909.—*Oölogist*, XXVIII, January 15, 1911, 11–13.

A formal list, with English and scientific names (many misspelled), but without annotations, of one hundred species, with a supplementary list of fourteen species observed during 1910 but not previously noted. Practically all the questionable records in the author's previous articles are here repeated.

1911. READ, ARTHUR C. Bird-Lore's Eleventh [Christmas] Bird Census. McKinley, Isle of Pines.—*Bird-Lore*, XIII, January-February, 1911, 43–44.

Twenty-four species recorded.

1911. READ, ARTHUR C. Birds Seen on one Ten Acre Tract in West McKinley, Isle of Pines, Cuba.—*Oölogist*, XXVIII, July 15, 1911, 113–114.

A nominal list of eighty species, with an indication of their relative abundance. Contains numerous doubtful records.

1911. READ, ARTHUR C. A Day at Bibijagua Beach, Isle of Pines.—*Oölogist*, XXVIII, September 15, 1911, 146.

A nominal list of nine species observed on June 16, (1911?). The "Virginia Rail" is of course some other species.

1911. RIDGWAY, ROBERT. The Birds of North and Middle America. Part V.—*Bulletin United States National Museum*, No. 50, November 29, 1911, pp. xxiii + 859, 33 pls.

Contains measurements of Isle of Pines specimens of *Riccordia ricordii ricordii* (page 543), and description and measurements of *Priotelus temnurus vescus*, based on an examination of the type-series.

1911. BURNS, FRANK L. A Monograph of the Broad-winged Hawk (*Buteo platypterus*).—*Wilson Bulletin*, XVIII, September and December, 1911, 139–320.

On page 195 is given a record of a pair of Broad-winged Hawks seen circling about the crown of Los Tres Hermanos Mountains on April 3, 1910, by Mr. Arthur C. Read, and identified with a field-glass.

1912. OBERHOLSER, HARRY C. The Status of Butorides brunescens (Lembeye).—*Proceedings Biological Society of Washington*, XXV, April 13, 1912, 53–56.

Description, measurements, and critical notes on two specimens of this species from Nueva Gerona, Isle of Pines.

1912. OBERHOLSER, HARRY C. A Revision of the subspecies of the Green Heron (Butorides virescens [Linnæus]).—*Proceedings United States National Museum*, XLII, August 29, 1912, 529–577.

Isle of Pines specimens of *Butorides virescens cubanus* listed (page 559).

1912. OBERHOLSER, HARRY C. A Revision of the forms of the Great Blue Heron (Ardea herodias Linnæus).—*Proceedings United States National Museum*, XLIII, December 12, 1912, 531–559.

The Isle of Pines is mentioned as included in the range of *Ardea herodias adoxa* (page 545).

1913. READ, ARTHUR C. Bird-Lore's Thirteenth Christmas [Bird] Census. Santa Barbara, Isle of Pines.—*Bird-Lore*, XV, January–February, 1913, 45.

Thirty-seven species recorded.

1913. BANGS, OUTRAM. New Birds from Cuba and the Isle of Pines.—*Proceedings New England Zoölogical Club*, IV, March 31, 1913, 89–92. Review, *Auk*, XXX, 1913, 452–453.

Agelaius subniger described from the Isle of Pines, from specimens in the Bangs Collection, Museum of Comparative Zoölogy.

1913. TODD, W. E. CLYDE. A Revision of the Genus Chæmepelia.—*Annals Carnegie Museum*, VIII, May 8, 1913, 507–603.

Isle of Pines references to *Chæmepelia passerina aflavida* (page 562), and list of specimens examined (page 599).

1913. COOKE, WELLS W. Distribution and Migration of North American Herons and their Allies.—*Bulletin Biological Survey, United States Department of Agriculture*, No. 45, May 24, 1913, pp. 70.

Contains several references to published records from the Isle of Pines for species belonging to this group of birds.

1913. TODD, W. E. CLYDE. Preliminary Diagnoses of apparently new Birds from Tropical America.—*Proceedings Biological Society of Washington*, XXVI, August 8, 1913, 169–174.

Rallus longirostris leucophæus described from the Isle of Pines, from specimens in the Carnegie Museum.

1913. READ, ARTHUR C. Impressions of the Birds of McKinley, Isle of Pines, Cuba, Made on an Early Spring Morning (March 18, 1911).—*Oölogist*, XXX, August 15, 1913, 122–123.

Random notes on various species observed.

1913. READ, ARTHUR C. A Trip to Pine River, Isle of Pines.—*Oölogist*, XXX, August 15, 1913, 123–125.

Thirty-three species observed.—July 12–13, 1911.

1913. READ, ARTHUR C. Birds of the West Coast Section of Santa Barbara, During the Month of September.—*Oölogist*, XXX, August 15, 1913, 127–130.

Random notes on sundry species, with half-tones of a grove of royal palms, and of the nesting-places of the Cuban Martin and Isle of Pines Parrot.

1913. READ, ARTHUR C. Isle of Pines Note.—*Oölogist*, XXX, August 15, 1913, 130.

Records specimens of the Cuban Crow, Cuban Bullfinch, and Roseate Spoonbill lately taken in the Isle of Pines by Mr. Gustav A. Link.

1913. READ, ARTHUR C. Birds Observed on the Isle of Pines, Cuba, 1912.—*Oölogist*, XXX, August 15, 1913, 130–131.

A nominal list of species, with an indication of the seasonal status and relative abundance of each, and in some cases the dates of first records. Numerous dubious records are included.

1913. READ, ARTHUR C. Birds Observed on the Isle of Pines From Dec. 1908, to Jan. 1912, Which Were Not Seen During 1912 by A. C. Read.—*Oölogist*, XXX, August 15, 1913, 131.

A nominal list of thirty-four species, with dates when each was noted. Numerous dubious records are here repeated.

1913. READ, ARTHUR C. The Herons of the Isle of Pines, Cuba.—*Oölogist*, XXX, August 15, 1913, 132.

Brief notes on ten species.

1913. READ, ARTHUR C. Birds Seen on a Long Journey.—*Oölogist*, XXX, October 15, 1913, "264–268" (= 164–168!).

A nominal list of species observed at various points on a trip from the Isle of Pines to Winnipeg, Manitoba, and return.

1913. READ, ARTHUR C. Red-legged Thrush, Mimocichla Rubripes Rubripes.—*Isle of Pines News*, V, October 18, 1913.

This is the first of a series of articles from Mr. Read's pen, published in a local newspaper at Nueva Gerona, and dealing with the birds of the Isle of Pines in a popular way. There is usually a brief description and general account of the habits, relative abundance, etc., of the several species discussed, as observed in the Isle of Pines. Needless to add, these articles are of much more interest and value than the nominal lists of birds which go to make up so many of Mr. Read's contributions to other journals; the text is remarkably free from typographical errors, and scientific names are given in almost every case.

1913. READ, ARTHUR C. Cuban Kingbird, Tolmarchus Caudifasciatus.—*Isle of Pines News*, V, Oct. 25, 1913.

1913. READ, ARTHUR C. The Cuban Tody, Todus Multicolor.—*Isle of Pines News*, V, November 1, 1913.

1913. READ, ARTHUR C. The Isle of Pines Trogon, Priotelus Temnurus Vescus.—*Isle of Pines News*, V, November 8, 1913.

1913. READ, ARTHUR C. The Cuban Grackle.—*Isle of Pines News*, V, November 15, 1913.

1913. READ, ARTHUR C. Isle of Pines Lizard Cuckoo, Saurothera Merlini Decolor, Spanish (Arriero).—*Isle of Pines News*, VI, Nov. 22, 1913.

1913. READ, ARTHUR C. Cuban Red-bellied Woodpecker, Centurus Superciliaris.—*Isle of Pines News*, VI, November 29, 1913.

1913. READ, ARTHUR C. Isle of Pines Tanager, Spindalis Pretrei Pinus.—*Isle of Pines News*, VI, Dec. 6, 1913.

1913. READ, ARTHUR, C. The Cuban Oriole.—*Isle of Pines News*, VI, Dec. 13, 1913.

1913. READ, ARTHUR C. Anhigna [sic], Anhigna Anhigna.—*Isle of Pines News*, VI, December 20, 1913.

1913. READ, ARTHUR C. The Herons of the Isle of Pines.—*Isle of Pines News*, VI, December 27, 1913.

List of twelve species, with a brief description of each.

1914. READ, ARTHUR C. Antillean Nighthawk, Chordeiles Virginianus Minor.—*Isle of Pines News*, VI, January 3, 1914.

1914. READ, ARTHUR C. The Kingbirds.—*Isle of Pines News*, VI, January 10, 1914.

Tyrannus dominicensis and *T. cubensis*.

1914. READ, ARTHUR C. Cuban Green Woodpecker—Xiphidiopicus [percussus]—*Isle of Pines News*, VI, January 17, 1914.

1914. READ, ARTHUR C. The Owls of the Isle of Pines.—*Isle of Pines News*, VI, January 24, 1914.

Notes on four species.

1914. READ, ARTHUR C. The Limpkin, Aramus Giganteus.—*Isle of Pines News*, VI, January 31, 1914.

1914. READ, ARTHUR C. Bird-Lore's Fourteenth Christmas [Bird] Census, Santa Barbara, Isle of Pines, Cuba.—*Bird-Lore*, XVI, January–February, 1914, 50.

A nominal list of thirty-one species.

1914. READ, ARTHUR C. The Cuban Crane, Grus Nesiotes.—*Isle of Pines News*. VI, February 7, 1914.

1914. READ, ARTHUR C. The Warblers.—*Isle of Pines News*, VI, February 14, 1914.

A list of twenty-one species of warblers and three of vireos, including several of doubtful authenticity as regards their occurrence in the Isle of Pines.

1914. READ, ARTHUR C. The Dove and Pigeons of the Isle of Pines.—*Isle of Pines News*, VI, February 21, 1914.

Nine species briefly discussed.

1914. READ, ARTHUR C. The Cuban Martin (Progne Cryptoleuca).—*Isle of Pines News*, VI, April 4, 1914.

1914. OBERHOLSER, HARRY C. A Monograph of the Genus Chordeiles Swainson, Type of a new Family of Goatsuckers.—*Bulletin United States National Museum*, No. 86, April 6, 1914, pp. viii + 123.

Isle of Pines specimens of *Chordeiles virginianus virginianus* and *C. v. minor* are listed (pages 44 and 84).

1914. RIDGWAY, ROBERT. The Birds of North and Middle America. Part VI.—*Bulletin United States National Museum*, No. 50, April 8, 1914, pp. xx + 882, 36 pls.

Isle of Pines records and references for a number of species of Picidæ, Alcedinidæ, Todidæ, Caprimulgidæ, Tytonidæ, and Bubonidæ. A new owl, *Glaucidium siju vittatum*, is described from the Isle of Pines.

1914. READ, ARTHUR C. The Cuban Cliff Swallow (Petrochelidon Fulva).—*Isle of Pines News*, VI, April 11, 1914.

Includes also a note on the occurrence of the Barn and Bank Swallows.

1914. READ, ARTHUR C. The Cuban Quail [,] Colinus Cubanensis.—*Isle of Pines News*, VI, April 18, 1914.

1914. READ, ARTHUR C. A Bird Trip to the South Coast.—*Isle of Pines News*, VI, April 25, 1914.

Random notes on a few species observed on an ocean trip from Westport to Caleta Grande, April 19, 1914.

1914. COOKE, WELLS W. Distribution and Migration of North American Rails and their Allies.—*Bulletin of the United States Department of Agriculture*, No. 128, September 25, 1914, pp. 50.

Contains a reference to Gundlach's record of *Grus mexicana* from the Isle of Pines (page 10).

1914. READ, ARTHUR C. Birds of Prey of the Isle.—*Isle of Pines News*, VI, May 30, 1914.

A notice of nine species, the Cuban Sparrow Hawk and Cuban Crab Hawk being treated at some length.

1915. BANGS, OUTRAM. Notes on Dichromatic Herons and Hawks.—*Auk*, XXXII, October, 1915, 481–484.

Contains references to certain species of these groups from the Isle of Pines.

1915. TODD, W. E. CLYDE. Preliminary Diagnoses of seven apparently new Neotropical Birds.—*Proceedings Biological Society of Washington*, XXVIII, November 29, 1915, 169–170.

Contains a brief description of *Columba inornata proxima*, page 170.

CARNEGIE MUSEUM,
December 20, 1915.

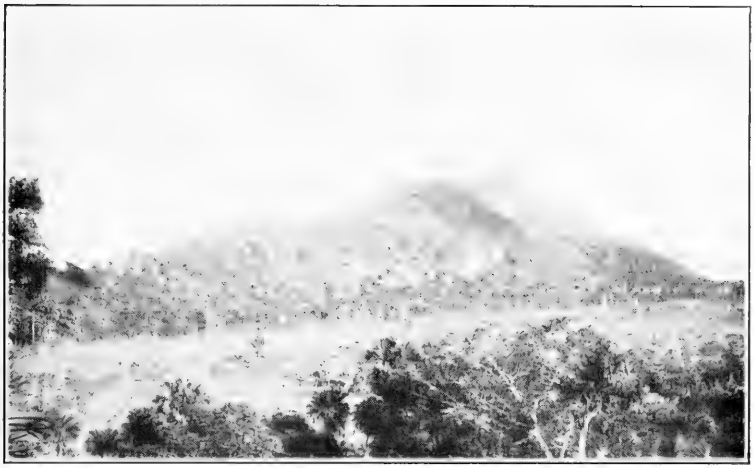


FIG. 1. Casas Mountains near Nueva Gerona.

FIG. 2. Jungle on upper slopes of Caballos Mountains.

FIG. 1. Palmetto-pine Scrub, covering large tracts.

FIG. 2. Grove of Royal Palms.

FIG. 3. Bottle-palms. The big tree is frequented by the Isle of Pines Parrot, which nests there.

FIG. 1. Grove of Caribbean Pines near McKinley.

FIG. 2. Mangroves and grass along river-bank.

FIG. 1. Characteristic View in the Cienaga.

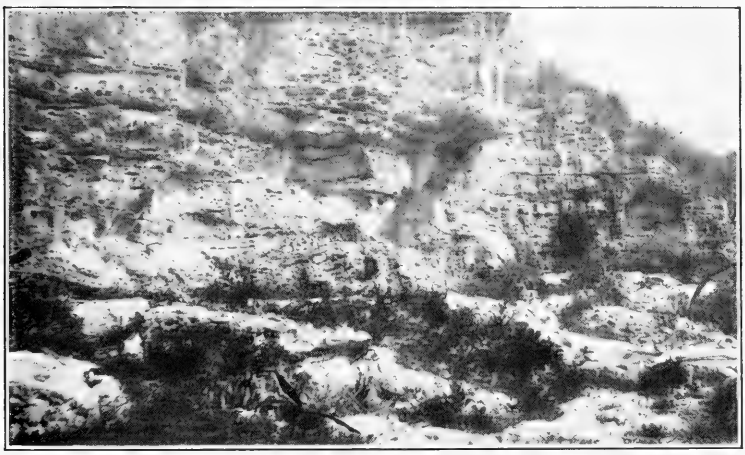
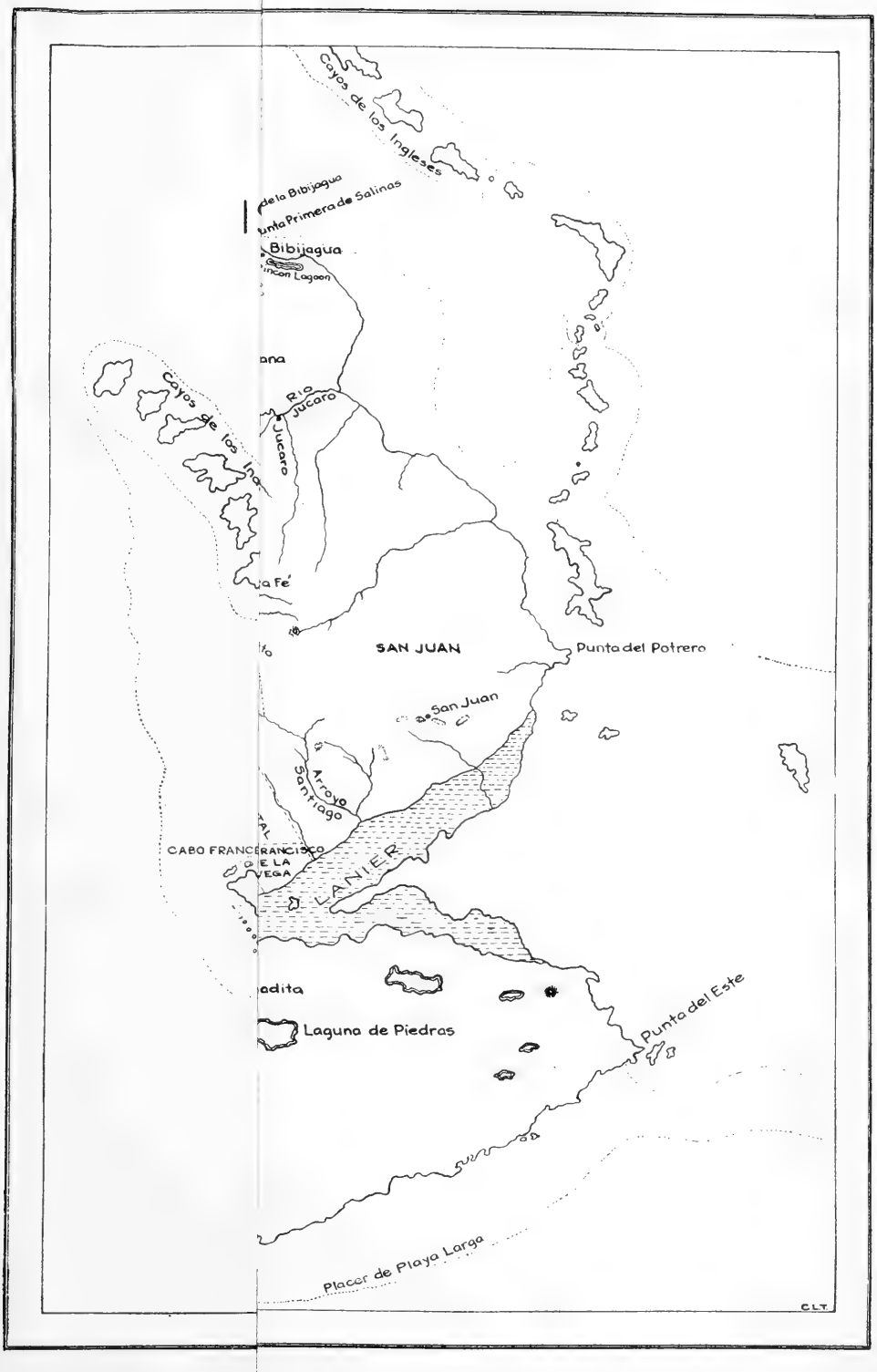
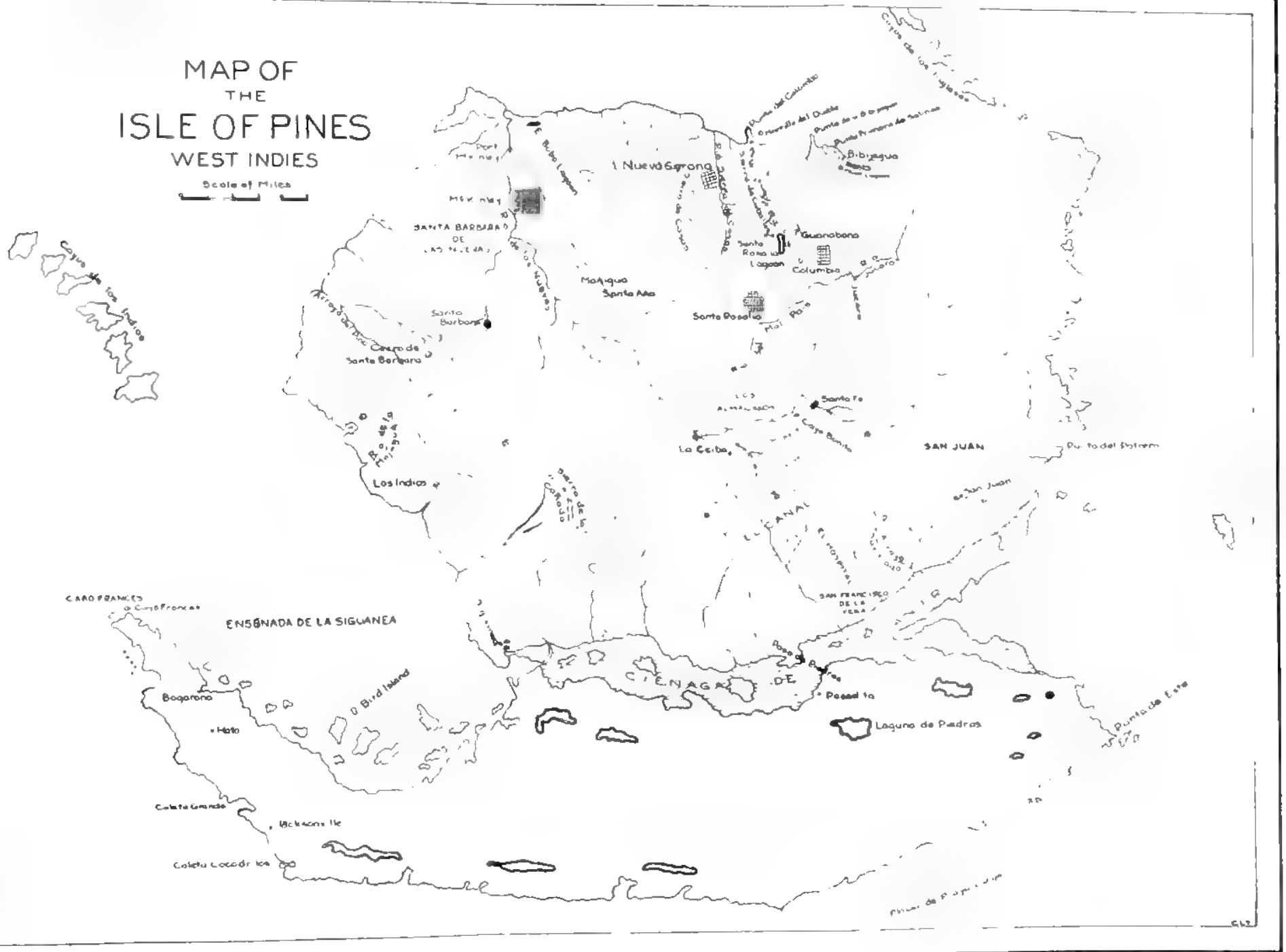


FIG. 2. Sea-cliffs at Punta del Este.

Cuban nighthawk, *Chordeiles virginianus minor* (Cabanis) on nest, Santa Barbara, Isle of Pines. Photographed by A. C. Read. By the Courtesy of Mr. R. M. Barnes, Editor *The Oölogist.*


Cayos de los Ingleses
de la Bibijagua
Punta Primera de Salinas
Bibijagua
Lagoon
Río Jucaro
Jucaro
SAN JUAN
Punta del Potrero
San Juan
Arroyo Santiago
CABO FRANCES
FRANCISCO DE LA VEGA
LANIER
Laguna de Piedras
Punta del Este
Placer de Playa Larga
C.L.T.


MAP OF
THE
ISLE OF PINES
WEST INDIES
Scale of Miles
Nueva Gerona
Guanabana
Columbo
Santa Barbara
Santa Fe
La Ceiba
SAN JUAN
Los Indios
ENSENADA DE LA SIGUANEA
CIENAGA DE
Bogarone
Hato
Bird Island
Pascal to
Laguna de Piedras
Punta de Este