

## THE AVIFAUNA OF THE CAYOS COCHINOS, WITH NEW BREEDING RECORDS FOR HONDURAS

Gilles Seutin<sup>1, 3</sup>, Eldredge Bermingham<sup>1</sup>, & Sherry Thorn<sup>2</sup>

<sup>1</sup> Smithsonian Tropical Research Institute, Apartado 2072, Balboa, Panamá.

<sup>2</sup> Departamento de Biología, Universidad Nacional Autónoma de Honduras, Tegucigalpa, Honduras.

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A good understanding of the local and regional distribution of biodiversity is necessary to decide where natural reserves should be established, and to elaborate management plans for existing parks. The Islas de la Bahía (Honduras Bay Islands) and the nearby Islas Cochinos (Hog Islands), off the Caribbean coast of Honduras, are known to host a flora and fauna that is relatively distinct from that found on the adjacent mainland (Monroe 1968, Gustavo Cruz & Robin Foster, pers. comm.). To protect some of this natural richness, Honduras recently created a national park: the Reserva Biológica Cayos Cochinos. The terrestrial portion of the reserve is composed of several small sand cays and two small islands, Isla Cochino Pequeño (Little Hog Island) of less than two km in diameter, and Isla Cochino Grande (Big Hog Island), a slightly larger island just three km distant. Hereafter, the term Cayos Cochinos is used to refer collectively to these two islands and all nearby cays. The Cayos Cochinos are situated halfway between the Islas de la Bahía (i.e., Utila, Roatán, Barbareta Guanaja) and the mainland, and are separated from the latter by only 14 km of open water.

Compared to the Islas de la Bahía that have been surveyed by several ornithologists (Salvin 1888–1890, Bond 1936, Monroe 1968, Udvardy *et al.* 1973, Udvardy 1976, Howell & Webb 1992), the Cayos Cochinos have received little attention. Monroe (1968: 399) provided the only published list of resident species, which included

six taxa (see Table 1). Here we present the results of an ornithological survey of the park that provided the first evidence of breeding for the Royal Tern in Honduras and for the Brown Pelican on the Caribbean coast of the country.

Our survey was conducted during the second half of the spring migration and somewhat before the main breeding season of 1995. We spent 5, 6, 7 (a.m.), and 9 (p.m.) May 1995 on Isla Cochino Pequeño, 7 (p.m.) and 8 May 1995 on Isla Cochino Grande, and we explored several nearby cays on 9 (a.m.) May 1995. We also visited the island of Utila, which is not part of the reserve, on 10 (p.m.) and 11 (a.m.) May 1995.

We surveyed birds visually and by voice, and focused on landbirds. Table 1 gives the full list of species observed. We noted 34 species on Isla Cochino Pequeño, 24 on Isla Cochino Grande, 23 on the adjacent small cays, and 31 on Utila (Table 1). We also used mistnets for a total of 184 net-hours and captured 119 individuals of 26 species. We present significant observations below and discuss in general terms the avifauna of the Cayos Cochinos. Species sequence and taxonomy are those of American Ornithologists' Union (1983, 1995).

*Pelecanus occidentalis*. Three small breeding colonies of this pelican on the N side of Isla Cochino Pequeño are separated by cliffs. Non-breeding adults and immatures were noted in May 1995. H. Guzmán recorded breeding activity in November and December 1995. The species was previously known to breed in Honduras only in the Bay of Fonseca, on the Pacific coast (Monroe 1968, Howell & Webb 1994).

*Present address:* Department of Geography, McGill University, 805 Sherbrooke West, Montréal, Québec H3A 2K6, Canada.

TABLE 1. List of bird species observed in May 1995 on Isla Cochino Pequeño (ICP), Isla Cochino Grande (ICG), small cays around the Cayos Cochinos, and Isla Utila. Asterisks (\*) indicate species breeding in the Cayos Cochinos area. An "X" indicates that the species was seen, an "—" that it was not, on a given island.

Species	ICP	ICG	Cays	Utila
* <i>Pelecanus occidentalis</i>	X	X	X	X
<i>Fregata magnificens</i>	X	X	X	X
<i>Egretta caerulea</i>	X	—	—	X
<i>Egretta tricolor</i>	—	—	—	X
<i>Bubulcus ibis</i>	—	—	—	X
<i>Butorides virescens</i>	—	X	—	—
<i>Nycticorax violaceus</i>	—	—	—	X
<i>Cathartes aura</i>	—	—	—	X
<i>Pandion haliaetus</i>	X	—	X	—
<i>Falco peregrinus</i>	—	—	—	X
<i>Gallus gallus</i>	X	X	X	X
<i>Charadrius semipalmatus</i>	—	—	X	—
<i>Actitis macularia</i>	X	X	X	X
<i>Arenaria interpres</i>	—	—	X	—
<i>Larus atricilla</i>	—	—	X	X
* <i>Sterna maxima</i>	X	—	X	X
<i>Sterna sp. (dougallii?)</i>	—	—	X	—
* <i>Columba leucocephala</i>	X	X	X	X
* <i>Leptotila jamaicensis</i>	X	X	—	—
<i>Geotrygon montana</i>	X	—	—	—
<i>Coccyzus minor</i>	—	—	—	X
<i>Crotophaga ani</i>	—	—	—	X
* <i>Anthracoceros prevostii</i>	X	X	—	X
* <i>Chlorostilbon canivetii</i>	X	X	X	X
<i>Ceryle alcyon</i>	X	—	—	—
<i>Melanerpes aurifrons</i>	—	—	—	X
Picidae ( <i>Sphyrapicus varius?</i> )	X	X	—	—
<i>Contopus virens</i>	X	X	X	X
<i>Empidonax virescens</i>	X	—	—	—
<i>Myiarchus crinitus</i>	X	—	—	—
<i>Myiarchus tyrannulus</i>	—	—	—	X
<i>Hirundo rustica</i>	X	—	—	X
<i>Troglodytes aedon</i>	X	—	—	—
<i>Catharus minimus</i>	—	X	—	—
<i>Catharus ustulatus</i>	X	X	X	—
<i>Dumetella carolinensis</i>	X	—	—	—
<i>Vireo pallens</i>	—	—	—	X
<i>Vireo philadelphicus</i>	X	X	—	—
<i>Vireo olivaceus</i>	X	X	X	X
* <i>Vireo magister</i>	X	X	X	—
<i>Vermivora peregrina</i>	X	X	—	—
<i>Dendroica petechia</i>	X	X	X	X
<i>Dendroica pennsylvanica</i>	X	X	—	X
<i>Dendroica fusca</i>	X	X	—	X
<i>Dendroica castanea</i>	X	X	X	X
<i>Mniotilta varia</i>	X	X	—	—
<i>Setophaga ruticilla</i>	X	X	X	X
<i>Seiurus aurocapillus</i>	X	X	—	X
<i>Seiurus noveboracensis</i>	X	X	X	X
<i>Oporornis philadelphia</i>	X	X	—	—
<i>Spiza americana</i>	—	—	X	—
* <i>Quiscalus mexicanus</i>	X	X	X	X
<i>Icterus galbula</i>	—	—	X	—

*Butorides virescens*. An emaciated adult bird, probably an exhausted migrant, was captured by hand near a freshwater well on Isla Cochino Grande. The lack of some favored food items (e.g., batrachians and freshwater fishes) and the low density of arthropods during the dry part of the year (W. Wcislo, pers. comm.) probably restricts breeding on the Cayos Cochinos, although this heron breeds on the adjacent mainland and the Islas de la Bahía (Monroe 1968).

Falconiformes and Strigiformes. We observed no resident diurnal or nocturnal raptors on the Cayos Cochinos, and none were reported by Monroe (1968). Bond (1936) reported that the Common Black Hawk (*Buteogallus anthracinus*) was "very common" on Utila in 1936, but Howell & Webb (1992) saw none there in 1991. Intrigued by this contradictory information, we were particularly attentive in our search for this species during our short exploration of Utila, but failed to observe any. The apparent change in the status of this hawk on Utila is puzzling since a large part of the island has been relatively unaltered by human activities since Bond visited the archipelago. As suggested by Howell & Webb (1992), the dynamics of hawk populations on the Islas de la Bahía would repay study.

*Sterna maxima*. In 1994 and 1995, H. Guzmán recorded Royal Terns incubating and feeding young from June through the end of August on Cayo Gallina, a small cay close to Isla Cochino Pequeño. These observations provide the first evidence that the species breeds in Honduras, confirming the earlier suggestion of Monroe (1968) that it was nesting in the Cayos Cochinos area.

*Sterna sp.* We saw a group of 6 small terns approximately 10 km WSW of the Cayos Cochinos. We tentatively identified them as *Sterna dougallii* on the basis of their very pale general appearance and underwings without dark trailing edge to outer primaries. Roseate Terns breed on Sandy Cay near Utila (Udvardy et al. 1973).

*Columba leucocephala*. This species is very common on the Cayos Cochinos, third in abundance to *Vireo magister* and *Chlorostilbon canivetii*. We observed two individuals on one of the small,

forested cays where they had probably come to feed from nearby Isla Cochino Grande. This pigeon was much less abundant on Utila than on the Cayos Cochinos.

*Leptotila jamaicensis*. We observed this species on both main islands, providing the first record for Isla Cochino Grande. In 1963, Monroe (1968) estimated the population of this dove on Isla Cochino Pequeño to be about 25 pairs. This is a realistic number for today's population also. We estimated this dove to be somewhat more abundant on Isla Cochino Grande than on Isla Cochino Pequeño. It seems unlikely that Monroe would have missed the Caribbean Dove during his 1963 exploration of Isla Cochino Grande if the species had been present then at a comparable density to what we observed in 1995. On the Islas de la Bahía, this dove has been established on Barbareta at least since the early part of the century (see Monroe 1968), but it was only recently found on Roatán, ornithologically the best known island in the archipelago. Thus, this species is probably now in a phase of geographic expansion in the archipelago.

*Geotrygon montana*. A ♂ individual captured by hand at a freshwater well on Isla Cochino Pequeño provided the first record of that species for either the Islas de la Bahía or the Cayos Cochinos. Although able to fly, the bird was emaciated and weak. On the basis of our experience of this species through most of its range, this individual belonged to the widespread nominate subspecies found throughout Central and South America and the Greater Antilles. It was probably a vagrant to the island.

*Chlorostilbon canivetii*. This hummingbird was the second most abundant landbird species on the Cayos Cochinos. On one cay where a pair was present, the female was seen gathering nesting material and carrying it to a nearby tree; the nest was not found. We observed three individuals on another cay. On Utila, this hummingbird was second in abundance to the Mangrove Vireo. Bond (1936: 362) suggested the opposite order of abundance.

All male individuals caught or observed in detail had a deeply forked tail, and all females had a clearly demarcated white median band on the outer rectrices, features that are characteristic

of the northern, nominate subspecies found in Mexico, eastern Guatemala, and Belize (see Howell & Webb 1994: 401–402). Another well-marked subspecies, *C. canivetii osberti*, is found on the Honduras mainland. Howell (1993) considered that these two taxa are specifically distinct.

Picidae. We did not observe any woodpeckers on the Cayos Cochinos, but noticed that several pine and oak trees on both main islands were ringed with horizontal rows of small holes, in a manner characteristic of sapsuckers. The Yellow-bellied Sapsucker (*Sphyrapicus varius*) has been noted before on the Cayos Cochinos (Monroe 1968). From the large number of trees that had been drilled we would judge that it winters regularly on the islands.

*Empidonax virescens*. The three *Empidonax* individuals that we caught were identified as Acadian Flycatchers by their wing formula (Phillips *et al.* 1966). Several more individuals were identified by plumage characteristics but we heard no songs or calls. This species has been reported very infrequently in Honduras, though it is probably an uncommon but regular migrant on the Caribbean coast and islands.

*Myiarchus* flycatchers. On 6 and 7 May, we observed four flycatchers on Isla Cochino Pequeño that we identified by plumage and by voice as *Myiarchus crinitus*. *M. tyrannulus*, which is relatively common on the Islas de la Bahía, was not seen or heard on the Cayos Cochinos. We captured two ♂ on Utila (body mass 37 and 42.5 g) and one ♀ (37 g).

*Troglodytes aedon*. A ♂ with a territory on Isla Cochino Pequeño provided the first record of its species on the Cayos Cochinos. On each day we were in residence we heard it singing through most of the day. It reacted strongly to playbacks of its vocalizations. No mate was seen. Based on plumage coloration, this individual belonged to the *musculus* group, as do birds from the mainland of Honduras.

The only previous record of this species on the Islas de la Bahía was of a bird seen on Utila in March 1991 and considered a vagrant by Howell & Webb (1992). Given the ecological

amplitude of the species and the availability of favored breeding habitat around human settlements on most of the islands, we believe it might become established in that archipelago or the Cayos Cochinos.

*Vireo magister*. This is the most abundant landbird on the Cayos Cochinos. We also observed three individuals (1 singing) on one of the small cays. Four lines of evidence indicated that most individuals were starting their annual reproductive cycle during our stay: 1) singing was carried out throughout the day; 2) we observed many aggressive interactions among conspecific individuals; 3) most of the 63 individuals we captured had either an enlarged cloacal protuberance or a limited brood patch; and 4) we failed to observe family groups with dependent young.

The body mass of Yucatan Vireos identified as ♂ was on average 18.35 g (S. D. = 1.27; n = 30) and of ♀ 18.67 g (S. D. = 1.61; n = 18). The difference between sexes was not significant (t-test;  $t=0.757$ , d. f. = 46,  $P=0.453$ ). We have no simple explanation for the fact that ♂ on the two islands differed significantly in body mass (difference of means = 1.69 g;  $t = 4.803$ , df = 28,  $P = 0.000$ ), but that ♀ did not ( $t = 0.982$ , df = 16,  $P = 0.341$ ).

Bond (1936) did not observe this vireo on Utila in 1936, and neither did we in 1995, but Monroe (1968) found it to be common in May 1963. Considering how obvious the species was on the Cayos Cochinos it is unlikely that we would have failed to notice it on Utila if it was common there. Clearly a more complete survey of the occurrence and abundance of this species on the Islas de la Bahía would be useful.

*Dendroica petechia*. All the Yellow Warblers that we observed had the yellow head typical of the *aestiva* group of subspecies. These birds winter, but do not breed, in Honduras. Individuals belonging to the rufous-headed *erithachorides* group breed on the Islas de la Bahía (see Udvardy 1976), but have not been observed on the Cayos Cochinos.

## DISCUSSION

*Biogeographic considerations.* As is typical on islands, the resident avifauna of the Cayos Cochinos has few species. Only six landbird and

two seabird taxa are known to breed there (Table 1). It seems unlikely to us that additional surveys would identify many more breeding species on those small and easily surveyed islands. Ecological conditions present on the islands seem nevertheless appropriate to the establishment, at least in a transitory fashion, of additional taxa found on the large Islas de la Bahía, such as *Columbina passerina*, a *Melanerpes* woodpecker, *Myiarchus tyrannulus*, *Vireo pallens*, and *Dendroica petechia*. Certain opportunistic or ecologically widespread species found on the mainland, but not on the Islas de la Bahía, might also become established; *Troglodytes aedon* is one such species.

All resident birds of the Cayos Cochinos also breed on the larger and biologically more diverse Islas de la Bahía. Thus the breeding avifauna of the Cayos Cochinos is a subset of that of the Islas de la Bahía. In spite of their geographic proximity these insular faunas are very distinct from the avifauna of the Caribbean lowlands of Honduras. Three of the six resident landbirds (50%) of the Cayos Cochinos do not occur on the Honduran mainland (*Columba leucocephala*, *Leptotila jamaicensis*, and *Vireo magister*). However, these taxa are found elsewhere on the Yucatan Peninsula and associated islands, or in the West Indies. A fourth species, *Chlorostilbon canivetii*, is geographically variable in Central America and the populations of the Islas de la Bahía and the Cayos Cochinos are phenotypically more similar to those found in Belize and the Yucatan Peninsula than to ones occurring on the Honduran mainland (Monroe 1968, Howell & Webb 1994). Several other resident landbirds of the Islas de la Bahía have their closest relatives in the Yucatan region or the West Indies: *Amazona xantholora*, *Melanerpes pygmaeus*, populations of *Melanerpes aurifrons* found on Roatán and Barbareta, and *Crotophaga ani*. Thus, populations of only two residents of the Cayos Cochinos, *Anthracothorax prevostii* and *Quiscalus mexicanus*, are possibly more closely related to conspecifics found on the adjacent mainland than to ones occurring further away.

Two non-mutually exclusive biogeographic scenarios can explain the presence on the Cayos Cochinos and the Islas de la Bahía of many landbird taxa found nowadays in the West Indies, Cozumel Island, or the Yucatan Peninsula, but

not on the mainland of Honduras. First, those species might have reached the archipelago by over water dispersal after the islands were separated from the mainland after sea levels increased in the late Pleistocene. Second, a number of taxa now restricted to the Yucatan Peninsula and adjacent islands might have been more widespread in the Caribbean lowlands of northern Central America during the last glacial maximum. Some of those taxa could have been trapped in the late Pleistocene on the newly formed land-bridge islands, where they survived until today while becoming extinct on the mainland. To distinguish between these biogeographic alternatives will require molecular studies of recent taxa or fossil records for the Pleistocene avifauna of the Caribbean lowlands of northern Central America.

*Migratory species.* The Cayos Cochinos are frequented by large numbers of migratory birds. The shorelines are used by many shorebirds, gulls, and terns. For landbirds, we estimated that migrant and resident individuals were present in roughly equal numbers during our visit. The

most abundant Neotropical migrants were *Vireo olivaceus* and several parulid warblers. Clearly, the list of species we recorded (Table 1) gives an incomplete picture of the diversity of migrants occurring in the area. An exhaustive inventory will only be obtained after the region is visited during other periods of the year.

Monroe (1968) listed the latest spring date on which many Neotropical migrants were reported in Honduras. We extended Monroe's records by providing 11 late records for the Republic (Table 2).

*Birds of Utila.* Although we spent only two half-days observing birds on Utila, it is important to note here that we did not see or hear the Plain Chachalaca, *Ortalis vetula*, or the Red-lore Parrot, *Amazona autumnalis*. The endemic population of chachalacas, *O. vetula deschauensei*, has probably suffered from illegal hunting. The Red-lore Parrot has not been seen on the island since Bond (1936) reported it as being fairly common in 1936 (see Monroe 1968, Howell & Webb 1992). All parrot populations of the Islas de la Bahía have been adversely affected by capture for the pet trade and are in need of full protection (Howell & Webb 1992).

TABLE 2. List of migratory species for which new record of spring departure from Honduras were established. Previous record dates were taken from Monroe (1968) and might not have been up-to-date in certain cases.

Species	Latest Spring Record	
	Fide Monroe (1968)	This Survey
<i>Charadrius semipalmatus</i>	1 May	9 May
<i>Arenaria interpres</i>	12 April	9 May
<i>Myiarchus crinitus</i>	24 April	8 May
<i>Catharus ustulatus</i>	3 May	8 May
<i>Dumetella carolinensis</i>	5 May	6 May
<i>Vireo philadelphicus</i>	8 May	8 May
<i>Dendroica petechia</i>	10 May	11 May
<i>Dendroica pennsylvanica</i>	3 May	10 May
<i>Dendroica fusca</i>	6 May	10 May
<i>Dendroica castanea</i>	10 May	10 May
<i>Mniotilta varia</i>	27 April	8 May
<i>Seiurus aurocapillus</i>	5 May	10 May
<i>Oporornis philadelphia</i>	9 May	9 May
<i>Icterus galbula</i>	4 May	9 May

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