

NOTES ON BIRDS OF SAN SALVADOR ISLAND (WATLINGS), THE BAHAMAS

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ABSTRACT.—Resident land birds of San Salvador (Watlings) Island, The Bahamas, are briefly discussed. Breeding information is given for some resident species and note made of some new records of nonresidents. The total species known for the island is 132. The addition of three resident land birds raises the probable present total of that category to 19. *Received 11 May 1976, accepted 20 September 1976.*

THE Bahama Islands lie south and east of Florida and east of Cuba, extending to within some 80 km of Florida and 80 km of southeastern Cuba. There are some 15 islands with an area greater than 65 km², hundreds of smaller ones, and thousands of tiny cays. Their total land area is about 11,400 km². With the exception of New Providence Island, the distribution and abundance of birds in the Bahamas is not yet well known. I have had the opportunity of examining San Salvador Island quite thoroughly in winter, spring, and early summer. In this paper I briefly discuss resident land birds, give breeding information for selected water and land bird species, and mention occurrences of some noteworthy nonresidents.

STUDY AREA AND METHODS

San Salvador (Watlings Island until 1925) is a small (156 km²), low (43 m max.), seasonally dry island in the eastern central Bahamas (see map inside cover of Bond [1956, 1971]). Its predominant vegetation is dense semi-deciduous scrub, chiefly low coppice (trees dominant, 3–7 m), but with appreciable coastal scrub and mangrove swamps. The wet seasons are September–October and May–June. The dry season is December–April. San Salvador differs from most of the other Bahamas in having numerous lakes and ponds (most saline) comprising roughly 1/3 of its area (Fig. 1), and in having never been connected with the Great Bahama Bank or any other large land mass. Lying east of the Great Bank, its nearest neighbor is Rum Cay, some 37 km to the southwest.

Five visits were made to San Salvador, on 26 November–21 December 1973, 26 November–19 December 1974, 12 January–14 June 1975, 19 November–15 December 1975, and 21 November–15 December 1976. The December visits were with College Center of the Finger Lakes field ornithology classes, largely of novices. The class project was to survey the birds of the island. All habitats were well covered except for very large lakes. We recorded numbers of individuals as well as species. I have personally seen all species reported here except Yellow-headed Blackbird. In the longer 1975 visit my wife and I were in the field nearly daily at dawn studying *Melanerpes superciliosus nyeanus* and taking notes on other birds. These 1975 observations were made chiefly on the northern fifth of the island.

Nomenclature follows the A.O.U. check-list (1957) and supplement (1973) for all species there listed, and Bond (1971) for the others. Trinomials have been used only where subspecific field identification can be unequivocal, and in some species where specimens were examined by others. All identifications were sight records. I have no observations in early fall and few of spring transients. Bond (1956) summarized the distribution and abundance of the West Indian avifauna and has continued with annual supplements (1956–1976). Paulson (1966) published an annotated list of new and important Bahaman records, including some for San Salvador. The Schwartz and Klinikowski papers (1963, 1965) on West Indian birds include many Bahaman records. Brudenell-Bruce's recent (1975) field guide to the Bahamas is excellent for New Providence, but weak for the other islands.

RESIDENT LAND BIRDS

This paper adds three species, Key West Quail Dove (*Geotrygon chrysis*), Barn Owl (*Tyto alba*), and Mockingbird (*Mimus polyglottos*), raising the probable total of

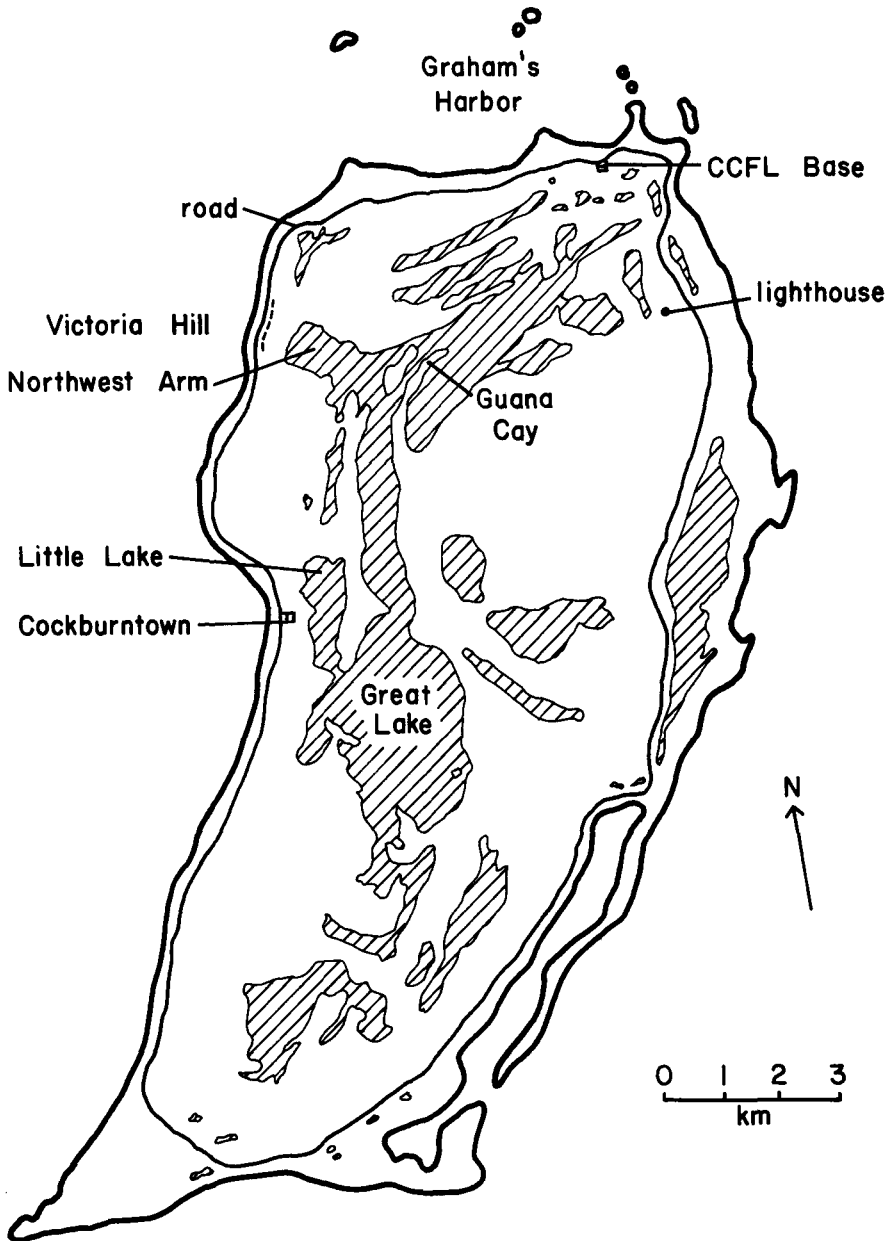


Fig. 1. Major features of San Salvador Island, The Bahamas.

land birds now breeding on San Salvador to 19. I have included American Kestrel (*Falco sparverius*) and Barn Owl in the list of residents, but excluded Burrowing Owl (*Speotyto cunicularia*), Yellow-billed Cuckoo (*Coccyzus americana*), and Mourning Dove (*Zenaidura macroura*). *Speotyto cunicularia* might breed but I have no indications of it. Although *C. americana* and *Z. macroura* are possibly residents, I doubt this very much. Both species are known to breed elsewhere in the Bahamas, and *C. americana* is known as a fall transient and winters in South America (Cory 1892, and

see Ridgway 1916, Bond 1956, Brudenell-Bruce 1975). I saw it only in November 1975. *Zenaida macroura* is known to winter in the western islands. Only one individual was seen on San Salvador by Paulson (1966), sometime between 26 December and 1 January, and I have seen only one, on 23 November 1976. Two of the 19 residents, Common Nighthawk (*Chordeiles minor vicinus*) and Gray Kingbird (*Tyrannus dominicensis*), occur in summer only. Feral Rock Doves (*Columba livia*) are present in Cockburntown and Victoria Hill.

I feel certain that Stolid Flycatcher (*Myiarchus stolidus*), Greater Antillean Pewee (*Contopus caribaeus*), Red-legged Thrush (*Mimocichla plumbea*), Black-whiskered Vireo (*Vireo altiloquus*), Bahama Yellowthroat (*Geothlypis rostrata*), Stripe-headed Tanager (*Spindalis zena*), and Greater Antillean Bullfinch (*Loxigilla violacea*), all common breeders on other Bahama islands, are not present. The abundant resident passerines are five: Bahama Mockingbird (*Mimus gundlachi*), Yellow Warbler (*Dendroica petechia*), Pearly-eyed Thrasher (*Margarops fuscatus*), Bananaquit (*Coereba flaveola*), and Thick-billed Vireo (*Vireo crassirostris*). The last two are widespread in the Bahamas, the thrasher extends only as far north as Eleuthera and Great Exuma (Bond 1971), and the mockingbird and warbler, while found on nearly all the islands, are less numerous on the northern islands. Of the other 14 breeding land birds, four are abundant: American Kestrel (*Falco sparverius sparveriioides*), Ground Dove (*Columbina passerina*), Common Nighthawk, and Bahama Woodstar (*Calliphlox evelynae*). Three are widespread in the Bahamas, but the breeding subspecies of kestrel unquestionably reached the Bahamas from Cuba, probably within the past 50 yr, and is now well established on Great Inagua and San Salvador (Bond, pers. comm., 1976). It has been recorded only for these two islands in the Bahamas.

Thus, of the 9 abundant breeding land birds, 5 are widespread in the Bahamas and 4 occur chiefly or solely in the southern islands. Of the other 10 land species the Gray Kingbird is common, Key West Quail Dove and Barn Owl rare, and the others uncommon. Six of these 10 are widespread in the Bahamas (Whitecrowned Pigeon, *Columba leucocephala*, Zenaida Dove, *Zenaida aurita*, Smooth-billed Ani, *Crotophaga ani*, Barn Owl, Gray Kingbird, Black-faced Grassquit, *Tiaris bicolor*), 2 are found on almost all main islands (Mangrove Cuckoo, *Coccyzus minor*, Mockingbird), but the quail dove is at present recorded only from northern islands (but may be more widespread), and the woodpecker (West Indian Red-bellied Woodpecker, *M. s. nyanus*) is a form endemic to San Salvador. Other races inhabit Grand Bahama and Abaco in the north as well as Cuba, the Isle of Pines, and Grand Cayman to the west and south.

On many small islands (<259 km²) all the land species are included in a census of just one habitat (Terborgh 1973). This is very nearly the case on San Salvador, where a sufficiently large scrub-coppice area would include all species except *Mimus polyglottos*, which is found around human habitations. The total number of resident land birds for this island is somewhere near the 23 predicted by Terborgh's species-area curve, which was derived from a variety of Lesser and Greater Antillean islands. Our total of 19 agrees less well with the 26 predicted by the curve of Ricklefs and Cox (1972), which was based on West Indian islands of 10–100,000 km². Johnston (1975) found that resident terrestrial bird numbers for Grand Cayman, Little Cayman, and Cayman Brac fall within the expected ranges of Ricklefs and Cox. Johnston also noted that species numbers for small satellite islands off Hispaniola generally conform to the Ricklefs–Cox curve. Comparing San Salvador's sympatry levels with Terborgh's sympatric species-island area curves shows San Salvador's diversity of

pigeons, hawks, warblers, and thrushes agreeing nicely. The woodpeckers, finches, and mimids are close and the flycatchers and hummingbirds are somewhat farther off and fewer but within the variations Terborgh found for the Antilles.

BREEDING NOTES, WATER AND LAND BIRDS¹

LEAST GREBE, *Podiceps dominicus*. U. Three pairs with two young each, 2, 13–15, 18 December 1973.

WHITE-TAILED TROPICBIRD, *Phaethon lepturus*. Several incubating in limestone cliffs on 17 May 1975. Returned to island 15 March 1975.

DOUBLE-CRESTED CORMORANT, *Phalacrocorax auritus*. I have not seen this species on San Salvador. All those we have identified have been *P. olivaceus*. However, until December 1975 I did not identify as to species those cormorants that I saw. Bond (pers. comm., 1975) states that cormorant specimens from San Salvador in the Field Museum (Chicago) are *P. auritus* (see also Paulson, 1966). *Phalacrocorax auritus* occurs in the northern Bahamas.

OLIVACEOUS CORMORANT, *Phalacrocorax olivaceus*. U. Small active breeding colony observed 25–29 November 1975 east of Guana Cay on south edge of Great Lake. We always saw them in Great Lake, saw very few on other lakes, and saw no cormorants on the coast. All those we identified were *P. olivaceus*. Twice we saw distant rafts of 110–130 cormorants in early 1975 in Northwest Arm of Great Lake—presumably this species, rather than *P. auritus* (see also Paulson, 1966).

*CATTLE EGRET, *Bubulcus ibis*. U. Seen each December (1973, 1974, 1975, 1976) and in 1975 regularly January–12 June, including adults in breeding plumage. Paulson (1966) did not find it in 1963 on San Salvador but saw it on Cat Island. For summary of first reports for various West Indian islands to 1960 see Bond (4th Suppl. 1959).

OSPREY, *Pandion haliaetus ridgwayi*. U. All Ospreys I observed were clearly this subspecies rather than migrant *P. h. carolinensis*. December 1973: one pair feeding young and one active nest; December 1974 and early 1975: two pairs and a single bird seen regularly; December 1975: one pair with one feathered nestling, a second pair with three eggs, a third pair, and a single bird; December 1976: one pair with three eggs and a second pair.

AMERICAN KESTREL, *Falco sparverius*. A. The specimens Paulson (1966) examined from San Salvador and Great Inagua were *F. s. sparverioides*. North American individuals of *F. s. sparverius* also winter in the Bahamas and Cuba (Bond 1971). I saw no *F. s. sparverius* on San Salvador. In 1975 I saw copulation on 14 January, 18 February, 1, 2, 3 March, and 12 May, found one active nest 5 June, and saw a recently-fledged young on 8 June. Copulation sometimes takes place up to 6 weeks before egg-laying (Brown and Amadon 1968).

KILLDEER, *Charadrius vociferus*. U. Two nests with apparently full clutches observed 16–21 May 1975, two eggs and four eggs. A third nest seen 11 June with three eggs. The breeding status of this species is not known for some islands.

LEAST TERN, *Sterna albifrons*. C. Seen on all the five rather isolated inland lakes visited May–June 1975. Not seen on visits May 1975 to three lakes having nearby human habitations. One small breeding colony on an islet in a shallow lake, observed 16–21 May, had complete clutches of: 1 with 3 eggs, 2 with 1 egg, and 12 with 2 eggs.

*KEY WEST QUAIL DOVE, *Geotrygon chrysis*. R. This is an elusive bird that is seldom seen even in localities where it is plentiful. Brudenell-Bruce (1975) described similar secretive behavior for the species on New Providence. It has been recorded from Grand Bahama, Abaco, Andros, New Providence, and Eleuthera in the Bahamas. Bond (1971: 108) states it is "rare on most islands of its range," and in 1975 (pers. comm.) he wrote "there are several unpublished new island records of *G. chrysis*, and I have no doubt this quail dove is more widespread in the Bahamas than is known at present." See Bond (20th Suppl. 1976) for some very recent Antillean records and a discussion of the distribution of *G. chrysis* and some of its congeners. We recorded songs in 23 locations from 18 March to 12 June 1975. Song began early in the year, was at a moderate, constant level from mid-March to early May, and somewhat higher thereafter. A long nesting season is common for this species (Bent 1932). Two nests: 3–7 February 1975 and 24–28 March, each with one egg.

*BARN OWL, *Tyto alba*. R. A primary feather was found and one bird seen 6 December 1975. In 1976 one owl was found dead in the road mid-island on the east side 10 December, a pair was seen 30

¹ Relative abundance in appropriate habitat is indicated by: A = abundant, apt to be seen quite a number of times each day, C = common, likely to be seen everyday, U = uncommon, not likely to be seen every day, or R = rare, very seldom would be seen. Those species new for San Salvador are marked with an asterisk.

November in a deep pit on the extreme south of the island, and on 12 December a nest with one adult and three dead eggs was located in a cave in this pit. An injured bird was picked up from the road on the north side of the island 14 December. *Tyto alba lucayana* is the subspecies known from the Bahamas (Bond 1956).

BAHAMA WOODSTAR, *Calliphlox evelynae*. A. Two nests, each with one naked young, December 1973 and December 1974. In December 1975: 3 nests found with 1 egg, 7 with 2 eggs, and 1 with 3 young. Agonistic behavior (male-male chases) seems higher in spring.

WEST INDIAN RED-BELLIED WOODPECKER, *Melanerpes superciliaris nyeanus*. U. I am currently studying this endemic subspecies. The population appears to be about 100–160 territorial pairs. There is a slight chance of a second sizable population. The bird inhabits coppice and usually nests in *Sabal palmetto*. Its feeding habits are broad. Habitat destruction by man has adversely affected it in the past but slash/burn agriculture and the resident human population have been decreasing sharply since the late 1950's and 1960's, respectively. There is some early regrowth of potential foraging habitat. No serious immediate threats are apparent at this time.

***MOCKINGBIRD, *Mimus polyglottos*.** U. This is a new species to the island and no doubt breeds here. Agonistic behavior was high in May. *Mimus polyglottos* has been spreading recently in the Bahamas. The species was first reported from Cat Island in 1958 by R. W. Hanlon (Bond 4th Suppl. 1959) and was seen there again in small numbers in 1963 by Paulson (1966). Paulson, however, found none on San Salvador in 1963. They have been present in small numbers on San Salvador at least since December 1973. I have never seen the species far from dwellings.

BAHAMA MOCKINGBIRD, *Mimus gundlachi*. A. This is one of the most abundant breeding passerines, possibly the most numerous. Brudenell-Bruce (1975) states that *M. polyglottos* "although introduced on New Providence only 60 or 70 years ago. . . far outnumbered" its congener *M. gundlachi*. He notes, however, that *M. gundlachi* may never have been abundant there. Many *M. polyglottos* were brought to New Providence in the early 1930's from Great Inagua and Jamaica (Bond, pers. comm.). *Mimus gundlachi* outnumbered *M. polyglottos* on Great Exuma in 1964 (Bond 9th Suppl. 1964). In 1961 Schwartz and Klinikowski (1963: 69) found *M. polyglottos* "not uncommon" on South Caicos, "although *M. gundlachi* was somewhat more abundant."

PEARLY-EYED THRASHER, *Margarops fuscatus*. A. Three active nests were noted, one on 10 and two on 11 June 1975, one with a complete clutch of three eggs. Song began in late January and was at a high level mid-February–12 June. In mid-May many began to sing more loudly. Agonistic behavior was first observed in early February.

YELLOW WARBLER, *Dendroica petechia*. A. On San Salvador it is abundant in the breeding season in thickets, scrub, and coppice as well as in mangrove edge. One feeding a fledgling 17 April 1975. Nest with one egg observed 15–22 May.

NOTEWORTHY RECORDS OF NONRESIDENTS

***FULVOUS TREE DUCK, *Dendrocygna bicolor*.** A single bird observed at length 12 January 1975. Has spread comparatively recently to the West Indies (Bond 10th Suppl. 1965). Breeds abundantly in Cuba and has occurred widely in the West Indies as a vagrant, whence first recorded in 1943 (Bond 1971). See Brudenell-Bruce (1975) for Bahama records.

SORA, *Porzana carolina*. U. I have recorded several in late spring: 2, 1, 1, on 12, 14, 19 May 1975; and 3 heard 21 May. Not heard or seen thereafter in same areas. Bond (1971) gives "early May" as the late date for the West Indies and Brudenell-Bruce (1975) 15 April as the late date for New Providence.

***AMERICAN AVOCET, *Recurvirostra americana*.** One photographed 1–8 December 1975. Vagrant to various Antilles August–16 November and to Andros 30 June (Bond 1971).

***BONAPARTE'S GULL, *Larus philadelphia*.** Two together, 2 December 1973 only. Recorded from the Bahamas and various of the Antilles (Bond 1971). Brudenell-Bruce (1975) mentions New Providence, Grand Bahama, and Long Island records. Apparently seldom recorded in the Bahamas.

***BURROWING OWL, *Speotyto cucularia*.** Paulson (1966) did not locate any on San Salvador but saw one on Cat Island. We saw them nightly on and about our CCFL base living quarters December 1973, December 1975, December 1976, and December 1974–early February 1975. Not seen after February, although frequent specific checks were made mid-March to June 1975. Also seen by day at the head of Little Lake just above Cockburntown and on the south of the island in December. Some might breed but the present evidence is for winterers only. Recorded from many of the Bahamas (Bond 1956, Paulson 1966).

***CHIMNEY SWIFT, *Chaetura pelagica*.** One only, 4 May 1975, feeding over the CCFL base with Barn Swallows. Recorded for Eleuthera April and October 1961 (Schwartz and Klinikowski 1963) and for New

Providence 1 May and 23 August (Brudenell-Bruce 1975). Bond (1971) states it is recorded from the Bahamas and various Antilles.

*SCISSOR-TAILED FLYCATCHER, *Muscivora forficata*. One immature 13 December 1973 was watched for 1.5 h flycatching in an open buttonwood/mangrove situation. Apparently there are only three other West Indian records: Grand Bahama (31 October), W Cuba (21 November 1952), and Puerto Rico (December)(Bond 1971).

*TREE SWALLOW, *Iridoprocne bicolor*. Recorded every year (21 November–15 December). Apparently these are the southernmost Bahama records.

*AMERICAN ROBIN, *Turdus migratorius*. One seen daily 20–30 November 1975, on the CCFL base. Winters south to the northern Bahamas, Cuba, and Jamaica (Bond 1971).

*CEDAR WAXWING, *Bombycilla cedrorum*. A flock of eight spent two days (15, 16 April 1975) feeding and resting in a single *Ficus aureus*. Rarely recorded in the Bahamas, as a transient (Bond 1956). Brudenell-Bruce (1975) gives recent records for Grand Bahama and Eleuthera.

STARLING, *Sturnus vulgaris*. Apparently thus far recorded only from the northern half of the Bahamas (to San Salvador), and still an uncommon winter visitor on New Providence (Brudenell-Bruce 1975). Paulson (1966) reported the first for San Salvador on 26 December 1963. We saw none in 1973, but in 1974–75 a flock was present in late November, in December, and in February. Later in 1975 we saw 1 bird 27 November, 4 birds 28 November, and 1 on 30 November. In 1976 we recorded 10 on 21 November on the base and a flock of 69 regularly 26 November–14 December near the airstrip.

*YELLOW-THROATED VIREO, *Vireo flavifrons*. Three were seen in both December 1973 and 1974. Eleven were seen December 1975. Bond (1971) states, "rather rare to rare winter resident in the western Bahamas," and gives Andros, New Providence, and Cay Lobos as Bahamas localities (1956).

*NASHVILLE WARBLER, *Vermivora ruficapilla*. A total of 13 were seen between 28 November and 10 December 1975 in widely scattered locations. One seen 21 November 1976. Listed as a vagrant for Grand Bahama, New Providence, Eleuthera, Exuma, and W Cuba (1 October–27 November)(Bond 1971).

KIRTLAND'S WARBLER, *Dendroica kirtlandii*. In our hundreds of man-hours in the field we have never seen the bird though always watchful for it.

HOODED WARBLER, *Wilsonia citrina*. Ten in December 1973, 2 in December 1974, 3 on 5–8 February 1975, 8 in December 1975, and 7 in December 1976. Transient and rare winter resident in the West Indies (Bond 1971).

*YELLOW-HEADED BLACKBIRD, *Xanthocephalus xanthocephalus*. One male only in a large flock of Starlings 26 and 28 November 1976. Observed at length by four people, including experienced observers. There are apparently four West Indian records: Grand Bahama, Cuba, and Barbados (autumn)(Bond 1956, 1971, Brudenell-Bruce 1975).

ROSE-BREASTED GROSBEAK, *Pheucticus ludovicianus*. This species has been reported as a rare transient on San Salvador (Bond 1956). Cory (1892) collected a female 20 October 1891. We saw three immatures and/or females together 18 December 1973, none December 1974 or December 1975, and one December 1976. In 1975 I saw an immature or female on 14 January, a male starting into breeding plumage 10 February, a male well along into breeding plumage 20 March, and on 10 May a male in full breeding plumage. The 10 May date is the latest recorded from any of the West Indies (Bond, pers. comm., 1975). This bird is rare in the West Indies, most numerous as a transient, and winters (very rarely) in western Cuba (Bond 1956, 1971). Bond (pers. comm., 1975) states it has not been known to winter in the Bahamas.

*DICKCISSEL, *Spiza americana*. One female 15 December 1975, watched at length at close range on the CCFL base. Bond (1971) indicates it has been recorded from the Bahamas in fall and spring.

*WHITE-CROWNED SPARROW, *Zonotrichia leucophrys*. Rare in the West Indies. Recorded only from the northern Bahamas in fall (Paulson 1966). I first saw two immatures 3 February 1975 and photographed them on 5 February. They fed regularly a few hundred meters from our CCFL base quarters for several days. One adult in breeding plumage was in the same location 25 April.

DISCUSSION

We have seen 121 species on San Salvador. This paper adds at least 18 species to the known avifauna of the island. The total species known up to the present for the island is 132. Of these the probable permanent residents number 39, summer residents 9, winter residents about 45, passage migrants 8, and vagrant and unclassified about 31. Some common summer oceanic and coastal water birds, some passage

migrants, and a few rare or uncommon wintering water, shore, and land birds will doubtlessly be recorded in the future.

Two of our additions are probably documentations of recent additions to the resident avifauna. These are the invasive species *Bubulcus ibis* and *Mimus polyglottos*. Both probably arrived on San Salvador between 1963 and 1973. The former is a terrestrial insectivore often associated with the goats on the island and the latter is a ground feeder on insects, invertebrates, and seeds near human habitations. Breeding has not been proven for either but is indicated. *Mimus polyglottos* and the well-established *M. gundlachii* are San Salvador's only land bird congeners. The other additions to the resident terrestrial list are *Geotrygon chryisia*, an elusive bird of thick coppice, and *Tyto alba*, both of which may have long been overlooked. There are no recorded introductions or extinctions for San Salvador.

ACKNOWLEDGMENTS

In all visits we lived at the CCFL base at Graham's Harbor on the northern end of the island (Fig. 1). I thank Donald Gerace, Director of The Bahamian Project, College Center of the Finger Lakes, for providing living facilities on the CCFL base while I was on sabbatical. James Bond offered many thoughtful suggestions on San Salvador birds and numerous helpful comments on this manuscript. Kenneth L. Crowell provided a careful reading of the manuscript and helpful suggestions.

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