

The Status and Distribution of Wetland - Dependent Birds in Trinidad.

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The avifauna of Trinidad has been studied for over 100 years and is now generally well known (French 1980). Few studies, however, have looked at habitat dependence of the individual species and fewer still (French 1966, Bacon 1970) have concentrated on mangroves and associated marshes. French (1966), considering the mangrove avifauna, mainly from the Caroni Swamp, recorded 94 species and Bacon (1970) found 137 species in the mangroves and marshes of the Caroni Swamp. Both studies listed all species present in the study areas without considering their dependence on the habitat for survival.

Mangroves and adjacent marshes in Trinidad have undergone pronounced changes in their physical and biological character during the past 30 years as a result of reclamation and channelization. This paper is an attempt to describe the present status and distribution of all species of birds that depend on these habitats for their survival and has arisen out of a study to describe the living resources of the major wetlands in Trinidad.

The Study Area

Trinidad is the southernmost island of the Caribbean archipelago and lies between 103° and 104° N and 60° 55' and 61° 44' W. It has an area of 4772 km² and of this, 180 km² are occupied by mangroves and marshes. The major wetlands, all coastal, occur on the east (North Oropouche 6 km², Naiva 90 km²), south (Los Blanquizaes 12 km², Icacos 5.5 km²) and west (Roussillac 5 km², South Oropouche 15 km², Caroni 50 km²) with numerous smaller ones scattered around the island (Fig. 1)

The vegetation comprises mainly mangroves in the brackish seaward areas and marshes in the less saline to freshwater areas. The mangrove flora is dominated by *Rhizophora* (red mangrove), with *Avicennia* (black mangrove) and *Laguncularia* (white mangrove) having a patchy distribution with local dominance in some areas. In the Naiva swamp, because of unique environmental conditions, the mangroves are also mixed with salt tolerant tree species and palms.

The marsh flora consists mainly of grasses and sedges with the major ones being *Eleocharis mutata*, *Cyperus articulatus*, *Cyperus giganteus*, *Phragmites australis*, *Leersia hexandra*, and various species of *Scleria* and *Panicum*. In the Naiva and Los Blanquizaes swamps, the aroid, *Montrichardia arborescens*, is also common.

With the exception of the North Oropouche Swamp, all the above named wetlands were studied. The North Oropouche was omitted from the study because of a combination of temporal constraints on the field work and the impression gained from previous observations that the avifauna was generally depauperate. It is felt that the poverty of the avifauna may be the result of the fringing nature of the mangrove in a low salinity environment and the seasonal conversion of much of the marshes to agricultural land.

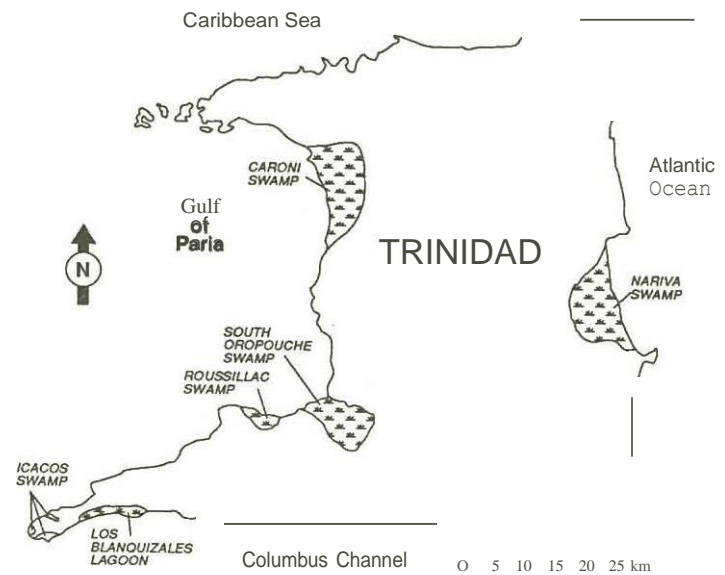


Fig. 1 Wetlands in Trinidad.

Methods

1. Field Visits

Thirty-nine field visits were made during three periods: September - October, 1981; January - February, 1982; and April - June, 1982.

During each visit, notes were made on the presence, abundance, nesting, habitat and other ecological characteristics of the species recorded.

2. Status terminology

The abundance of each species was derived according to the following criteria:

- (a) Abundant: Always present in significant numbers; can be reliably predicted to be recorded.
- (b) Common: Present in numbers; may fluctuate
- (c) Fairly Common: Usually seen on visits; recorded numbers vary between 5 and 20 individuals per visit.
- (d) Uncommon: Not always seen on visits; or seen regularly but less than 5 individuals per visit.
- (e) Rare: Only occasional individuals seen.

Results and Discussion

1. Distribution and abundance of wetland avifauna

The known avifauna of Trinidad comprises in excess of 400 species, and, of these, 287 are found in the coastal wetlands (French and Ramcharan, in press). One hundred and eighty-nine (189) species are recorded for the Caroni Swamp, 204 for

the Nariva, 134 for South Oropouche, 71 for Icacos, 68 for Los Blanquizaes and 43 for Roussillac. One hundred and three (103) species occur in one wetland only with 31 in Caroni, 65 in Nariva, 4 in South Oropouche, 1 in Icacos and 2 in Los Blanquizaes. Further, 67 of the remaining 184 species are present in not less than two of the Caroni, Nariva and South Oropouche Swamps and a total of 167 species occur exclusively in these areas. Considering the occurrences of all species over the range of wetlands studied, French and Ramcharan (in press) found that one species (Ruddy Ground-Dove) was abundant, 13 were common, 37 were fairly common, 74 were uncommon, 70 were rare and three (Bat Falcon, Blue-and-yellow Macaw, Large-billed Seed Finch) were extirpated locally. The remaining 89 species occurred in varying degrees of abundance over their wetland range. From the species restricted to one wetland, 56 were rare, 27 fairly common and 8 common.

2. Taxonomic and ecological groupings

The wetland avifauna comprises 56 families, with the number of species in a family ranging from 1 (Jacanas, Storks, etc.) to 24 (Tyrant Flycatchers). Twenty-one families are represented by only 1 species, 35 by 5 or less, 46 by less than 10 and the ten largest families have 141 species. The nineteen largest families comprise the bulk of the avifauna with 211 species. Some of the families that are represented by large numbers of species are the herons (19 spp), rails, gallinules and coots (12 spp), ducks and geese (13 spp), kites, hawks and eagles (18 spp), sandpipers and snipe (18 spp) and hummingbirds (13 spp).

The avifauna can also be grouped according to ecological and habitat characteristics and preferences. Within the region, Trinidad holds a unique position as a stepping stone between the continental neotropics and the more oceanic Antilles. In addition, the extensive wetlands are situated at a cross roads, as it were, not only for wetland species that are northern and southern migrants but also for those species dispersing to and from the Orinoco delta. This is well expressed in the fact that a significant component of the avifauna (82 species) is non-resident. Fifty-five come from North America and the Antilles and while many are present for only a short time during the months of July to October, some stay until April and a few remain between April and July. The remaining 27 species of non-residents come from South America and these are usually present between April and September. There is some dispersal from Trinidad during the year and some species that are resident visit the South American mainland on a regular basis.

Within the wetland areas some species tend to be specific in their microhabitat selection, preferring either the mangrove or the freshwater marshes, whereas others are cosmopolitan. Species that prefer the mangrove habitat include the Boat-billed Heron, Rufous Crab-Hawk, Mangrove Cuckoo, and Straight-billed Woodcreeper. While many species are adapted to both mangrove and marsh, a significant number prefer the latter, presumably because they depend on a diet that cannot be found in saline or brackish conditions. These include the Least Grebe, Striped-backed Bittern, Pinnated Bittern and several species of ducks, rails and gallinules.

Included in the rest of species recorded for the wetlands are several species that occur in habitats ranging from sea-coasts to scrub, savanna and forest where they reach optimum abundance. This fauna is not dependent on mangroves and marshes for its survival and its intrusion into the wetland

habitat is due to a number of factors including the presence of food during the dry periods of the year, increased urbanization and the loss of natural habitats to development. Common elements of this group include the sandpipers and snipes, pigeons and doves, swifts, hummingbirds, tyrant-flycatchers, swallows, American orioles, wood warblers, tanagers, finches, seedeaters and grosbeaks.

3. The obligate mangrove and marsh avifauna

This group of birds comprises 100 species of which 16 are confined to the mangrove, 52 to the freshwater and brackish water herbaceous marsh, 16 to the mangrove/marsh interface zone, 5 to the marsh/seacoast interface and 8 to the marsh/swamp-forest interface, with 3 species having an as yet undetermined preference (Table 1). Three species, Reddish Egret (Caroni), Azure Gallinule (Nariva) and Red-winged Blackbird (Caroni), are new records to the island but there are no recent records to indicate the presence of the Horned Screamer (Nariva), White-faced Tree-Duck (Caroni), Ash-throated Crake (Caroni) and Blue-and-Yellow Macaw (Nariva), all of which were previously recorded. For 14 other species there have been few recent records. Finally, one race of the Straight-billed Wood-creeper is endemic to Trinidad where it is found exclusively in the mangroves of the Caroni Swamp.

The Fulvous Tree-Duck which was formerly almost extirpated locally has been recorded in increasing numbers with flocks of up to 400 birds occurring in the Caroni and South Oropouche swamps during June to October. Four other species, the Limpkin, Yellow-breasted Crake, Gray-breasted Crake and Long-winged Harrier have been found to be more widespread and common than previously suspected, while the White-tailed Kite and Spotted Tody-flycatcher are now local residents. In addition, 2 species, the Spotted Rail and Ringed Kingfisher, have extended their previously known ranges to include the South Oropouche and Icacos swamps respectively.

Not only have there been changes in the wetland-dependent avifauna but in the non-dependent fauna as well. The semicollared Nightjar, a forest species, was recorded for the South Oropouche Swamp and a vast roost of the Carib Grackle, a bird of urban areas, scrub and secondary forests, was found in the Caroni. After an absence of over ten years, the Dickcissel has returned to the Nariva Swamp.

a. The Mangrove Avifauna The mangrove avifauna comprises 16 species and those with the largest populations, Scarlet Ibis, Greater Ani, Black-crested Antshrike and Bicoloured Conebill, are all resident. The remaining 12 species are either uncommon or rare and include the migrants, White Ibis, Rufous Crab-hawk, Ringed Kingfisher and Belted Kingfisher. The distribution of the species is patchy with 14 occurring in the Caroni Swamp, 7 in the Nariva, 6 in South Oropouche and one each in Roussillac, Los Blanquizaes and Icacos swamps. Four species, the White Ibis, Rufous-necked Woodrail, Dark-billed Cuckoo and Straight-billed Woodcreeper are found only in the Caroni where they are rare, while 3, the Mangrove Cuckoo, Little Cuckoo and Belted Kingfisher occur in both the Caroni and Nariva, and a further 2, the Night-heron and Ringed Kingfisher, occur in the Caroni and South Oropouche Swamps. One species, the non-resident Rufous Crab-hawk, occurs in the Nariva only and another, the resident Spotted Tody-flycatcher, occurs uncommonly in both the Los Blanquizaes and Icacos swamps.

b. The Brackish/Freshwater marsh avifauna The most

striking feature of this group of 52 species is the large number of species that are either rare (21 spp.) or uncommon (17 spp.) over the extent of their ranges. No species exerts numerical dominance in all the wetlands where it occurs and only the Jacana, Yellow-throated Spinetail, Fork-tailed Flycatcher, Common Gallinule, Black-bellied Tree Duck and Great Egret express dominance in any wetland.

Fifty species occur in the Caroni. Of this number, seventeen species, 10 of which are non resident, occur in this wetland only. The common species are Great Egret, Blue-winged Teal, Common Gallinule, Jacana, Yellow-Throated Spinetail and Fork-tailed Flycatcher.

The Nariva Swamp, with the largest marshes in the country, has an avifauna of 26 species that is dominated by Jacana and the Black-bellied Tree Duck. One species, the Azure Gallinule, occurs in this wetland only and another, the Homed Screamer, is thought to have recently become locally extinct. Further observations will clarify this issue. Out of the remaining 22 species, 18 are either rare or uncommon and 4 (Common Gallinule, Purple Gallinule, Pectoral Sandpiper and Fork-tailed Flycatcher) are fairly common.

In the South Oropouche Swamp, the marsh avifauna comprises 30 species and is dominated by the Fork-tailed Flycatcher, Yellow throated Spinetail, Jacana and Common Gallinule. Eighteen species are either uncommon or rare in their occurrences. Eight (including Nacunda Nighthawk, Least Sandpiper, Comb Duck, Ring-necked duck and Pied-billed Grebe) occur only in the Caroni and South Oropouche and a further 9 are present in the Caroni, Nariva and South Oropouche.

The marsh avifaunal composition of the Icacos, Los Blanquizaes and Roussillac swamps is depauperate with 1 species (Jacana) in Roussillac, 5 (Gray-breasted Crake, Jacana, Green-throated Mango, Yellow-throated Spinetail and Fork-tailed Flycatcher) in Los Blanquizaes and 12 in Icacos.

c. The avifauna of the mangrove/marsh interface This group of birds comprises 16 species of which one (Roseate Spoonbill) is a non-resident. Many different species dominate both locally in individual wetlands and across the extent of their ranges. These include the Little Blue Heron, abundant in Caroni and Nariva, the Cattle Egret, abundant in Caroni, South Oropouche and Nariva and the Yellow-hooded Blackbird, abundant in the Caroni, South Oropouche, Nariva and Icacos swamps. Other species which commonly occur are the Snowy Egret (Caroni), Pied Water-Tyrant (Caroni, South Oropouche, Nariva and Icacos) and the White-headed Marsh-Tyrant (Caroni, South Oropouche, Nariva).

Two species, (Red-capped Cardinal and Roseate Spoonbill)

occur in one wetland (Caroni) only, 5 in three wetlands, 4 in four, 3 in five and a similar number in six. Sixteen species occur in the Caroni, 14 in the South Oropouche, 12 in Icacos, 10 in Nariva, 5 in Los Blanquizaes and 3 in Roussillac.

d. Birds of the marsh/swamp-forest interface There are eight species in this group. One, the Blue-and-yellow Macaw, is considered locally extinct and only 1, the Red-bellied Macaw, occurs with any degree of abundance, the others being either rare or uncommon throughout their ranges. All 7 extant species occur in the Nariva while 3, (Limpkin, Rufescent Tiger-Heron and Chestnut-bellied Heron) occur in the Caroni, 1 (Limpkin) in the South Oropouche and 1 (Moriche Oriole) in Los Blanquizaes.

e. Birds of the marsh/seacoast interface This group comprises five species of which the commonest are the Semipalmated Plover and Large-billed Tern. All are recorded for the Caroni, 3 for South Oropouche, 2 for Nariva and 1 each for Los Blanquizaes and Roussillac.

f. Birds of undetermined habitat This group comprises three species, 2 of which, Gray Heron and Little Egret, have been recorded only once and the third, Osprey, which ranges over all the different habitats in the wetland system.

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Table 1 Checklist of the wetland-dependent birds of the major wetlands of Trinidad.

Symbols:

a - abundant; c - common; fc - fairly common;
 u - uncommon; r - rare; e - locally extinct
 x - visitor; n - nesting; mg - mangrove
 mr - marsh; mm - mangrove/marsh

ms - marsh/seacoast; mf - marsh/swamp forest
 1 - Caroni; 2 - Nariva; 3 - South Oropouche;
 4 - Icacos; 5 - Los Blanquizaes; 6 - Roussillac;
 7 - Residence status; 8 - Breeding status; 9 - Habitat

	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
GREBES										Blue-winged Teal	c	u	u				x		mr
Least Grebe	r							n	mr	Northern Shoveler	r						x		mr
Pied-billed Grebe	fc		u					n	mr	Lesser Scaup	r						x		mr
										Ring-necked Duck	r		r				x		mr
CORMORANTS										Comb Duck	r		r				x		mr
Neotropic Cormorant	u	u	u	u			x		mr	Muscovy Duck	r	r					x		mr
ANHINGA										Masked Duck	u							n	mr
Anhinga	u	u	u	u			x		mr										
HERONS										KITES, HAWKS, AND EAGLES									
Gray Heron			r				x			White-tailed Kite	u	u	u						mr
Great Blue Heron	u	u	u				x		mr	Everglade Kite	r	r					x		mr
White-necked Heron	u	u	u				x		mr	Black-collared Hawk		e					x		mf
Great Egret	c	u	c	r			x	n	mr	Rufous Crab-Hawk		r					x		mg
Little Egret	r						x			Long-winged Harrier	u	u	u					n	mr
Snowy Egret	c	fc	fc	fc				n	mm	OSPREYS									
Little Blue Heron	a	fc	a	fc	fc	fc		n	mm	Osprey		fc	u	fc	u	u	u	x	
Tricoloured Heron	a	u	a	u				n	mm	LIMPKINS									
Reddish Egret	r						x		mr	Urnpkln		r	u	r				n	mf
Green Heron	r	r					x	n	mr	RAILS, GALLINULES, AND COOTS									
Striated Heron	fc	fc	fc	u	u	u		n	mm	Clapper Rail		fc		fc	u				n
Chestnut-bellied Heron	r	r					x	n	mf	Spotted Rail	r		r						n
Cattle Egret	a	a	a	c	c	c		n	mm	Gray-necked Wood-Rail	u		u	u	u				n
Black-crowned Night-Heron	u		u	u				n	mm	Rufous-necked Wood-Rail	r								n
Yellow-crowned Night-Heron	u		u					n	mg	Sora	u	u	u				x		mr
Rufescent Tiger-Heron	r	r						n	mf	Ash-throated Crake	r							n	mr
Striped-backed Bittern	u							n	mr	Yellow-breasted Crake	u								mr
Least Bittern	u		u	u				n	mm	Gray-breasted Crake	u	u	u	u	u	u		n	mr
Pinnated Bittern	u	u	u	u				n	mr	Common Gallinule	c	fc	c	fc					n
BOAT-BILLED HERONS										Purple Gallinule	fc	fc	fc	u					n
Boat-billed Heron	r		r					n	mg	Azure Gallinule		r							mr
STORKS										Caribbean Coot	r						x	n	mr
Wood stork	r						x		mr	JACANAS									
IBISES AND SPOONBILLS										Jacana		a	a	a	a	u	u		n
White Ibis	r						x			PLOVERS									
Scarlet Ibis	a	u	c	u	u	u		n	mg	Semi-palmated Plover	fc	fc	fc		u		x		ms
Glossy Ibis	r	r					x		mr	Thick-billed Plover	u	u						n	ms
Roseate Spoonbill	u						x		mm	SANDPIPERS AND SNIPE									
SCREAMERS										Solitary Sandpiper	fc		fc	fc			x		mr
Homed Screamer		r							mr	Least Sandpiper	fc		fc				x		mr
DUCKS AND GEESE										Pectoral Sandpiper	fc	fc	fc				x		mr
Snow Goose	r						x		mr	Common Snipe	u	u	u					n	mr
Fulvous Tree-Duck	u		c					n	mr	GULLS AND TERNS									
White-faced Tree-Duck	r							n	mr	Large-billed Tern	fc		fc			fc	x	n	ms
Black-bellied Tree-Duck	fc	c	fc	u				n	mr	Gull-billed Tern	u		u				x		ms
American Wigeon	u						x		mr	Yellow-billed Tern	u	u	u				x		mr
White-cheeked Pintail	u						x	n	mr										

	1	2	3	4	5	6	7	8	9
SKIMMERS									
Black Skimmer	fc						x		ms
MACAWS, PARROTS AND PARAKEETS									
Blue-and-Yellow Macaw		e							mf
Red-bellied Macaw		c						n	mf
CUCKOOS									
Mangrove Cuckoo	u	r						n	mg
Dark-billed Cuckoo	r							n	mg
Little Cuckoo	u	u						n	mg
Greater Ani	fc		fc	fc		u		n	mg
NIGHTHAWKS									
Nacunda Nighthawk	fc		fc					n	mr
HUMMINGBIRDS									
Green-throated Mango	u	u	u	u	u			n	mr
White-tailed Goldenthrout	r							n	mr
KINGFISHERS									
Ringed Kingfisher	r			r			x	n	mg
Belted Kingfisher	u	u					x		mg
Pygmy Kingfisher	u	u	u	r				n	mm
Green Kingfisher	u	u	u					n	mm
WOODCREEPERS									
Straight-billed Woodcreeper								n	mg

	1	2	3	4	5	6	7	8	9
OVENBIRDSY									
ellow-throated Spinetail	c		c	c	fc			n	mr
ANTBIRDS									
Black-crested Antishrike	c	c	fc		fc	fc		n	mg
TYRANT FLYCATCHERS									
Pied Water-Tyrant	c	c	c	c		fc		n	mm
While-headed Marsh Tyrant	c	c	c					n	mm
Fork-tailed Flycatcher	a	fc	a		fc		x	n	mr
Sulphury Flycatcher		u						n	mf
Spotted Tody-Flycatcher					u	u			mg
Crested Doradito	r						x	n	mr
AMERICAN ORIOLES AND BLACKBIRDS									
Yellow-hooded Blackbird	a	a	a	a	c			n	mm
Red-winged Blackbird	r						x		mr
Moriche Oriole		u		r				n	mf
HONEYCREEPERS									
Bicoloured Conebill	c	fc	c		fc	fc		n	mg
FINCHES, SEEDEATERS AND GROSBEAKS									
Red-caped Cardianl	r							n	mm
Large-billed Seed-finch		e							