

Birds of Shipstern Nature Reserve and the Sartenejan region

Census 2002-2003



Jacques Laesser
jlaesser@bluewin.ch

March 2007

Contents

Introduction.....	4
Shipstern Nature Reserve	5
History and previous studies.....	7
Habitat and vegetation.....	8
Climate	10
Point-count survey.....	11
- Points and tracks	11
- Habitat.....	12
- Localisation and habitat of the points.....	13
- Time of the day and duration	14
- Census notes.....	14
- Periods.....	14
Other field work	15
- Bird seizing	15
Discussion	16
Bibliography.....	20
- Recordings.....	21
Species account.....	22
About the species account.....	23
- Systematic and nomenclature.....	23
- Species codes.....	23
- Calendar table.....	23
- Abundance.....	23
- Locations.....	24
- Date	24
- Maps	24
- Graph.....	24
- Calendar, plumages, moult and skull ossification	25
- TINAMIDAE	26
- PODICIPEDIDAE	27
- PELECANIDAE	28
- PHALACROCORACIDAE	28
- ANHINGIDAE.....	29
- FREGATIDAE	29
- ARDEIDAE.....	30
- THRESKIORNITHIDAE.....	33
- CICONIIDAE	34
- CATHARTIDAE.....	35
- PHOENICOPTERIDAE	36
- ANATIDAE	37
- ACCIPITRIDAE	38
- FALCONIDAE	42
- CRACIDAE	43
- ODONTOPHORIDAE.....	44

- RALLIDAE.....	45
- ARAMIDAE	47
- CHARADRIIDAE	47
- RECURVIROSTRIDAE	48
- JACANIDAE.....	48
- SCOLOPACIDAE.....	49
- LARIDAE.....	51
- COLUMBIDAE	52
- PSITTACIDAE.....	61
- CUCULIDAE	63
- TYTONIDAE	64
- STRIGIDAE.....	65
- CAPRIMULGIDAE	66
- NYCTIBIIDAE	68
- APODIDAE	68
- TROCHILIDAE	69
- TROGONIDAE.....	72
- MOMOTIDAE	72
- ALCEDINIDAE	74
- BUCCONIDAE	75
- RAMPHASTIDAE.....	75
- PICIDAE.....	77
- FURNARIDAE.....	80
- DENDROCOLAPTIDAE	80
- THAMNOPHILIDAE	83
- FORMICARIIDAE.....	83
- TYRANNIDAE	84
- Incerta sedis.....	98
- PIPRIDAE	101
- VIREONIDAE	102
- CORVIDAE	108
- HIRUNDINIDAE	109
- TROGLODYTIDAE	112
- SYLVIIDAE	114
- TURDIDAE.....	116
- MIMIDAE.....	118
- BOMBYCILLIDAE	120
- PARULIDAE.....	121
- THRAUPIDAE	132
- EMBERIZIDAE.....	136
- CARDINALIDAE.....	139
- ICTERIDAE	141

Introduction

Many scientific studies have taken place in Shipstern Nature Reserve since 1989, when it was bought by the International Tropical Conservation Foundation (ITCF) and became a private reserve. Still, little was known about the birds.

In 1993, Jan C. Meerman established a first list of the birds of the Shipstern Nature Reserve (Meerman 1993). Though this document was a good basis, it clearly needed to be improved. A short trip in February and March 2001 revealed that even species readily found were missing in this list. Others claimed by Meerman were dubious. The list needed to be reassessed and completed.

Indeed, birds of the North-eastern Belize remained poorly known. For its unique habitats, some not shared by any other reserve in Belize, one can expect to find in Shipstern, a bird community different from those already documented in other Belizean reserves (i. e. Valley & Whitman 1997, Horwich & Lyon 1989).

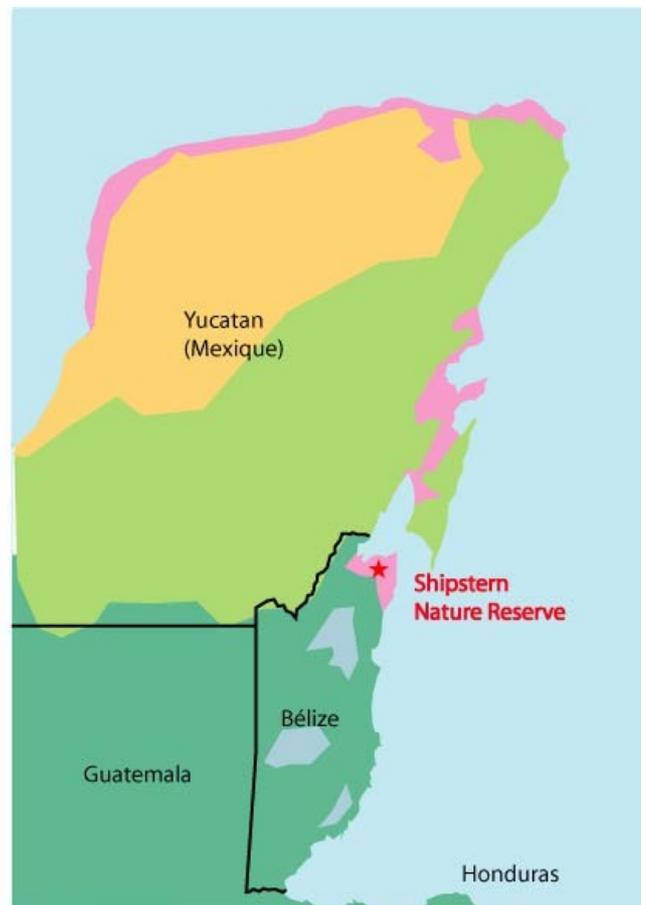
An inventory of the birds of the Shipstern Nature Reserve was needed. The Swiss civil service, on the ITCF's behalf, gave me the opportunity to achieve such a work.

One goal was to confirm the presence of the species claimed by Meerman and to complete his list. The long stay allowed me to lead further investigations. Fieldworks lasted between May 2002 and January 2003. The body of the study was a point-count survey across the main types of habitats. This method gave substantial matter for most common to fairly common terrestrial species between June and December. It provided data on both, habitat preferences and calendar activities. Empirical prospecting and bird seizing added complementary data.

When I reached the reserve, breeding had already begun and time to prepare the study was short. A first trip of three weeks in February and March 2001, and various recordings of vocals of Belizean birds (see the references in the chapter bibliography) helped me to train preliminarily the Belizean bird songs and calls. But I needed one more month to be efficient and to be able to recognize by voice most birds present in summer in the reserve.

The first census took place the 14.06. By this time, most species were still fairly vocal. Some species at the end of their courtship activities were however badly documented because of this late beginning, for example the Gray-throated Chat (*Granatellus sallaei*), the Brown-crested Flycatcher (*Myiarchus tyrannulus*) or the Northern Cardinal (*Cardinalis cardinalis*).

The hurried beginning forced me to leave out night birds and bird colonies surveys. Those groups of birds would deserve a far better covering than what I can present here.



Map I. Location of Shipstern Nature Reserve and main habitats of the Yucatan peninsula

An eight months study means four months missing. The hiatus found between mid-January and mid-May is partially filled by the 2001 trip between the end of February and mid March. Annick Morgenthaler began a study on the Black Catbird in mid-March 2002. She provided original data on spring migrants and early breeders.

Description of the reserve, history, habitat and vegetation, and climate were already well treated in other studies. I did not have the ambition to do better and took or modified it from Bijleveld (1998) or Morgenthaler (2003).

During the study, 274 species were recorded for the Sartenejan region. With additional data, a total of 299 species could be reported for the Sartenejan region up to January 2003.

Acknowledgments

Special thanks are due to Caspar Bijleveld van Lexmond from the ITCF, who made possible this study. Daniel Persoz from the Swiss Civil Service was instrumental in supporting this project. I am indebted to Zoé and Paul Walker for the facilities they offered during my stays in Fireburn. H. Lee Jones, thanks to his impressive knowledge on the Belizean Birds, encouraged me with his clever advices. During the whole stay, I could rely on the help and the friendship of Haroldo Mesh, his family and his crew.

Zoé and Paul Walker, and Ellen Mac Rae gave me access to their notes from their own and others trips at the reserve and nearby, and that included species not found by me. The report of a trip in November 1997 by H. Lee Jones was kept at the headquarters and supplied further data. My Shipstern's companions, Annick Morgenthaler, Mireille Pittet, Matthieu Rapp and Gregory Roeder, all four working on their respective master thesis, Vincent Palomarès, Julien Bottinelli, Yohann Charbonnier, Romain Béguelin, Thierry Bohnenstengel and Laurent Juillerat, friends birdwatchers visiting, brought their contribution to the substance of this work. Johanne Kneubühler, Thierry Heger and Christophe Studer came along with me during the first trip. My sympathy goes to all of them.

Last but not least, Daniel Béguin and Valère Martin helped me to shape this document. Thanks for their patience.

Shipstern Nature Reserve

The reserve is situated in North-eastern Belize, in Corozal district, next to the Chetumal bay. It covers an area of about 9000 hectares (22000 acres) at the time of the study. Further 1630 hectares were added in 2003. The reserve can be roughly divided in three parts. The Shipstern lagoon covers one third, dwarf mangroves and saline wetlands (so called "savannah") another third and tropical forest the last third.

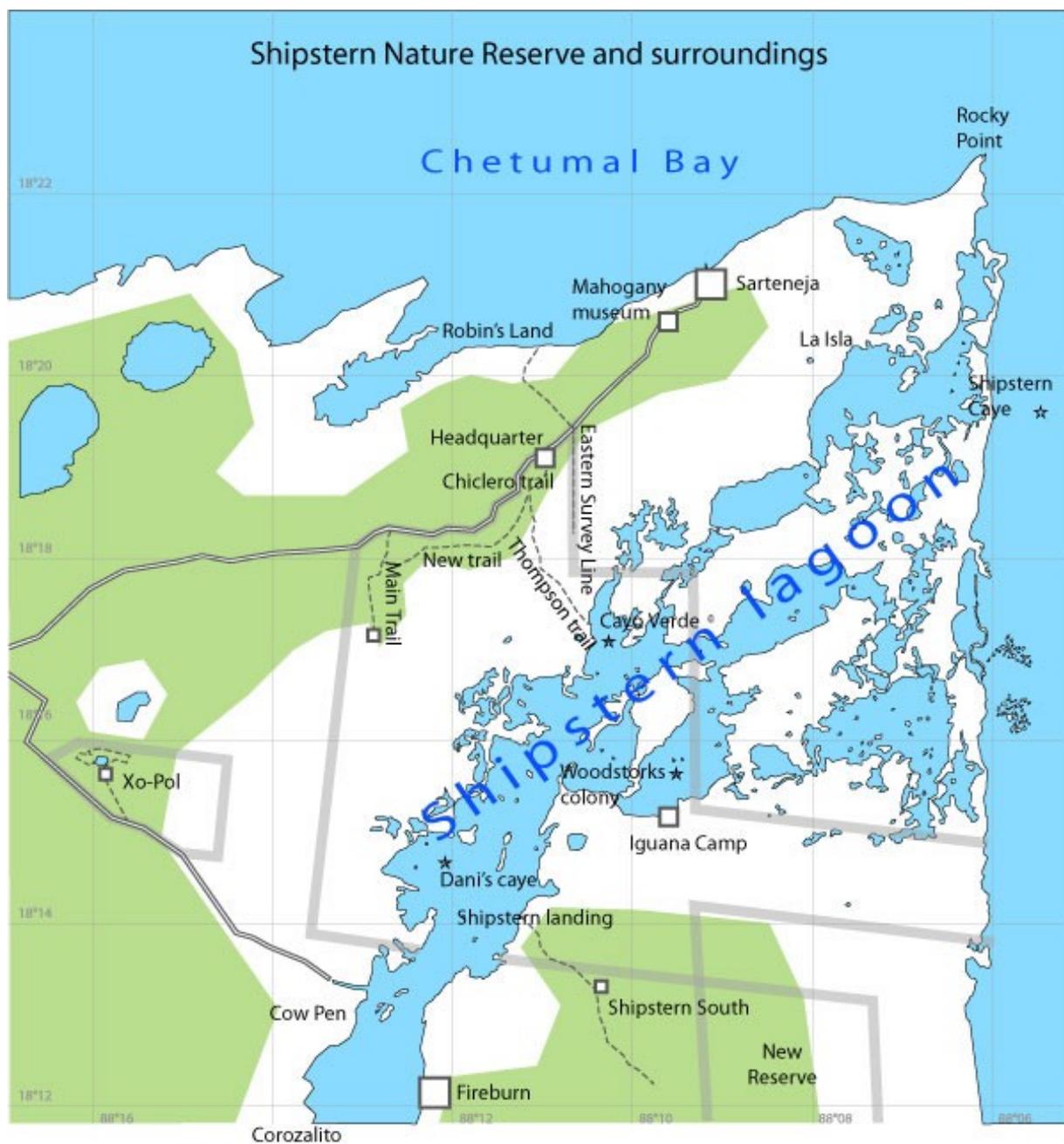
Shipstern lagoon is very shallow, never exceeding 1m (2ft) in depth, and scattered with many mangrove islands, some of which hold colonies of various birds' species.

The "savannah" is divided here in two main habitats: the herbaceous wetland and the dwarf mangal. The first is usually closer to the forest whereas the second is rather closer to the lagoon. These habitats have a rather poor biodiversity. However, most species present there are not found in the reserve far from the savannah.

The transition between forest and savannah is relatively clear-cut with a forest edge opened to sparsely-wooded herbaceous wetlands. Forests are very varied within the reserve. Dry forests are made up of vegetation communities typical for the Yucatan and host some birds endemic to the peninsula. Some forests exhibit a more tropical composition. The best cases are found at Xo-Pol in the semi-evergreen forest and south of the lagoon in the Cohune forest and semi-evergreen forest. Not surprisingly, birds present in these habitats are typically neotropical species.

By land, the only means to access this area is an all-weather road starting at Orange Walk and ending at the fishermen village of Sarteneja. This road demarcates the northern boundary of the reserve, which is otherwise delimited by extensive survey lines that are used both as boundaries and trails. Further trails allow an access to most of the areas situated north of the lagoon. The southern part can be reached only by car (to Cow-Pen) and then by boat (to Iguana Camp or Shipstern Landing). The headquarters, including the houses, butterfly centre and botanical trail, is located close to the road on the northern boundary. South to the lagoon, Iguana Camp hosts another house. Other buildings within the reserve are two tree-tops (at the Main trail and Xo-Pol) and a small building near the ruins of Shipstern village.

This work considered also the surrounding areas: all lands east and north of the reserve, Fireburn, the southern part of the lagoon (Corozalito), Cow-Pen and the Warrie Bight property. Farmlands of Chunox and Little Belize are also included here, adding a few species.



Map II. The Sartenejan region.

History and previous studies

This chapter follows largely Morgenthaler (2003).

The Shipstern area was first owned by a British enterprise during the 1980s and therefore partly managed as a private reserve known as Shipstern Wildlife Preserve. The name Shipstern Nature Reserve was given in 1989, when it became the property of the International Tropical Conservation Foundation (ITCF). That foundation, like its sister-one the Papiliorama-Nocturama Foundation, is based in Switzerland and is devoted to the conservation of tropical biodiversity.

Shipstern Nature Reserve plays an important role in Belize, representing one of the very few protected areas of the northern lowlands. Sarteneja, the Shipstern lagoon and its surrounding wooded areas have long been fairly isolated from the rest of the country, because the present bus-served all-weather road was nothing more than a dirty track before 1980. As a consequence, the pressure that was exerted on the area remained relatively low until recently. Shipstern's present habitats and biodiversity were probably covering the whole Corozal District before the expansion of sugar cane fields. Nowadays, the surroundings of Shipstern are affected by selective logging and a rapid expansion of cultivated lands carried out by villagers of Chunox, but also by the Mennonites of Little Belize's community. As a consequence, the pressure on the forests and on the fauna at the vicinity of Shipstern is increasing.

Local staff is employed at the reserve, including a field manager and three to four wardens. They take part to patrols, guided tours, building maintenance, gardening, reforestation and vehicle maintenance. They also help researchers in some aspects of fieldwork.

Several scientific studies took place in the reserve since 1998, thanks to collaboration between the ITCF and the Swiss Universities of Neuchâtel, Bern and Fribourg :

- Bat inventory ; Bärtschi (1998)
- Structure and floristic ; Bijleveld (1998)
- Freshwater fishes ; Bijleveld (1998)
- Phenology, vegetation study ; Sayer (2000)
- Small mammal inventory ; Bersot (2001)
- Big-eared Climbing Rat *Otodylomys phyllotis* ; Margnetti (2002)
- Ecology of the Black Catbird *Melanoptila glabrirostris* ; Morgenthaler (2003)
- Ecology and census of Odonata ; Pittet (2003)
- Coleoptera biodiversity ; Roeder (2003)
- Diptera biodiversity ; Rapp (2003)
- Estimates of the herpetofaunal diversity in the Shipstern Nature Reserve ; Nguyen Quang Minh (2005)

Habitat and vegetation

The main habitats of Shipstern Nature Reserve are summarized in Morgenthaler (2003) modified from Bijleveld (1998). Definitions here follow mostly these references.

***Orbignya cohune*-dominated forest**

This forest is exclusively found in deep soils of the land situated south of the lagoon. It alternates with medium-sized semi-evergreen forest and patches of low periodically inundated forests. The dominant and characteristic tree is the cohune palm (*Orbignya cohune*).

Yucatecan medium-sized semi-evergreen forest

This forest type of 10-17 m of height covers most of the land situated west of the reserve and Xo-Pol area, as well as part of the southern region in mosaic with Cohune forest. Dominant species composing its canopy are: *Brosimum alicastrum*, *Hampea trilobata*, *Coccoloba reflexiflora*, *Bursera simaruba*, *Metopium brownei* and *Manilkara zapota*. 25-50 % of the trees are leafless during the dry season (March-May).

Xo-Pol and Main trail semi-evergreen forests are connected by this type of forest. Those habitats south of the lagoon are isolated from them.

The point-count tracks north of the lagoon are poorly represented within this habitat. The Main trail track crosses only transitional forests. Three points are in true semi-evergreen forests, next to the road. The presence of the road influences too strongly the habitat structure to consider the birds present there as semi-evergreen forests inhabitants.

Yucatecan medium-sized semi-deciduous forest

This forest type (10-15 m high) covers part of the land situated north of the reserve, where it alternates either with semi-evergreen or low semi-deciduous *Pseudophoenix s. sargentii* forest. Dominant species composing its canopy and its under-story are similar to the above-mentioned forest type. In contrast to semi-evergreen, it is characterised notably by the absence of *Brosimum alicastrum* and high amount of *Lysiloma latisiliquum*. 50-75 % of the trees are leafless during the dry season.

Points in transitional forests were attributed for the analysis of habitat preferences to both semi-evergreen and semi-deciduous forests, as well as to transitional forests.

Low semi-deciduous *Pseudophoenix s. sargentii* forest

This forest type (10-15 m high) covers part of the land situated north of the reserve, where it alternates with medium-sized semi-deciduous forests. In this work, it is often referred to as "dry forest". This habitat shares many species of trees with the former one. Its main feature is the presence of *Pseudophoenix s. sargentii*. Also typical are *Agave angustifolia* and *Diphysa carthagenensis*. This forest type is of high conservation value, as it is unique for mainland Belize and rare elsewhere (Yucatan). A small patch of this tropical dry forest, not exceeding 20 km² grows in Shipstern's area, half of which is to be found within the reserve's boundaries.

It is perhaps for this type of forest that the presence of the road has the strongest effect on the habitat structure and on the birds community.

Low periodically inundated forest

This heterogeneous type of forest (3-7 m high) often grows into a complicated mosaic, locally called “bajo forest” and can be divided in four interrelated types: Mucal (dominated by *Dalbergia glabra*), Tintal (dominated by *Haematoxylon campechianum*), Pucteal (dominated by *Bucida buceras*) and Tassistal (*Accoelorrhapha wrightii* palm-grooves). These plant communities are distributed as patches all over the reserve in inundated areas.

This habitat is poorly represented in the point-count survey and concern small sized surfaces. It is difficult to determine its avian specificities independently of other nearby habitats.

***Bravaisia tubiflora*-dominated transitional zone**

This type of low forest (3-8 m high) is mainly found at the location where true forest is changing to open wetlands, mostly *Cladium*-dominated wetland. Such transitional forest zones are inundated at the peak of the rainy season, whereas the soil remains saturated with water for most of the year.

This vegetation type is never extended and thus, not properly covered by the point-count census. However, it constitutes often the forest-edge between forest and savannah, a structure appreciated by many species of birds.

***Cladium jamaicense*-dominated herbaceous wetlands**

This type of wetland (1-2 m high) is a transitional belt between forests and mangal flats. The belt width varies greatly. This wetland is dominated and characterized by *Cladium jamaicense*. Another variant of this transitional belt is dominated by *Distichlis spicata*.

This habitat is commonly mixed with bushes and “forest-islets” and forms a so-called “savannah”. This structure is often referred in this work as sparsely-wooded herbaceous wetland.

Discontinuous dwarf mangal interrupted by bare salt flats

The type of mangal association (0-2 m) covers most of the periodically inundated area bordering the lagoon, and extends to transitional zones to forests. It is fairly intermittent with large patches of bare ground. Here, forest-islets (*Thrinax radiata*-dominated) are scattered throughout. Dominant species is the red mangrove (*Rhizophora mangle*), typically associated with the white (*Laguncularia racemosa*) and black (*Avicennia germinans*) mangroves.

Only “natural habitats” are described here. Habitats changes caused by human modifications, rather small inside the reserve, have strong effects on some birds’ communities as they affect the structure of the vegetation. The main man-modified habitats are the headquarters, the road and an abandoned milpa.

Fresh water marshes cover a small part of the reserve, at Xo-Pol. Others are found in the surroundings, for example south of the Mayan ruins. These habitats host species not found elsewhere. At Little Belize, a small marsh hosts further species.

Outside the reserve, human interventions are much stronger, and create structures such as farmlands, villages and more or less heavily logged forests.

Also singular is the Robin’s land area, open to the Chetumal bay. The site has peculiarities not shared in the reserve.

Climate

This chapter is modified from Bijleveld (1998).

Belize lies in the outer tropics, i.e. in the subtropical belt between 15° and 19° N latitude. The climate of this area mainly differs from the one occurring in tropical regions by its higher extreme temperatures. Mean monthly minima temperatures range from 16-17°C in winter to 24-25°C in summer, while mean monthly maxima range from 28°C in winter to 32-33°C in summer. Some maxima measured in the past exceed 40 °C (Walker 1973). Data from Santa Cruz (Corozal District) show an annual average temperature of 26°C (King & al. 1992). From November to February, arctic air masses penetrate sometimes far to the south. These cold, wet masses enter the country from the northeast and affect temperature severely. It is not unusual for the temperatures to drop as low as 10°C. Normally, coastal areas in Belize are exposed to southeast trade winds.

Rainfall in Belize increases on a north – south gradient. For example, the village of Libertad, Corozal District, has an annual average rainfall of 1347 mm, whereas Barranco in the Toledo District receives an average of 4526 mm rain. Rainfall at Shipstern Nature Reserve was measured over a period of 4 years between 1989 and 1993 (Meerman & Boosma 1993). Results showed that the area receives only 1260 mm a year, with a minimum of 1029 mm and a maximum of 1610 mm. From the available data one can conclude that Shipstern Nature Reserve and its immediate surroundings are the driest areas in Belize.

The dry season usually starts in mid-January and ends in May, February and March being the driest months. At the end of April generally the first showers happen, and rain falls more regularly than from May onwards. August, again, is somewhat drier. On average, the highest rainfall occurs during the month of September.

The average temperature is unknown for the area, which prevents a precise positioning in the Holdridge (1947, 1967) classification of life zones. The Shipstern Nature Reserve area is probably a transition between the subtropical moist forest, the subtropical dry forest and the tropical dry forest life zones. Santa Cruz (Corozal District), of which the mean average temperature is known, lies in the subtropical dry forest life zone, although it may be more probably also transitional.

In September and November, occasional climatic phenomenon like hurricanes, strike the region with dramatic consequences. Depending on their wind speed and duration, they are classified as tropical depressions, tropical storms or hurricanes. Hurricanes may have devastating effects when they reach coastal areas. Between 1886 and 1978, 5 % of the recorded hurricanes in the tropical part of the Atlantic Ocean reached Belize. The extent of the damage caused by these very few storms is astonishing.

Hurricane Janet hit Belize in 1955, and affected greatly the northern part of the country. It destroyed Sarteneja, then passed over the area that now encompasses Shipstern Nature Reserve, spared the village of Chunox to a certain degree, before hitting and destroying Corozal Town. The forest in the area was completely flattened and subsequently suffered from severe fires. The extent of the area hit by the hurricane is nowadays difficult to assess. After the hurricane, logging companies were granted concessions to retrieve fallen trees by thousands (an estimated 12'000), a number that indicates the high maturity of the forest before 1955.

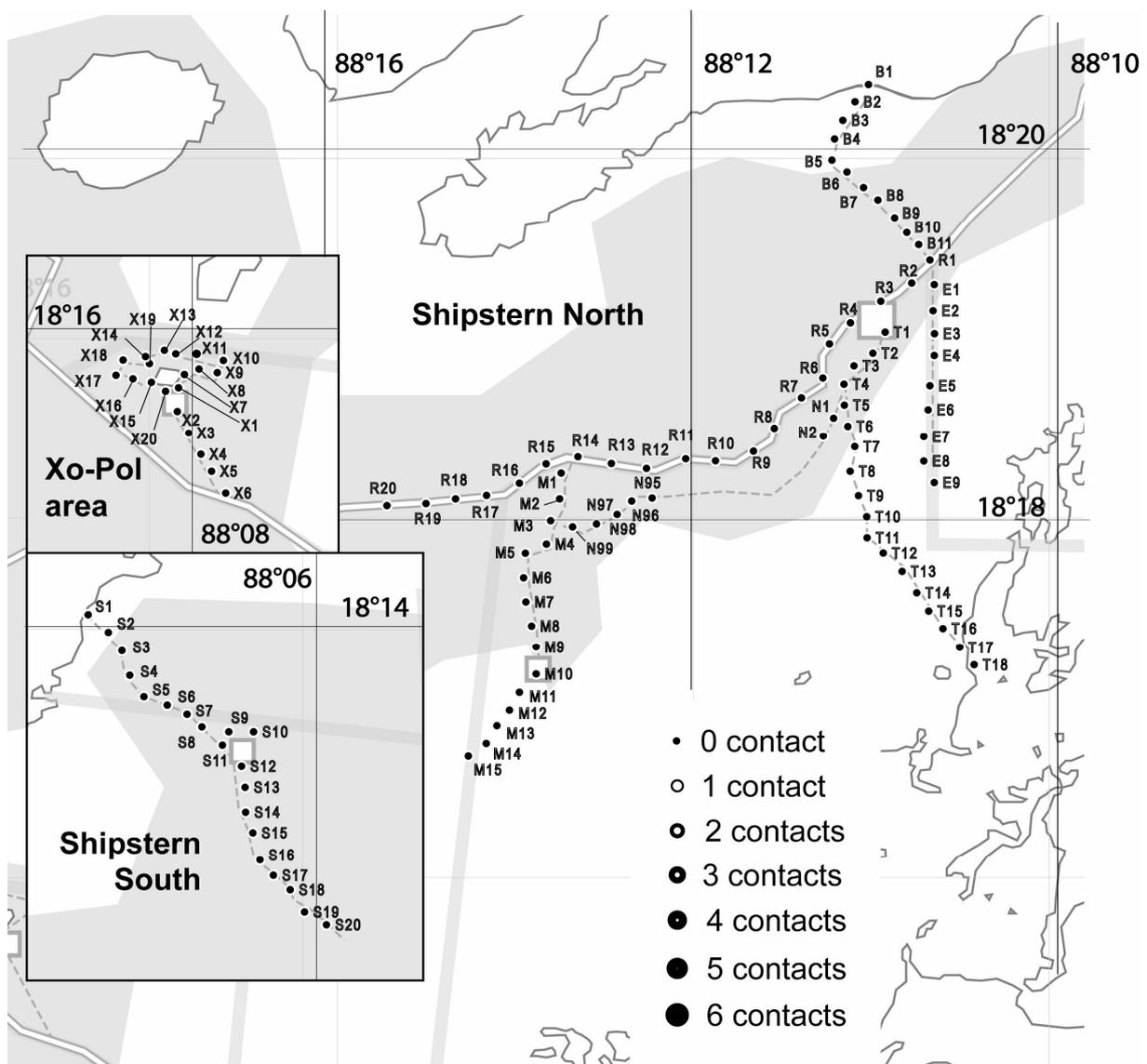
Point-count survey

- Points and tracks

The locations of the points for the point-count survey were chosen mainly with regard to the type of forest and open lands. The proximity of the road appeared to be a major habitat factor for many species. Some types of forests were poorly represented outside the points of the road.

Six tracks with 20 points each were selected. The 120 points were placed in the most typical habitats of the reserve, but were not representative of their extent. The exact location was measured with a GPS device (system WG84).

Distance between points was in most cases between 170 m and 270 m. For one (track R) the distances were between 300 m and 400 m.



Map III. Points localisations

- Habitat

For the points north of the lagoon, the habitat at each point location was determined on the basis of the vegetation map of Shipstern Nature Reserve in Bijleveld (1998) and was further checked in the field. Both sources corroborate well, albeit intermediate states were noted. The field assessment was used if required.

The habitats of the points at Xo-Pol and south of the lagoon were evaluated in the field only. The following vegetation categorizations were used to describe the habitat at the location of each point.

Cohune	<i>Orbignya cohune</i> -dominated forest
Sem	Yucatecan medium-sized semi-evergreen forest north of the lagoon
SemX	Yucatecan medium-sized semi-evergreen forest at Xo-Pol
SemS	Yucatecan medium-sized semi-evergreen forest south of the lagoon.
Semsdm	Transitional forest between semi-evergreen and semi-deciduous, covered only north of the lagoon.
Sdm	Yucatecan medium-sized semi-deciduous forest
Lps-lys	Low semi-deciduous <i>Pseudophenix s. sargentii</i> forest
Tin-muc	Low periodically inundated forest
Brav	<i>Bravaisia tubiflora</i> -dominated transitional zone
CI	<i>Cladium jamaicense</i> -dominated herbaceous wetlands
Dman	Discontinuous dwarf mangal interrupted by bare salt flats
dist	<i>Distichlys spicata</i> -bed
R	Proximity of the road
A	Artificial clearance : headquarters, milpas (cultivated clearances)
FI	Forest-islets (in Dman or CI)
ti	Temporarily inundated (forest)
inund	Inundated
pond	Proximity of a pond (Xo-Pol)
litt	Littoral (Robin's land)

- Localisation and habitat of the points

r1	sdm, R	N 18°19'226"	W 88°10'405"
r2	sdm, R	N 18°19'152"	W 88°10'470"
r3	sdm, R, A	N 18°19'91"	W 88°10'571"
r4	sdm, R	N 18°19'24"	W 88°11'70"
r5	sdm, R	N 18°18'532"	W 88°11'109"
r6	lps-lys, R	N 18°18'443"	W 88°11'126"
r7	sdm, R	N 18°18'381"	W 88°11'228"
r8	lps-lys, R	N 18°18'287"	W 88°11'300"
r9	sdm, lps-lys, R	N 18°18'227"	W 88°11'397"
r10	sdm, R	N 18°18'223"	W 88°11'508"
r11	sdm, lps-lys, R	N 18°18'212"	W 88°12'17"
r12	sdm, R	N 18°18'166"	W 88°12'139"
r13	sdm, R	N 18°18'190"	W 88°12'257"
r14	sem-sdm, R	N 18°18'214"	W 88°12'373"
r15	sem-sdm, R	N 18°18'212"	W 88°12'466"
r16	sem-sdm, R	N 18°18'168"	W 88°12'581"
r17	sem-sdm, R	N 18°18'94"	W 88°13'65"
r18	sem, R	N 18°18'101"	W 88°13'177"
r19	sem, R, A	N 18°18'91"	W 88°13'262"
r20	sem, R, A	N 18°18'91"	W 88°13'389"
t1	sdm	N 18°18'596"	W 88°10'555"
t2	tas, lps-lys, ti	N 18°18'532"	W 88°10'597"
t3	lps-lys, sdm	N 18°18'488"	W 88°11'54"
t4	sdm, lps-lys	N 18°18'431"	W 88°11'93"
t5	lps-lys	N 18°18'362"	W 88°11'94"
t6	lps-lys	N 18°18'290"	W 88°11'79"
t7	sdm, lps-lys	N 18°18'223"	W 88°11'59"
t8	sdm, cl	N 18°18'146"	W 88°11'68"
t9	cl, Dman, Fl	N 18°18'72"	W 88°11'44"
t10	cl, Dman, Fl	N 18°18'4"	W 88°11'15"
t11	cl, Dman, Fl	N 18°17'535"	W 88°11'15"
t12	cl, Dman, Fl	N 18°17'477"	W 88°10'559"
t13	Dman	N 18°17'421"	W 88°10'503"
t14	Dman	N 18°17'356"	W 88°10'456"
t15	Dman	N 18°17'297"	W 88°10'411"
t16	Dman	N 18°17'238"	W 88°10'362"
t17	Dman	N 18°17'177"	W 88°10'314"
t18	Dman	N 18°17'119"	W 88°10'263"
n1	lps-lys	N 18°18'381"	W 88°11'135"
n2	lps-lys	N 18°18'318"	W 88°11'175"
m1	sem-sdm	N 18°18'136"	W 88°12'421"
m2	sem-sdm	N 18°18'55"	W 88°12'428"
m3	sem-sdm	N 18°17'591"	W 88°12'451"
m4	A, sem-sdm	N 18°17'511"	W 88°12'465"
m5	sem-sdm	N 18°17'477"	W 88°12'538"
m6	tin, ti	N 18°17'404"	W 88°12'543"
m7	tin, ti	N 18°17'329"	W 88°12'535"
m8	sem-sdm	N 18°17'251"	W 88°12'515"
m9	tin, ti	N 18°17'174"	W 88°12'501"
m10	tin, brav, sdm	N 18°17'92"	W 88°12'503"
m11	Dman, cj, Fl	N 18°17'31"	W 88°12'552"
m12	dman, Fl	N 18°16'575"	W 88°12'591"
m13	dman, Fl	N 18°16'528"	W 88°13'28"
m14	dman, Fl	N 18°16'467"	W 88°13'64"
m15	dman, Fl	N 18°16'430"	W 88°13'127"
n99	sem-sdm	N 18°18'96"	W 88°12'384"
n98	sem-sdm	N 18°18'105"	W 88°12'400"
n97	sem-sdm	N 18°18'176"	W 88°12'400"
n96	sem-sdm	N 18°18'188"	W 88°12'332"
n95	sdm	N 18°18'172"	W 88°12'267"
x1	sem, pond	N 18°15'402"	W 88°16'97"
x2	sem	N 18°15'331"	W 88°16'55"
x3	sem	N 18°15'265"	W 88°16'22"
x4	sem	N 18°15'196"	W 88°15'579"
x5	sem	N 18°15'133"	W 88°15'544"
x6	sem	N 18°15'65"	W 88°15'501"
x7	sem	N 18°15'447"	W 88°16'37"
x8	sem	N 18°15'466"	W 88°15'589"
x9	sem	N 18°15'458"	W 88°15'528"

x10	sem, tin	N 18°15'502"	W 88°15'505"
x11	sem	N 18°15'518"	W 88°15'597"
x12	sem	N 18°15'516"	W 88°16'64"
x13	sem	N 18°15'490"	W 88°16'148"
x14	sem	N 18°15'434"	W 88°16'142"
x15	sem	N 18°15'440"	W 88°16'203"
x16	tin	N 18°15'450"	W 88°16'260"
x17	sem, tin	N 18°15'501"	W 88°16'237"
x18	sem, tin	N 18°15'508"	W 88°16'163"
x19	sem, pond	N 18°15'528"	W 88°16'104"
x20	sem	N 18°15'412"	W 88°16'53"
s1	brav	N 18°14'28"	W 88°11'142"
s2	cl	N 18°13'578"	W 88°11'74"
s3	brav	N 18°13'513"	W 88°11'33"
s4	sdm	N 18°13'436"	W 88°11'6"
s5	cohune	N 18°13'372"	W 88°10'559"
s6	cohune	N 18°13'339"	W 88°10'484"
s7	sem	N 18°13'311"	W 88°10'417"
s8	cohune	N 18°13'273"	W 88°10'369"
s9	cohune	N 18°13'254"	W 88°10'283"
s10	sem	N 18°13'247"	W 88°10'201"
s11	cohune	N 18°13'213"	W 88°10'301"
s12	sem	N 18°13'147"	W 88°10'244"
s13	sem	N 18°13'73"	W 88°10'229"
s14	sem	N 18°13'0"	W 88°10'228"
s15	sem	N 18°12'524"	W 88°10'204"
s16	sem	N 18°12'441"	W 88°10'184"
s17	sem	N 18°12'393"	W 88°10'135"
s18	sem	N 18°12'340"	W 88°10'79"
s19	cohune	N 18°12'277"	W 88°10'31"
s20	cohune	N 18°12'235"	W 88°9'566"
b1	litt	N 18°20'193"	W 88°11'10"
b2	dman, inund.	N 18°20'138"	W 88°11'46"
b3	dman, inund.	N 18°20'76"	W 88°11'90"
b4	sdm, ti	N 18°20'17"	W 88°11'116"
b5	sdm, ti	N 18°19'553"	W 88°11'123"
b6	lps, ti	N 18°19'511"	W 88°11'78"
b7	sdm	N 18°19'466"	W 88°11'23"
b8	sdm	N 18°19'425"	W 88°10'572"
b9	sdm	N 18°19'369"	W 88°10'523"
b10	sdm, ti	N 18°19'323"	W 88°10'478"
b11	lps-lys	N 18°19'277"	W 88°10'444"
e1	sdm	N 18°19'147"	W 88°10'394"
e2	sdm	N 18°19'68"	W 88°10'396"
e3	sdm	N 18°18'585"	W 88°10'391"
e4	man, ti	N 18°18'513"	W 88°10'394"
e5	lps-lys	N 18°18'421"	W 88°10'402"
e6	sdm	N 18°18'340"	W 88°10'415"
e7	lps	N 18°18'256"	W 88°10'428"
e8	lps, cj-dist	N 18°18'176"	W 88°10'424"
e9	dman, cj-dist	N 18°18'103"	W 88°10'394"

- Time of the day and duration

Five minutes was spent at each point. The tracks were travelled by foot, except for the track R, for which biking was more appropriate. The distance between the points was covered in about 4 to 5 minutes and the survey between the first and the last point census lasted between 2:41 and 4:26 (average 3:27).

A census began when the light was reasonably good to identify birds by sight, in average 20 minutes earlier in June-July than in October-November. The first point count was covered between 6:00 and 6:58 (av. 6:27) and the census was finished between 8:57 and 10:56 (av. 9:53).

track	beg. av.	end av.	time av.	time max	time min
R	06:16	09:30	03:14	03:51	02:41
EB	06:25	09:33	03:08	03:27	02:50
X	06:33	09:52	03:19	04:03	02:54
S	06:23	10:03	03:39	04:12	02:59
M	06:29	10:09	03:39	04:06	03:12
T	06:26	10:09	03:43	04:26	03:10
average	06:25	09:52	03:27	04:00	02:57

tab. For each track, average time of beginning (beg. av.), of end (end av.), of duration (time av.), maximal time (time max), minimal time (time min), of the respective six censuses.

The points were not always covered in the same sequence. Every point has been covered at least once before 7:15 during one of the six censuses. The average time (n=6) of the respective 120 point-counts was between 7:25 and 8:59.

- Census notes

Every species identified by voice or by sight was noted. One data is made of three parameter, a: the point, b: the time (day and hour), c: the species. When several individuals were counted, the number was also noted. However, the quantity was not taken in account for the analysis.

The same bird or same group of bird seen or heard from several points (for example Vultures in the open or Jays heard in the forest), only one data was kept, at which the bird(s) was (were) at its nearest. Otherwise, all birds were taken into account, even if seen far away.

- Periods

Each track was covered 6 times. The days when the tracks were covered are shown below.

		track M	track BE	track R	track T	track X	track S
period I	14.06-4.07	18.06	4.07	14.06	15.06	25.06	2.07
period II	3.07-14.07	10.07	12.07	3.07	14.07	9.07	13.07
period III	27.07-18.08	17.08	18.08	23.07	30.07	27.07	11.08
period IV	5.09-4.10	8.09	29.09	5.09	13.09	4.10	19.09
period V	8.10-2.11	9.10	2.11	8.10	10.10	24.10	17.10
period VI	3.11-17.12	16.11	12.12	3.11	4.11	6.12	17.12

Other field work

Not all species could be properly followed by the point-counts. Targeted prospecting were made in order to complement the point-counts census.

- Bird seizing

Bird seizing was made with mist nets. In summer, three sessions were made to catch Black Catbirds (*Melanoptila glabrirostris*) in the framework of Annick Morgenthaler's master's thesis (Morgenthaler 2003). Data from other birds were taken, especially plumage and moult stage. Only Black Catbirds were ringed with colour rings. For the other species notches were made in the tail feathers to identify them individually.

Black Catbird seizing sessions:

- 30.05.2002 Cow Pen
- 5.06.2002 Iguana Camp
- 23.06.2002 Robin's Land

Other sessions were managed to document autumn plumage stages:

- 8-9.08.2005 Southern Shipstern forests
- 12.08.2005 Southern Shipstern forests
- 20.08.2005 Headquarters
- 24.08.2005 Headquarters
- 30.08.2005 Headquarters
- 9.09.2005 Headquarters
- 18.09.2005 Fireburn
- 20.09.2005 Fireburn
- 11.10.2005 Headquarters
- 20.10.2005 Headquarters
- 26.10.2005 Main trail treetop
- 28.10.2005 Headquarters
- 8.11.2005 Main trail treetop

Discussion

The goal of the present work was first to produce a thorough avian inventory of the Shipstern Nature Reserve and its region. Once this goal was well enough achieved, I sought to use the matter of this study to determine the typical species of the main habitats so they can serve as reliable avian indicators. This second objective could not be fulfilled to satisfaction.

The present study was not designed purposely to disclose bird-indicators for specific habitats. A census aimed at that goal needs to cover a sufficient number of point-counts for each main habitat. Special care must be taken to avoid positioning a point too close to a sharp habitat change, so that birds tied to another habitat cannot be heard from that point. Thus, a good cartography of the habitat needs to be established. It is important to locate the points far enough from the road (at least 150 m), in order that the birds settled next to the road are not taken into account. Disturbed (logged) and undisturbed forests have to be considered as two different habitats.

Breeding birds are certainly the most appropriate bird-indicators. The best time of the year to census the breeding birds is between mid-April and June. Wintering birds may also be good indicators, although birds are scarce in dry forests in winter and not very vocal. Migration time must be avoided as migrants can make a stopover in habitats not typical for the species. Thus, December and January are the best months to work with wintering birds.

Although the collected data are not sufficient to unravel habitat preferences, they provide a first insight into this ecological issue. The variety of forests makes the Shipstern Nature Reserve an appropriate location to study the preferences of avian communities between semi-deciduous forests of Yucatan type and semi-evergreen forests more typical of Belize. Some species of birds endemic to the Yucatan peninsula, like the Yellow-lored Parrot (*Amazona xantholora*), the Red-vented Woodpecker (*Melanerpes pygmaeus*), the Yucatan Flycatcher (*Myiarchus yucatanensis*), the Yucatan Jay (*Cyanocorax yucatanensis*), the Black Catbird (*Melanoptila glabrirostris*) or the Rose-throated Tanager (*Piranga roseogularis*) belong to the common birds of Shipstern. Here, these breeding birds come close to bird species rather tied to more tropical habitats, like the Great Tinamou (*Tinamus major*), the Gray-fronted Dove (*Leptotila rufaxilla*), the Eye-ring Flatbill (*Rhynchocyclus brevirostris*), the White-breasted Wood-Wren (*Henicorhina leucosticta*) or the Grey-headed Tanager (*Eucometis penicillata*).

The road bordering the northern limit of the reserve determines the presence of many species more than the types of forest. Among the birds hardly found in forests far from the road are the Boat-billed Flycatcher (*Megarynchus pitangua*), the Great Kiskadee (*Pitangus sulphuratus*), the Rose-throated Becard (*Pachyramphus aglaiae*), the Masked Tityra (*Tityra semifasciata*), the White-collared Seedeater (*Sporophila torqueola*) and the Altamira Oriole (*Icterus gularis*). These species are not true forest birds.

The forest structure at the border of the road is not found elsewhere. The denser undergrowth near the road could be of benefit for many species such as the Thicket Tinamou (*Crypturellus cinnamomeus*), the Spot-breasted Wren (*Thryothorus maculipectus*), the Green-backed Sparrow (*Arremonops chloronotus*) and wintering birds like the White-eyed Vireo (*Vireo griseus*). Indeed, these species were more commonly found near the road.

In rather dry forests, the Caribbean Dove (*Leptotila jamaicensis*), the Yellow-lored Parrot (*Amazona xantholora*), the Mangrove Vireo (*Vireo pallens*) and the Northern Beardless-Tyrannulet (*Camptostoma imberbe*) might be almost as common far from the road as close to it, whereas in moister forests these species were hardly found far from the road. The opposite appears to be true for the Blue-crowned Motmot (*Momotus momota*) and the Yellow-olive Flycatcher (*Tolmomyias sulphurens*), scattered and scarce in rather dry forests far from the road and evenly distributed in rather moist forests independently of the road proximity.

Other bird species seem for other reasons more common or are more easily located near the road than in closed forests. This group includes the Road-side Hawk (*Buteo magnirostris*), the Red-billed Pigeon (*Columba flavirostris*), the Squirrel Cuckoo (*Piaya cayana*), the Keel-billed Toucan (*Ramphastos sulfuratus*), the Violaceous Trogon (*Trogon violaceus*) and the Bright-rumped Attila (*Attila spadiceus*).

For other species, the road does not have a strong influence, like the Black-headed Trogon (*Trogon melanocephalus*), the Greenish Elaenia (*Myiopagis viridicata*), the Northern Bentbill (*Oncostoma cinereigulare*), the Lesser Greenlet (*Hylophilus decurtatus*), the White-bellied Wren (*Uropsila leucogastra*), the Red-throated Ant-Tanager (*Habia fuscicauda*), the Rose-throated Tanager (*Piranga roseogularis*). They were as common in the neighbourhood of the road as far from it. These birds are the true Shipstern forests birds.

The Greenish Elaenia and the Bentbill were scarce in dry forests and their high abundance at Xo-Pol and in forests south of the lagoon confirms that these species are typical of semi-evergreen forests. The Lesser Greenlet became also scarcer in dry forests, although it seems more tolerant to the type of habitat.

The Black-headed Trogon, the White-bellied Wren and the Red-throated Ant-Tanager were evenly distributed in all types of forests, making them the most common birds of the forests of the reserve, along with the Lesser Greenlet.

The Rose-throated Tanager is the only Yucatan endemic of this group of typical forest birds. The earliest censuses of the present study in June and July covering the breeding season tend to show a higher abundance of this Tanager in the rather dry forests, but this species is evenly distributed in all types of forests outside the breeding season, although male may be more common in the moister forests and female and young birds may prefer the driest forests. An adapted census during the period of singing of the Gray-throated Chat (*Granatellus sallaei*) may also show that this species is typical of dry forests. Only a spring census in April and May can disclose the typical breeders of dry forests.

The most typical bird of the dry forests is perhaps the Caribbean Dove, which is easily located once its song is known. However, this Dove is most of the time silent from August to the winter, perhaps up to February. It is readily heard in the proper habitats between March and July. The Caribbean Dove is common north of the lagoon, and hardly found in more humid forests south of the lagoon and at Xo-Pol. In Belize, the species is only known in Ambergris Caye and in the Sartenejan region and thus is characteristic of semi-deciduous forests growing at the far North-eastern Belize.

Some birds were found only or mostly south of the lagoon, in the cohune and semi-evergreen forests. They are the Gray-fronted Dove, the Pale-billed Woodpecker (*Campephilus guatemalensis*) and the White-breasted Wood-Wren. These species are well distributed throughout Belize. Their absence may also characterize the dry forests of North-eastern Belize.

According to the present study, twenty species of birds can be proposed as possible bio-indicators for their changing density with respect to the type of forest and, for the relative facility to detect them in the field. This list is obviously not exhaustive.

The seven species below are selected for they are abundant and easily located. They are more or less evenly distributed in all forests north of the lagoon. Only their abundance, not their presence / absence is suspected to have a relation with habitat changes, at least north of the lagoon.

<i>Scientific name</i>	English name	French name
<i>Trogon melanocephalus</i>	Black-headed Trogon	Trogon à tête noire
<i>Myiopagis viridicata</i>	Greenish Elaenia	Elénie verdâtre
<i>Oncostoma cinereigulare</i>	Northern Bentbill	Tyranneau à bec courbe
<i>Hylophilus decurtatus</i>	Lesser Greenlet	Viréon menu
<i>Uropsila leucogastra</i>	White-bellied Wren	Troglodyte à ventre blanc
<i>Habia fuscicauda</i>	Red-throated Ant-Tanager	Tangara à gorge rouge
<i>Piranga roseogularis</i>	Rose-throated Tanager	Tangara à gorge rose

The following species could be attributed to the first group as well but for one difference: they are influenced by the proximity of the road. Some are more tied to rather dry forests (the first two species), others to rather humid forests (especially the Motmot).

<i>Crypturellus cinnamomeus</i>	Thicket Tinamou	Tinamou cannelle
<i>Leptotila jamaicensis</i>	Caribbean Dove	Colombe de Jamaïque
<i>Momotus momota</i>	Blue-crowned Motmot	Motmot houtouc
<i>Tolmomyias sulphurescens</i>	Yellow-olive Flycatcher	Platyrhynque jaune-olive
<i>Thryothorus maculipectus</i>	Spot-breasted Wren	Troglodyte à poitrine tachetée

The next six species are rather rare or localized north of the lagoon. They are suspected to be tied to more humid (semi-evergreen) forests, like the forests of Xo-Pol and south of the lagoon.

<i>Campephilus guatemalensis</i>	Pale-billed Woodpecker	Pic de Lesson
<i>Formicarius analis</i>	Black-faced Antthrush	Tétéma coq-de-bois
<i>Platyrinchus cancrominus</i>	Stub-tailed Spadebill	Platyrhynque à queue courte
<i>Schiffornis turdinus</i>	Thrush-like Schiffornis	Antriade turdoïde
<i>Henicorhina leucosticta</i>	White-breasted Wood-Wren	Troglodyte à poitrine blanche
<i>Cyanocompsa parellina</i>	Blue Bunting	Evêque paré

The next species might be additional indicators for dry forests.

<i>Granatellus sallaei</i>	Gray-throated Chat	Paruline à plastron
<i>Myiarchus yucatanensis</i>	Yucatan Flycatcher	Tyran du Yucatan

Other species are no suitable local bio-indicators to differentiate between various, sometimes adjacent, types of forests. These species indeed visit suboptimal habitats. However, they are typical so-called "large-scale bio-indicator". These two species endemic to the Yucatan peninsula are present in the Shipstern nature reserve and mark distinctively the influence of the Yucatan bioregion.

<i>Amazona xantholora</i>	Yellow-lored Parrot	Amazone du Yucatan
<i>Cyanocorax yucatanicus</i>	Yucatan Jay	Geai du Yucatan

Both Yucatan endemic Nightjars, the Yucatan Poorwill (*Nyctiphrynus yucatanicus*) and the Yucatan Nightjar (*Caprimulgus badius*) are possibly two typical hosts of the dry forests. The singing period was finished when my study began. A targeted night prospecting in April and May is needed to localize extensively nightjars. Night censuses focused on the Yucatan Poorwill and the Yucatan Nightjar would provide a valuable complement to the present work. The data on the distribution of the Common Pauraque (*Nyctidromus albicollis*), the Northern Pootoo (*Nyctibius jamaicensis*), the Vermiculated Screech-Owl (*Otus guatemalae*), the Ferruginous Pygmy-Owl (*Glaucidium brasilianum*) and the Mottled Owl (*Ciccaba virgata*) are also deficient and thus these species would deserve a dedicated census.

Natural open habitats attract characteristic species of birds. Among them, a few breeders are settled in the dwarf mangals. Those include the White-winged Dove (*Zenaida asiatica*), the Mangrove Vireo (*Vireo pallens*), the Blue-gray Gnatcatcher (*Polioptila caerulea*), the Tropical Mockingbird (*Mimus gilvus*), the Mangrove Warbler (*Dendroica petechia eritachorides*), the Gray-crowned Yellowthroat (*Geothlypis poliocephala*) and the Olive Sparrow (*Arremonops rufivirgatus*). Many waders like the Herons, the White Ibis (*Eudocimus albus*), the Least Sandpiper (*Calidris minutilla*) and the Wilson Plover (*Charadrius wilsonia*) feed in the dwarf mangal.

Towards the forests, the wetland becomes more and more wooded and is invaded by grass. All the breeders occupying the mangals are also found in this habitat, but in addition, other species complete the avifauna of this area, like the White-tailed Kite (*Elanus leucurus*), the Yellow-bellied Elaenia (*Elaenia flavogaster*), the Brown-crested Flycatcher (*Myiarchus tyrannulus*), the Rufous-browed Peppershrike (*Cyclarhis gujanensis*) and the Black Catbird (*Melanoptila glabrirostris*).

Some species not regularly found inside the reserve are however encountered in cultivated landscapes close to the reserve. Among them are the species common next to the road, but otherwise rare inside the forest. In wooded habitats with artificial clearances, species like the Gray Hawk (*Asturina nitida*), the Bat Falcon (*Falco rufigularis*), the Pale-vented Pigeon (*Columba cayannensis*), the White-fronted Parrot (*Amazona albifrons*), the Barred Antshrike (*Thamnophilus doliatus*), the Clay-colored Robin (*Turdus grayi*), the Black-headed Saltator (*Saltator atriceps*) and the Montezuma Oropendola (*Psarocolius montezuma*) are found in addition to the species inhabiting the reserve. In more open cultivated landscape or near human settlements were the Ruddy Ground-Dove (*Columbian talpacoti*), the Grooved-billed Ani (*Crotophaga sulcirostris*), the Blue-black Grassquit (*Volatinia jacarina*) and the Great-tailed Grackle (*Quiscalus mexicanus*). The White-winged Dove was seen in cultivated habitats outside the breeding season.

Two wooded islets in the lagoon shelter wader colonies. My visits in the colonies were not regular and data are still missing for many species of the colonies in order to specify their breeding status. Breeding periods are different for each species and are so far not well documented. The breeding success is also largely unknown.

The American Woodstork (*Mycteria americana*) and the White Ibis are the most numerous species. Other species breed on these islets too, like the Neotropic Cormorant (*Phalacrocorax brasilianus*), the Great Blue Heron (*Ardea herodias*), the Great Egret (*Ardea alba*), the Tricolored Egret (*Egretta tricolor*), the Reddish Egret (*Egretta rufescens*), the Boat-billed Heron (*Cochlearius cochlearius*) and the Roseate Spoonbill (*Ajaia ajaja*). Other species were seen in the islets, but breeding could not be proved.

Bibliography

- Bijleveld, C.F.A. (1998). The vegetation of Shipstern Nature Reserve, A structural and floristic approach. ITCF Publication.
- Birdlife international (2001). Threatened birds of the world. Lynx Edicions and BirdLife International.
- Brewer, D. (2001). Wrens, Dippers and Thrashers. Christopher Helm.
- Cleere, N. & D. Nurney (1998). A guide to Nightjars and related Nightbirds. Pica Press.
- Curson, J., D. Quinn & D. Beadle (1995). New world Warblers. Christopher Helm.
- Del Hoyo, J., A. Elliott & D. A. Christie eds (2003). Handbook of the birds of the world, vol. 8, Broadbills to Tapaculos. Lynx Edicions.
- Del Hoyo, J., A. Elliott & D. A. Christie eds (2004). Handbook of the birds of the world, vol. 9, Cotingas to Pipits and Wagtails. Lynx Edicions.
- Del Hoyo, J., A. Elliott & D. A. Christie eds (2005). Handbook of the birds of the world, vol. 10, Cuckoo-shrikes to Thrushes. Lynx Edicions.
- Del Hoyo, J., A. Elliott & D. A. Christie eds (2006). Handbook of the birds of the world, vol. 11, Old World Flycatchers to Old World Warblers. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (1992). Handbook of the birds of the world, vol. 1, Ostrich to Ducks. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (1994). Handbook of the birds of the world, vol. 2, New World Vultures to Guinea fowl. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (1996). Handbook of the birds of the world, vol. 3, Hoatzin to Auks. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (1997). Handbook of the birds of the world, vol. 4, Sandgrouses to Cuckoos. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (1999). Handbook of the birds of the world, vol. 5, Barn-owls to Hummingbirds. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (2001). Handbook of the birds of the world, vol. 6, Mousebirds to Hornbills. Lynx Edicions.
- Del Hoyo, J., A. Elliott & J. Sargatal eds (2002). Handbook of the birds of the world, vol. 7, Jacamars to Woodpeckers. Lynx Edicions.
- Dunn, J. & K. Garrett (1997). A field guide to Warblers of North America. Houghton Mifflin Company.
- Fergusson-Lees, J. & D. A. Christie (2001). Raptors of the world. Christopher Helm.
- Hancock, J. & J. Kushlan (1984). The Herons handbook. Croom Helm.
- Hartshorn & al. (1984). Belize country environmental profile, a field study. San José: Trejos. Hnos Sucs. S.A.
- Horwich, R. H. & J. Lyon (1989), A Belizean rain forest : the community Baboon sanctuary ; Orangutan Press
- Jaramillo & Burke (1999). New world Blackbirds, the Icterids. Christopher Helm.
- Jones, L. H. (2003). Birds of Belize. Christopher Helm.
- Jones L. H. & A. C. Vallely (2002). Annotated checklist of the birds of Belize. Lynx Edicions.
- Juniper, T. & M. Parr (2003). A guide to the Parrots of the world. Christopher Helm.

King, R. B., I. C. Baillie, T. M. B. Abell, J. R. Dunsmore, D. A. Gray, J. H. Pratt, H. R. Versey, A. C. S. Wright & S. A. Zisman (1992). Land resource Assessment of Northern Belize. Natural Resource Institute Bulletin No 43.

Mac Rae, E. (2002). Birds of Warrie Bight, May 02, with some notes on Fish. Unpublished.

Madge, S., H. Burn (1994). Crows and Jays. Christopher Helm.

Meerman, J. (1993). Checklist of the birds of the Shipstern Nature Reserve. Occasional Papers of the Belize Natural History Society, vol. 2. pp 70-82.

Meerman, J. C. & T. Boosma (1993). Biodiversity of the Shipstern Nature Reserve. Occasional papers of the Belize natural history society, vol. 2. pp 1-7.

Morgenthaler (2003). Ecology of the Black Catbird, *Melanoptila glabrirostris*, at Shipstern Nature Reserve (Belize), and distribution in Yucatan. Master Thesis, University of Neuchâtel, Switzerland.

Pyle (1997). Identification guide to North American birds, part I. Slate Creek Press.

Turner, A. & C. Rose (1994). A handbook to the Swallows and Martins of the World. Christopher Helm.

Vallely, A. C. & A. A. Whitman (1997). The birds of Hill Bank, northern Belize. Cotinga 8. pp 39-49.

Walker, S. H. (1973). Summary of climatic records for Belize. Land Res. Div., Surbiton, Surrey, England, Suppl. N°3, in: Hartshorn & al (1984).

Walker, Z. (2002). Birds species of the Fireburn area. Unpublished.

Walters, M., G. Lesaffre, P. Le Maréchal (1996). L'inventaire des oiseaux du monde. Delachaux & Niestlé

- Recordings

Delaney, D. (1992). Bird songs of Belize, Guatemala and Mexico; a selection of rarities, regional endemics and distinctive subspecies. Library of natural sounds, Cornell Laboratory of Ornithology. Audiocassette.

Gilardi, J. (1997). Songs from a (vanishing) Belizean forest. Songs for Gaia. CD.

Hardy, J. W., B. B. Coffey & G. B. Reynard (1999). Voices of the New World Owls. Ara Records. Audiocassette.

Hardy, J. W., G. B. Reynard & B. B. Coffey (1995). Voices of the New World Cuckoos & Trogons. 2nd edition. Ara Records. Audiocassette.

Hardy, J. W., G. B. Reynard & T. Taylor (1996). Voices of the New World Rails. Ara Records. Audiocassette.

Hardy, J. W., G. B. Reynard & T. Taylor (1998). Voices of the Troupials, Blackbirds and their allies, family Icteridae; cassette 1 and 2. Ara records. Audiocassette.

Moore, J. M (1992). A bird walk at Chan Chich. Astral sounds recording. Audiocassette.

Ranft, R. & N. Cleere (1998). A sound guide to Nightjars and related Nightbirds. Pica Press. CD.

Species account



About the species account

All species claimed in the past for Shipstern Nature Reserve are reported here. The species estimated to be dubious in view of the present study are maintained in the list with the motive of reservation. Their scientific name is in brackets.

- Systematic and nomenclature

The systematic, scientific and English names follow Jones & Vallely (2002) in accordance with the sequence and nomenclature of the American Ornithologist Union (1998, 2000). French names are taken from Walters, Lesaffre & Le Maréchal (1996).

- Species codes

Species codes were used as a practical tool for this survey.

The Bare-throated Tiger-Heron (*Tigrisoma mexicanum*) has for example: 10.04 tigmex

The first code is a number corresponding to the systematic order used in Jones & Vallely (2002). Number before the point is the family rank, after the point the species rank within a family, in the sequence of the above-mentioned systematic order (for example 10.04 for *Tigrisoma mexicanum*).

The second made of six letters is a combination of the three first letters of the genus and the three first letters of the species name. When two species have the same abbreviation (i.e. *Cyanerpes cyaneus* / *Cyanocompsa cyanoides*), one of them is modified (cyacya / cyacoi).

- Calendar table

For species well documented by the point-count survey, a calendar table is shown. Periods (from I to VI) correspond to the period of the census (see under chapter "Period"). The six numbers given for each species are the numbers of contacts in the point-count survey per period.

- Abundance

One or several status is given for each species, depending on the habitat and time of the year. The different levels of abundance are approximately similar to those of Jones & Vallely (2002), but their definitions were modified to suit small areas like the one treated here. Jones & Vallely definitions are based on the frequency in which one can discover the species. Because some species are more or less easy to find, regardless to their abundance, I did not follow the definition strictly.

Abundance terms given in the species accounts mean:

Common: Easily located in a suitable habitat widely represented in the region; among the dominant species in term of number within such habitats.

Fairly common: Regularly located, but not every day or with a weak density for easily recorded species.

Uncommon: Not a regular sight. Expected to be encountered at least once per year (if birdwatchers are present).

Rare: Not to be expected each year. This status is normally not used here, as fieldwork duration is smaller than one year. Applying this definition would be too hazardous.

Local: Species present locally (i.e. bird colonies, fresh water pond,...).

Marginal: Species present locally inside the reserve, but widely in the region. Typical for birds inhabiting artificial habitat like settlements or proximity of the road, or with see-birds scarcely wandering in the lagoon and over firm land.

- Locations

It was often difficult to find a name for many interesting sites for birds. When available, local names were used. Most were found on the map of the Shipstern Nature Reserve. The locations of the point-counts codes were sometimes used (for example: N99; see map "Point-counts localisation").

The name "Shipstern" is confusing. For a visitor, Shipstern means the reserve or, if situated more accurately, at the headquarters. Only the ruins of the old village (where no building is left) would actually deserve to be called "Shipstern". To avoid confusion, it is called thereafter "ruins of Shipstern old village".

"Shipstern landing" means the place where the boat lands to walk to Shipstern (ruins of the old village), and the close surroundings, but not the whole region extending south of the lagoon as sometimes mistakenly used.

Cow-Pen is used rather than Xcopen.

- Date

For data collected during the survey (May 2002 to January 2003), the year is omitted in the dates. The full date is written for mentions outside the time of the survey.

- Maps

A map is presented for the 102 species, for which the point-count survey gives interesting information about the geographic distribution. Maps show the results of the point-count study, and do not represent the true distribution.

The 120 points represent the 20 points of the 6 tracks. The map is divided in three parts: mainland north of the lagoon (northern Shipstern), south of the lagoon (southern Shipstern) and Xo-Pol. See under chapter "Point-count survey".

The size of each point tells the occurrence of the species within the 6 censuses.

- Graph

One or two graphs document the habitat preference of some species for which the point-count survey give interesting data. The percentage of positive contact for each main habitat is shown. See the abbreviations in the chapter "Habitat".

The proximity of the road appeared to be a major habitat factor for many species, not expected initially to be so strong. I tried to show this influence on the occurrences for some species. However, the material was scarce for some habitats, especially the semi-evergreen forests, because it was poorly represented outside of the road. The results on the influence of the road proximity presented in the graphs have only an indication purpose because this study was not designed to demonstrate this effect.

The points of the track R are those for which the road has an influence (see Map III).

- Calendar, plumages, moult and skull ossification

Vocal activities supplied interesting information on calendar habits. Many species were very vocal in spring and summer, less in autumn when some of them were even silent, and sang or called again in winter. The autumn's silence was interpreted for many species as the time when the main period of moult occurred. The bird seizing was a very interesting way to check this correlation.

Moreover, moult data provided clues on breeding periods as an adult in deep moult often means that it does not breed anymore. Stage of juvenile plumage and skull ossification were two further clues.

Thus, the breeding activities (including song) and the post-breeding moult were the two main information to identify the calendar activities of most breeding species. For many species, the breeding period stated in the literature is reported in the current account.

Migrants' date of arrival and departure were registered. A specific focus was on the autumn migration, while data of the spring migration are still largely incomplete.

Details of the state of moult are given for the birds caught. The material was rather scanty, but the moult of the species caught, apart most of the North American migrants, was yet poorly documented. As I am not experienced in moult scheme of the tropical birds, the interpretations on the state of the moult have to be taken with caution.

The moult and plumage terminology is taken from Pyle (1997). It describes the plumages of passerines and some non-passerines. For other species like raptors or gulls, this terminology is less suitable. No special care was given to the plumage of such species in this study. Thus, it was not worth introducing appropriate terms for them.

Juvenal plumage: First plumage (subsequent to the natal down) acquired by the nestling and retained by the juvenile. A **juvenile** is a bird wearing a juvenal plumage.

Basic plumage: Plumage resulting from the **prebasic moult** (also called post-nuptial or post-breeding for adults). In the majority of birds (at least passerines) this moulting period occurs just after the breeding season and is **complete** for the adults. The **first prebasic-moult** is the first moult of a bird, when it replaces its juvenile plumage. It is also referred to as post-juvenile moult. This moult is either **complete** or **partial**. For those birds that have a partial first prebasic-moult, juvenal feathers are still present.

Alternate plumage: Plumage resulting from the **prealternate moult**. Many species perform two moults per year. The second moult occurs before the breeding in North American migrants, mainly in the winter quarter. The prealternate moult is, for at least the North American migrants, generally partial. This study ended too early to document it.

1y bird: bird in its first calendar year (young bird).

2y bird: bird in second calendar year. A "young bird" in spring is a 2y bird. It means that a 1y bird the 31.12 is a 2y bird the day after.

Adult: generally opposed to "1y bird".

Abbreviation used for the feathers are:

P, PP Primary, -ies (numbered distally, the external is the 10th)

S, SS Secondary, -ies (numbered proximally, including tertials, SS 7-9)

GC Greater coverts

PC Primary coverts

AI Alula, -s (counted outwards, the biggest is the 3rd)

RR Rectrix, -ices (counted outwards, the external is the 6th).

The scale stage of skull ossification follows Pyle (1997). **A** means no second layer of bone on the skull at all. **E** means second layer of bone achieved. **B** to **D** are intermediate stages.

TINAMIDAE

3 species in the region, 4 in Belize. This family is endemic to the Neotropics. One species is widely distributed in the forests of the reserve whereas the two others are rare and localized to rather moist forests.

Tinamus major 1.1 tinmaj
 Engl.: Great Tinamou Fr.: Grand Tinamou

Uncommon and local resident, four mentions. One was recorded at Chacan Chac Mol, Warrie Bight the 20.05. (E. Mac Rae). One sang the 10.08 near Shipstern ruins and one was seen the 15.08 at Xo-Pol. The 24.10 at Xo-Pol, one young bird was with another bird flushed, possibly adult. Meerman (1993) lists it as rare.

Crypturellus soui 1.2 crysou
 Engl.: Little Tinamou Fr.: Tinamou soui

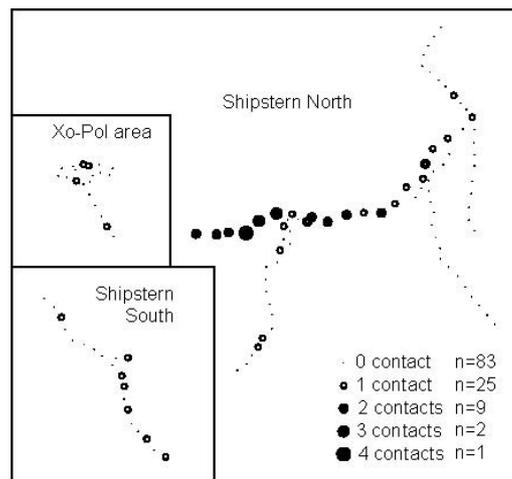
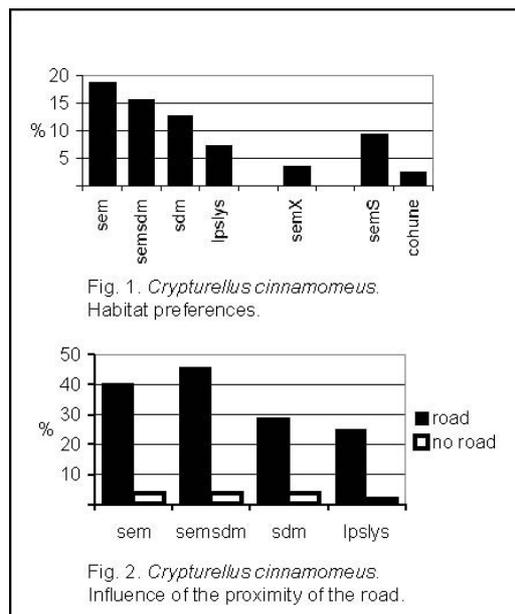
Not recorded during the survey. Probably uncommon and local resident. Walker (2002) lists it for Fireburn, with two mentions: one the 29.05.1999, and one the 23.04.2002 (Z. Walker, E. Mac Rae). Meerman (1993) considers it as rare. It should be looked for south of the lagoon and at Xo-Pol, in spring, when the species is presumably more vocal.

Crypturellus cinnamomeus 1.3 crycin
 Engl.: Thicket Tinamou Fr.: Tinamou cannelle
 Map 1, Fig 1-2

period	I	II	III	IV	V	VI
crycin	18	14	15	1	1	4

Common resident in all types of forest, but scarcer at Xo-Pol and south of the lagoon. Thicket Tinamou seems to favour the proximity of the road (see fig.). It is also present at Fireburn and in forests between the reserve and Sarteneja.

The species is clearly less vocal during the period IV to VI (from mid-August to December, perhaps later). It breeds between March and May in Costa Rica (Del Hoyo, Elliott & Sargatal 1992). According to vocal activities, it may be alike in the Sartenejan region.



PODICIPEDIDAE

2 species in the region, 2 in Belize. Both only recorded at Xo-Pol. The family is distributed worldwide. One is resident, the other winter visitor.

Tachybaptus dominicus 2.1 tacdom
Engl.: Least Grebe Fr.: Grèbe minime

Locally common resident. Present all year round at Xo-Pol.

In 2001, an adult with three chicks were observed in Xo-Pol the 2nd and 3.03, among other adult grebes.

Across its wide repartition, the Least Grebe breeds throughout the year depending on local conditions. In Texas, the laying is recorded all months with a peak between April and August (Del Hoyo, Elliott & Sargatal 1992). The breeding period in Northern Belize is more extensive as suggested by the observation of 2001.

Podilymbus podiceps 2.2 podpod
Engl.: Pied-billed Grebe Fr.: Grèbe à bec bigarré

Uncommon winter visitor. Two mentions from Xo-Pol concern possibly the same bird. One was seen the 23.10, and again the 6.12. In 2001, one was seen the 2.03 at Xo-Pol. The 20.05, the species was recorded nearby, with Least Grebes at Chacan Chac Mol, Warrie Bight (E. Mac Rae).

The Pied-billed Grebe breeds locally in Belize (Jones 2003). Breeding in the Shipstern region is probably not regular but should be looked for in fresh water ponds.

SULIDAE

0 species in the region, 3 in Belize. The family is present worldwide mainly on the oceans. The presence of these pelagic birds in coastal areas is accidental in Belize. Only one possible record in the region is reported, but to our knowledge is not documented.

(Sula leucogaster) 5.2 sulleu
Engl.: Brown Bobby Fr.: Fou brun

Not recorded during the survey. Reported as rare and coastal by Meerman (1993). Paul Walker (*com. pers.*) remembered a bird watched from Sarteneja, not identified properly by himself and seen with Jan Meerman. He thinks the mention of this species in the list might be in relation with this sight. It is better to consider this data with caution. If the species occurs in the Chetumal bay, it is as vagrant.

PELECANIDAE

2 species in the region, 2 in Belize. Family tied to open waters and nearly cosmopolitan. Both species are rare inside the reserve. One is a common resident close to the reserve, in coastal areas; the other one is a rare migrant.

Pelecanus erythrorhynchos 6.1 pelery
Engl.: American White Pelican Fr.: Pélican d'Amérique

Uncommon visitor. Not recorded during the survey inside the reserve, but eight were seen flying the 31.12 at Sarteneja (C. & M. Laesser, F. Alamilla).

Seven were seen flying north the 26.04.1999 (Z. Walker). It was already reported for Fireburn in "small numbers, average 5 or 6 per flocks" (Walker 2002). In Belize, numbers have increased in the past 20 years (Jones 2003). Meerman (1993) records it as vagrant. One can assume that it is now a regular bird in the Sartenejan region, but it was not the case in the early nineties.

Pelecanus occidentalis 6.2 pelocc
Engl.: Brown Pelican Fr.: Pélican brun

Possibly marginal to the reserve. Not recorded during the survey inside the reserve, but common in Chetumal bay, at Robin's land, Sarteneja and Rocky Point, probably all year round. Assumed to breed in the Corozal district (Jones & Vallely 2002).

PHALACROCORACIDAE

2 species in the region, 2 in Belize. The family is nearly cosmopolitan and tied to open water. Both species are resident. One breeds inside the reserve, the other possibly besides. The respective status and habitat preferences are not clear for the reserve. The identification of the two cormorants is somewhat difficult at distance without practice.

Phalacrocorax brasilianus 7.1 phabra
Engl.: Neotropic Cormorant Fr.: Cormoran vigua

Common resident. The Neotropic Cormorant breeds in the Shipstern lagoon colonies. It has been recorded, at Dani's caye in February and March 2001.

The species was regularly seen in the lagoon. It was also present at Robin's land, more in inundated mangroves than in the open water of the Chetumal Bay. H. L. Jones counted 35 birds of this species in Shipstern lagoon in mid-November 1997. See also under *P. auritus*.

Across its wide repartition, the species breeds all over the year, but from May to August in the USA (Del Hoyo, Elliott & Sargatal 1992). It begins to breed possibly earlier in the Shipstern lagoon.

Phalacrocorax auritus 7.2 phaaur
Engl.: Double-crested Cormorant Fr.: Cormoran à aigrettes

Possibly only marginal to the reserve. No asserted data comes from the reserve during the survey, but many cormorants were left unidentified. The Double-crested Cormorant was noted by H. L. Jones, presumably in the Shipstern Lagoon in mid-November 1997. It was common in Chetumal Bay at Robin's land during the whole survey. Also present at Sarteneja and Rocky Point.

Meerman (1993) considers it as "Common" and the Neotropic Cormorant as "Uncommon". Double-crested is certainly more common in the Chetumal bay but not in the Shipstern lagoon where Neotropic Cormorant is probably more common. The same author reports breeding colonies of Double-crested. This may concern the islands of Chetumal bay. Breeding has yet to be proved in the Shipstern lagoon for Double-crested. Curiously, only this species is asserted for Fireburn (Walker 2002) while Neotropic would be more expected there.

In Belize, numbers have increased significantly in past 20 years (Jones 2003).

ANHINGIDAE

1 species in the region, 1 in Belize. This is a family tied to tropical and sub-tropical inland or coastal waters. The Belizean species is an uncommon resident in the Shipstern lagoon (where it breeds) and of the pond of Xo-Pol.

Anhinga anhinga 8.1 anhanh
Engl.: Anhinga Fr.: Anhinga noir

Uncommon, possibly breeder resident. Three were seen in mid-April (A. Morgenthaler), and at least two the 20.05 on Dani's Caye. It was seen again on lagoon islets in December and January. In 2001, one was the 2nd and 3.03 at Xo-Pol. Also present at Progresso.

FREGATIDAE

1 species in the region, 1 in Belize. The family is pantropical. The Belizean species is a common resident, very aerial.

Fregata magnificens 9.1 fremag
Engl.: Magnificent Frigatebird Fr.: Frégate superbe

Fairly common visitor. The Frigatebirds regularly fly above the lagoon, but also pass from Chetumal Bay where the species is more common, to Shipstern lagoon, over forest and savannah. It was seen all year round, also at Fireburn, Sarteneja and Rocky Point.

The 27.06.1999, at least 35 nests with young birds just fledging were found at Shipstern Caye, outside the reserve, (Z. & P. Walker). The species seems to breed preferentially during the dry season (Del Hoyo, Elliott & Sargatal 1992). The observation of Z. & P. Walker supports this hypothesis.

ARDEIDAE

13 species in the region, 16 in Belize. The family is nearly cosmopolitan.

This family is important for Shipstern Nature Reserve. At least 6 species breed in the reserve (mostly in the cayes). Five more are suspected to breed or are possible breeder. The colonies were not well enough surveyed during this study. Some species were present there, but not necessarily as breeder. For others, breeding is noted nearby, but a proof for the reserve is still missing.

Ixobrychus exilis 10.03 ixoexi
Engl.: Least Bittern Fr.: Petit Blongios

Not recorded inside the reserve. One was the 15.06 at Robin's land and two the 25.07 at Little Belize. Meerman (1993) mentioned it for Chacan Chac Mol (Xo-Pol).

Tigrisoma mexicanum 10.04 tigmex
Engl.: Bare-throated Tiger-Heron Fr.: Onoré du Mexique

Uncommon to fairly common (but hard to see) resident. It possibly breeds inside the reserve. One bird was on a nest the 17.06 at Corozalito, outside the reserve.

Two were seen the 26.05 at Xo-Pol and one west of Iguana Camp the 10.08. It was also recorded at Robin's land in July and November. One record comes from Chacan Chac Mol, Warrie Bight the 20.05. (E. Mac Rae).

In various sites across its distribution in Central America, nesting is recorded between February and August (Hancock & Kushlan 1984)

Ardea herodias 10.05 ardher
Engl.: Great Blue Heron Fr.: Grand Héron

Fairly common visitor, and breeder in the Shipstern lagoon as claimed by Jones (2003). The Great Blue Heron was seen in May and June, but breeding could not be confirmed during the survey.

The 19.05, one bird with white head flew over Robin's land. The 5.12, one white morph heron was on an islet north of the lagoon. The species was present in mid-February and early March 2001 in the Shipstern lagoon.

The Great Blue Heron breeds between March and July in the Eastern Caribbean (Del Hoyo, Elliott & Sargatal 1992). About the same breeding time can be expected for the Sartenejan region.

Ardea alba 10.06 ardalb
Engl.: Great Egret Fr.: Grande Aigrette

Common resident in wetlands, also at Xo-Pol. The Great Egret was present in the colonies during the breeding period and certainly nests there. It was also recorded at Robin's land, Sarteneja and Rocky Point.

Egretta thula 10.07 egrthu
Engl.: Snowy Egret Fr.: Aigrette neigeuse

Fairly common resident in open wetlands. The Snowy Egret was present in summer in small numbers, but a reliable breeding record is missing. One bird the 20.05 was on Dani's Caye. Two more were present the 2.06 at Robin's land and the 17.06 at Corozalito. Then, it was regularly seen from the end of July. Also recorded at Sarteneja.

The breeding is not proved for Belize (Jones 2003), but is possible in the region.

Egretta caerulea 10.08 egrcae
Engl.: Little Blue Heron Fr.: Aigrette bleue

Fairly common transient and winter visitor in open wetlands, north and south of the lagoon, and at Xo-Pol. Some young birds stay during the summer. One was observed the 7.07 at Robin's land. Others are seen at the end of July at the Thompson trail, Xo-Pol, Robin's land and Little Belize. The first adult was seen the 8.08 at Robin's land (V. Palomares, J. Bottinelli & Y. Charbonnier). Also present at Sarteneja.

Egretta tricolor 10.09 egrtri
Engl.: Tricolored Heron Fr.: Aigrette tricolore

Fairly common resident, present in both woodstork colonies of the Shipstern lagoon. In early June, young birds were on nest, close to leave. Some adults were still in the colony the 2.07. A young bird was at Robin's land the 7.07. The Tricolored Egret was regularly seen up to September, and was scarcer later. One was the 2.11 at Robin's land and one the 5.12 on an islet north of the lagoon. It was possibly only uncommon in winter.

Egretta rufescens 10.10 egrruf
Engl.: Reddish Egret Fr.: Aigrette roussâtre

Fairly common resident. The Reddish Egret breeds in the woodstork colonies. A dark adult fed a young white bird the 8th or 9.05 in the colony near Iguana Camp (A. Morgenthaler). In 2001, three young birds nearly completely feathered were in the Iguana Camp colony the 15.02. Another bird has been predated (see also under *Mycteria americana*). Reddish Egrets were still in the colony in May and June, and again in December and January.

The species was regularly seen in the temporarily inundated dwarf mangrove and in the herbaceous wetlands along the Thompson trail and elsewhere around the lagoon. Also at Robin's land.

White and dark morph were both common. Some birds showed a dark morph body plumage with various numbers of white flight feathers.

The breeding is suspected to occur the whole year in the tropical part of the species distribution, with peaks from November to January and from February to May (Hancock & Kushlan 1984). Does the presence in December and January in the colonies correspond to the first peak, or is it only an early settling before the second breeding peak?

Bubulcus ibis 10.11 bubibi
Engl.: Cattle Egret Fr.: Héron gardeboeufs

Marginal to the reserve. One mention comes from inside the reserve. The 1.11, one flew westwards above the headquarters. Outside the reserve, one was seen the 29.05 at Cow Pen and four the 2.11 at Robin's Land. It was numerous at Little Belize. In 2001, one flew over the headquarters the 6.03. Meerman (1993) does not list the species for the reserve. Nesting has not been ascertained for Belize (Jones 2003).

Butorides virescens

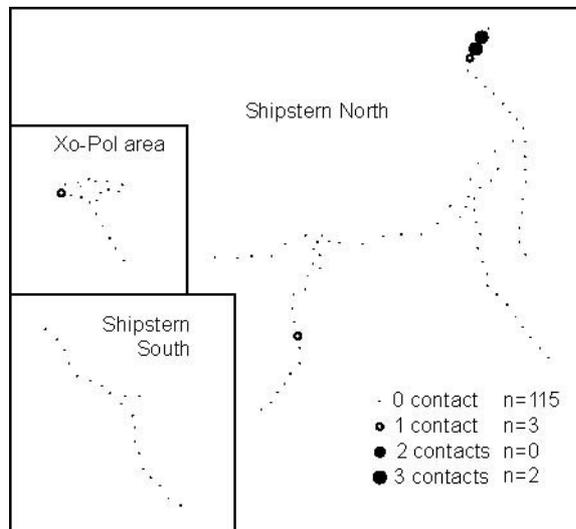
10.12 butvir

Engl.: Green Heron

Fr.: Héron vert

Map 2

Fairly common resident in humid areas, flooded woods, mangrove or ponds, north and south of the lagoon and at Xo-Pol. In 2001, one was at the Iguana Camp colony the 15.02. The Green Heron was also recorded at Robin's land and Fireburn during the survey.



Map 2. *Butorides virescens*.

Nycticorax nycticorax

10.14 nycnyc

Engl.: Black-crowned Night-Heron

Fr.: Bihoreau gris

Uncommon visitor, one mention. One adult was the 26.05 at Xo-Pol. One was reported by H. L. Jones in the Shipstern lagoon, in mid-November 1997.

Breeding has not be ascertained for Belize (Jones 2003)

Nyctanassa violacea

10.15 nycvio

Engl.: Yellow-crowned Night-Heron

Fr.: Bihoreau violacé

Fairly common resident (?), but only one record during the survey inside the reserve. The 5.12, an adult was on an islet in the northern part of the lagoon.

In 2001, two young birds, probably of this species, flew away from the Iguana Camp colony the 15.02. The same year, one adult was at Sarteneja the 5.03. One juvenile was the 12.06.1991 at Shipstern Caye (Z. Walker). H. L. Jones reported 5 birds in Shipstern lagoon in mid-November 1997. Meerman (1993) considers it as a common breeder.

In the tropics, the species breeds between March and August (Del Hoyo, Elliott & Sargatal 1992).

Cochlearius cochlearius 10.16 coccoc
Engl.: Boat-billed Heron Fr.: Savacou huppé

Local breeder. In mid-April, three adults and eight young birds were in the colony near Iguana Camp (A. Morgenthaler). The 20.05, one bird was seen there. Boat-billed Herons were also present in the colony in December and January. In December, it was also noted on islets northwest of the lagoon.

In March 2001, the species was present in both colonies, Iguana Camp and Dani's Caye. The 17.06, two birds were seen in Corozalito, outside the reserve. It was also recorded at Barracuda pond, Warrie Bight, the 20.05 (E. Mac Rae). A juvenile was reported from Cayo Falso, outside the reserve, the 12.06.1991 and there again, two pairs and one young bird the 14.04.1999 (Z. Walker).

In Veracruz and Campeche (Mexico), and Panama, nesting is recorded between February and April where aquatic habitats persist during dry season (Del Hoyo, Elliott & Sargatal 1992).

THRESKIORNITHIDAE

3 species in the region, 4 in Belize. The family is nearly cosmopolitan. In the Sartenjan region, two species are resident, and breeders in the cayes of the lagoon ; the third species is a visitor, never recorded inside the reserve.

Eudocimus albus 11.1 eudalb
Engl.: White Ibis Fr.: Ibis blanc

Common breeder. Two colonies are settled in the reserve at the same locations where woodstorks breed. Nesting season occurs later than by *Mycteria americana*.

The successive occupation of the colony by Woodstorks and White Ibisses could not be set out, as the former did not breed in 2002. One can assume that Ibisses settle when the young woodstorks fledge.

Two countings have been made the evening at Iguana Camp, when adults returned to the colony: 5.06 (17:00 – 18:15) 373 ind. ; 2.07 (17:00 – 18:35) 449 ind.. The species was regularly seen here and there in open areas until September. Also at Robin's Land.

Ibisses were then scarcer. 21 juveniles were counted the 7.10 near the Thompson trail in dwarf mangal (T11). One was the 14.11 at Sarteneja. One juvenile was the 16.11 near the Main trail treetop. The 5.12, three adults and one juvenile fled eastwards at Robin's land.

Plegadis falcinellus 11.3 plefal
Engl.: Glossy Ibis Fr.: Ibis falcinelle

No record inside the reserve. One was seen the 24.07 at Little Belize (J. Bottinelli, V. Palomares, Y. Charbonnier, R. Béguelin), and again the 25.07.

Ajaia ajaja 11.4 ajaaja
Engl.: Roseate Spoonbill Fr.: Spatule rosée

No breeding suspected this year inside the reserve, but present in the colony in 2001. Meerman (1993) records the species as breeder.

Otherwise, the spoonbill was an uncommon visitor. Also noted at Xo-Pol, Robin's land, Rocky Point and Sarteneja.

Three, possibly four pairs were counted at Cayo Falso the 14.04.1999. The species was present at Dani's Caye the 29.05.1999 (Z. & P. Walker).

CICONIIDAE

2 species in the region, 2 in Belize. The family is nearly cosmopolitan. One is an abundant breeder in the cayes of the lagoon, the other a vagrant.

Jabiru mycteria

12.1 jabmyc

Engl.: Jabiru

Fr.: Jabiru d'Amérique

No record during the survey. Meerman (1993) reports the species as "Vagrant".

Mycteria americana

12.2 mycame

Engl.: Wood Stork

Fr.: Tantale d'Amérique

Rarely encountered during the survey. Two colonies are settled in the reserve. In 2001, the colony near Iguana Camp was visited by a big cat (possibly a puma), which predated many nests and adults. This colony was abandoned, while at the other one, young birds were raised.

In 2002, about 100 birds visited the colonies the 5.04, but only few stayed (H. Mesh). No breeding was attempted this year. The 2.05, two birds flew over Cow Pen. One did so over the headquarters the 23.07 (J. Bottinelli, Y. Charbonnier), and again there, two the 11.10. Seven were flying eastwards the 7.11 over the savannah near the Main trail. Three sights were achieved in December including five the 15 at Rocky point, outside the reserve.

In 2003, the two colonies were reported as safe and successful (C. Bijleveld).

In 1999, the young birds were reported to be "just able to fledge" at Dani's Caye the 29.05 (Z. & P. Walker).

CATHARTIDAE

4 species in the region, 4 species in Belize. The members of this American family are typical scavengers. *Coragyps atratus* and *Cathartes aura* are the common Vultures in the whole America. The two other species are tied to the neotropical Region.

Coragyps atratus

Engl.: Black Vulture
Map 3

13.1 coratr
Fr.: Urubu noir

period	I	II	III	IV	V	VI
coratr	4		2	5	7	10

Common resident. Several individuals were present on the cayes where the colonies of woodstorks stand, but breeding was not asserted. It was typically seen flying over open land, but was not rare over the forest. Black Vultures were more often recorded in savannah near Thompson trail than near the Main trail tree-top.

Breeding occurs from November in Costa Rica and from January in Florida (Ferguson-Lees & Christie 2001).

Cathartes aura

Engl.: Turkey Vulture
Map 4

13.2 cataur
Fr.: Urubu à tête rouge

period	I	II	III	IV	V	VI
cataur	3	3	11	8	11	16

Common resident. The species is present all year round, but no breeding has been reported. Turkey Vultures were typically seen flying over open land, but was not rarely so over the forest.

Breeding occurs from November in Costa Rica, from December in Cuba and from March in Florida (Ferguson-Lees & Christie 2001).

Cathartes burrovianus

Engl.: Lesser Yellow-headed Vulture
Map 5

13.3 catbur
Fr.: Urubu à tête jaune

period	I	II	III	IV	V	VI
catbur			1	3		2

Uncommon to fairly common, not breeder (?). It was mostly seen flying over open areas north and south of the lagoon. Also at Cow-Pen, Fireburn and Sarteneja. The Lesser Yellow-headed Vulture was usually seen flying isolated. Four were together the 4.11, seen from the Thompson trail, near the forest edge.

Breeding is likely to occur between March and July (Ferguson-Lees & Christie 2001).

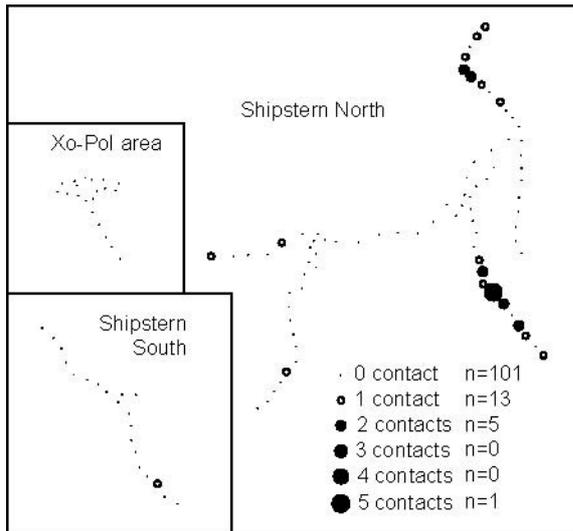
Sarcoramphus papa

Engl.: King Vulture

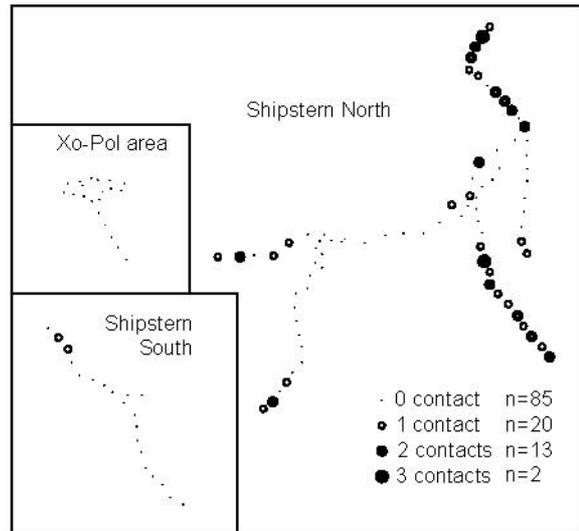
13.4 sarpap
Fr.: Sarcoramphé roi

Uncommon visitor. Four mentions were recorded during the survey. One adult was the 2.10 in southern Shipstern and one adult flew the 18.10 near Fireburn, outside the reserve. One was there again the 22nd or 23.04 (Z. Walker, E. Mac Rae) and one in the Warrie Bight property the 20th or 21.05. (E. Mac Rae). One was the 3.11 at La Isla (Z. Walker).

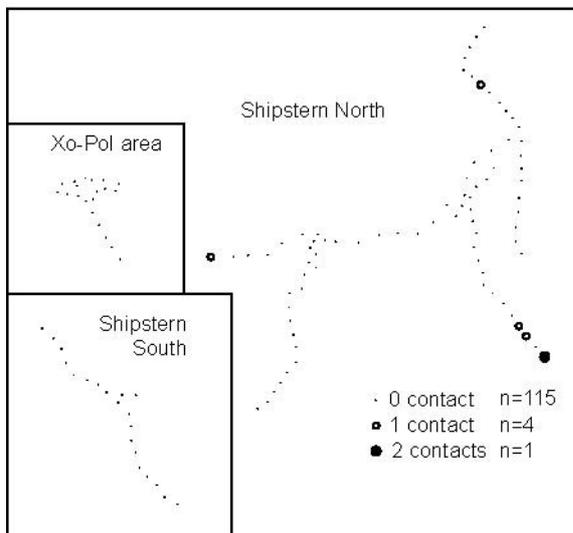
One was sighted the 14.04.1999 at Sarteneja and one at La Isla the 29.08.1999 (Z. & P. Walker). Jones & Valley (2001) record it as occasional visitor in Corozal district. The species seems more frequent than that.



Map 3. *Coragyps atratus*.



Map 4. *Cathartes aura*.



Map 5. *Cathartes burrovianus*.

PHOENICOPTERIDAE

0 species, 1 in Belize. The family is present nearly worldwide. One Caribbean species, which breeds in northern Yucatan, is a straggler in Belize. No ascertained data in the region.

(*Phoenicopterus ruber*)

14.1 phorub

Engl.: Greater Flamingo

Fr.: Flamant rouge

Not seen during the survey. It is reported but unconfirmed in the Sartenejan region (Meerman 1993, Walker 2002).

ANATIDAE

4 species in the region, 17 in Belize. The family, represented worldwide, is tied to water. Two species are migrants and winter visitors. The two others are residents, but without breeding record in the Sartenajan region during the survey.

More species can be looked for in the region. *Aythya collaris* (Engl. : Ring-necked Duck, Fr. : Fuligule à bec cerclé) may occur among *A. affinis* flocks. Several species of dabbling ducks are also expected, rather in fresh water.

Dendrocygna autumnalis 15.01 denaut
Engl.: Black-bellied Whistling-Duck Fr.: Dendrocygne à bec rouge

Uncommon to fairly common visitor, sometimes numerous. 200 to 300 gathered the 26.05 in the wetland of Xo-Pol. Two were the 27.07 at Xo-Pol. It was also seen at Little Belize (25.07) and near Progresso (two the 27.09 and two the 2.11).

Abundance has increased dramatically in last 35 years in Belize (Jones 2003).

Cairina moschata 15.05 caimos
Engl.: Muscovy Duck Fr.: Canard musqué

Rare visitor? The species was not seen during the survey. Meerman (1993) mentions it as rare, mainly seen at Chacan Chac Mol (Xo-Pol).

Hunting has reduced the number of Muscovy Ducks (Jones 2003) and the actual presence in the reserve need to be confirmed.

Anas discors 15.08 anadis
Engl.: Blue-winged Teal Fr.: Sarcelle à ailes bleues

Fairly common visitor. Blue-winged Teal are perhaps more common in spring. Only three mentions were recorded during the survey. One was the 26.05 at Xo-Pol. Eight were the 24.09 in the wetlands near Thompson trail. One was flushed the 3.01 near the lagoon, east of the Thompson trail. During mid-April, it was regularly seen from Iguana Camp, up to 3 males and 1 female (A. Morgenthaler).

In 2001, about 20 were counted the 15.02 and about 15 the 6.03 at Iguana Camp. Five males and two females were the 2.03.2001 at Xo-Pol.

At least 200 were counted the 26.02.1998 at Fireburn (Z. Walker). Eleven were recorded by H. L. Jones in mid-November 1997 in the Shipstern lagoon.

Aythya affinis 15.14 aytaff
Engl.: Lesser Scaup Fr.: Fuligule à tête noire

Fairly common winter visitor. About 70 in one group gathered in the lagoon the 5.12. A group of similar size was seen the 26.11 by a warden. They might have arrived just after the first cold north wind of the year, at mid-November. The Lesser Scaup was more numerous in spring. For instance, about 300 have been counted from Iguana Camp the 6.03.2001

ACCIPITRIDAE

16 species in the region, 31 in Belize. Accipitridae are the typical raptors. They are distributed nearly worldwide. Most of the species present in the Sartenejan region are Belizean residents, but breeding records are missing for most.

Pandion haliaetus 16.01 panhal
Engl.: Osprey Fr.: Balbuzard pêcheur

Common migrant and winter visitor. Two sub-species are present. Resident *ridgwayi* breeds in the region (Walker 2002). Migrant *carolinensis* is presumably a regular visitor. Wintering birds pertain perhaps to the two sub-species.

A dozen or so, wintered in Shipstern lagoon. Ospreys were also present in the Eastern coast (Rocky Point). The sub-species of the wintering birds, is unknown.

One seen the 28.07 in the lagoon near the end of the Thompson trail pertained seemingly to the northern sub-species. It was then regularly seen from mid-October. In spring, one was seen in mid-April in the lagoon (A. Morgenthaler). In 2001, one was recorded the 2.03.

The 17.06.1999 a juvenile was sighted at La Isla. It could have been born close to La Isla (Z. & P. Walker).

Breeding occurs between March and July at the southern edge of its distribution (Ferguson-Lees & Christie 2001). Belizean birds breed at the same time.

Leptodon cayanensis 16.02 lepcan
Engl.: Gray-headed Kite Fr.: Milan de Cayenne

Uncommon resident in rather humid forest north and south of the lagoon. Four mentions were recorded during the survey. The 2.07, one adult sat in the forest south of the lagoon, between S7 and S8. One dark juvenile seen the 11.08 near S8 (J. Bottinelli), was heard the day after. One adult was seen the 5.09 near R14. A call similar to the one heard the 11.08 was recorded the 15.08 at Xo-Pol and might also concern this species. One was recorded the 4.12 from Fireburn (Z. Walker).

The Gray-headed Kite nests between March and July in Costa Rica (Ferguson-Lees & Christie 2001).

Chondrohierax uncinatus 16.03 chouni
Engl.: Hook-billed Kite Fr.: Milan bec-en-croc

Fairly common resident, though regular records might have concerned only few individuals. Hook-billed Kite flew regularly over the forests north of the lagoon. The 7.10, one was seen in sparsely wooded herbaceous wetland near the Thompson trail. The 3.11, three birds were seen flying together over the headquarters. Meerman (1993) does not list the species for the reserve.

In Guatemala, laying occurs in June and July (Ferguson-Lees & Christie 2001).

Elanoides forficatus 16.04 elafor
Engl.: Swallow-tailed Kite Fr.: Milan à queue fourchue

Uncommon visitor. One mention occurs for the reserve. One was seen in July at Xo Pol (L. Juillerat, M. Pittet).

Meerman (1993) does not list the species for Shipstern. Swallow-tailed Kite was reported from the region of Sarteneja between the 25.02 and the 3.03.1991, and from the road to Sarteneja, the 28.03.1999. Five were sighted from La Isla the 29.08.1999 (all obs. Z. & P. Walker).

Elanus leucurus 16.05 elaleu
Engl.: White-tailed Kite Fr.: Elanion à queue blanche

Fairly common resident, mainly in sparsely wooded herbaceous wetland. White-tailed Kites were only recorded north of the lagoon. Also present at Cow Pen and Sarteneja. The species breeds from November in northern Mexico and between December and June in Panama (Ferguson-Lees & Christie 2001).

Rothramus sociabilis 16.06 rossoc
Engl.: Snail Kite Fr.: Milan des marais

Mainly marginal to the reserve. Snail Kite is possibly a regular visitor in fresh water marshes at Xo Pol (and near the Maya ruins?). In 2001, one female or young was the 2.03 at Xo-Pol. During the survey, only one mention occurs, outside the reserve. One was the 20.05 at Cow Pen. The same day, four were seen at Chacan Chac Mol, Warrie Bight (E. Mac Rae). The species breeds between February and August in Florida (Ferguson-Lees & Christie 2001).

Harpagus bidentatus 16.07 harbid
Engl.: Double-toothed Kite Fr.: Milan bidenté

Uncommon, possibly resident? Two mentions occur during the survey. One adult was seen sitting the 12.08 at Shipstern landing, near S2 (V. Palomares). One juvenile was observed flying the 21.09 along the road to Sarteneja, near R6. Meerman (1993) does not list the species for Shipstern.

In Mexico and Central America, nests are occupied between April and September (Ferguson-Lees & Christie 2001).

Geranospiza caerulescens 16.15 gercae
Engl.: Crane Hawk Fr.: Buse échasse

Uncommon (rare?), not breeder. One mention of one adult the 3.11 close to the road near the Eastern survey line. Possibly the same individual was seen the 1.11 at La Isla (Z. Walker). Meerman (1993) does not record the species for Shipstern.

Asturina nitida 16.17 astnit
Engl.: Gray Hawk Fr.: Buse cendrée

Marginal in the reserve. Gray Hawk occurs mainly in disturbed forests. Two mentions were recorded during the survey, one inside the reserve. One adult and one juvenile were the 19.09 at Fireburn. One adult was seen flying the 2.11 near the headquarters, along the road. The species breeds from April to July in northern Mexico, but from December in Costa Rica (Ferguson-Lees & Christie 2001).

Buteogallus anthracinus 16.18 butant
Engl.: Common Black-Hawk Fr.: Buse noire

Probably uncommon resident in open area and forest. Breeding habitat and location are not known. Many *Buteogallus* were left unidentified. Three mentions pertain doubtless to this species, one inside the reserve. The 18.09, one juvenile was seen sitting inside the forest near Fireburn. One adult was the 15.12 at Shipstern Caye. One adult was seen the 3.01 east of the Thompson trail, near the lagoon.

Breeding begins in March in Cuba, and between January and May in Panama (Ferguson-Lees & Christie 2001).

Buteogallus urubitinga

16.19 buturu
 Engl.: Great Black-Hawk
 Fr.: Buse urubu

Status not fully understood. Many *Buteogallus* were left unidentified. Probably uncommon resident, mainly in forest? Three mentions are ascertained to this species, one inside the reserve. The 21.07, one Great Black-Hawk was seen flying over Robin's land (V. Palomarès, J. Bottinelli, Y. Charbonnier, R. Béguelin). The 5.09, one adult was seen from the road to Sarteneja (R8). One was the 27.10 at Fireburn (Z. Walker).

The species breeds evidently between December and May in Southern Central America (Ferguson-Lees & Christie 2001).

Buteo magnirostris

16.21 butmag
 Engl.: Roadside Hawk
 Fr.: Buse à gros bec

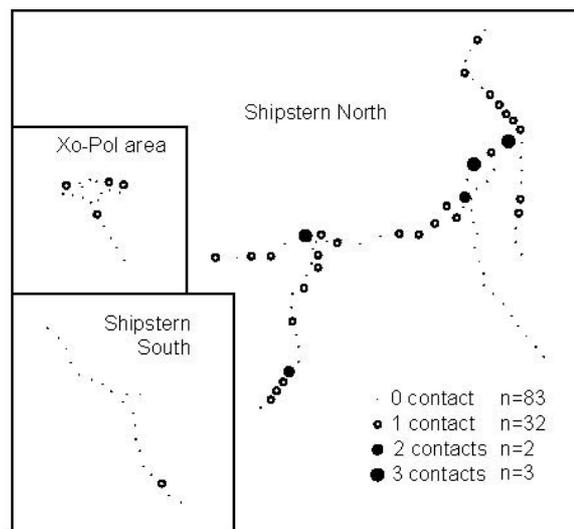
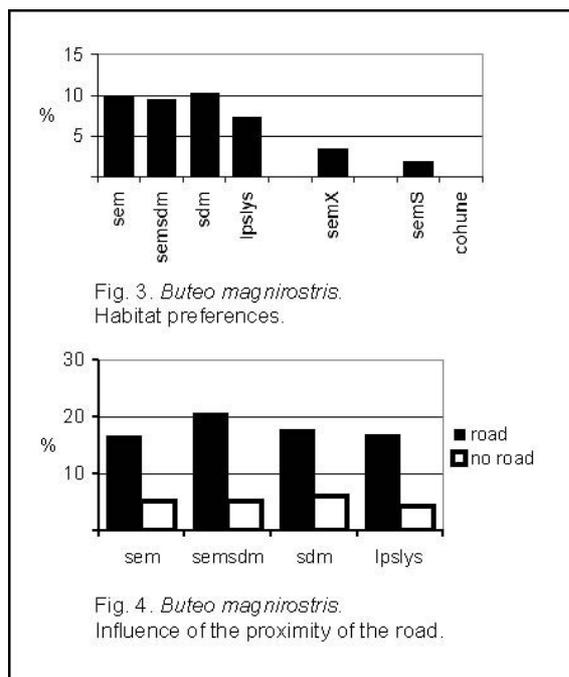
Map 6, Fig 3-4

period	I	II	III	IV	V	VI
butmag	5	4	5	9	8	14

Common resident in all types of forest. Roadside Hawk seemed to be scarcer in undisturbed forest, south of the lagoon and at Xo-Pol. The species benefits from the proximity of road (see fig.). Also present at Fireburn and Cow Pen.

Independent juveniles were seen at least from the end of July.

The Roadside Hawk breeds between March and August from Mexico to Northern South America (Ferguson-Lees & Christie 2001).



Buteo brachyurus 16.23 butbra
Engl.: Short-tailed Hawk Fr.: Buse à queue courte

Fairly common resident north of the lagoon and at Xo-Pol. One was seen the 5.06 at Iguana Camp. Also present at Fireburn. Only the pale morph was noted. The Short-tailed Hawk breeds between January and June in Florida, and probably so in Central America (Ferguson-Lees & Christie 2001).

Buteo albicaudatus 16.24 butaca
Engl.: White-tailed Hawk Fr.: Buse à queue blanche

Uncommon visitor. One immature was seen sitting the 14.07 in the sparsely wooded herbaceous wetland near the Thompson trail.

(Buteo platypterus) 16.22 butpla
Engl.: Broad-winged Hawk Fr.: Petite Buse

Meerman (1993) reports the Broad-winged Hawk for the reserve. According to Jones & Vallely (2001) it is present at Corozal district but is very rare. The presence of the species in the Sartenejan region is uncertain without a proper documentation.

Spizastur melanoleucus 16.29 spimel
Engl.: Black-and-white Hawk-Eagle Fr.: Aigle noir-et-blanc

Uncommon (rare?) visitor, two mentions. One the 30.07 from the Thompson trail near the headquarters was hunted by a group of Yucatan Jays. The 8.10, one adult was sitting near the headquarters.
Not recorded by Meerman (1993)

Spizaetus ornatus 16.31 spiorn
Engl.: Ornate Hawk-Eagle Fr.: Spizaète orné

Uncommon (rare?) visitor, one mention. The 26.07, one adult was hunted by a group of Brown Jays at Xo-Pol (J. Bottinelli, V. Palomarès, Y. Charbonnier). The bird carried a dead mammal. Walker (2002) mentions a juvenile near Sarteneja.
Not recorded by Meerman (1993).

FALCONIDAE

5 species in the region, 10 in Belize. Two are wintering North American Falcons. The others are resident.

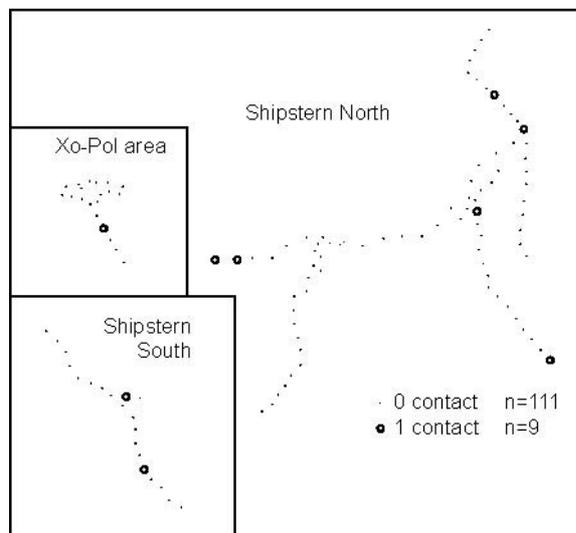
Micrastur semitorquatus 17.02 micsem
 Engl.: Collared Forest-Falcon Fr.: Carnifex à collier
 Map 7

period	I	II	III	IV	V	VI
micsem	1	2	2	1	1	2

Fairly common resident in nearly all types of forest, north and south of the reserve, and at Xo-Pol. Also at Iguana Camp and Fireburn.

Some local movements may occur. One bird was recorded at Iguana Camp the 1.10 where it probably does not breed. Also suggesting some movements is a curious sight of a bird flying north in dry dwarf mangal at the end of the Thompson trail, near the lagoon. Obviously this bird flew from one side of the lagoon to the other.

The Collared Forest-Falcon breeds from March to July in Petén, Guatemala (Ferguson-Lees & Christie 2001).



Map 7. *Micrastur semitorquatus*.

Herpethoteres cachinnans 17.04 hercac
 Engl.: Laughing Falcon Fr.: Macagua rieur

Fairly common resident north and south of the lagoon and at Xo-Pol. Also present at Sarteneja and Fireburn. The species seemed to prefer semi-open forests.

Laughing Falcon breeds between February and June from Guatemala to Costa Rica (Ferguson-Lees & Christie 2001).

Falco columbarius 17.06 falcol
 Engl.: Merlin Fr.: Faucon émerillon

Uncommon visitor, one mention. The 2.11, one flew over the wetland at the end of the Eastern surveyline.

Meerman (1993) does not list the species for the reserve.

Falco ruficularis

Engl.: Bat Falcon

17.08 falruf

Fr.: Faucon des chauves-souris

Marginal inside the reserve. One was seen hunting the 18.10 at Fireburn. The 23.10, one, possibly two, were seen near Xo-Pol. The 5.01, one flew above the road to Sarteneja, near the Eastern Survey line.

Falco peregrinus

Engl.: Peregrine Falcon

17.10 falper

Fr.: Faucon pèlerin

Uncommon winter visitor. Four mentions, two of them come from inside the reserve. Several mentions could pertain to the same bird. The 10.10, one was seen sitting in a dry mangrove near the Main trail. At Robin's land, one the 2.11 and one young female the 13.11 were noted. The 16.11, one female was seen hunting three Greater Yellowlegs, over the herbaceous wetland near the Main trail treetop.

In 2001, one was seen the 7.03 at Iguana Camp. One was recorded by H. L. Jones in mid-November 1997 in the Shipstern lagoon.

CRACIDAE

2 species in the region, 3 in Belize. This is a neotropical family, inhabiting mainly woodlands. Both species recorded in the Sartenejan region are residents in the reserve.

Ortalis vetula

Engl.: Plain Chachalaca

Map 8

18.1 ortvet

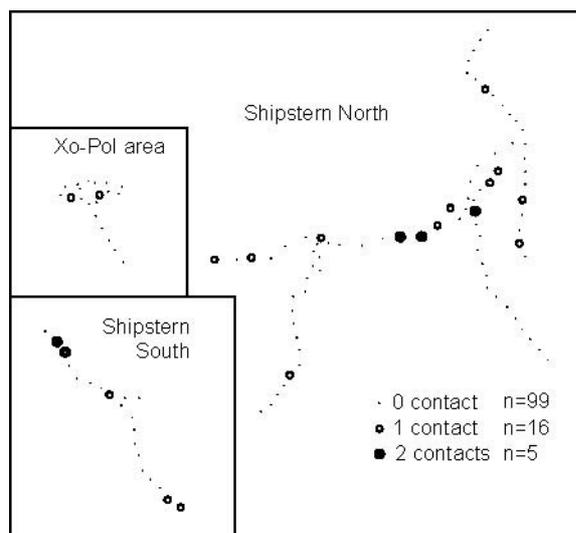
Fr.: Ortalide chacamel

period	I	II	III	IV	V	VI
ortvet	5	6	5	3	4	3

Common in all types of forest, north and south of the forest and at Xo-Pol. In early March 2001, it was noted at Iguana Camp. Also present at Fireburn.

Young birds, smaller than adults were seen in June. Eggs shells seen at the end of March on the Main trail and New trail could pertain to this species (A. Morgenthaler).

The species breeds from March to May in Yucatan (Del Hoyo, Elliott & Sargatal 1994).



Map 8. *Ortalis vetula*.

(Penelope purpurascens) 18.2 penpur
Engl.: Crested Guan Fr.: Pénélope huppée

Meerman (1993) considers it as rare. Despite this mention, the presence of the species in the reserve is doubtful.

Crax rubra 18.3 crarub
Engl.: Great Curassow Fr.: Grand Hocco

Fairly common resident. Great Curassow is present in nearly all types of forest north and south of the lagoon and at Xo-Pol. Also at Fireburn.

The 29.05.1999, one was recorded (at Fireburn?) with two chicks (Z. Walker).

In Mexico, it breeds between February and May, just before rain and between March and May in Costa Rica (Del Hoyo, Elliott & Sargatal 1994).

The species is classified as globally near threatened by Bird life international (2000).

ODONTOPHORIDAE

1 species in the region, 3 in Belize. This is an American family. The present species is a resident of the farmlands.

Colinus nigrogularis 20.1 colngu
Engl.: Black-throated Bobwhite Fr.: Colin à gorge noire

No record inside the reserve where it is not to be expected. Local people said that the species is present near Chunox.

Laying could occur between April and August (Del Hoyo, Elliott & Sargatal 1994).

RALLIDAE

6 species in the region, 13 in Belize. The family is represented worldwide. It is mainly tied to water. Three rails are residents in the reserve. Others are winter visitors.

Laterallus ruber

21.01 latrub

Engl.: Ruddy Crake

Fr.: Râle roux

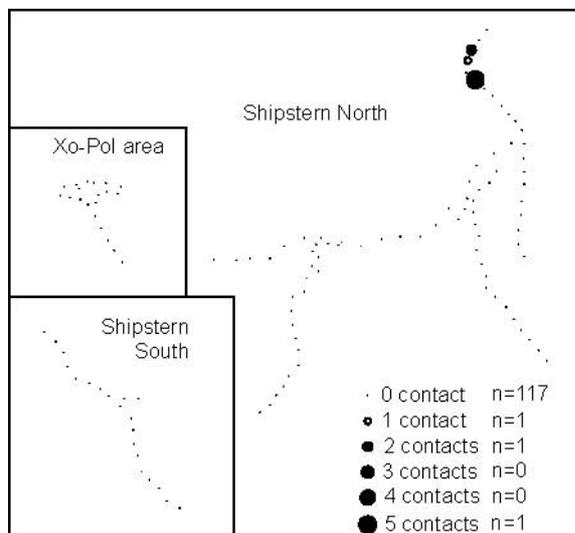
Map 9

period	I	II	III	IV	V	VI
contacts	0	2	1	2	2	1

Local inside the reserve. Some movements occur, at least locally due to the water level. Ruddy Crakes were heard in May at Shipstern landing and the 1.06 in the herbaceous wetland near the forest edge, in the vicinity of the Thompson trail. One was heard the 3.10 on the side of the Xo-Pol pond.

Its presence seemed to be permanent at Cow Pen and Robin's land where the species was common. Also recorded near Little Belize (25.07) and Fireburn (19.09).

In Nicaragua, Ruddy Crake breeds between July and September (Del Hoyo, Elliott & Sargatal 1996)



Rallus longirostris

21.04 rallon

Engl.: Clapper Rail

Fr.: Râle gris

Probably fairly common resident, but often hard to detect. Two were seen the 25.05 at Iguana Camp (A. Morgenthaler, M. Pittet). There, it was heard in the beginning of June. Between June and August, several sights or calls were recorded from Cow-Pen, outside the reserve. Clapper Rail was not recorded later. It might be less vocal and more secretive then, rather than absent.

The species breeds in March in Mexico (Del Hoyo, Elliott & Sargatal 1996).

Aramides cajanea 21.06 aracaj
Engl.: Gray-necked Wood-Rail Fr.: Râle de Cayenne

Fairly common resident, mostly in inundated forests. Each time one individual was seen near to the Chiclero trail the 22.07 (J. Bottinelli, Y. Charbonnier), the 24.09 and the 1.12. Otherwise, the species was present at Xo-Pol (one the 15.08 at the side of the pond) and at Robin's land. A pair with half grown chicks was seen the 31.08.1999 (Z. & P. Walker).

Local movements occur due to the water level.

In Costa Rica, Gray-necked Wood-Rail breeds between April and September (Del Hoyo, Elliott & Sargatal 1996).

Porzana carolina 21.08 porcar
Engl.: Sora Fr.: Marouette de Caroline

No record from the reserve. Uncommon to rare transient in the Sartenejan region. One mention is recorded from outside the reserve. One was the 1.11 in low but dense mangrove at Robin's land. Numerous passerines (Mangrove Vireo, Tropical Mockingbird, Mangrove Warbler, Common Yellowthroat and Blue-gray Gnatcatcher) were alarming around (seemingly because of the Sora).

Not recorded by Meerman (1993).

Gallinula chloropus 21.12 galchl
Engl.: Common Moorhen
Fr.: Gallinule poule-d'eau

Uncommon to rare visitor. The species was not recorded during the survey. One was the 2nd and 3.03.2001 in the Xo-Pol pond.

Not recorded by Meerman (1993)

Fulica americana 21.13 fulame
Engl.: American Coot Fr.: Foulque d'Amérique

Fairly common transient and winter visitor, perhaps more common in spring. Only two mentions were recorded in winter from Iguana Camp. There, two were seen the 5.12 and one the 2.01. In spring one or two were seen at the same place in mid-April (A. Morgenthaler).

In 2001, about 50 were counted the 15.02 at Iguana Camp, and about as much the 6.03. Others were noted elsewhere in the Shipstern lagoon. The species was also present about the same time in the Xo-Pol pond.

2000 individuals were counted on the lagoon system during a one-day survey in 2000 (Walker 2002). Three were recorded the 12.09.1998 at Fireburn (Z. Walker). Coots are probably not to be expected much earlier.

ARAMIDAE

1 species in the region, 1 in Belize. This family has only one species, distributed in the wetlands of the Neotropics.

Aramus guarauna 23.1 aragua
Engl.: Limpkin Fr.: Courlan brun

Fairly common, perhaps throughout the year, but irregularly observed. Local movements occur due to water level. The 24.05, one was flying over the wetland from the Thompson trail. The 26.05, one was in the Xo-Pol pond, and several tenths were in the Xo-Pol marsh. The Limpkins might have deserted this place when the water level raised, in June. It was present at Robin's Land in June (A. Morgenthaler). The species was not seen between July and August. The 2.09, one was next to the road near R8 where the forest is inundated. The 17.09, one was in the Crocodile pond near Fireburn. One last was seen the 2.11 at Robin's land, in an inundated forest edge.

CHARADRIIDAE

4 species in the reserve, 7 in Belize. The family is represented worldwide, with many long-distance holarctic migrants. One species is resident in the region.

Pluvialis squatarola 24.1 plusqu
Engl.: Black-bellied Plover Fr.: Pluvier argenté

Uncommon transient, possibly winter visitor. Three mentions come from the temporarily inundated dwarf mangal near the Thompson trail. The 24.09, one was flying near T15, one the 10.10 near T16 and two the 4.11 near T18.

Two were reported by H. L. Jones the 11.11.1997 in the Shipstern lagoon.

Charadrius wilsonia 24.5 chawil
Engl.: Wilson's Plover Fr.: Gravelot de Wilson

Fairly common and probably breeder. Some movements occur, but the species was present throughout the year. Up to seven birds remained the whole summer at Robin's land (outside the reserve), but without serious indication of breeding. One was the 15.06 near the end of the Thompson trail.

Since the end of August, Wilson's Plovers became less regular at Robin's land, but more numerous in the open wetlands inside the reserve. The highest numbers were reached in September and October. The 4.09, a group of 19 was flying near T15. The 24.09, at least 21 near T11 and about 20 more elsewhere in the wetland were counted along the Thompson trail. At least 24 the 10.10 and 33 the 25.10 were in the inundated dwarf mangrove near the Thompson trail. Numbers were weaker in November and December. In 2001, two were seen along the Thompson trail the 8.03.

Wilson's Plover has bred at Bonefish lagoon, Warrie Bight, where a nest with 4 eggs was found the 20.05.2002 (Mac Rae 2002, Walker 2002). Throughout its breeding range, nests with eggs are found between April and Early June (Del Hoyo, Elliott & Sargatal 1996).

Charadrius semipalmatus 24.6 chasem
Engl.: Semipalmated Plover Fr.: Gravelot semipalmé

Uncommon transient, not recorded inside the reserve. Two mentions come from Robin's land. One was seen the 29.07 and one the 1.11.

Charadrius vociferus 24.7 chavoc
Engl.: Kildeer Fr.: Gravelot kildir

Possibly uncommon visitor, but mainly marginal to the reserve. One mention is reported. The 14.11, one bird was flying eastwards, seen from Cow Pen. In 2001, three were the 5.03 at Sarteneja.

RECURVIROSTRIDAE

1 species in the region, 2 in Belize. This family tied to the wetlands, is represented worldwide. The local species is resident in the region, but migrants complement the local population outside the breeding season.

Himantopus mexicanus 26.1 himmex
Engl.: Black-necked Stilt Fr.: Echasse d'Amérique

Fairly common breeder, present throughout the year in the region, but possibly not inside the reserve. The 26.05 at the Xo-Pol pond, two pairs were recorded, of which one bird was sitting on a nest. In mid-June, the breeding probably failed following high water in the pond. Since at least the 31.05, a territorial pair was in the dwarf mangal near the Main trail treetop (A. Morgenthaler). The 10.07, the two adults were seen alarming with three young birds with an adult size. A pair was seen alarming the 25.06 in the farmlands near Xo-Pol.

Two birds were the 24th and 25.07 at Little Belize. One was found the 7.08 and two or three the 13.08 at Robin's land (V. Palomares, J. Bottinelli & Y. Charbonnier). The 13.09, one was seen from the Thompson trail in inundated dwarf mangal. Stilts were regularly seen at Sarteneja since September.

Some movements occur, not only locally. Migrant birds reach certainly the region.

The species has also been recorded as breeder at Wacashki, west of Fireburn and at Bonefish lagoon (Walker 2002).

JACANIDAE

1 species in the region, 1 in Belize. This pantropical family is represented by two sister-species in the new world. All species are tied to water.

Jacana spinosa 27.1 jacspi
Engl.: Northern Jacana Fr.: Jacana du Mexique

Local, resident (?). Jacanas were only seen at Xo-Pol. The 26.05, one adult was with three fledglings near the pond and the same day, several tenths were in the marsh of Xo-Pol, including young birds with an adult size. In June, the species was seen again in the marsh (M. Pittet). This habitat was hard to reach then and could not be accurately prospected.

Outside the reserve, one adult was with a fledgling the 25.07 at Little Belize.

The species can breed virtually all year round in permanent wetlands (Del Hoyo, Elliott & Sargatal 1996).

SCOLOPACIDAE

8 species in the region, 26 in Belize. The family is represented worldwide, with many long-distance holarctic migrants. In Belize, all species are winter visitors or transient. Other species may occur in the region.

Tringa melanoleuca 28.01 trimel
Engl.: Greater Yellowlegs Fr.: Chevalier criard

Fairly common transient and winter visitor in sparsely wooded herbaceous wetland and dwarf mangal.

The first seen in fall was the 29.07 at Robin's land. Then, it was regularly seen and heard, mostly along the Thompson trail or at the end of the Eastern survey line. The 7.10, up to 10 were seen there in flight. The 16.11, three were pursued by a Peregrine Falcon near the Main trail tree-top. Some Greater Yellowlegs were still present in December.

Tringa solitaria 28.03 trisol
Engl.: Solitary Sandpiper Fr.: Chevalier solitaire

Not recorded inside the reserve, but probably uncommon visitor. Three mentions come from outside the reserve. One was seen flying over Robin's land the 13.08 (V. Palomares, J. Bottinelli, Y. Charbonnier). One was the 4.09 at Sarteneja and one was the 10.09 at Little Belize.

The Solitary Sandpiper was also noted at Fireburn (Walker 2002) with a mention the 22nd or the 23.04.2002 (Z. Walker, E. Mac Rae). One was recorded by H. L. Jones the 11.11.1997 at Shipstern Caye, outside the reserve. Meerman (1993) does not list the species for the reserve.

Catoptrophorus semipalmatus 28.04 catsem
Engl.: Willet Fr.: Chevalier semipalmé

Uncommon visitor, one mention during the survey. One was the 12th and 13.05 at Iguana Camp (A. Morgenthaler). In 2001, one stopped at the side of Shipstern lagoon the 3.03. Meerman (1993) does not list it for Shipstern.

Actitis macularia 28.05 actmac
Engl.: Spotted Sandpiper Fr.: Chevalier grivelé

Uncommon and mostly marginal to the reserve. The species was commonly seen nearby, in Cow Pen, Fireburn, Robin's land and Sarteneja. Only one mention comes from inside the reserve. Two were the 7.09 at the end of the Thompson trail on the side of the lagoon near Cayo Verde. In 2001, one was the 15.02 on the side of the lagoon.

The first fall migrant reached the reserve the 23.07 at Robin's land (J. Bottinelli, Y. Charbonnier). Up to six were seen the 31.08. Spotted Sandpipers were regularly seen then up to December.

Calidris pusilla 28.14 calpus
Engl.: Semipalmated Sandpiper Fr.: Bécasseau semipalmé

Uncommon transient, one mention from inside the reserve. One was the 10.10 near the end of Thompson trail (T17). The species was probably over-looked in dwarf mangal where birds are hard to see, and is difficult to differentiate from numerous *C. minutilla*. One mention is reported for outside the reserve: two birds were the 30.09 at Sarteneja.

Calidris mauri 28.15 calmau
 Engl.: Western Sandpiper Fr.: Bécasseau d'Alaska

Uncommon to rare transient, one mention from the reserve. One was seen well the 24.09 near Cayo Verde.
 Meerman (1993) does not list it for the reserve.

Calidris minutilla 28.16 calmin
 Engl.: Least Sandpiper Fr.: Bécasseau minuscule
 Map 10, Fig. 5

period	I	II	III	IV	V	VI
contacts	0	0	0	7	5	6

Common transient and fairly common winter visitor in dwarf mangal and to a lesser extent in sparsely wooded herbaceous wetland.

The first migrant spotted in fall was an adult the 28.07 at the end of the Thompson trail, near Cayo Verde. Least Sandpiper became regular in August and was very common from the end of the month. It was most abundant in September and still common in October. Few wintering birds were seen between November and January. Some certainly were staying through the winter.

In 2001, one was seen the 15.02 and one the 4.03 in dwarf mangal.

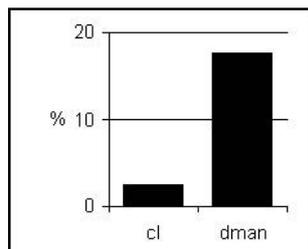
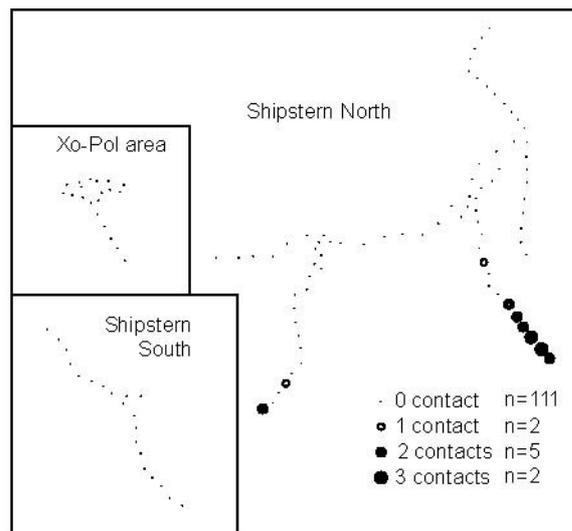


Fig. 5. *Calidris minutilla*.
 Habitat preferences



Map 10. *Calidris minutilla*.

Calidris fuscicollis 28.17 calfus
 Engl.: White-rumped Sandpiper Fr.: Bécasseau de Bonaparte

Uncommon visitor. White-rumped Sandpiper were present in May at Robin's land. The 26.05, several were at Xo-Pol pond. The species was also recorded the 20.05 at Barracuda Pond, Warrie Bight (E. Mac Rae).

(Calidris melanotos) 28.18 calmel
 Engl.: Pectoral Sandpiper Fr.: Bécasseau tacheté

Three waders seen in flight the 24.09 in the inundated dwarf mangal near Thompson trail (T14) could have been of this species.

LARIDAE

7 species in the reserve, 24 in Belize. This family is tied to open waters, nearly worldwide. Apart from the species listed here, other species are expected in the Sartenejan region, like the Herring Gull (*Larus argentatus*).

Larus atricilla 29.04 laratr
Engl.: Laughing Gull Fr.: Mouette atricille

Uncommon transient and winter visitor, probably marginal to the reserve. No record comes from inside the reserve and the species is probably rare in Shipstern lagoon. One mention is reported from outside the reserve. Two were the 31.12 at Sarteneja. Several were seen the 1.03.2001 at Sarteneja (T. Heger, C. Studer).

Sterna caspia 29.12 stecas
Engl.: Caspian Tern Fr.: Sterne caspienne

Fairly common transient and winter visitor. The 5.12, Caspian Terns were seen in three sites of the Shipstern lagoon. Eight were counted between Cow Pen and Shipstern landing, one was near Iguana Camp, and one near Cayo Verde. In 2001, at least two were in the Shipstern lagoon the 15.02 and two between the 6th and 8.03 near Iguana Camp. In mid-November 1997, 10 were counted by H. L. Jones in the Shipstern lagoon. Curiously, Meerman (1993) does not list the species for the reserve.

Sterna maxima 29.13 stemax
Engl.: Royal Tern Fr.: Sterne royale

Fairly common inside the reserve, but more so at Sarteneja and Rocky point. Royal Terns are present all year round but they don't breed in the region. They were scarcer in June and July (before?). About ten were at Sarteneja from September. The 15.12, between 30 and 40 were at Rocky point, which is probably the most frequented site in the area. Royal Terns were also noted at Cow Pen and at the seaside of Robin's land. The species does not breed in Belize (Jones 2003).

Sterna sandvicensis 29.14 stesan
Engl.: Sandwich Tern Fr.: Sterne caugek

Uncommon transient and winter visitor and probably marginal to the reserve. No record comes from inside the reserve. Three mentions were reported during the survey. The 27.07, three were staying on the seaside of Robin's land (J. Bottinelli, V. Palomares, R. Béguelin). Two were the 30.09 at Sarteneja and one was the 15.12 at Rocky point. In 2001, two were reported the 1st (T. Heger, C. Studer) and at least 6 the 5.03 at Sarteneja.

Sterna forsteri 29.17 stefor
Engl.: Forster's Tern Fr.: Sterne de Forster

Rare winter visitor (also transient?), one mention from outside the reserve. The 15.12, one was sitting at Rocky Point.
Meerman (1993) does not report the species for the reserve.

Sterna antillarum 29.18 steant
Engl.: Least Tern Fr.: Sterne naine

Not recorded during the survey. Meerman (1993) records it as "rare". Least Tern has bred at Bonefish lagoon where three were recorded the 21.05.2002 (Mac Rae 2002, Walker 2002). Breeding occurs in May to July in Southern Caribbean (Del Hoyo, Elliott & Sargatal 1996).

Chlidonias niger 29.21 chlnig
Engl.: Black Tern Fr.: Guifette noire

No record during the survey. Meerman (1993) mentions it as "rare migrant" and it is listed for Fireburn (Walker 2002).

COLUMBIDAE

14 species in the region, 19 in Belize. This family is represented worldwide. In the Sartenejan region, most species are residents.

Columba cayannensis 30.02 colcay
Engl.: Pale-vented Pigeon Fr.: Pigeon rousset

Marginal in the reserve. One was heard near Shipstern landing (between S3 and S4) the 9.08. The species was present at Robin's land and near Xo-Pol. Also at Cow-Pen, Chunox, Little Belize and Progresso. It is listed for Fireburn (Walker 2002).
Pale-vented Pigeon breeds between February and June in Costa Rica (Del Hoyo, Elliott & Sargatal 1997).

Columba speciosa

Engl.: Scaled Pigeon
Map 11, Fig. 6

30.03 colspe

Fr.: Pigeon ramiret

period	I	II	III	IV	V	VI
contacts	2	4	3	3	5	0

Fairly common resident in rather humid forests north and south of the lagoon and at Xo-Pol. Local movements possibly occur. In the point-count survey, the six data collected during period I and II (mid-June to beginning of July) were from the road to Sarteneja. During period IV and V (mid-September to mid-October) Scaled Pigeon was only recorded from Xo-Pol area and south of the lagoon. The three mentions collected in period III (end of July to mid-August) were shared out between north of the lagoon, south of the lagoon and Xo-Pol. One was seen the 3.11 from the road to Sarteneja, near the Main trail entrance (R17).

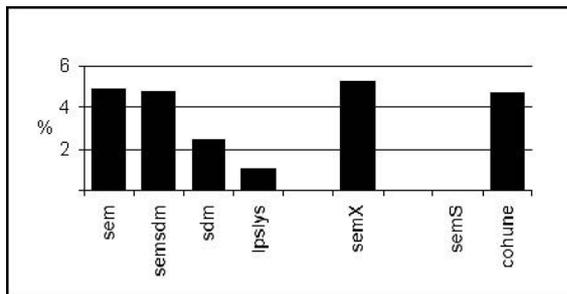
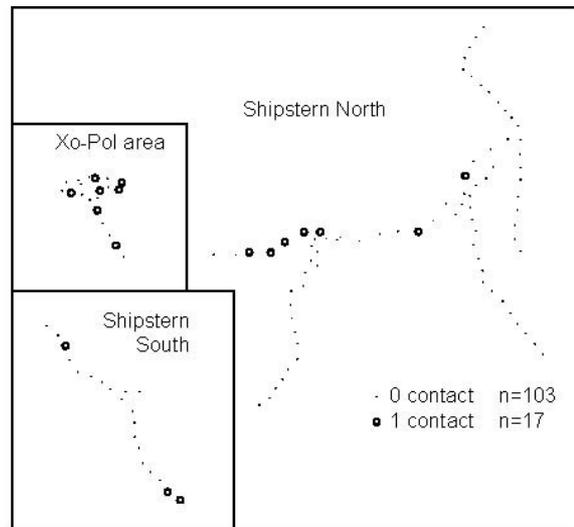


Fig. 6. *Columba speciosa*.
Habitat preferences



Map 11. *Columba speciosa*.

Columba leucocephala

Engl.: White-crowned Pigeon

30.04 colleu

Fr.: Pigeon à couronne blanche

Uncommon, possibly rare visitor, one record. The 12.12, a bird was seen at the end of the Eastern Survey trail in dry forest, near the skirt (E7). The species was also recorded the 20.05 at Barracuda Pond, Warrie Bight (E. Mac Rae).

Meerman (1993) does not list it for the reserve.

Columba flavirostris
 Engl.: Red-billed Pigeon
 Map 12, Fig. 7-8

30.05 colfla
 Fr.: Pigeon à bec rouge

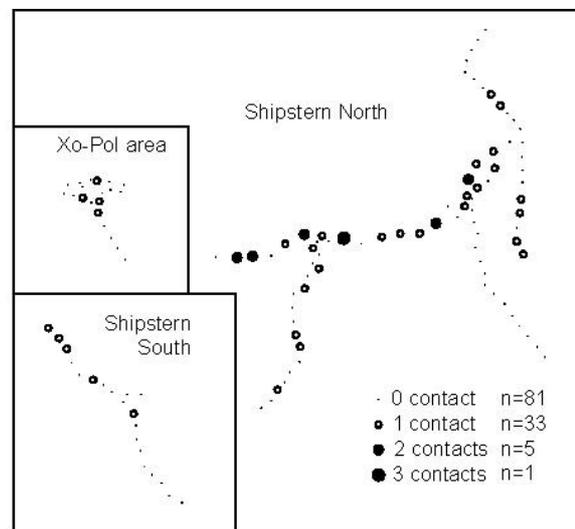
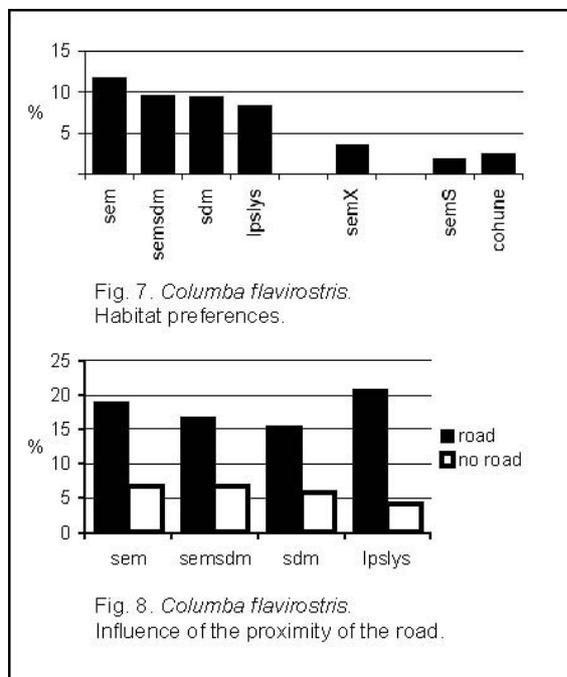
period	I	II	III	IV	V	VI
contacts	15	10	6	5	0	10

Common resident in all types of forest. Red-billed Pigeon is less common south of the lagoon and at Xo-Pol. It is positively influenced by the proximity of the road (see fig.) and in general, seems to prefer forests with clearances. Also present at Fireburn.

During the point-count survey, the species was mostly recorded during period I and II (mid-June to mid-July). Later, it was less heard, with no contact at all in the point-count survey during period V (October), although its presence was confirmed in the reserve. Red-billed Pigeons were heard again from period VI (November).

The moult probably occurs mainly during the silent period. This fits with Pyle (1997) who writes it occurs probably more commonly from August to November (in the USA?).

The species breeds between March and August in Costa Rica (Del Hoyo, Elliott & Sargatal 1997).



Columba nigrirostris
 Engl.: Short-billed Pigeon

30.06 colnro
 Fr.: Pigeon à bec noir

Not recorded during the survey. A pair was sighted near Sarteneja between the 7th and 13.01.1991 (Z. Walker).

Zenaida asiatica

30.08 zenasi

Engl.: White-winged Dove

Fr.: Tourterelle à ailes blanches

Map 13

period	I	II	III	IV	V	VI
contacts	24	23	3	3	0	0

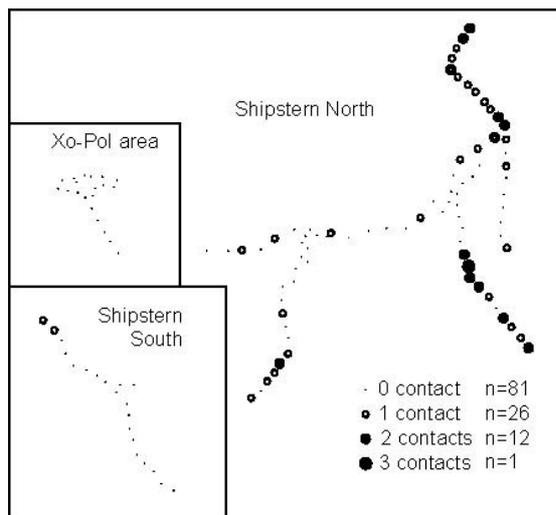
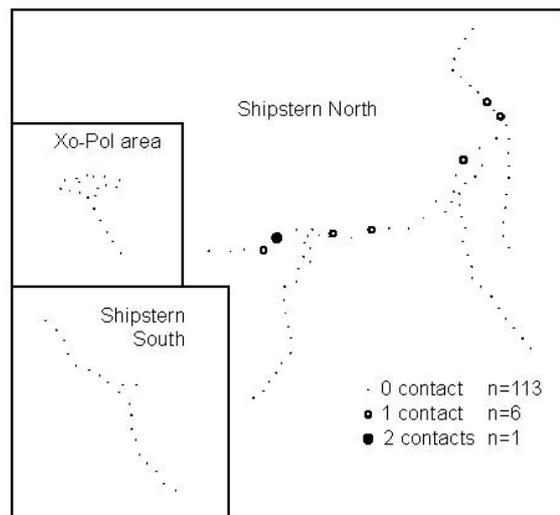
Common breeder in sparsely wooded herbaceous wetlands and dwarf mangals. White-winged Doves fly regularly over other habitats. Also present at Iguana Camp and Cow Pen during the breeding season.

Nesting grounds are abandoned for farmland outside the breeding season. The species was commonly recorded during period I and II (mid-June to mid-July) in the reserve. It became less common during August and the latest individuals were seen inside the reserve occurred at the beginning of September. Some were still present in November and December in the farmland near Xo-Pol, at Chunox, Sarteneja and Little Belize.

In 2001, the species was seen in the breeding grounds at the end of February and the beginning of March.

Although the farmlands were not properly prospected in November and December, the number of birds present there is suspected to be lower than the size of the breeding population. Movements were probably not only local. North-South migration occurs for this species (Jones 2003).

A complete after-hatching moult occurs between June and November (Pyle 1997)

Map 13. *Zenaida asiatica*.Map 14. *Columbina passerina*.

Columbina passerina

30.11 colpas

Engl.: Common Ground-Dove

Fr.: Colombe à queue noire

Map 14

period	I	II	III	IV	V	VI
contacts	2	3	0	2	1	0

Marginal to the reserve. Common Ground-Dove possibly does not breed inside the reserve. They were mainly seen along the road to Sarteneja and at the headquarters. Also present along the path through Robin's land, at Cow Pen and Sarteneja.

As winter draws near, the species became less common near the reserve.

Eight birds were caught, all adults, four the 30.05 at Cow Pen and four the 23.06 at Robin's land. Six birds were moulting some PP or / and SS. The two others had moult limits among these feathers suggesting a partial or arrested moult. A female caught the 30.05 at Cow Pen had PP new except 8-10 old, all SS new except 2-7. Al 1 was new, 2 and 3 were old. PC followed the pattern of PP. Most tail feathers were old, but for R2 on right side and R1-2 and 5 on left side. Body-feathers were new with only about 25% still growing on under-parts. A male caught the 23.06 at Robin's land had renewed PP 1-7 and corresponding PC. Tail feathers were old, like possibly SS(?). Body-feathers were in moult. Another bird (male) showed probable partial or arrested moult among PP, though moult of SS was still in process. PP 1-7 were new, 8-10 old. SS 1-2 were new, S3 growing and the others old (tertials new?). Alulas were new and tail feathers old. The 30.05, one bird had nearly achieved a complete moult. SS, PP and RR were renewed, except P8 growing and P9-10 old (advanced partial or arrested moult still possible). Al 1-2 were growing, Al3 old. Most of body-feathers were new with about 20% growing on under-parts and tail coverts and 5% on upper-parts and head. The moult of four others birds was still proceeding with only one P growing, those inwards were new, outwards old. One bird caught the 30.05 had P5 growing. SS were old except tertials new, the longest still growing. On right side, RR 1-3 were new, 4 and 6 growing, 5 old. On left side, RR 1-2 and 6 were new, 3-5 growing. Body feathers were in heavy moult. Three birds caught the 23.06 had respectively P3, P5 and P7 growing. For the latest bird, S1 was growing. The two other birds are not moulting the SS, but stage not clearly understood. Body-feathers were in heavy moult.

Columbina minuta

30.12 colmin

Engl.: Plain-breasted Ground-Dove

Fr.: Colombe pygmée

Not recorded during the survey. Plain-breasted Ground-Dove is listed for Fireburn (Walker 2002), with a mention the 22nd or 23.04 (Z. Walker, E. Mac Rae).

Columbina talpacoti

30.13 coltal

Engl.: Ruddy Ground-Dove

Fr.: Colombe rousse

No record inside the reserve during the survey. If present, the Ruddy Ground-Dove is marginal. It was recorded at Fireburn the 18.10, and regularly at Little Belize and Sarteneja.

Claravis pretiosa

30.14 clapre

Engl.: Blue Ground-Dove

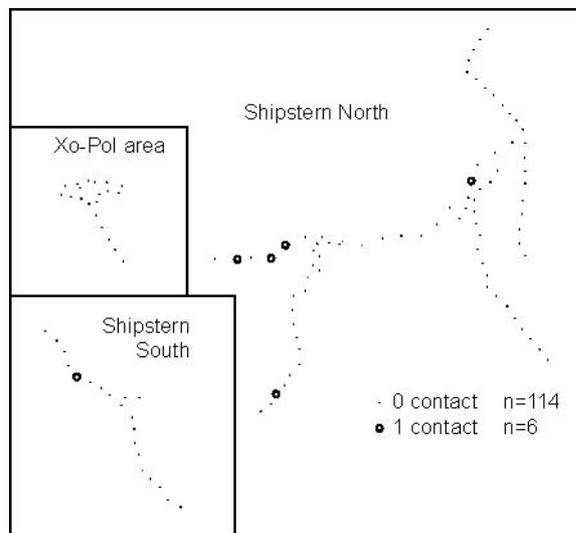
Fr.: Colombe bleutée

Map 15

period	I	II	III	IV	V	VI
contacts	2	3	1	0	0	0

Uncommon (or possibly fairly common in spring) north and south of the lagoon, and at Xo-Pol. Few sight records were reported. The Blue Ground-Dove was mostly noted by voice. The 23.07 is the last record inside the reserve, from the road to Sarteneja (R16). Later, one was heard the 16.09 at Fireburn. Due to its unobtrusive habits, it was possibly overlooked outside the breeding season.

It is unknown if the species is resident in the Sartenejan region. Blue Ground-Dove is present in Yucatan between June and August, but absent between March and May (Del Hoyo, Elliott & Sargatal 1997).

Map 15. *Claravis pretiosa*.**Leptotila verreauxi**

30.15 lepver

Engl.: White-tipped Dove

Fr.: Colombe de Verreaux

Map 16, Fig. 9-10

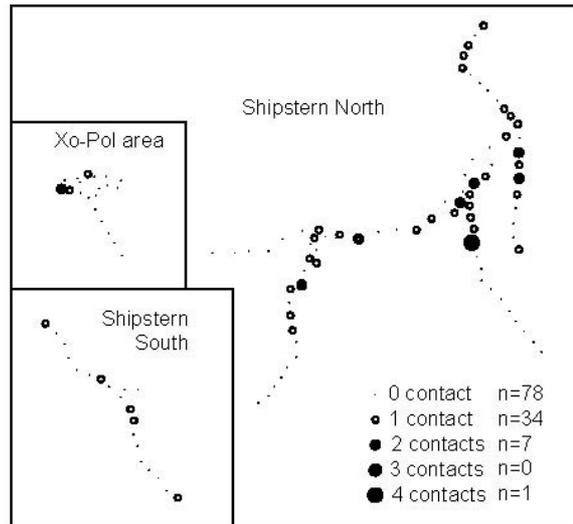
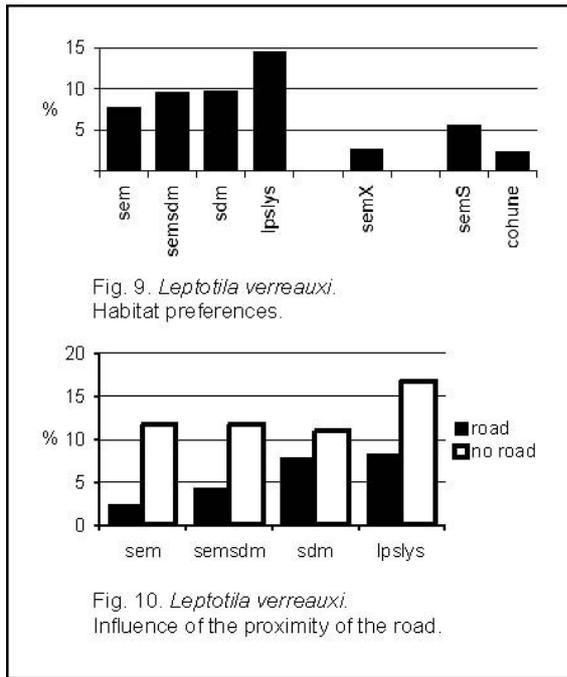
period	I	II	III	IV	V	VI
contacts	19	18	9	4	1	1

Common resident in all types of forest. White-tipped Dove is less common at Xo-Pol and south of the lagoon where the forests are more humid. Appears to be influenced negatively by the proximity of the road. This dove visited sometimes the littoral forest at Robin's land. Also present at Fireburn.

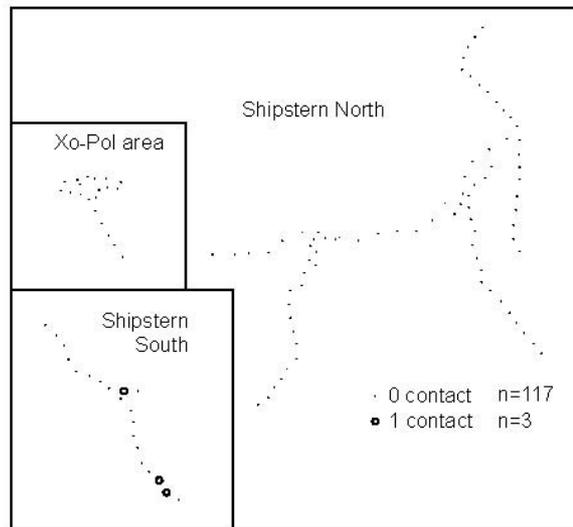
The species is more common at some distance of the road (see fig.). Its inclination to walk on the floor may explain these preferences, avoiding the denser under-storeys of both moister forests and proximity of the road.

It was very vocal during period I and II (mid-June to mid-July). Later, it became progressively more silent, but never stopped completely to sing.

One bird was caught the 23.06 in the littoral forest at Robin's land. PP were old except P1 growing. SS 1-3 were new, others old. The moult limit could be the result of an arrested or partial earlier moult. Tail feathers were old. Body-feathers were old, except few of them growing.



Map 16. *Leptotila verreauxi*.



Map 17. *Leptotila rufaxilla*.

Leptotila rufaxilla

Engl.: Gray-fronted Dove

Map 17

30.16 lepruf

Fr.: Colombe à calotte grise

period	I	II	III	IV	V	VI
contacts	0	0	2	0	0	1

Fairly common resident south of the lagoon. Gray-fronted Dove was only recorded once the 23.08 at Xo-Pol, where it is probably scarcer. The species stayed apparently silent during the autumn.

Meerman (1993) does not list it for the reserve.

Two adults were caught the 12.08 south of the lagoon. The first bird was brighter than the other one and was possibly a male. PP were old except P9 growing (P10 is old). SS 1-2 and 7-12 were new, S3 growing, others SS were old. Body-feathers were mostly renewed. The second bird, possibly a female, was PP old, except P8 and 9 growing (P10?). SS looked old (?). Tail feathers were old. Body-feathers were starting to moult.

Leptotila jamaicensis

Engl.: Caribbean Dove

Map 18, Fig. 11-12

30.17 leptom

Fr.: Colombe de Jamaïque

period	I	II	III	IV	V	VI
contacts	35	34	34	2	0	0

The Caribbean Dove is a common resident north of the lagoon, less at Xo-Pol and south of the lagoon. It is a typical bird of rather dry forests. It becomes less common in semi-evergreen forests. Its presence at Xo-Pol is probably linked to the bare floor of the seasonally inundated forest habitats. The species seems not to be influenced by the proximity of the road in suitable habitat, to the contrary to semi-evergreen forests (see fig.). Also present at Fireburn.

It is not surprising to find this Yucatan speciality in the driest forest (see fig.). In Belize, the species is localized only to Ambergris Caye and the Sartenejan region (Jones 2003).

The Caribbean Dove was often heard during the period I to III during the point-count survey (mid-June to mid-August). Later, it became less vocal since the end of August, when the moult probably starts. It was not heard anymore from September except for one the 19.09 at Fireburn. One was heard again the 31.12 at the headquarters. During this period of silence, some sights confirmed its presence in the region. A young in juvenal plumage (face pattern unlike the adult's) *Leptotila* seen the 23.10 at Xo-Pol pertained probably to this species.

In 2001, the species was heard at the beginning of March.

The Caribbean Dove breeds (in Jamaica?) between March and May (Del Hoyo, Elliott & Sargatal 1997).

Two adults were caught the 20.08 at the headquarters. Both were at the beginning of their moult. The first bird was duller than the second and was possibly a female. On the first bird, all PP were old except P1 and 7 growing. All SS were old except S9. All the coverts were old. The tail feathers were growing. Body-feathers were old except for 10 to 30% growing, and up to 50% on head. On the second bird, possibly a male, all PP and SS were old, except S4 growing. S5 was of an earlier generation than the rest of the plumage. The preceding complete moult was possibly arrested and PP 4 and 5 were left unmoulted. Tail feathers were old. Greater coverts were old, but about 20% of median and marginal coverts were growing. The others were old. About 20% of the body-feathers were growing, whence others were old.

Geotrygon montana
 Engl.: Ruddy Quail-Dove
 Map 18

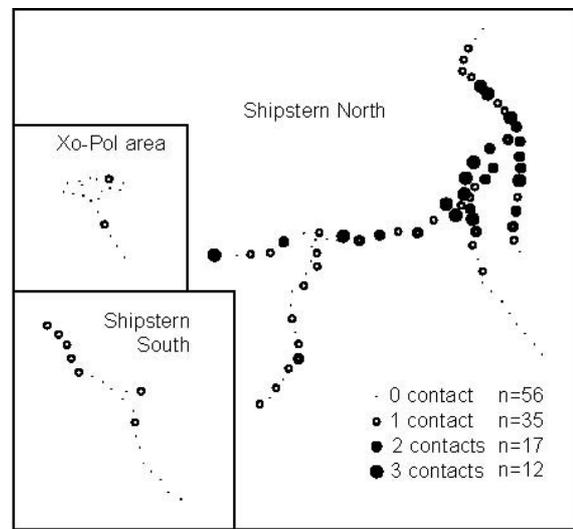
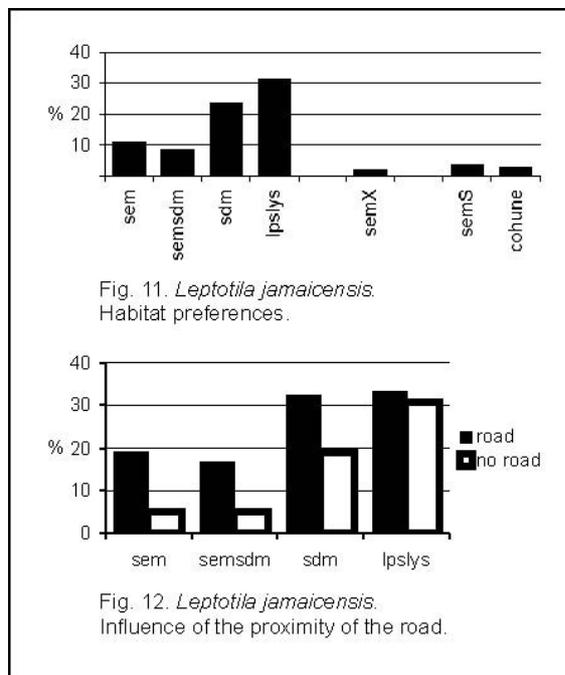
30.19 geomon
 Fr.: Colombe rouviolette

period	I	II	III	IV	V	VI
contacts	0	2	3	4	0	0

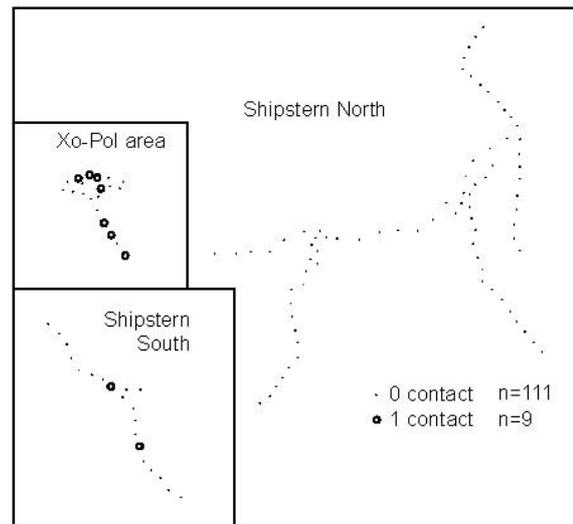
Probably fairly common at Xo-Pol and south of the lagoon, but withdrawn and hard to detect except by voice. The Ruddy Quail-Dove seems more common near Fireburn. It was not recorded north of the lagoon where the forests are drier and apparently not suitable (see fig.).

This species was regularly heard until the beginning of October. Records were few later. The lack of data during the first period of the point-count survey was due to the voice not yet properly known.

In Costa Rica, the Ruddy Quail-Dove breeds from March to August with a peak in May; in the Caribbean, from February to August (Del Hoyo, Elliott & Sargatal 1997).



Map 18. *Leptotila jamaicensis*.



Map 19. *Geotrygon montana*.

PSITTACIDAE

6 species in the region, 10 in Belize. The family is Pantropical. Two species are common resident in the reserve. Another one is common in the surroundings. Others are scarce.

Aratinga nana

31.01 aranan

Engl.: Olive-throated Parakeet

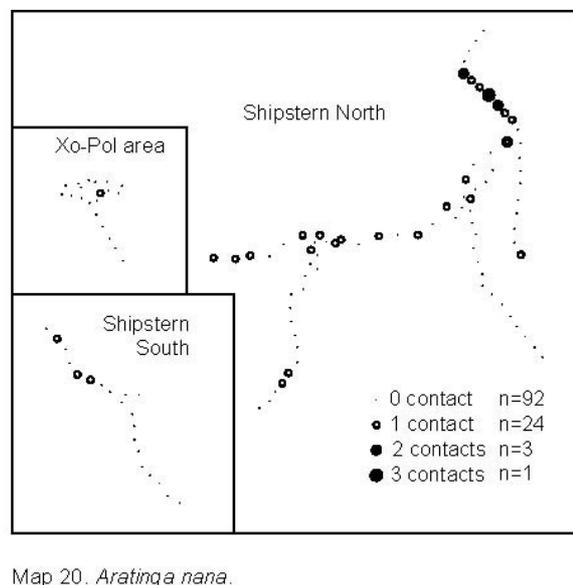
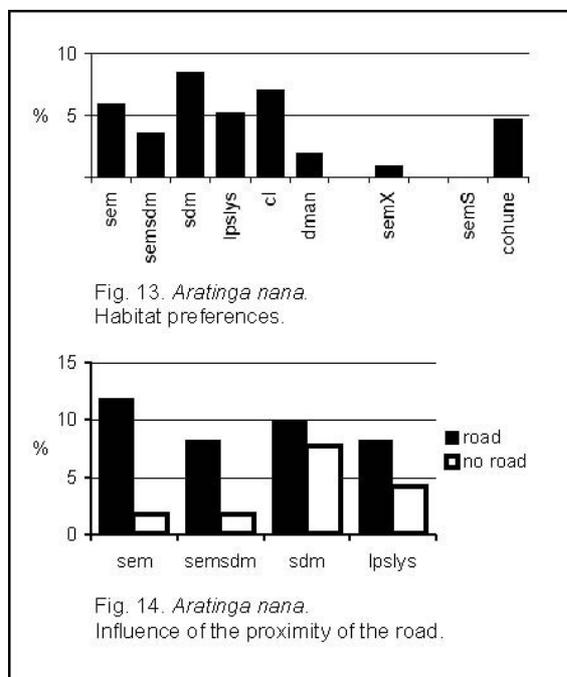
Fr.: Conure aztèque

Map 20, Fig. 13-14

period	I	II	III	IV	V	VI
contacts	3	7	8	9	3	3

Common resident in all types of forest and sparsely wooded herbaceous wetland. It is less common in Xo-Pol and south of the lagoon where forests are moister. It flies over other habitats. The species seems to be influenced positively by the proximity of the road, but less in the driest forests (see fig.). Also present at Fireburn and Chunox. In the latest village, several hundred were gathering in January.

In Belize and Guatemala, the Olive-throated Parakeet breeds in April and May (Juniper & Parr 2003).



Pionopsitta haematotis

31.03 piohae

Engl.: Brown-hooded Parrot

Fr.: Caïque à capuchon

Not recorded during the survey. The Brown-hooded Parrot has bred one time in Fireburn (Walker 2002).

Meerman (1993) does not list it for the reserve. Birds in breeding condition are found in February in Yucatan, and in May and July in Guatemala (Juniper & Parr 2003).

Pionus senilis

31.04 piosen

Engl.: White-crowned Parrot

Fr.: Pione à couronne blanche

Not recorded during the survey. Meerman (1993) mentions it as "rare". Three were seen the 20.05 at Barracuda Pond, Warrie Bight (E. Mac Rae). The White-crowned Parrot is listed for Fireburn (Walker 2002), with a mention the 22nd or 23.04 (Z. Walker, E. Mac Rae).

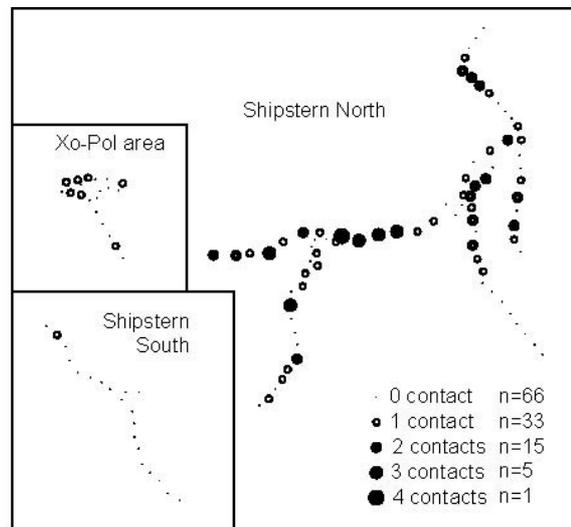
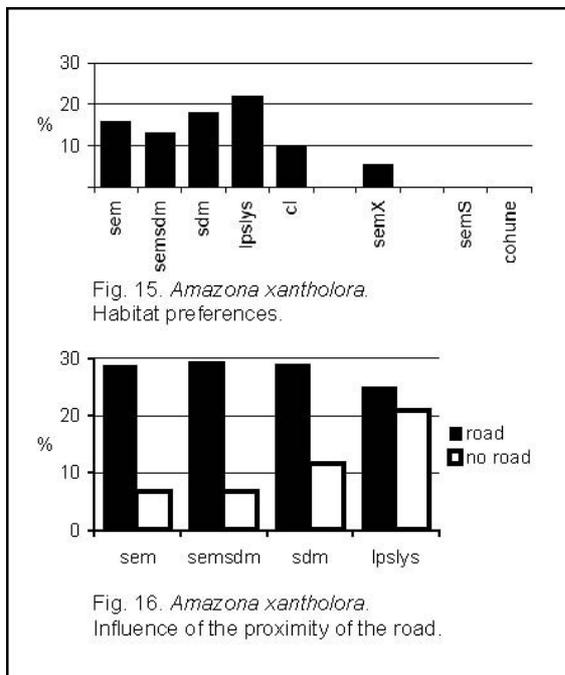
Amazona albifrons
 Engl.: White-fronted Parrot

31.05 amalb
 Fr.: Amazone à front blanc

Marginal to the reserve. No certain record inside the reserve is reported during the survey. All *Amazona* parrots identified by sight and by voice pertained to the Yellow-lored Parrot. The White-fronted Parrot was present close to the reserve, and certainly visits it sometimes. It was regularly seen around Sarteneja, where the Yellow-lored Parrot also occurs, but no mixed group has been noted. The 18.10, ten were noted at Fireburn. Near Chunox, a huge gathering of at least 1000 individuals was seen in a cornfield the 6.08. All birds identified by sight were of this species.

At least in this part of Belize, the two species seem well segregated by the habitat. The White-fronted Parrot occupies the cultivated landscapes, whereas the Yellow-lored is rather located in forests.

The breeding occurs from January to June depending on the locality (Juniper & Parr 2003).



Amazona xantholora
 Engl.: Yellow-lored Parrot
 Map 21, Fig. 15-16

31.06 amaxan
 Fr.: Amazone du Yucatan

period	I	II	III	IV	V	VI
contacts	21	14	0	11	13	23

Common breeder in forests north of the lagoon. Yellow-lored Parrots are present at Xo-Pol and south of the lagoon, but in smaller numbers. No mention comes from the point-count track south of the lagoon except for one contact near Shipstern landing in an open area. Semi-evergreen and cohune forests south of the lagoon seem unsuitable for the species. It is possibly fairly common to common in drier forest south of the lagoon, but visits in such habitats were scanty.

The presence at Xo-Pol in semi-evergreen forests is possibly due only by the proximity of drier forests. North of the lagoon, the Yellow-lored Parrot is recorded in all types of forest, but is rarely noted in semi-evergreen forests far from the road. The proximity of the road seems to have an influence only in the wettest forests (see fig.).

It was seen eating seeds of *Lysiloma*, a dominant tree in dry forests. The relationship between this Parrot and this tree could be interesting to work out.

This parrot was present nearly all year round, but curiously it was not recorded in period III during the point-count survey (between mid-July and end of August). Other observations suggest that the species was absent or exceedingly pulled out from mid-July to mid-August. Interestingly, a gathering of about one thousand White-fronted Parrots was seen in about the same time near Chunox, in cornfields. Does the Yellow-lored Parrots leave also the breeding grounds to form groups in a similar way to the White-fronted Parrot? See also under the White-fronted Parrot.

Birds in breeding condition are recorded in March in Yucatan and young in nest in April and May in Belize (Juniper & Parr 2003).

Amazona autumnalis 31.07 amaaut
 Engl.: Red-lored Parrot Fr.: Amazone diadème

Uncommon. No certified record is reported during the survey. Parrots heard the 3rd and 4.10 at Xo-Pol, pertained neither to the White-fronted nor to the Yellow-lored. They are thought to be of this species. In 2001, at least five were seen the 3.03 at Xo-Pol. Eight were recorded by H. L. Jones the 12.11.1997 inside the reserve.

The species is not mentioned by Meerman (1993) and considered as “occasional” by Jones & Vallely 2000 in the Corozal district.

(Amazona oratrix) 31.10 amaora
 Engl.: Yellow-headed Parrot Fr.: Amazone à front jaune

Recorded as “Rare” by Meerman (1993). The data is not considered by Jones & Vallely (2000) and Jones (2003) who report no mention for Corozal district. The presence of the species in the region is better left as uncertain.

CUCULIDAE

4 species in the region, 8 in Belize. The family is nearly cosmopolitan. Two are common residents.

Coccyzus americanus 32.2 cocame
 Engl.: Yellow-billed Cuckoo Fr.: Coulicou à bec jaune

Not recorded during the survey. The Yellow-billed Cuckoo was reported for Fireburn in July or August 1999 (N. Bayly). Meerman (1993) does not list it for the reserve.

Coccyzus minor 32.3 cocmin
 Engl.: Mangrove Cuckoo Fr.: Coulicou des palétuviers

Uncommon visitor. Some of the four observations, (the two first almost certainly, possibly all sights?) might have concerned the same individual. The Mangrove Cuckoo was seen in dwarf mangal or in the littoral wooded ribbon next to the lagoon, except for the last one situated in dry forest. The 4th and the 7.09, one was near Cayo Verde. A good sight the 7.09 revealed that it wears two generations of feathers, with most flight feathers heavily worn except for a few renewed tertials. The pattern of the tail and the stage of moult suggested it was an adult. The 13.09, one near Cayo Verde, not far from the two first observations, had one outer tail feather growing. The 4.11, one was seen in dry forest from the Thompson trail (near T6).

One is mentioned in savannah on the shore of northeast Shipstern Lagoon the 27.08.1999 (N. Baily) and the 15.11.1999 (P. Walker). The species is not reported for Corozal district in Jones & Vallely (2001). It is apparently extirpated from Belize as breeder (Jones 2003). Meerman (1993) does not list it for the reserve.

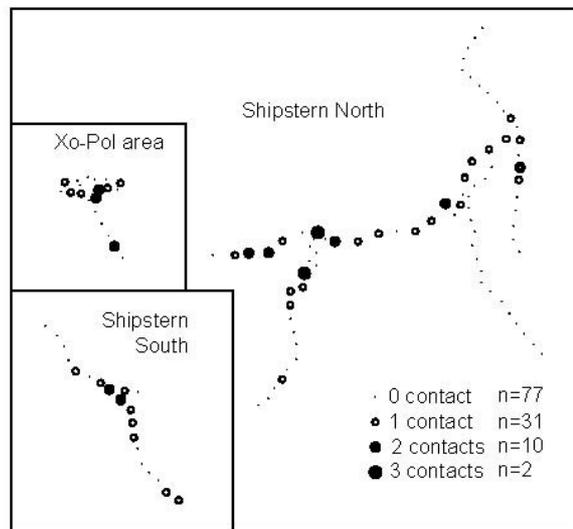
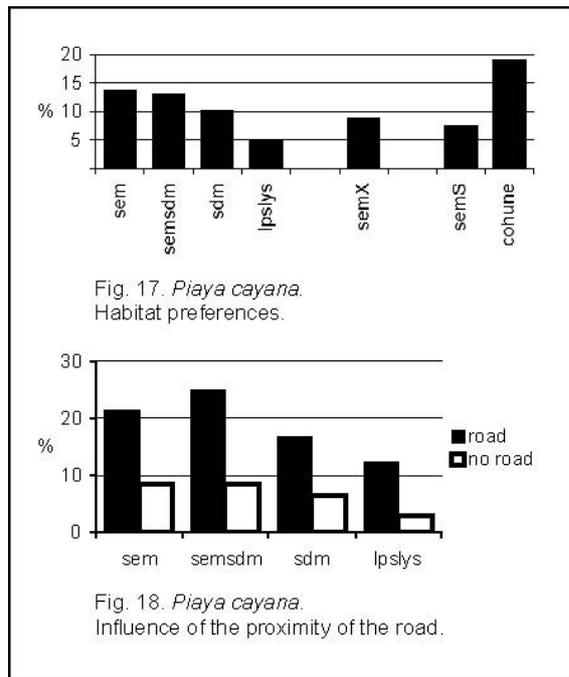
Piaya cayana

Engl.: Squirrel Cuckoo
Map 22, Fig. 17-18

32.4 piacay
Fr.: Piaye écureuil

period	I	II	III	IV	V	VI
contacts	13	9	5	18	7	5

Common resident in every type of forest north and south of the lagoon and at Xo-Pol. It is less common in the driest forest. The Squirrel Cuckoo is possibly most common in cohune forest. The species appears to be influenced by the proximity of road (see fig.). It was recorded once in a wooded islet in dwarf mangal (M12) the 16.11. Also present at Fireburn. The true song was heard from May to July. It was less heard during the period III (mid July to August). This possibly corresponds to the beginning of the moult. The true song was not heard later anymore, but the species was still fairly vocal and easily located.



Crotophaga sulcirostris

Engl.: Groove-billed Ani

32.8 crosul
Fr.: Ani à bec cannelé

Mainly marginal to the reserve, the Groove-billed Ani is resident in the vicinity. Only one mention comes from inside the reserve: three birds were the 17.10 at Shipstern landing. The species was regularly seen in and near the inundated mangrove in Robin's land, where a nest has been discovered. Otherwise, it is common in Sarteneja, Chunox and Little Belize in heavily farmed landscape, mainly in pasture.

TYTONIDAE

1 species in the region, 1 in Belize. This species is nearly cosmopolitan.

Tyto alba

Engl.: Barn Owl

33.1 tytalb
Fr.: Effraie des clochers

No record inside the reserve. A single mention concerns a bird seen at night from the road to Xo-Pol in farmland the 27.03 (A. Morgenthaler). Meerman (1993) does not list it for the reserve.

STRIGIDAE

3 species in the region, 12 in Belize. The owls are represented nearly worldwide. All three species are resident of wooded areas.

Otus guatemalae

34.01 otugua

Engl.: Vermiculated Screech-Owl

Fr.: Petit-duc guatémaltèque

Common resident. The Vermiculated Screech-Owl was only identified by voice. The species has never been seen during the survey. Several individuals were heard regularly from the headquarters during the whole survey, possibly less from October. It was also heard at Xo-Pol, south of the lagoon and at Fireburn.

The Vermiculated Screech-Owl lays mostly in March and April, but incubation was recorded in June in the Yucatan Peninsula (Del Hoyo, Elliott & Sargatal 1999).

Glaucidium brasilianum

34.06 glabra

Engl.: Ferruginous Pygmy-Owl

Fr.: Chevêchette brune

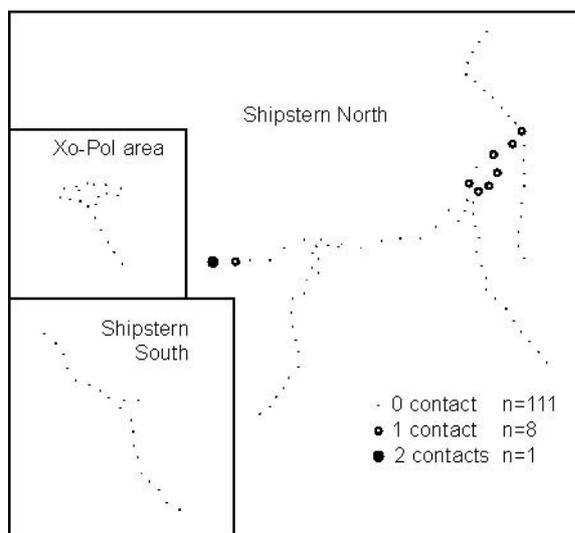
Map 23

period	I	II	III	IV	V	VI
contacts	8	1	0	0	0	1

Common resident. The Ferruginous Pygmy-Owl was present around the headquarters and along the road to Sarteneja. Also present at Xo-Pol and Fireburn.

It was heard daily at the headquarters between May and mid-July, and often in early March 2001. Vocals were less regular from the end of July. A copulation was seen the 18.04 at the headquarters (A. Morgenthaler). Young birds were seen outside the nest and left probably around the 22.07. Less intensive song behaviour of the adults matched well with this event. It sang again regularly from mid-August, but still less than in June. Vocals were heard through fall and winter.

The Ferruginous Pygmy-Owl lays generally between March and June during dry to early wet season, but breeding is noted in late January and April in Yucatan (Del Hoyo, Elliott & Sargatal 1999).



Map 23. *Glaucidium brasilianum*.

Ciccaba virgata
Engl.: Mottled Owl

34.08 cicvir
Fr.: Chouette mouchetée

Common resident. The Mottled Owl was regularly heard from the headquarters and elsewhere along the road to Sarteneja. Also present south of the lagoon, at Iguana Camp, Xo-Pol and Fireburn. It was not heard during July and rarely in winter from November. This owl lays from late March to May in Central America (Del Hoyo, Elliott & Sargatal 1999).

CAPRIMULGIDAE

5 species in the region, 8 in Belize. The family is represented nearly worldwide. One species is a transient. The others are resident, including two Yucatan endemics. The two *Chordeiles* are easily seen by daylight. Otherwise, members of the family are strictly nocturnal.

Chordeiles acutipennis
Engl.: Lesser Nighthawk
Map 24

35.2 choacu
Fr.: Engoulevent minime

period	I	II	III	IV	V	VI
contacts	1	3	1	2	0	0

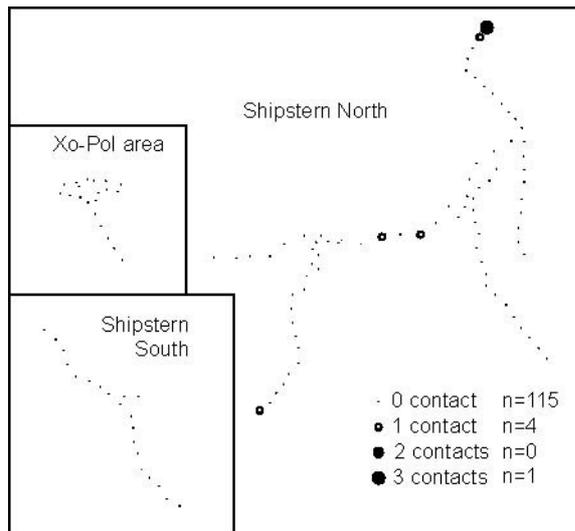
Common summer visitor. It possibly breeds inside the reserve, but almost certainly does breed in the region. When sitting, it stays mostly in semi-open to open areas, on the floor or in low trees, up to about 4 meters. It is uncommon in sparsely wooded herbaceous wetlands and dwarf mangal, on rather dry floors. The nighthawks fly over forests during morning and late afternoon and at least a part of the night.

The Lesser Nighthawk was common at Robin's land near the seaside of Chetumal bay where it was present between May and July. It became less regular in August. The 29.07, at least 25 birds left this place late afternoon and flew over nearby forests. Other groups were seen over the forests near the headquarters, at Xo-Pol and Iguana Camp.

Chordeiles sp. were seen from Iguana Camp in mid-April. Those birds might mostly or exclusively pertain to this species (A. Morgenthaler). In 2001, Nighthawks were seen between the 6th and the 10.03 at Iguana Camp and at the headquarters. They were commonly seen throughout the summer. In August, the species became less regular. About ten *Chordeiles* sp., probably of this species, were seen flying at daylight the 24.08 at Sarteneja. Nighthawks became rather uncommon from September. One female was the 13.09 in the dwarf mangal near T16. One *Chordeiles* sp. was the 10.11 at the headquarters. The status of both *Chordeiles* seems rather confused for the region. Meerman (1993) considers the Lesser Nighthawk as "Migrant" and the Common Nighthawk as "Common". It would be rather the opposite and the two species names might well have been inverted (the name Lesser Nighthawk suggests erroneously the scientific name *C. minor* of the Common Nighthawk).

The Lesser Nighthawk is considered as local resident in Corozal District (Jones 2003), perhaps referring to the Sartenejan region small population. A thorough identification is required during migration periods of the Common Nighthawk, mainly from March to May and from August to November (Howell & Webb 1995). It must be noted that the period of the fall migration of the Common Nighthawk coincides with a lower reported number of *Chordeiles*.

The breeding season of Lesser Nighthawk is between May and August in Mexico, but lasts possibly longer (Cleere & Nurney 1998).



Map 24. *Chordeiles acutipennis*.

Chordeiles minor 35.3 chomin
 Engl.: Common Nighthawk Fr.: Engoulevent d'Amérique

Transient, possibly fairly common. The true status is somewhat hidden by the difficulty to differentiate this species from the more common Lesser Nighthawk. No definite record is reported from inside the reserve during the survey. One reliable mention comes from outside the reserve. Two birds were seen flying the 16.09 at Fireburn. Other data of *Chordeiles sp.* reported in the Lesser Nighthawk chapter refer probably to this species. See comments under this species.

Nyctidromus albicollis 35.4 nycalb
 Engl.: Common Pauraque Fr.: Engoulevent pauraqué

Uncommon (resident?). During the survey, a single record of a female is reported the 18.09 in the forest of Fireburn outside the reserve. Two singers are heard the 2.03 at Xo-Pol in 2001 and the same evening a Common Pauraque is seen on the road outside the reserve. The Pauraque breeds from late March to late June in Mexico, from February to May in Costa Rica and Nicaragua (Cleere & Nurney 1998)

Nyctiphrynus yucatanicus 35.5 nycyuc
 Engl.: Yucatan Poorwill Fr.: Engoulevent du Yucatan

Status not understood. No ascertained mention occurred during the survey. Two birds singing and flying over the road to Sarteneja the 16.06 might be of this species. The species should be searched in March or April, when it is presumed to be more vocal. Meerman (1993) considers it as common. The breeding season is between April and June in Guatemala (Cleere & Nurney 1998).

Caprimulgus badius 35.7 capbad
Engl.: Yucatan Nightjar Fr.: Engoulevent maya

Fairly common? The main singing period was seemingly almost finished at the beginning of the survey. It sang at least once at the end of May. One was heard the 22.06 from the headquarters. The Yucatan Nightjar was heard daily at the beginning of March 2001, at which time the song was recorded on mini-disc.

Meerman (1993) considers it as "common". Jones (2003) comments about summer records from the Shipstern region and suggests breeding.

The breeding season lasts possibly between April and August (Cleere & Nurney 1998).

NYCTIBIIDAE

1 species in the region, 1 in Belize. This neotropical family is represented in the region by a strictly nocturnal resident.

Nyctibius jamaicensis 36.1 nycjam
Engl.: Northern Pootoo Fr.: Ibijau gris

Resident, possibly fairly common. The Pootoo was regularly heard from the headquarters between May and August. No more from September.

One female on her nest was discovered the 7.08 (T. Bohnenstengel). The bird was sitting on a fledgling of about 4 to 5 days (?). The young bird was completely hidden by the mother during day. The 23.08, the adult was still sitting on the nest during the day. The young was about half the size of the adult. At the end of August, the adult did not sit anymore on the nest during the day. The 1.09, the young bird's wing quills were growing. It was still present the 16.09, but had left the 20.09.

APODIDAE

3 species in the region, 6 in Belize. This family is cosmopolitan. In the Sartenejan region, one species is resident, and two are visitors: a transient from North America and a tropical straggler.

The two species of *Chaetura* Swifts are confirmed, but in many cases the identification was not possible. Status of both species is not clear.

Chaetura pelagica 37.4 chapel
Engl.: Chimney Swift Fr.: Martinet ramoneur

Transient, fairly common? The species is mainly marginal to the reserve. The 30.08, several ten were seen at the headquarters. The 31.10, about ten are assumed to be of this species. *Chaetura sp.* gathering during stormy weather, at the same time as migrant swallows, were likely to be of this species.

See also under *C. vauxi*.

Chaetura vauxi 37.5 chavau
Engl.: Vaux's Swift Fr.: Martinet de Vaux

Fairly common visitor, mainly marginal to the reserve. It possibly breeds in the region and is present almost all year round. *Chaetura* Swifts were regularly present during the second half of May and at the beginning of June flying over the headquarters. The species was not truly identified with field characters, but an extended stay of Chimney Swifts at this time of the year would be hardly expected. In spring, migrants of the latest species are encountered in Northern Central America only between mid-March and mid-May and mainly in April (Howell & Webb 1995). Regular sighting in the reserve and a continuous presence at Sarteneja (where it possibly breeds) during June to mid-August were also attributed to Vaux's Swift. At that time, it was more confused since Chimney Swifts turned up in the region and Vaux's were still present.

Panyptila cayennensis 37.6 pancay
Engl.: Lesser Swallow-tailed Swift Fr.: Martinet de Cayenne

Rare visitor, one mention from outside the reserve. The 18.10, one was seen flying overhead at Fireburn. The species is listed for Fireburn (Walker 2002). Meerman (1993) does not list it for the reserve. Jones (2003) considers the Lesser Swallow-tailed Swift as occasional in the Corozal District, according to this sight.

TROCHILIDAE

7 species in the region, 22 in Belize. The distribution of the Hummingbirds is restricted to the New world. Those present in the reserve are resident, though local movements certainly occur for some species.

Hummingbirds are regularly encountered during the point-count survey but often are not safely identified. Vocalizations were of poor help. Only the song of the White-bellied Emerald was known well enough to be safely used to validate records. Other calls were not sufficiently known to ensure a correct identification. Hummingbirds are thus under represented in the point-count survey. Thus status are mainly based on other observations.

Campylopterus curvipennis 38.05 camcur
Engl.: Wedge-tailed Sabrewing Fr.: Campyloptère pampa

Uncommon (resident?), four mentions. The 31.05, one was along the road to Sarteneja. The 1.06, one female, and possibly another bird were high in the trees, along the New trail near the Main trail. One was there again the 10.07. The 3.10, a pair was seen feeding low in the open, on the side of the road near Xo-Pol. Meerman (1993) does not list it for the reserve.

Anthracothorax prevostii 38.09 antpre
Engl.: Green-breasted Mango Fr.: Mango de Prévost

Fairly common, apparently not present all year round. Green-breasted Mango was mostly recorded near the headquarters and along the road to Sarteneja. It was also present in sparsely wooded herbaceous wetland, at least in May and June. In this habitat, it is possibly only present in summer. The species is also recorded at Iguana Camp in June.

The latest mentions were the 8.10 along the road to Sarteneja. Green-breasted Mango seems to have disappeared then. In 2001, it is however present at the end of February. It breeds mainly during the dry season, between December and May in Costa Rica, in October and between February and March in El Salvador (Del Hoyo, Elliott & Sargatal 1999)

Chlorostilbon canivetii 38.11 chlcan
 Engl.: Canivet's Emerald Fr.: Emeraude splendide

Fairly common resident, mostly marginal to the reserve. The presence of this Emerald is nearly permanent at the headquarters. It is regularly recorded nearby the road to Sarteneja and to Cow-Pen. It was uncommonly encountered elsewhere. One was near the forest edge of the eastern survey trail the 2.11. Females were much less recorded. Also present at Fireburn.

About the 18.09 at Fireburn, a young male is in advanced transition plumage to adult.

Amazilia candida 38.14 amacan
 Engl.: White-bellied Emerald Fr.: Ariane candied
 Map 25, Fig. 19

period	I	II	III	IV	V	VI
contacts	5	7	3	9	1	5

Common resident in all types of forest, north and south of the lagoon. This species was less recorded in the Xo-Pol area during the point counts. Also recorded at Fireburn. The White-bellied Emerald is possibly the most common hummingbird in the region. It became more silent from October.

In Mexico, breeding has been reported in April and May (Del Hoyo, Elliott & Sargatal 1999).

A bird caught the 20.09 at Fireburn was toward the end of a complete moult. PP 1-8 were new, P10 were growing, P9 old; SS 1-2 were new, SS 3-6 were old; tail feathers were growing; body feathers were new, but for about 10% on the head and under-parts. Two birds were caught the 11.10. One was in fresh plumage. The other had new body feathers, but between 10 and 15% of feathers were still growing; P9 was growing (others new?).

Vocalizes are surprisingly very various, with some songs very typical. It would be interesting to check if this variability is just an individual variations or populations' distinctive features.

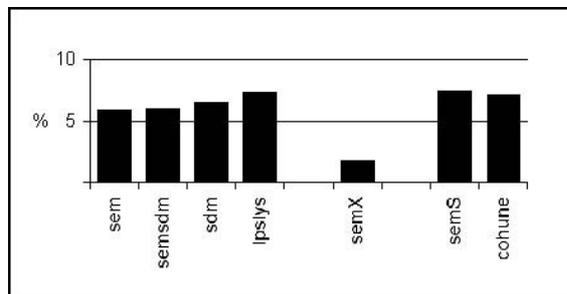
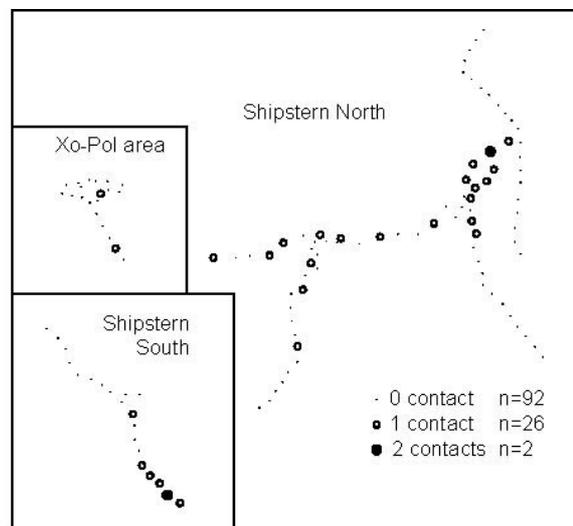


Fig. 19. *Amazilia candida*.
 Habitat preferences



Map 25. *Amazilia candida*.

Amazilia tzacatl 38.16 amatza
 Engl.: Rufous-tailed Hummingbird Fr.: Ariane à ventre gris

Uncommon in the forests south of the lagoon. One mention of one individual is reported from Xo-Pol the 26.05. The species is not recorded otherwise north of the lagoon. Rufous-tailed Hummingbirds seem common at Fireburn.

Meerman (1993) mentions it as "Common", and the Buff-bellied Hummingbird as "Uncommon". This discrepancy might be rather a confusion between these two similar species than a recent evolution.

The Rufous-tailed Hummingbird breeds nearly all year round, in Northern Central America between December and September (Del Hoyo, Elliott & Sargatal 1999).

Amazilia yucatanensis

38.17 amayuc

Engl.: Buff-bellied Hummingbird

Fr.: Ariane de Yucatan

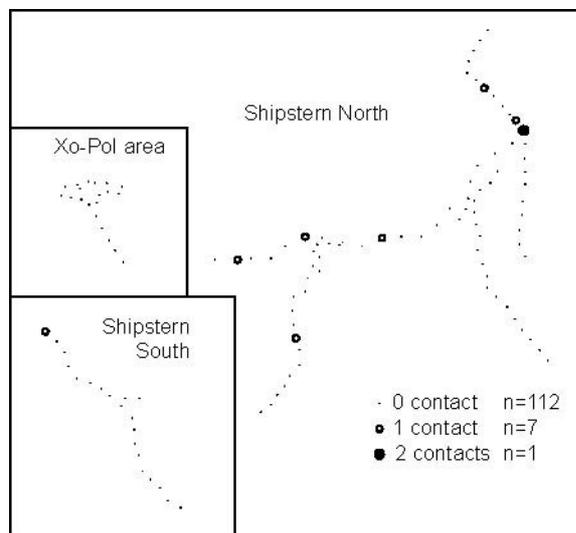
Map 26

period	I	II	III	IV	V	VI
contacts	0	1	1	4	2	1

Fairly common, possibly not all year round. In the region, the Buff-bellied Hummingbird is mainly tied to vegetation bordering the road, both at Sarteneja and at Cow Pen, where it finds nectar plants. Between May and November, this hummingbird was the most common there. It was uncommon in sparsely wooded herbaceous wetland, north and south of the lagoon.

The species is less encountered in December and was not recorded during the visit in February and March 2001.

The Buff-bellied Hummingbird breeds between January and April in the Yucatan Peninsula (Del Hoyo, Elliott & Sargatal 1999).



Map 26. *Amazilia yucatanensis*.

Amazilia rutila

38.18 amarut

Engl.: Cinnamon Hummingbird

Fr.: Ariane cannelle

Fairly common visitor, but mainly marginal. The Cinnamon Hummingbird breeds possibly sometimes inside the reserve. The species is mostly tied to the littoral. Its typical habitat is not found in the reserve, but it wanders regularly here and there to exploit the rich feeding sources.

It was regularly seen around the headquarters, from May to at least October. It was not recorded afterwards. In 2001 it was already seen in February. The species was also noted in other places along the road. The 31.08, an adult fed a young outside the nest at Robin's land, where this hummingbird was regularly seen. The 4.09, two were found in different places in the dwarf mangal and sparsely wooded herbaceous wetland. One was seen in mid-April at Iguana Camp (A. Morgenthaler). One was the 18.10 at Fireburn.

In Yucatan, birds in breeding condition are registered in March and April, but the breeding period is probably much more extended (Del Hoyo, Elliott & Sargatal 1999).

TROGONIDAE

2 species in the region, 4 in Belize. It is a pantropical family. The two species present in the Sartenejan region are resident. One is very common.

Trogon melanocephalus

39.1 tromel

Engl.: Black-headed Trogon

Fr.: Trogon à tête noire

Map 27, Fig 20-21

period	I	II	III	IV	V	VI
contacts	47	57	44	22	21	11

Common resident in all types of forest, north and south of the lagoon and at Xo-Pol. The Black-headed Trogon visits also small wooded islets in herbaceous wetlands. It is seen there feeding on termites. Present at Iguana Camp (A. Morgenthaler) and Fireburn. The species is slightly more abundant near the road. (see fig.).

It became less vocal and shier from period IV (September) that could correspond to the beginning of the moult.

The breeding is recorded in May and June in Belize (Del Hoyo, Elliott & Sargatal 2001).

Trogon violaceus

39.2 trovio

Engl.: Violaceous Trogon

Fr.: Trogon violacé

Map 28, Fig. 22-23

period	I	II	III	IV	V	VI
contacts	5	7	4	4	1	1

Fairly common resident in rather humid forest, north of the lagoon. The Violaceous Trogon seems to be scarcer at Xo-Pol and south of the lagoon. The proximity of the road positively influences the presence of the species (see fig.). It sings less from period V (October).

The breeding season extend between March and June in Mexico, and is inferred to be in May and June in Belize (Del Hoyo, Elliott & Sargatal 2001).

MOMOTIDAE

1 species in the region, 3 in Belize. This family is neotropical. The Motmot present in the reserve is a common, but shy forest resident.

Momotus momota

40.2 mommom

Engl.: Blue-crowned Motmot

Fr.: Motmot houtouc

Map 29., Fig. 24-25

period	I	II	III	IV	V	VI
contacts	20	19	11	9	6	6

Common resident in all types of forest, north of the lagoon. Blue-crowned Motmot is less common south of the lagoon and at Xo-Pol. Also present at Fireburn. The proximity of the road has no significant influence except perhaps in the driest forest where the motmot is less common far from the road (see fig.).

The species was more vocal during periods I and II (mid-June to mid-July). Later it was less heard. Motmot were commonly heard in early March 2001. It was typically heard early in the morning, before the sunrise.

Laying occurs in May and June in Southern Mexico and between March and May in Costa Rica (Del Hoyo, Elliott & Sargatal 2001).

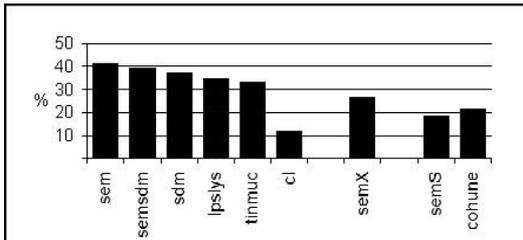


Fig. 20. *Trogon melanocephalus*. Habitat preferences.

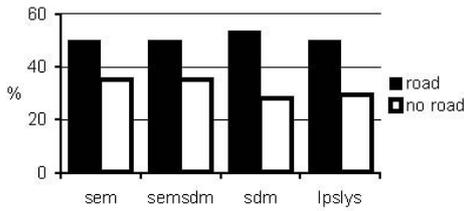
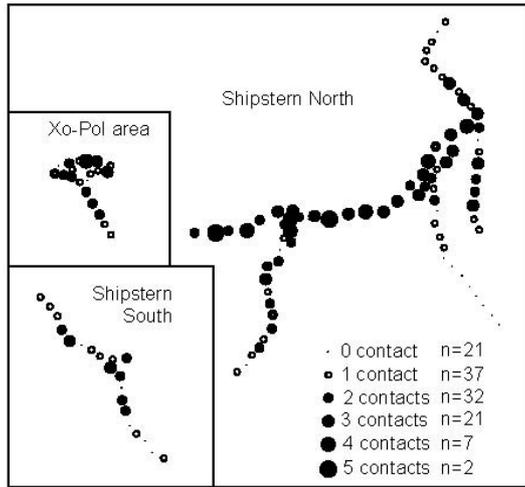
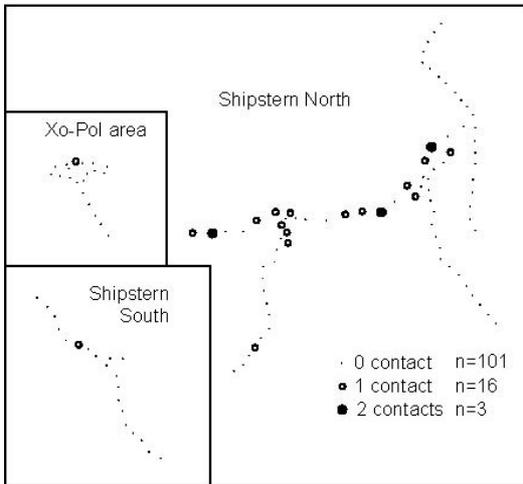


Fig. 21. *Trogon melanocephalus*. Influence of the proximity of the road.



Map 27. *Trogon melanocephalus*.



Map 28. *Trogon violaceus*.

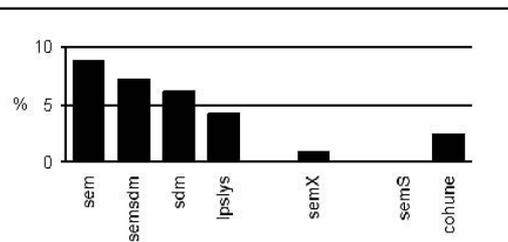


Fig. 22. *Trogon violaceus*. Habitat preferences.

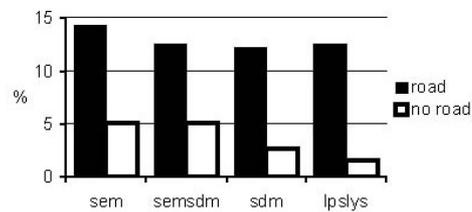


Fig. 23. *Trogon violaceus*. Influence of the proximity of the road.

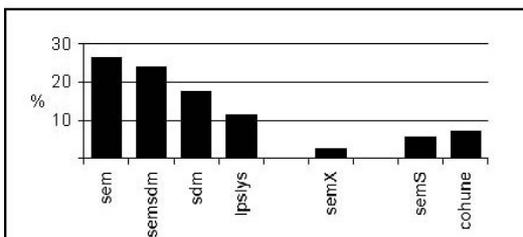


Fig. 24. *Momotus momota*. Habitat preferences.

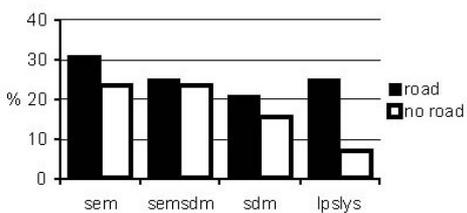
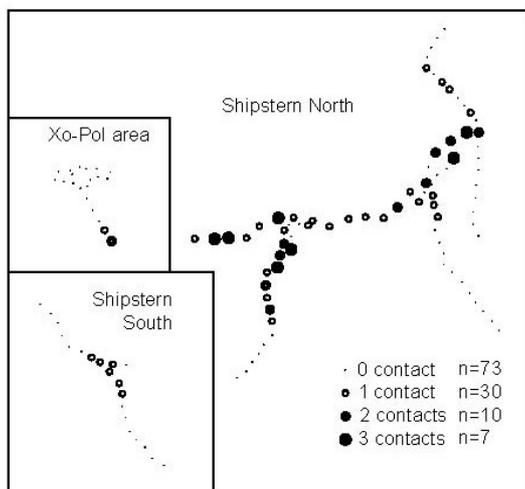


Fig. 25. *Momotus momota*. Influence of the proximity of the road.



Map 29. *Momotus momota*.

ALCEDINIDAE

5 species in the region, 5 in Belize. The family is represented nearly worldwide. American Kingfishers are mainly tied to the water. One species is a transient and winter visitor. Others are resident in Belize, but not all breed in the region.

Ceryle torquata 41.1 certor
Engl.: Ringed Kingfisher Fr.: Alcyon à collier

Uncommon visitor, two mentions during the survey. One is the 2.07 at Iguana Camp. One is sitting on the phone-wire at the headquarters the 13.08. One is recorded the 15.02.2001 in the lagoon.

Ceryle alcyon 41.2 ceralc
Engl.: Belted Kingfisher Fr.: Alcyon ceinturé

Transient and winter visitor, probably fairly common. Four records occur during the survey, among them, two inside the reserve. The 17.10, one was at Shipstern landing. The 18.10, one male was at Fireburn. The 4.11, one was seen flying near Cayo Verde. The 15.12, one was at Shipstern Caye. One was recorded the 6.03.2001 in the Shipstern lagoon.

Chloroceryle amazona 41.3 chlama
Engl.: Amazon Kingfisher Fr.: Alcyon de l'Amazone

Not recorded during the survey. The Amazon Kingfisher is listed for Fireburn (Walker 2002), with a mention of 2 individuals the 22nd or 23.04 (Z. Walker, E. Mac Rae). Meerman (1993) does not list the species for the reserve.

Chloroceryle americana 41.4 chlame
Engl.: Green Kingfisher Fr.: Alcyon vert

Not recorded inside the reserve during the survey. A pair is present at least in May and June at Cow Pen. One unidentified *Chloroceryle* is recorded the 5.10 at the same place. A pair was caught the 30.05 at Cow Pen. Both were in old plumage. A few feathers were growing on the under-body of the female.

Chloroceryle aenea 41.5 chlaen
Engl.: American Pygmy-Kingfisher Fr.: Alcyon nain

Local, resident (?) at Xo-Pol, uncommon elsewhere. Possibly, local movements occur due to the strong variation of the water level. The Pygmy-Kingfisher was regularly recorded in July at Xo-Pol (M. Pittet). The 20.07, one was the 30.07 at a pond next to the Chiclero trail, near the headquarters (L. Juillerat, M. Pittet). The 23.10, one was at Xo-Pol.

In spring, one was recorded the 25.03 at Xo-Pol and one in mid-April at Iguana Camp (both obs. A. Morgenthaler).

Also listed for Fireburn (Walker 2002).

The species lays in March and April, possibly up to June in Costa Rica (Del Hoyo, Elliott & Sargatal 2001).

BUCCONIDAE

1 species in the region, 2 in Belize. This family is neotropical. The Puffbird present in the reserve is a forest resident.

Notharchus macrorhynchos

42.1 notmac

Engl.: White-necked Puffbird

Fr.: Tamatia à gros bec

Uncommon, but probably under-recorded due to its unobtrusive habits. It is possibly fairly common in rather humid forests. Five mentions occur during the survey. Two the 26.07 and one the 27.07 were seen at Xo-Pol (V. Palomares, J. Bottinelli, J. Charbonnier). The 23.08, one was sitting near the headquarters. The 14.12, one was seen near Xo-Pol. The 4.01, one was next to the road near the headquarters. The species was not recorded south of the lagoon, but might occur also there. One is mentioned for Barracuda Pond Forest, Warrie Bight, the 20.05 (E. Mac Rae).

The species breeds between March and May in Costa Rica (Del Hoyo, Elliott & Sargatal 2002).

RAMPHASTIDAE

2 species in the region, 3 in Belize. This neotropical family is represented by two forest residents.

Pteroglossus torquatus

44.2 ptetor

Engl.: Collared Aracari

Fr.: Araçari à collier

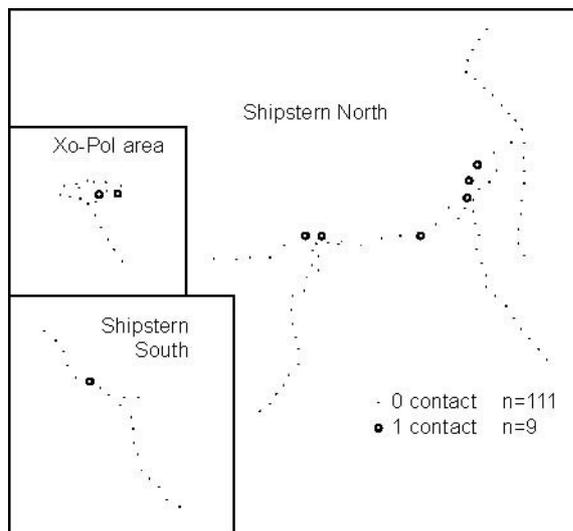
Map 30

period	I	II	III	IV	V	VI
contacts	1	0	2	3	1	2

Fairly common resident. The Aracari is present north and south of the forest, and in Xo-Pol. It is mostly found in rather humid forest. Also present at Fireburn.

One adult was caught the 20.10 at the headquarters. It seemed to be at the end of a complete moult. S 1-3 and 6-11 were new, S5 growing, S4 old. All PP were new. RR 1-2 were new, R3 growing on right side and new on left side, R 4-6 were old.

The species breeds between January and August throughout its distribution range (Del Hoyo, Elliott & Sargatal 2002).



Map 30. *Pteroglossus torquatus*.

Ramphastos sulfuratus

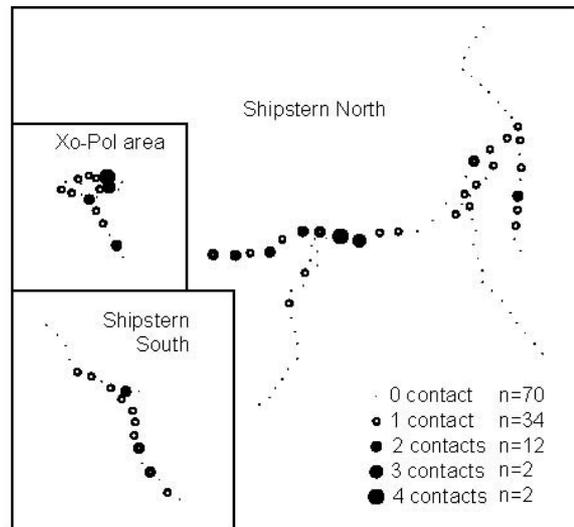
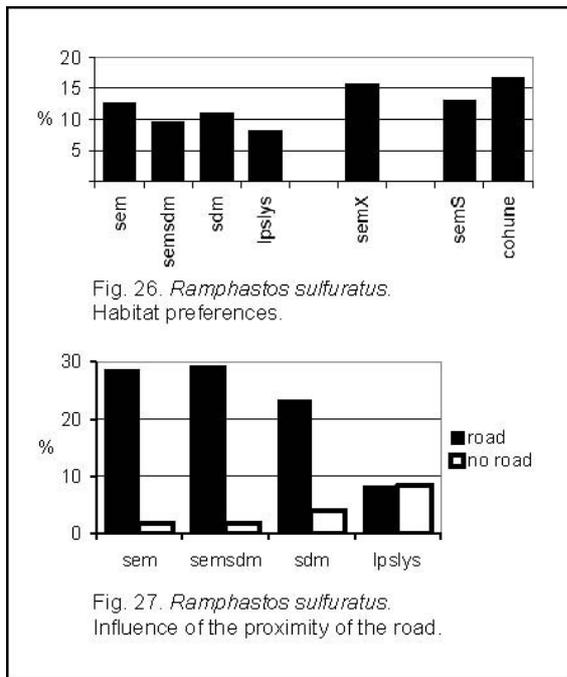
44.3 ramsul
 Engl.: Keel-billed Toucan
 Fr.: Toucan à careen

Map 31, Fig. 26-27

period	I	II	III	IV	V	VI
contacts	14	16	10	11	6	15

Common resident in every type of forest, north and south of the lagoon and in Xo-Pol. It is also present at Fireburn. The proximity of the road seems to have a positive influence on its presence north of the lagoon, although in Xo-Pol and Southern Shipstern where there is no road, it is almost as common. The Toucan possibly only prefers the proximity of the road to sing.

The species breeds mainly between January and June throughout its range (Del Hoyo, Elliott & Sargatal 2002).



PICIDAE

8 species in the region, 11 in Belize. The woodpeckers are represented nearly worldwide. One of them is a transient and possible winter visitor. Others are Belizean residents. However, not all are breeders in the reserve.

Melanerpes pygmaeus 45.03 melpyg
 Engl.: Red-vented Woodpecker Fr.: Pic du Yucatan
 Map 32, Fig. 28-29

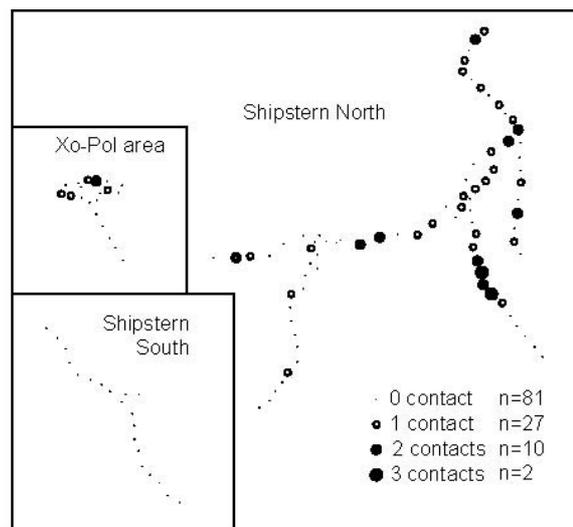
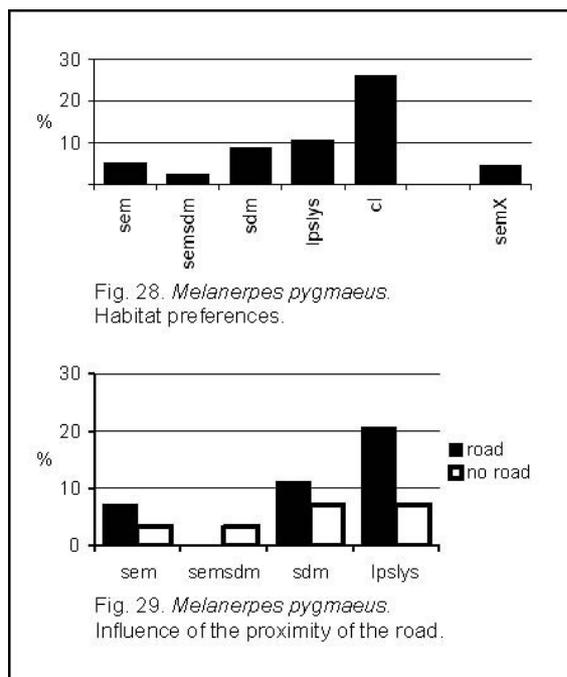
period	I	II	III	IV	V	VI
contacts	18	15	13	3	2	2

Common resident, in different structures of semi-open forests, like sparsely-wooded herbaceous wetland, road vicinity, logged forest, littoral forest, seasonally inundated forest in the vicinity of ponds (Xo-Pol) and milpas. It is also present south of the lagoon in forests near herbaceous wetlands and at Iguana Camp, and Fireburn near the sawmill. This species wanders in rather dry forests, rarely in humid ones.

This woodpecker was less vocal and less encountered from the period IV (beginning of September). This is possibly correlated with the beginning of the moult.

The 24.05, a pair was seen alarming near their hole in which a snake predated the content, in a sparsely-wooded herbaceous wetland, near the main-trail treetop. Nest holes are found in palm trees near the seaside at Robin's land.

The species breeds in April and May (Del Hoyo, Elliott & Sargatal 2002).



Melanerpes aurifrons

Engl.: Golden-fronted Woodpecker
Map 33, Fig. 30-31

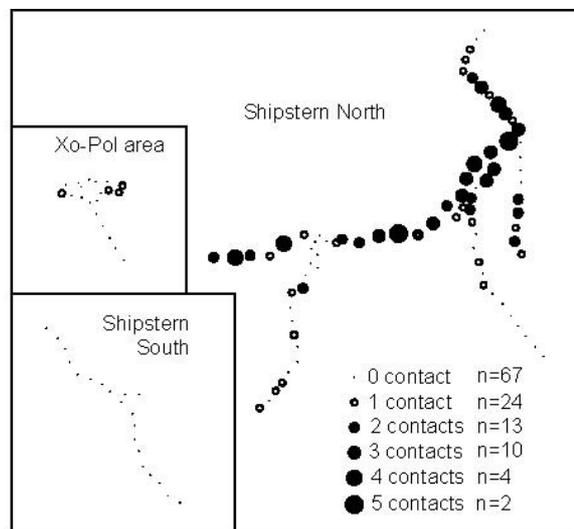
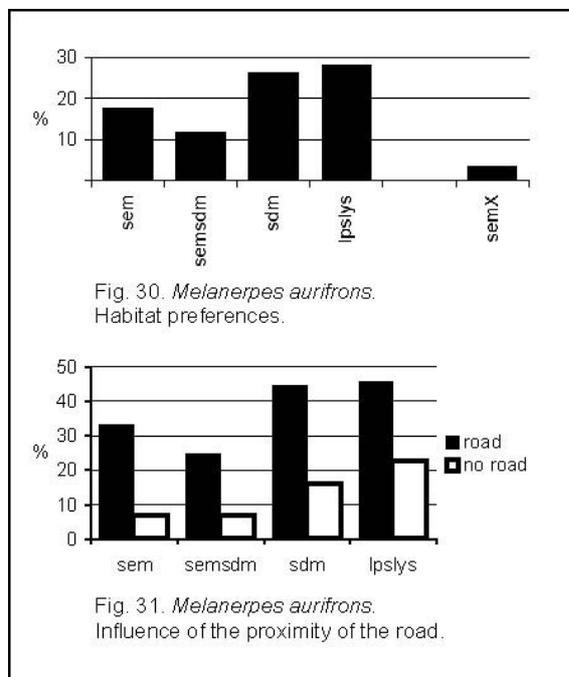
45.04 melaur
Fr.: Pic à front d'or

period	I	II	III	IV	V	VI
contacts	26	26	24	13	9	8

A common resident in the rather dry forests north of the lagoon and a fairly common resident in Xo-Pol where the seasonally inundated forests may determine its abundance. This woodpecker has not been seen in the reserve at Southern Shipstern except for one in mid April, nesting in a Palm tree at Iguana Camp (A. Morgenthaler). At Fireburn, it is noted close to cultivated areas. A nearby road increases its density especially in semi-evergreen forests, but less in semi-deciduous and dry forests. It prefers possibly the forests near artificial or natural clearances.

The species became less vocal since period IV (beginning of September), possibly because of the beginning of the moult.

Golden-fronted Woodpecker breeds between February and August in Guatemala. It may achieve two broods during the same season (Del Hoyo, Elliott & Sargatal 2002).



Sphyrapicus varius

Engl.: Yellow-bellied Sapsucker

45.05 sphvar
Fr.: Pic maculé

Uncommon transient. Two mentions occur during the survey, both at the headquarters. One was noted the 6.11 and the second one the 15.11.

In 2001, one was seen in early March. H. L. Jones reported one the 12.11.1997 at the headquarters.

Veniliornis fumigatus

Engl.: Smoky-brown Woodpecker

45.07 venfum
Fr.: Pic enfumé

Uncommon, only visitor? Two mentions are reported for the reserve. One was the 13.08 at the headquarters. One was the 4.10 at Xo-Pol between X12 and X13. Outside the reserve, a pair was seen the 3.11 near the first milpa beyond the limit of the reserve, toward Sarteneja.

Picus rubiginosus

45.08 picrub

Engl.: Golden-olive Woodpecker

Fr.: Pic or-olive

Not recorded during the survey. Meerman (1993) considers it as rare and the species is listed for Fireburn (2002). H. L. Jones mentioned one individual heard in mid-November 1997, without providing a precise localisation.

Celeus castaneus

45.09 celcas

Engl.: Chestnut-coloured Woodpecker

Fr.: Pic roux

Uncommon, mainly in semi-evergreen forests. The Chestnut-coloured Woodpecker is possibly a resident in the Sartenejan region, but no data were reported between July and November. It is recorded north of the lagoon and at Xo-Pol.

In the Northern part of the range (including Belize), the species breeds between March and June, sometimes up to August (Del Hoyo, Elliott & Sargatal 2002).

Dryocopus lineatus

45.10 drylin

Engl.: Lineated Woodpecker

Fr.: Pic ouentou

Map 34

Fairly common resident. The Lineated Woodpecker is only recorded north of the lagoon, except for one the 20.05 and one the 7.06 at Iguana Camp. The latest was seen flying toward the main forest. Two were seen at Iguana Camp the 8.03. It was also regularly seen near the headquarters and near Sarteneja. This species and the Pale-billed Woodpecker were never found at the same locations.

The species breeds in April and May in Belize (Del Hoyo, Elliott & Sargatal 2002).

Campephilus guatemalensis

45.11 camgua

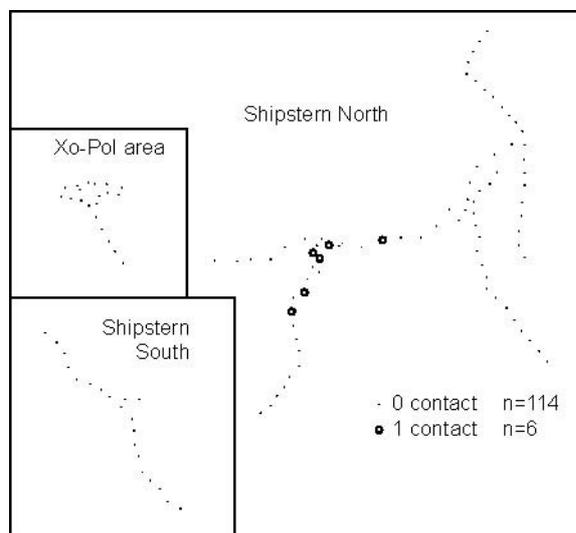
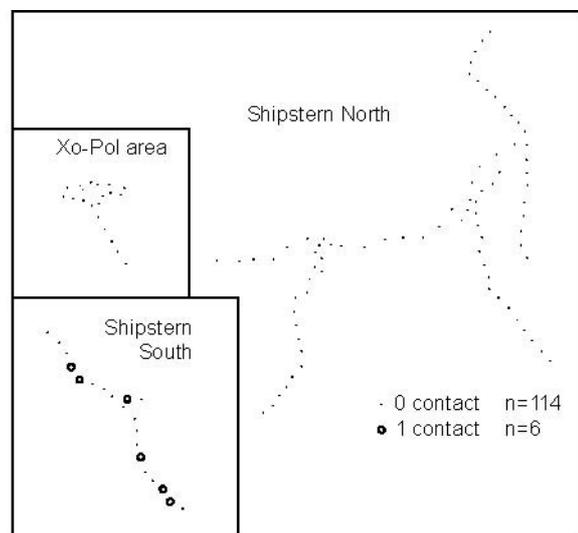
Engl.: Pale-billed Woodpecker

Fr.: Pic de Lesson

Map 35

Fairly common resident, only south of the lagoon. Although, one was recorded the 21.05 at Bonefish Pond Forest, Warrie Bight (E. Mac Rae). The typical double-rap and vocals were attributed to this species only lately during the study. Thus, it was under-represented in the point-counts. The species was also present at Fireburn where it is possibly common.

This Woodpecker breeds from January to May in Mexico and Northern Central America (Del Hoyo, Elliott & Sargatal 2002).

Map 34. *Dryocopus lineatus*.Map 35. *Campephilus guatemalensis*.

FURNARIDAE

1 species, 6 in Belize. This neotropical family is represented in the reserve by one forest resident.

Xenops minutus

46.4 xenmin

Engl.: Plain Xenops

Fr.: Sittine brune

Probably fairly common resident, mostly in semi-evergreen forests, north and south of the lagoon and at Xo-Pol. Vocalizes were not well known. The species was thus under-recorded during the point-counts.

Meerman (1993) does not list it for the reserve.

In Costa Rica, the Plain Xenops breeds from December to at least June, with possibly two broods per year (Del Hoyo, Elliott & Christie 2003).

DENDROCOLAPTIDAE

6 species in the region, 9 in Belize. This neotropical family is bounded to the forests. All species present in the region are residents.

Dendrocincla anabatina

47.1 denana

Engl.: Tawny-winged Woodcreeper

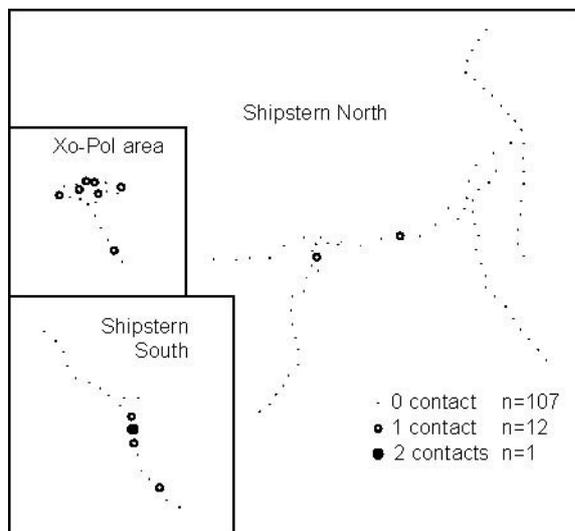
Fr.: Grimpar à ailes roses

Map 36

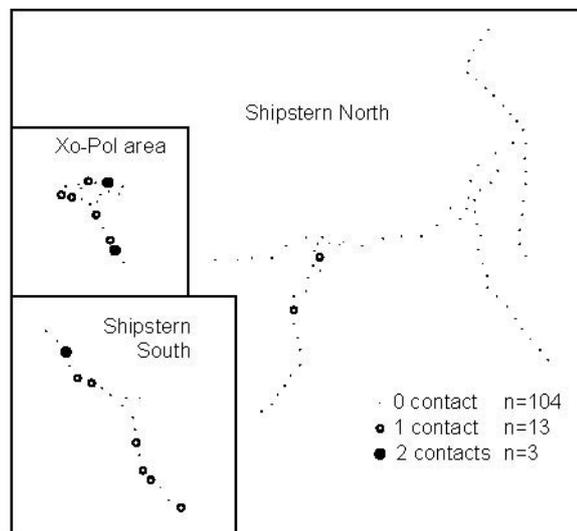
period	I	II	III	IV	V	VI
contacts	1	4	2	2	2	3

Fairly common resident in semi-evergreen forests, north and south of the lagoon and at Xo-Pol. Also present at Fireburn.

In Belize, recently hatched young birds are recorded in late May and dependant juvenile in mid-July (Del Hoyo, Elliott & Christie 2003).



Map 36. *Dendrocincla anabatina*.



Map 37. *Dendrocincla homochroa*.

Dendrocincla homochroa 47.2 denhom
 Engl.: Ruddy Woodcreeper Fr.: Grimpar roux
 Map 37

period	I	II	III	IV	V	VI
contacts	0	2	7	2	5	3

Fairly common resident, mostly in semi-evergreen and cohune forests, north and south of the lagoon and at Xo-Pol. The Ruddy Woodcreeper is scarcer in rather dry forests. Also present at Fireburn. Not all vocalizes were known. The species was thus, probably under-recorded in the point-count census. This species follows army-ants.

Two birds were caught the 9.08 near Shipstern village's ruins. None showed any current moult. One had an incubation patch. The 18.09, another one was caught at Fireburn. Most of the wing feathers were old (?). S8 new, S9 growing, P7 growing. A12 growing. Two MeC were growing. About 30% of the body-feathers were growing, others were old. Skull completely ossified. One bird was caught at the same place the 20.09. S 1-3, 7-9 were new, S 4 growing, S 5-6 old ; PP 1-7 new, PP 8-10 new. RR 1-2 are new, RR 3-5 growing, R6 old. GC, MeC were new. About 20% of upper- and tail-coverts were growing, 70% of under tail coverts and all head-feathers were growing, others were new.

In Belize, nest with eggs in were found in June. In Costa Rica, the breeding season extends from April to June (Del Hoyo, Elliott & Christie 2003).

Sittasomus griseicapillus 47.3 sitgri
 Engl.: Olivaceous Woodcreeper Fr.: Grimpar fauvette

Uncommon resident in semi-evergreen forests south of the lagoon and at Xo-Pol and in cohune forests. The Olivaceous Woodcreeper was not recorded during the survey north of the lagoon outside Xo-Pol. Also present at Fireburn.

The vocalization were not fully understood. Thus, the species was not well covered by the point-count survey.

A juvenile was caught the 9.08 in Southern Shipstern. It did not show any active moult among flight feathers. Body-feathers were new with 5-10% still growing on head and under-parts. Two GC were growing. Skull ossification was in stage A.

Birds in breeding conditions are found from mid-March to late May in Northern Central America (Del Hoyo, Elliott & Christie 2003).

Dendrocolaptes sanctithomae 47.6 densan
 Engl.: Northern Barred-Woodcreeper Fr.: Grimpar barré

Fairly common in various types of forests, north and south of the lagoon and at Xo-Pol. Also present at Fireburn.

The Northern Barred-Woodcreeper was difficult to detect during the point counts. The species calls often during a short time period only, early at dawn, and much less during the day. It follows army ants.

Birds in breeding condition are reported in April, May and August in Mexico and Belize (Del Hoyo, Elliott & Christie 2003).

Xiphorhynchus flavigaster
 Engl.: Ivory-billed Woodcreeper
 Map 38, Fig. 32-33

47.7 xipfla
 Fr.: Grimpar à bec d'ivoire

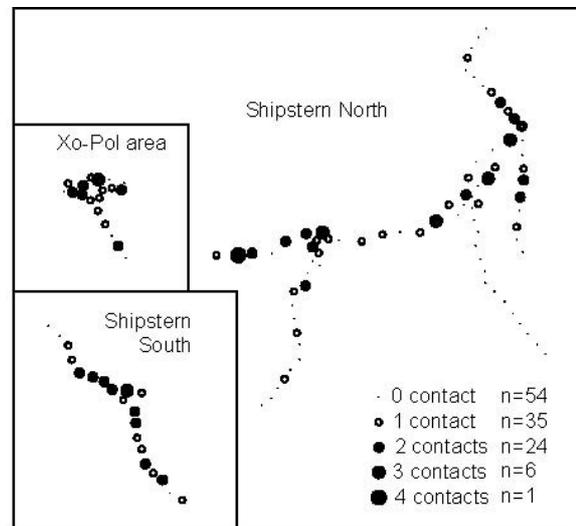
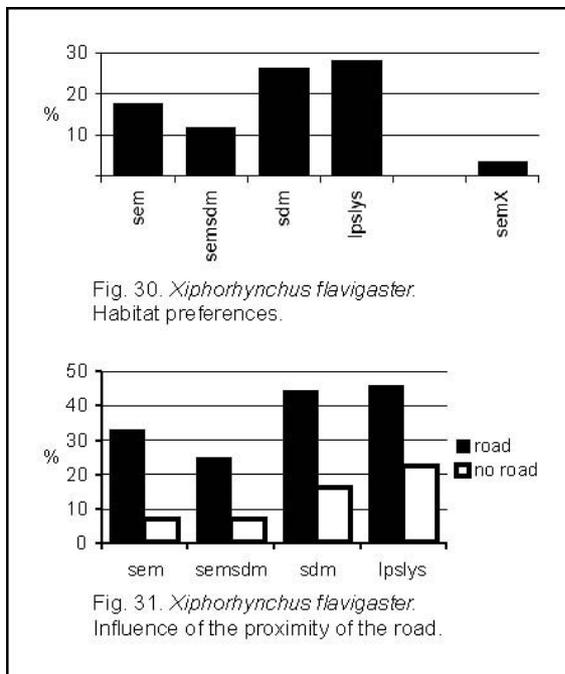
period	I	II	III	IV	V	VI
contacts	18	23	16	25	12	11

Common resident in all types of forests, north and south of the lagoon and at Xo-Pol. A similar abundance in all habitats is revealed by the survey. However, the long-distance call makes the localization of the birds inaccurate in the field and the point-count method deficient. A more detailed assessment of the location of the birds may betray a more subtle distribution among the habitat types.

The song is less heard during autumn (August to October) but the species is still detected by other calls. This period might correspond to the moult.

One was caught the 20.10 at the headquarters in the end of a complete moult. The plumage was completely fresh, with 20% of head-feathers growing.

In Mexico, nest with eggs are found in April to early June (Del Hoyo, Elliott & Christie 2003).



Lepidocolaptes souleyetii
 Engl.: Streak-headed Woodcreeper

47.9 lepsou
 Fr.: Grimpar de Souleyet

Uncommon (rare?), one record during the survey outside the reserve. One is mentioned the 22nd or the 23.04 at Fireburn (Z. Walker, E. Mac Rae).

Meerman (1993) considers this species as “uncommon”. The inaccurate “rare” status attributed to the Ivory-billed Woodcreeper by the same author suggests that the species in this difficult family were not well known. Thus, the above-mentioned status has to be regarded with caution. Moreover, the distribution area of the Streak-headed Woodcreeper documented in Jones (2003) does not spread to Corozal district. A particular caution is required for this species.

THAMNOPHILIDAE

1 species in the region, 9 in Belize. One uncommon resident of this neotropical family reaches the reserve. Otherwise, Belizean *Thamnophilidae* are present in more tropical wooded habitats.

Thamnophilus doliatus 48.2 thadol
 Engl.: Barred Antshrike Fr.: Batara rayé

Uncommon resident and mostly marginal. The Antshrike is noted only in disturbed semi-evergreen forests, next to the road to Cow-Pen near Xo-Pol and next to the road to Sarteneja, a few hundred meters west of the reserve border and near artificial clearances at Fireburn.

FORMICARIIDAE

1 species in the region, 1 in Belize. A neotropical family represented in Belize by one terrestrial forest inhabitant.

Formicarius analis 49.1 forana
 Engl.: Black-faced Antthrush Fr.: Tétéma coq-de-bois
 Map 39

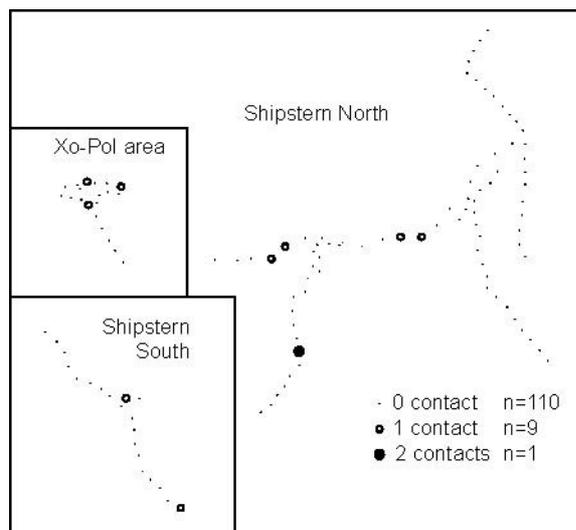
period	I	II	III	IV	V	VI
contacts	3	4	1	2	0	1

Uncommon to fairly common in various types of forests, north and south of the lagoon, and at Xo-Pol. The Antthrush would rather prefer relatively open under-storey. Dense brushes next to the road are unsuitable. Also at Fireburn.

The species was not heard between the end of September and mid-December. This period might be the moult time, although the moult began before in the adult caught the 30.08 (see under). It was heard again from the 17th of December.

An adult was caught the 30.08. Plumage old, except S 7 growing, and about 20% of body-feathers (but head-feathers old). This corresponds with the beginning of a possible complete moult.

Birds in breeding condition are found between April and June in Southern Mexico (Del Hoyo, Elliott & Christie 2003).



Map 39. *Formicarius analis*.

TYRANNIDAE

30 species in the region. One genus was not properly identified up to the species level (*Empidonax sp.*). 49 species in Belize. This huge family is the largest of the world and is confined to the new world. Many genus are difficult to identify, and many questions are left open upon their respective status in the Sartenejan region. This family includes residents, transients, winter visitors and summer visitors.

Camptostoma imberbe

50.02 camimb

Engl.: Northern Beardless Tyrannulet

Fr.: Tyranneau imberbe

Map 40, Fig. 34, 35

period	I	II	III	IV	V	VI
contacts	9	6	8	11	17	13

Common resident in semi-open habitats and in the surroundings of the road to Sarteneja (see fig.). The Beardless-Tyrannulet is also present in the canopy of other types of forests. It is probably not breeding there, but vocalization were not sufficiently known to ensure the absence of the species during the breeding time in rather humid forests.

One bird caught the 30.05 at Cow-Pen was in worn plumage.

The Northern Beardless-Tyrannulet breeds between March and June in Central America (Del Hoyo, Elliott & Christie 2004).

Myiopagis viridicata

50.03 myivir

Engl.: Greenish Elaenia

Fr.: Elénie verdâtre

Map 41, Fig. 36, 37

period	I	II	III	IV	V	VI
contacts	7	7	11	8	5	6

Fairly common resident in nearly all types of forests. The Greenish Elaenia is difficult to record if it is not singing. Thus, it was possibly under-recorded in the point-count. It appears to be common in rather humid forests especially in cohune forests. The species was scarcer in drier forests. The proximity of the road seems to have a slight positive influence (see fig.).

The breeding season of this species is between April and June in Central America (Del Hoyo, Elliott & Christie 2004).

The 11.08, a bird had the tail-feathers in moult.

Curiously, Meerman (1993) does not list this common species for the reserve.

Elaenia flavogaster

50.05 elafla

Engl.: Yellow-bellied Elaenia

Fr.: Elénie à ventre jaune

Map 42

period	I	II	III	IV	V	VI
contacts	12	5	4	3	1	3

Common breeder (resident?) in more or less open area. The species is mostly found in sparsely wooded herbaceous wetland and dwarf mangal, but also next to the road to Sarteneja. Present at Fireburn and Cow-Pen.

Yellow-bellied Elaenia were common and vocal during the period I (mid-June to beginning of July). Later, mentions became scarce, with nearly none between September and November. A majority of individuals may indeed leave the region during autumn. The species reappeared in December, although it was less vocal.

An adult with an incubation patch (female?) was caught the 23.06 near the seaside of Chetumal bay, Robin's land.

Curiously, Meerman (1993) does not list this common species for the reserve.

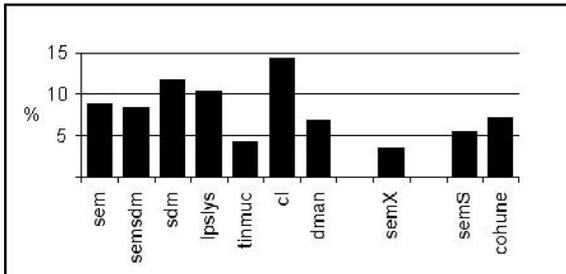


Fig. 34. *Camptostoma imberbe*. Habitat preferences.

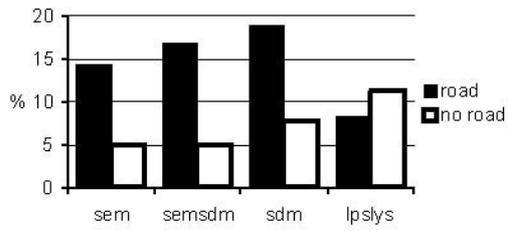


Fig. 35. *Camptostoma imberbe*. Influence of the proximity of the road.

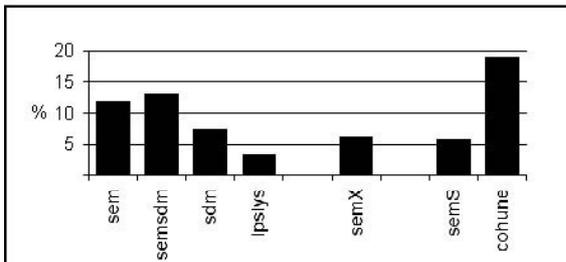


Fig. 36. *Myiopagis viridicata*. Habitat preferences.

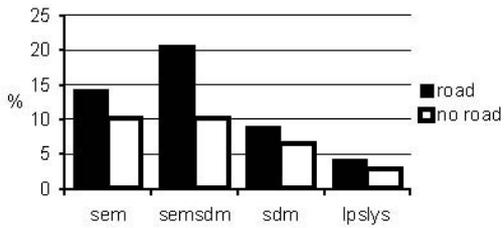
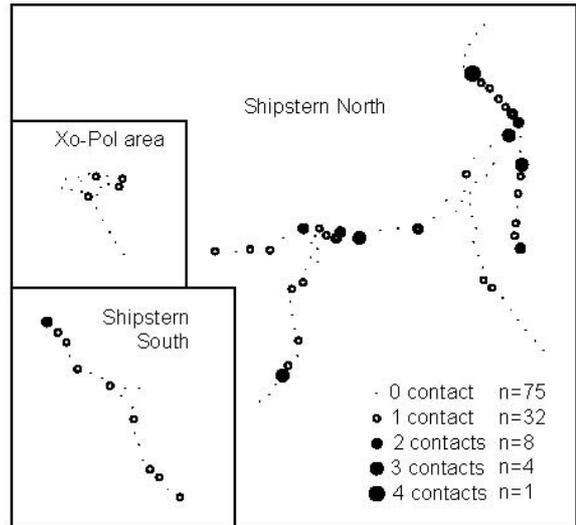
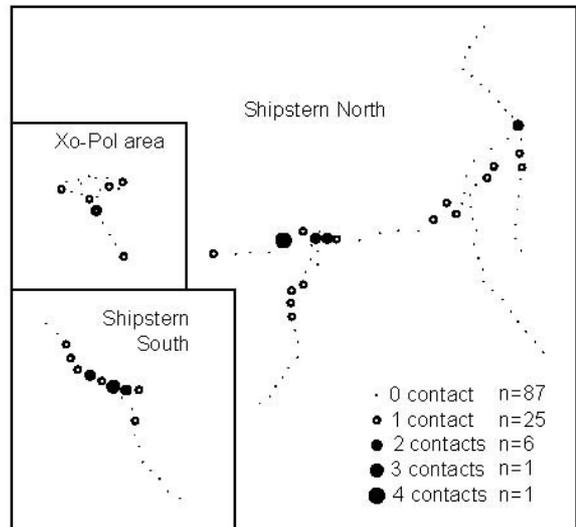


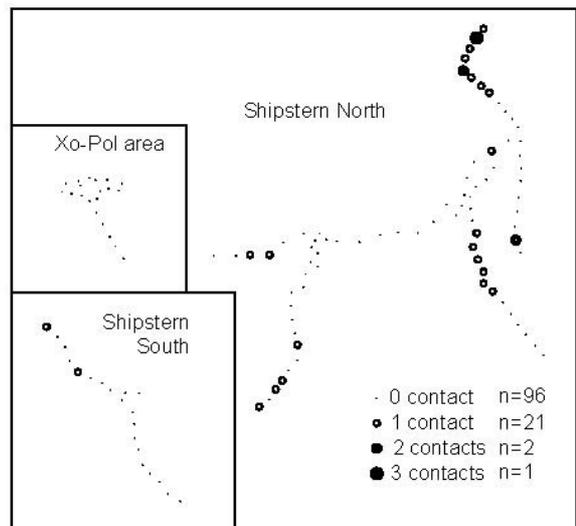
Fig. 37. *Myiopagis viridicata*. Influence of the proximity of the road.



Map 40. *Camptostoma imberbe*.



Map 41. *Myiopagis viridicata*.



Map 42. *Elaenia flavogaster*.

Mionectes oleagineus 50.06 mioole
 Engl.: Ochre-bellied Flycatcher Fr.: Pipromorphe roussâtre

Uncommon resident. Present in semi-evergreen forests, north and south of the lagoon and at Xo-Pol. Also present at Fireburn. Ochre-bellied Flycatcher is unobtrusive when not singing, thus, it is possibly under-recorded.

One male continuously sang between the 1.06 and 17.08 in a very limited area, at the end of the New trail toward the Main trail (near N99). The species was not recorded in September, except for one the 16 at Fireburn, outside the reserve.

Eggs are found in June in Honduras, in March to August in Costa Rica (Del Hoyo, Elliott & Christie 2004).

Two birds were caught the 9.08 near Shipstern village's ruins. They did not show any active moult. The second bird had many GC lacking. The first bird had completed the skull ossification, the other one was in stage C.

(Leptopogon amaurocephalus) 50.07 lepama
 Engl.: Sepia-capped Flycatcher Fr.: Pipromorphe à tête brune

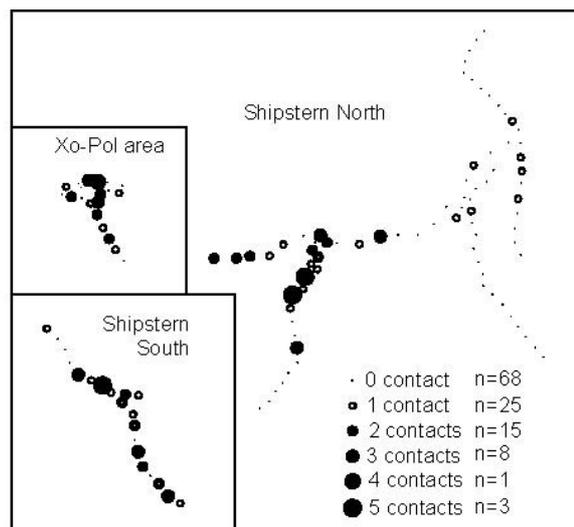
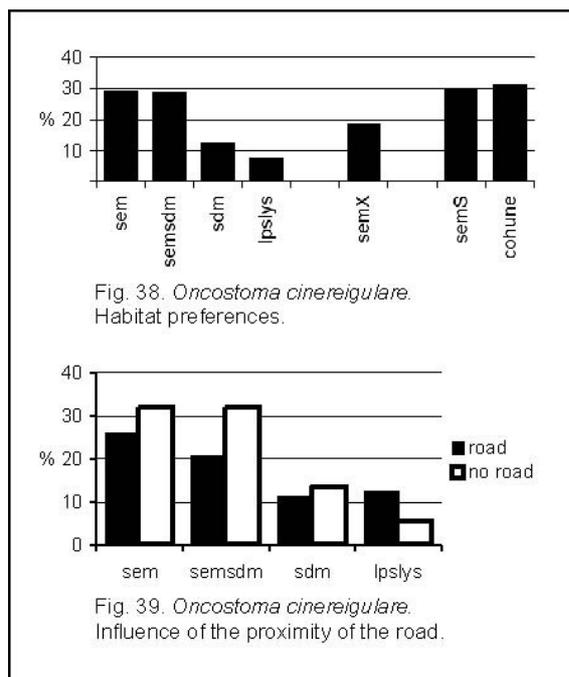
Meerman (1993) reports the species as "rare". Jones (2003) does not take this mention into account, as he considers it as absent in the Corozal district. It is wise not to take this data into account.

Oncostoma cinereigulare 50.09 onccin
 Engl.: Northern Bentbill Fr.: Tyranneau à bec courbe
 Map 43, Fig. 38, 39

period	I	II	III	IV	V	VI
contacts	16	14	13	18	18	19

Common resident in semi-evergreen forests, north and south of the lagoon, at Xo-Pol and in cohune forests. Uncommon to fairly common in drier forests. The proximity of the road has no strong influence on its abundance.

A bird caught the 24.08 near the headquarters was at the end of its moult. Flight feathers were rather fresh, without any moult. About 10% of feathers on head and under-body were still growing. Others were new. Skull ossification was in stage B.



Todirostrum cinereum 50.11 todcin
 Engl.: Common Tody-Flycatcher Fr.: Todirostre familier

Local resident (or summer visitor?). The Tody-Flycatcher was seen between May and July at Cow Pen (outside the reserve) and Iguana Camp. The second site was not covered well enough to ensure the absence after July. It was already seen there the 8.03.2001.

At Iguana Camp, its habitat is a "forest island" wrapped by a dense mangrove that is further abutted by a dwarf mangal except on one side where it is open to the lagoon. In Cow Pen, the habitat is a low arborescent vegetation ribbon near a small channel.

Meerman (1993) does not list it for the reserve.

A bird caught the 7.06 at Iguana Camp, showed a worn plumage without any sign of moult.

Rhynchocyclus brevirostris 50.12 rhybre
 Engl.: Eye-ring Flatbill Fr.: Platyrrhynque à bec court
 Map 44

period	I	II	III	IV	V	VI
contacts	1	4	5	2	2	2

Probably fairly common, but rather difficult to detect. The Flatbill was recorded in semi-evergreen forests, north and south of the lagoon and in Xo-Pol. Also present in cohune-forests. It was uncommon in semi-deciduous forests. Noted at Fireburn.

Meerman (1993) does not list the species for the reserve.

A bird caught the 20.09 at Fireburn was at the end of its complete moult. SS 1-4, 7-9 were new, S 5 growing, S 6 old. All PP were new. 10 to 20% of the body-feathers were growing, others were new. Skull ossification was in stage B. No complete pneumatization by adult or complete first prebasic moult?

Tolmomyias sulphurescens 50.13 tolsul
 Engl.: Yellow-olive Flycatcher Fr.: Platyrrhynque jaune-olive
 Map 45, Fig 40-41

period	I	II	III	IV	V	VI
contacts	21	24	22	18	11	11

Common resident in nearly all types of forests. Scarcer in rather dry forests. The Yellow-olive Flycatcher was more abundant close to the road, especially in dry forests (see fig.). Also present at Fireburn.

The species sang less from period V (beginning of October).

It breeds between April and June in Costa Rica (Del Hoyo, Elliott & Christie 2004).

Platyrrinchus cancrominus 50.14 placan
 Engl.: Stub-tailed Spadebill Fr.: Platyrrhynque à queue courte
 Map 46

period	I	II	III	IV	V	VI
contacts	1	3	0	3	5	3

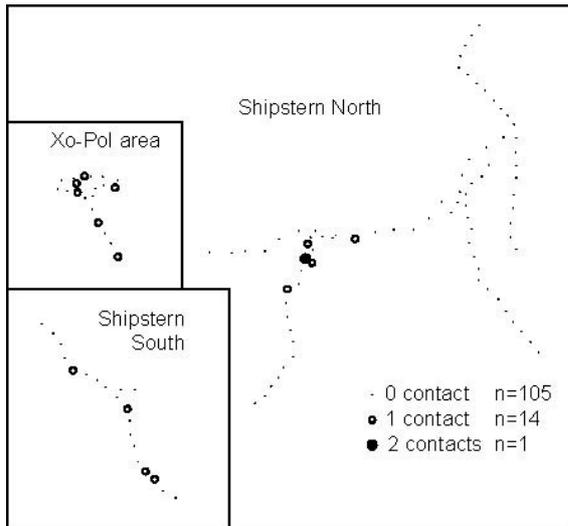
Fairly common resident in Cohune and semi-evergreen forests south of the lagoon, semi-evergreen forests north of the lagoon (near the Main trail) and at Xo-Pol. No data was noted from the Main trail outside the breeding season. Also present at Fireburn.

The lack of data in the point-count survey during the period III (end of July to mid-August) may correspond with the time of moult, as noted also in the caught birds.

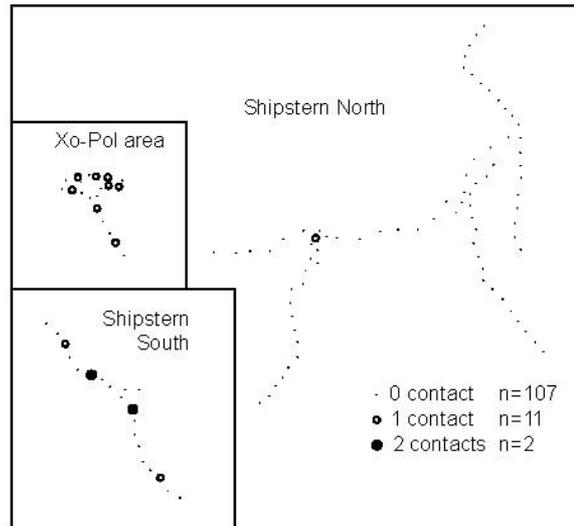
Two birds caught the 9.08 at Shipstern village's ruins were in deep moult. SS 1, 8-9 were growing, others were old. PP 1-5 were new, P 6 growing, P 7-10 old. PC follow PP pattern. AI 1-2 growing, 3 old. All tail-feathers were growing. A heavy moult was noted among the body-feathers. The other bird had S 9 new, SS 1, 8 growing, S 7 missing, SS 2-6 old. PP 1-2 were new, 3-5 growing, 6-10 old. A heavy moult was noted among body-feathers.

Meerman (1993) does not list the species for the reserve.

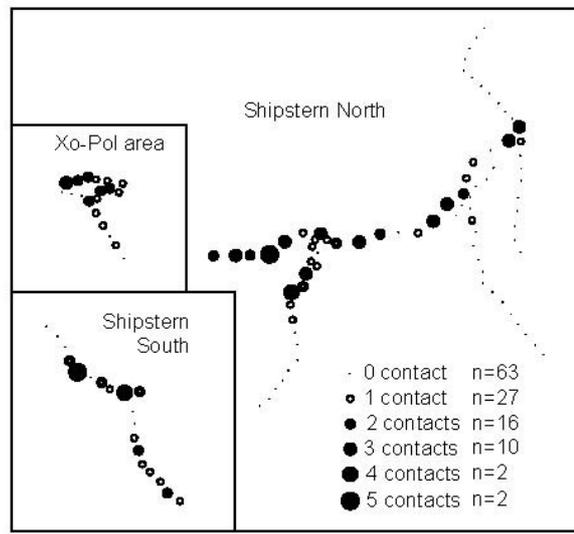
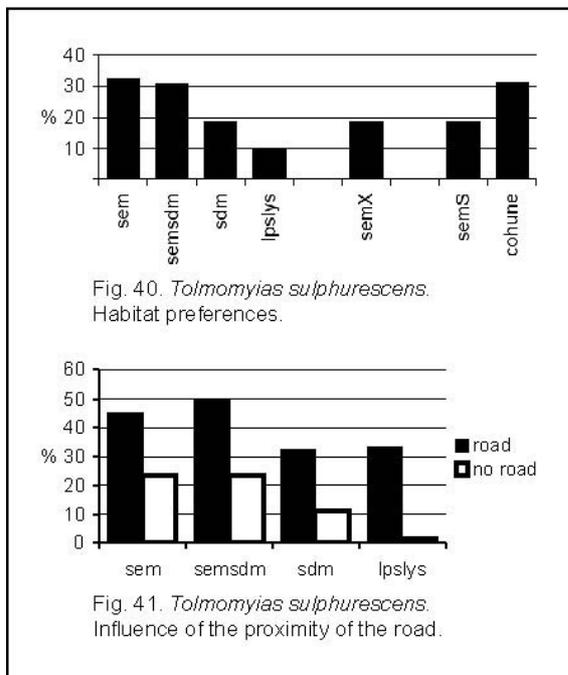
The species breeds in May in Costa Rica (Del Hoyo, Elliott & Christie 2004).



Map 44. *Rhynchocyclus brevirostris*.



Map 46. *Platyrinchus canrocinus*.



Map 45. *Tolmomyias sulphurescens*.

Onychorhynchus coronatus 50.15 onycor
 Engl.: Royal Flycatcher Fr.: Moucherolle couronnée

Uncommon resident, two mentions from inside the reserve. Two were the 26.05 in the forest near the Main trail tree-top. One (juvenile?) was the 10.10 in the southern Shipstern forests, and one again there the day after (V. Palomares).

The 19.09, one was at Fireburn. One was also there the 22nd or 23.04 (Z. Walker, E. Mac Rae) Again at Fireburn, one was present the 29.05.1999 (Z. Walker). It is possibly fairly common south of the lagoon in moist forests.

Meerman (1993) does not list the species for the reserve.

The Royal Flycatcher breeds from March to June in Mexico (Del Hoyo, Elliott & Christie 2004).

Contopus cooperi 50.18 concoo
 Engl.: Olive-sided Flycatcher Fr.: Moucherolle à côtés olive

Uncommon transient, two mentions. The 23.09, one was next to the road near the headquarters (R4). The 12.10, one was at the headquarters. Meerman (1993) does not list the species for the reserve.

(Contopus pertinax) 50.19 conper
 Engl.: Greater Pewee Fr.: Moucherolle bistre

Meerman (1993) records it as “rare”. The species is restricted in Belize to the Mountain Pine Ridge (Jones 2003). It is wise to consider its presence in the reserve as doubtful.

Contopus virens 50.21 convir
 Engl.: Eastern Wood-Pewee Fr.: Pioui de l’Est
 Map 47, Fig. 42

period	I	II	III	IV	V	VI
contacts	0	0	0	2	14	12

Common transient. Mostly near the road to Sarteneja and other clearances in the forests (see fig.). Also present south of the lagoon, at Xo-Pol and Fireburn.

In fall, the first arrivals occurred the 7.09 at the headquarters. Later, Wood-Pewee were commonly seen until at least the 17.11 when several were still in the headquarters. They left shortly afterwards, perhaps because of the first cold north winds of the winter.

Seemingly, some individuals stayed during several weeks, regularly using the same perches to sally. This long stay did not appear to be correlated with a moult period. Two 1y birds were caught the 20.10. They did not show any ongoing moult, except for one with about 10% of the head-feathers growing. Other feathers were rather worn. Another 1y bird (skull ossification in stage C) caught the 28.10 showed no current moult either. Pyle (1997) claims that the pre-basic moult occurs in the winter ground from December to March. The long stay in the region shall be interpreted as a re provisioning stopover.

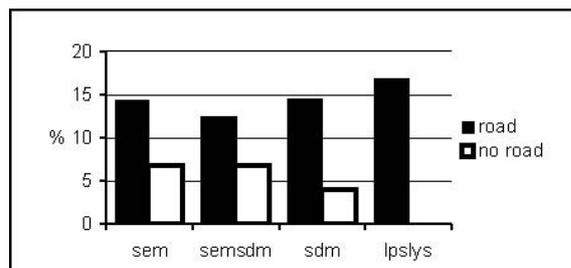
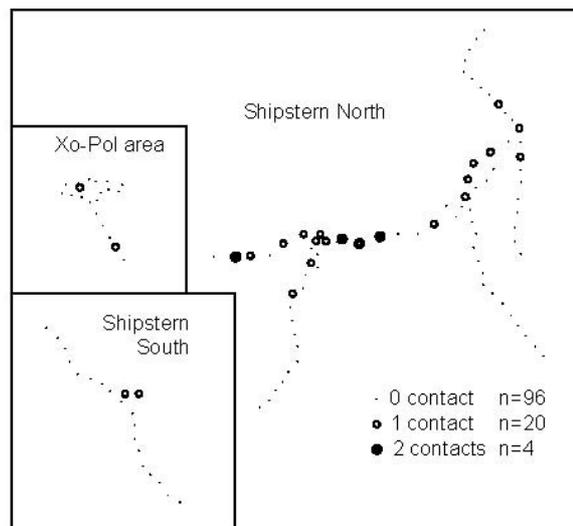


Fig. 42. *Contopus virens*. Influence of the proximity of the road.



Map 47. *Contopus virens*.

Contopus cinereus 50.22 concin
 Engl.: Tropical Pewee Fr.: Moucherolle cendré

Not recorded during the survey. Walker (2002) lists it for Fireburn. Not recorded by Meerman for the reserve (1993).

Empidonax flaviventris 50.23 empfla
 Engl.: Yellow-bellied Flycatcher Fr.: Moucherolle à ventre jaune

Uncommon transient (winter visitor?). One mention occurs. The 17.11, one was near the end of the New trail toward the Main trail (near N99). H. L. Jones reported two the 12.11.1997 in the region, without mentioning the localisation.

Empidonax alnorum 50.25 empaln
 Engl.: Alder Flycatcher Fr.: Moucherolle des aulnes
Empidonax traillii 50.26 emptra
 Engl.: Willow Flycatcher Fr.: Moucherolle des saules

Three *Empidonax* Flycatchers were caught the 20.09 at Fireburn. Measurements follow Pyle (1997). They match either with *Empidonax alnorum* or with *traillii*. Mermann (1993) reports none of them for the reserve.

N° of ind.	wing	tail	bill (from nares)	bill (width)	long. P-long. S	P6-P6	P9-P10*	P5*	P10-P5*	form R	form I	P6 emarg	skull	hue
99	71	54	9,2	6,2	13,3	6,9	1,8	10	2,3	3,08	9,2	no	E	rather greenish
98	73	57	9,2	6,1	11,7	5,5	1,8	10	4,6	2,85	10,1	no	B	rather greyish
89	69	55	8,2	5,2	14,4	5,9	2,3	8,7	2,5	2,72	8,1	no	E	rather greenish

*P6-P10 means P6 minus P10, the projection of P6 beyond P10.

An *Empidonax* Flycatcher pertaining neither to *minimus* nor *flaviventris* was seen the 22.09 at the headquarters and may pertain to the same species.

Empidonax minimus 50.28 empmin
 Engl.: Least Flycatcher Fr.: Moucherolle tchébec
 Map 48

period	I	II	III	IV	V	VI
contacts	0	0	0	0	0	5

Common transient and winter resident. The species was not well covered by the point-count survey as only period VI had positive data, although the first fall observations occurred already during period IV. It was mostly noted in forests with clearances. Also at Xo-Pol and Fireburn.

The first in fall appeared the 1.09, next to the road near the headquarters (R6). Strong arrival occurred the 23.09 at the headquarters and Robin's land, during heavy rains due to hurricane Isidoros. It was regularly seen later.

An *Empidonax sp.* seen the 20th and 21.04 next to the road to Sarteneja could have been of this species (A. Morgenthaler).

Attila spadiceus

50.31 attspa

Engl.: Bright-rumped Attila

Fr.: Attila à croupion jaune

Map 49, Fig. 43, 44

period	I	II	III	IV	V	VI
contacts	25	8	17	21	10	6

Common resident in all types of forests. Less common in forests south of the lagoon, where only recorded in cohune forests, not in semi-evergreen forests. This does probably not reflect completely its preferences. The Attila appeared to be more common near the road (see fig.). Present at Fireburn.

It was less singing from July (period II), and stopped nearly completely afterwards. The song was regularly heard again in autumn.

The species breeds mainly from April to July in Belize (Del Hoyo, Elliott & Christie 2004).

An adult in deep moult was caught the 24.08 near the headquarters. SS 1 and 8 were new, SS 2-3, 7 and 9 were growing, SS 4-6 were old ; PP 1-5 were new, PP 6-7 growing, PP 8-10 old ; tail-feathers left 1-2 and right 1-3 were growing, whereas others were old ; about half of the body-feathers were growing. GC were new (some missing?) ; PC were following the moult pattern of PP ; AI 2 new, 1 growing. The skull was completely ossified.

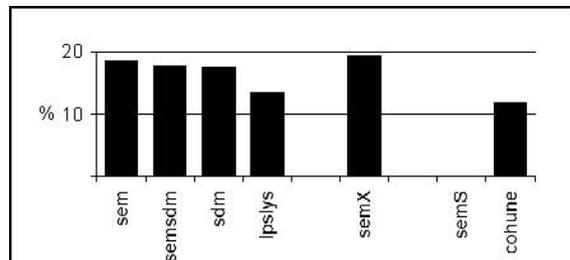


Fig. 43. *Attila spadiceus*.
Habitat preferences.

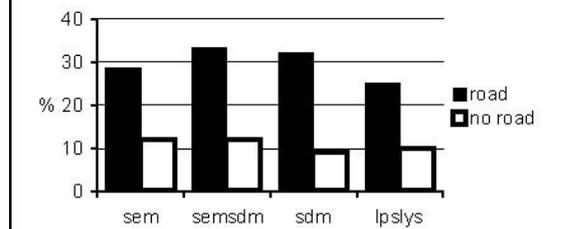
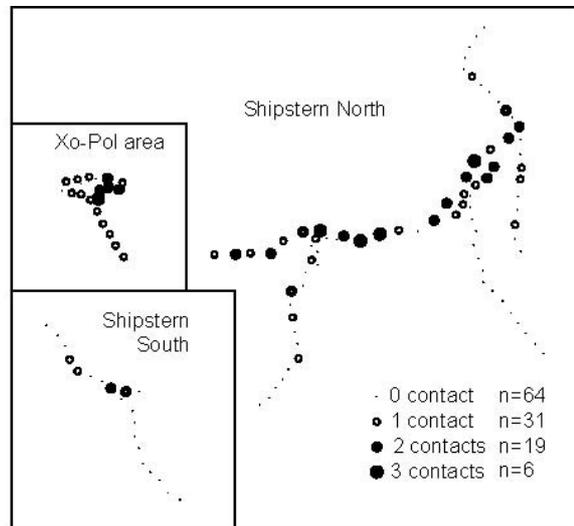


Fig. 44. *Attila spadiceus*.
Influence of the proximity of the road.



Map 49. *Attila spadiceus*.

Myiarchus yucatanicus

50.33 myiyuc

Engl.: Yucatan Flycatcher

Fr.: Tyran du Yucatan

Map 50, Fig. 45

period	I	II	III	IV	V	VI
contacts	3	5	2	3	5	3

Fairly common resident. The species seemed to favour rather dry forests, but was noted nearly in every type of forests. Also present at Fireburn. The 14.08, one bird seen in the forest from the Thompson trail was in moult. Yucatan Flycatcher follows army ants.

Myiarchus tuberculifer 50.34 myitub
 Engl.: Dusky-capped Flycatcher Fr.: Tyran olivâtre
 Map 51

period	I	II	III	IV	V	VI
contacts	3	4	0	4	5	12

Fairly common resident, in various types of forests. It is most common south of the lagoon and in the Xo-Pol forests. Also present at Fireburn. The lack of contact during the point-count survey in period III (between the end of July and mid-August) might fit with the time of the moult. Indeed, the 15.08, two birds seen in the forest from the Thompson trail were in moult. Laying is recorded between mid-April to mid-June in Central America (Del Hoyo, Elliott & Christie 2004).

A bird caught the 7.06 did not show any moult except for one head-feather growing. Body-feathers relatively fresh. Possibly the S 7 was more fresh than others SS.

A bird was caught the 23.06 at Robin's land near Chetumal bay seaside. On the right wing, S8 was growing, S9 missing?, others were old, P1 was new, P2 growing, others were old. On the left wing, all SS were old, PP 1-2 growing, others old, AI 2 was new, AI 3 old. Tail feathers were old. No current moult was noted among body-feathers. The stage of these two birds corresponded to the alternative plumage following pre-alternate moult described by Pyle (1997) for North American birds. The second one was beginning its complete prebasic moult.

Myiarchus crinitus 50.35 myicri
 Engl.: Great Crested Flycatcher Fr.: Tyran huppé
 Map 52

period	I	II	III	IV	V	VI
contacts	0	0	0	1	5	6

Fairly common transient and winter visitor, in most types of forests. Most common at Xo-Pol. Also at Fireburn where one came accidentally inside the Wildtracks' building the 1.10.

The first Great Crested Flycatcher was seen the 16.09 at the headquarters and at Fireburn. The species was probably more common during period IV than what the point-count census suggests, but at that time, the call was not yet known.

Myiarchus tyrannulus 50.36 myityr
 Engl.: Brown-crested Flycatcher Fr.: Tyran de Wied
 Map 53

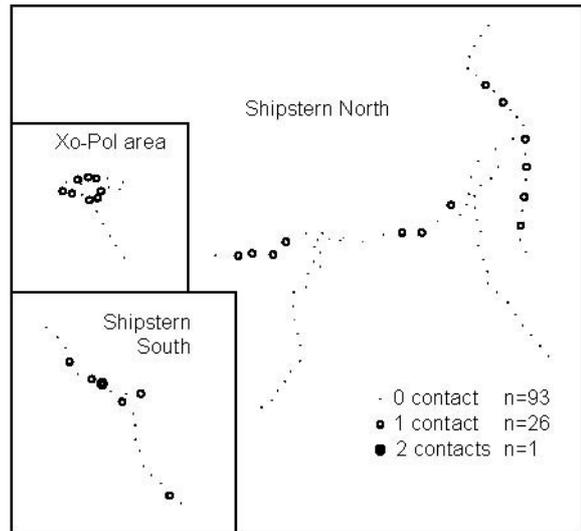
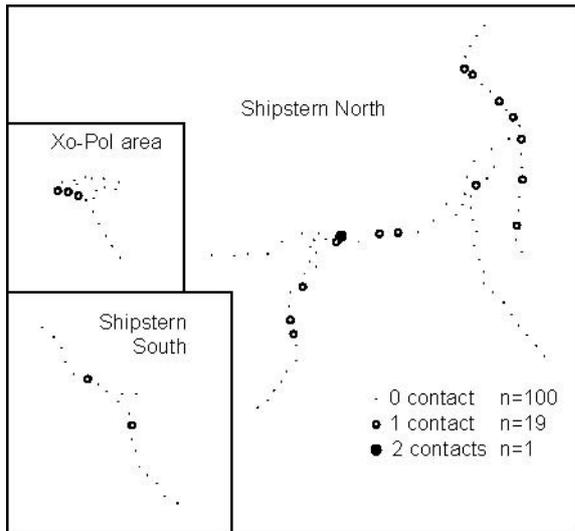
period	I	II	III	IV	V	VI
contacts	4	4	0	0	2	0

Fairly common breeder in sparsely wooded herbaceous wetland. The point-count survey does not show well the distribution of the species as it became quickly silent in the summer and then, largely disappeared. Brown-crested Flycatchers were more widespread in open areas than shown by the map. Also present at Robin's land and Shipstern landing. Brown-crested Flycatchers were found the 8th and the 13.09 in the forest, seemingly in deep moult.

An adult wearing a worn plumage was caught the 23.06 near the seaside of Chetumal bay. It did not show any sign of moult.

Territorial activities were noted the 3rd and 4.03.2001 in herbaceous wetland, near the Thompson trail.

The calendar of this species is not fully understood. Seasonal movements of Belizean birds were still recently mostly ignored in the published literature. Jones & Valley (2001) mention it as "seasonal breeding resident" only. Jones (2003) adds "A few overwinter". It is not clear if migration occurs before or after the pre-basic moult. Pyle (1997) writes about the North American populations that a suspended moult occurs on the breeding grounds and is completed in the wintering grounds.



Map 50. *Myiarchus yucatanicus*.

Map 51. *Myiarchus tuberculifer*.

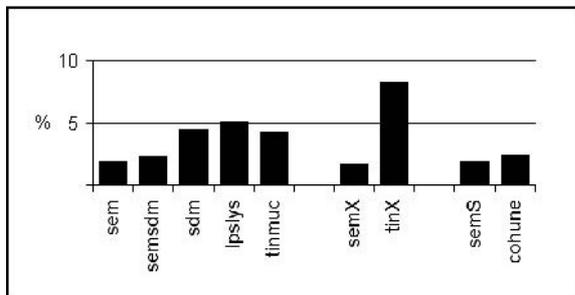
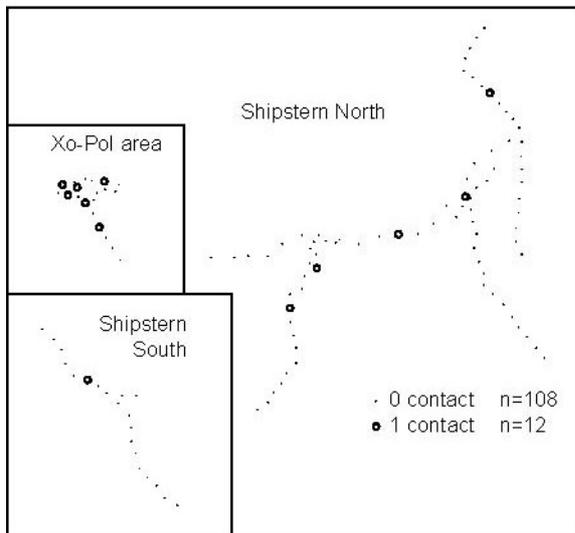
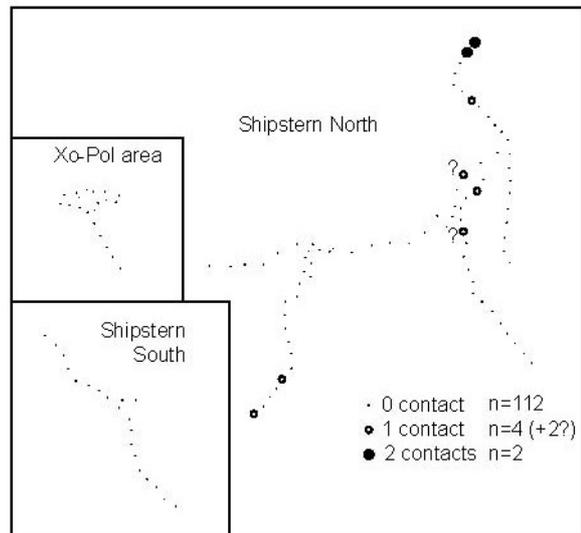


Fig. 45. *Myiarchus yucatanicus*.
Habitat preferences



Map 52. *Myiarchus crinitus*.



Map 53. *Myiarchus tyrannulus*.

Pitangus sulphuratus

50.37 pitsul

Engl.: Great Kiskadee

Fr.: Tyran quiquivi

Map 54, Fig. 46

period	I	II	III	IV	V	VI
contacts	6	7	9	5	4	4

Fairly common and even common along the road to Sarteneja. Somewhat marginal in the reserve as it occurs mostly on the border of it. Also present near Xo-Pol and at Fireburn.

The 10.07, a Kiskadee was seen feeding fledglings outside the nest at the headquarters.

The species breeds from February to June, occasionally up to October in Mexico (Del Hoyo, Elliott & Christie 2004).

An adult caught the 20.08 was in deep moult. PP 1-3 new, PP 4-5 growing, PP 6-10 old. S1 was growing, others (except tertials?) were old. Tail feathers were old except one central growing, the other central possibly missing. Most of the PC were growing. The most inward GC was growing, others were old. About the 20-30% of the body-feathers were growing, others were old. Another adult was caught the 11.10. Flight feathers were new, except for PP 9-10 and S 5 growing ; S 6 old? The central tail feathers were growing, others old (?!) ; about the 20-30% of the body-feathers were growing, others were old.

Megarynchus pitangua

50.38 megpit

Engl.: Boat-billed Flycatcher

Fr.: Tyran pitangua

Map 55, Fig. 47

period	I	II	III	IV	V	VI
contacts	7	8	8	3	3	3

Mostly marginal to the reserve. The Boat-billed Flycatcher was common along the road to Sarteneja and hardly seen far from it. Also present near Xo-Pol pond and at Fireburn.

It was less vocal and more retired from the period IV (beginning of September), which probably corresponds to the time of moult.

Myiozetetes similis

50.39 myisim

Engl.: Social Flycatcher

Fr.: Tyran sociable

Map 56

period	I	II	III	IV	V	VI
contacts	8	11	5	10	12	15

Fairly common in the reserve. Social Flycatchers were found in a variety of habitat, mostly semi-open or with clearances (artificial and natural) in various types of forests, but also in the canopy (not breeding?). Common in Robin's land, in disturbed forests with clearances, where some parts are seasonally flooded. Also at Iguana Camp in April (A. Morgenthaler), Fireburn and Cow Pen.

Breeding is recorded between February and June in Costa Rica (Del Hoyo, Elliott & Christie 2004).

One bird was caught the 30.05 at Cow Pen. S7 was new, S6 growing, others were old. Tail-feathers were old. A heavy moult on the body-feathers was noted. It is possibly a partial pre-alternate moult.

Myiodynastes luteiventris

50.41 myilut

Engl.: Sulphur-bellied Flycatcher

Fr.: Tyran tigré

Uncommon summer visitor, three mentions. The number of individuals involved is not ascertained. One was seen the 21.05, the 3rd and the 14.06 near the road between the entrance of the Main trail and the headquarters. One was at the headquarters between the 20.08 and the 5.09. There again it was seen the 22.09.

A Sulphur-bellied Flycatcher was recorded at Fireburn, the 29.05.1999 (P. Balderamos).

Meerman (1993) does not list the species for the reserve.

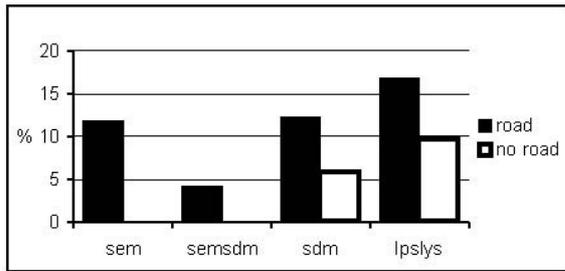
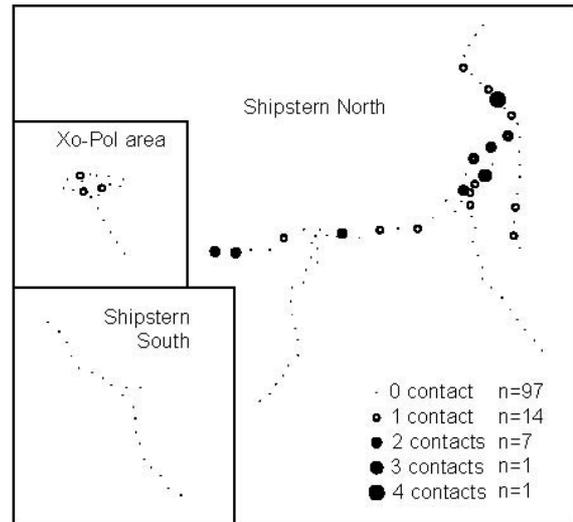
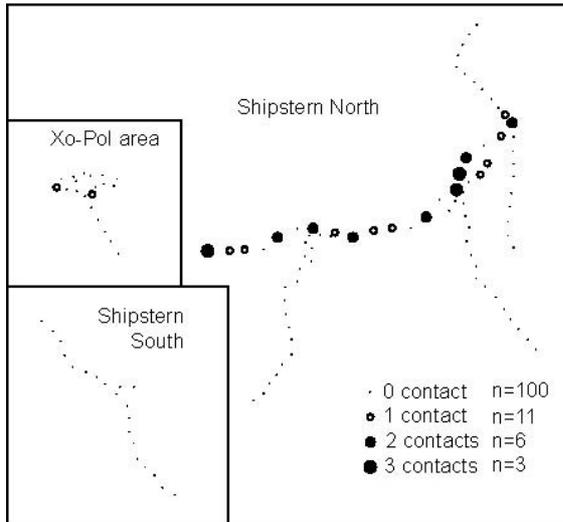


Fig. 46. *Pitangus sulphuratus*. Influence of the proximity of the road.



Map 54. *Pitangus sulphuratus*.



Map 55. *Megarynchus pitangua*.

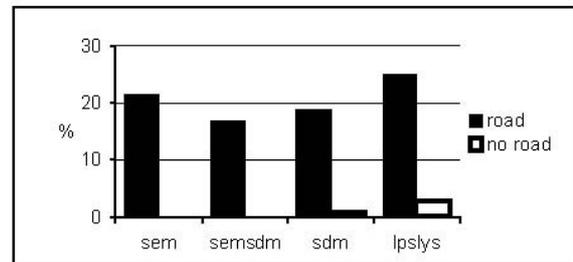
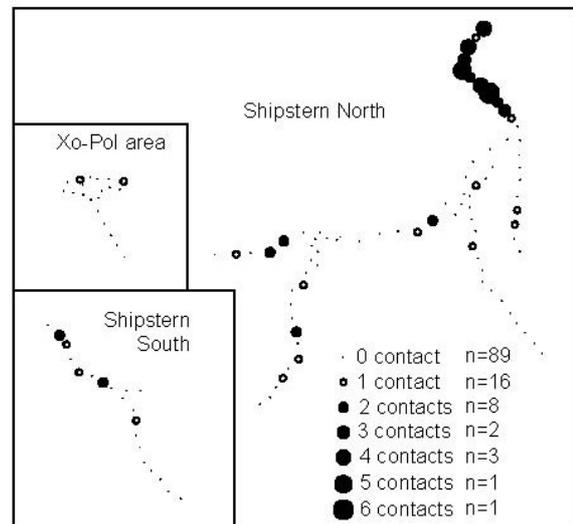


Fig. 47. *Megarynchus pitangua*. Influence of the proximity of the road.



Map 56. *Myiozetetes similis*.

Legatus leucophaeus

Engl.: Piratic Flycatcher

50.42 legleu

Fr.: Tyran pirate

Uncommon summer visitor, two mentions. One was seen in early June next to the road near the entrance to the Main trail. One was the 27.07 at Xo-Pol (V. Palomares).

Meerman (1993) does not list it for the reserve.

Tyrannus melancholicus / couchii

Those two species were identified only by voice. Some birds in hand were tentatively identified, using the wing formula and other measurement taken from Pyle (1997). Important wear of plumage renders the identification difficult. The two species were largely found at the same sites and were often heard at the same time.

Tyrannus melancholicus

50.43 tyrmel

Engl.: Tropical Kingbird

Fr.: Tyran mélancolique

Map 57

period	I	II	III	IV	V	VI
contacts	3	11	13	10	14	15

Common in semi-open areas, but also hunting in forests canopy and above the water where vegetation and perches occur. Large part of its range is shared with Couch's Kingbird. Also present at Fireburn.

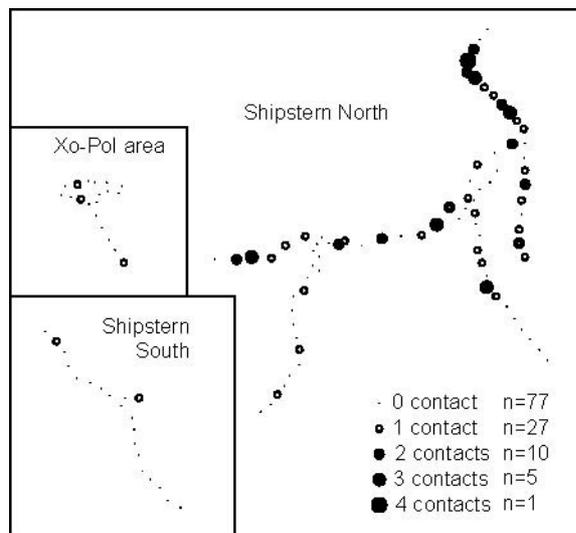
The species breeds from March to July in Costa Rica (Del Hoyo, Elliott & Christie 2004).

Two birds caught the 20.08 at the headquarters were thought to be of this species. One had S7 new, SS 1 and 8 growing, SS 2-6 and 9 old ; PP 1-4 new, PP 5-6 growing and PP 7-10 old, right R 1 new, others growing except right R6 old. The second bird had on right wing, S8 new, S9 growing, SS 1-7 old, PP 1-2 new, PP 3-5 growing, PP 6-10 old. Tail feathers were old, except the central pair growing. GC 1-2 and 5-6 were new, GC 3-4 and 7 growing, GC8 missing and GC 9-10 old ; AI 1-2 were new, AI3 was growing ; PC old ; RR old. A heavy moult of the body-feathers was noted.

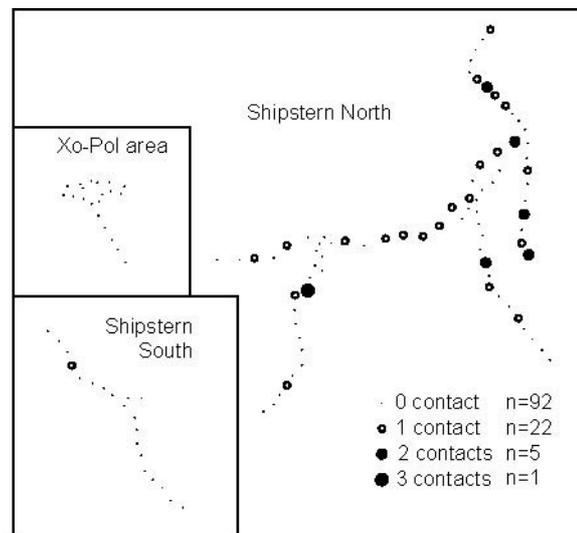
Three birds were caught the 28.10 at the headquarters. First had all flight feathers old ; GC 1-2 and 5 new, GC 4 missing, GC 3 growing, GC 6-10 old. Most of the body-feathers appeared to be new, but on head and tail-coverts where all feathers were growing. The second bird had all PP old except P5 new and P6 growing. SS were old except S7 new and SS 8-9 growing. AI 1-2 were new, AI3 growing. GC 1-2 and 5-6 were new, GC 3-4 and 7 growing, GC8 lacking, GC 9-10 old. RR were old. A heavy moult in body-feathers was noted. A third bird caught the same day was not properly identified to the species. It had the whole wing old except S 7 and 9 growing and P5 new. About the half of the body feathers were new, others were growing.

A young bird thought to be of this species was caught the 11.10 at the headquarters. The nearly entire plumage was juvenal except for 20-30% of the body-feathers growing. It seemed to be at the beginning of a partial pre-basic moult.

Two young birds thought to be of this species were caught the 28.10 at the headquarters. One had S7 new, SS 8-9 growing, others being old ; P5 were new, P6 growing, PP 1-4, 7 and 10 old. P6 nearly fully grown suggests that no other PP will be moulted at this stage (?). A possible eccentric partial first pre-basic moult occurs amongst PP. This corroborate with Pyle (1997). The other bird had old flight feathers; GC 1-2 and 5 new, GC3 growing, GC4 missing, GC 6-10 old. About 10-20% of body-feathers were growing, except on head and tail-coverts where all were growing. Others were new. A third bird caught the same day could be of the same species. The whole wing was old except for SS 7 and 9 growing and P5 new. This matches also an eccentric partial primary moult pattern.



Map 55. *Tyrannus melancholicus*.



Map 56. *Tyrannus couchii*.

Tyrannus couchii

50.44 tyrcou

Engl.: Couch's Kingbird

Fr.: Tyran de Couch

Map 58

period	I	II	III	IV	V	VI
contacts	6	5	12	4	4	4

Common to fairly common in semi-open areas, also in artificial clearances like the road to Sarteneja and the Main trail milpa. Unlike the Tropical Kingbird, this species seems to avoid wetlands (for example at Xo-Pol pond or in inundated mangroves at Robin's land where Tropical Kingbird is common). It possibly does not hunt in forest canopy.

The characteristic call was less heard from the period IV (September), when the Tropical Kingbird is still often told by voice. Some movements possibly occur.

A pair nested on the headquarters antenna. Young birds have left around the end of August.

Meerman (1993) does not list the species for the reserve, possibly because of the confusion with the Tropical Kingbird.

The species breeds between March and August (Del Hoyo, Elliott & Christie 2004).

Three *Tyrannus*, purposely of this species were caught the 5.06 at Iguana Camp. They showed two generations of feathers, probably the result of a partial pre-alternate moult. An unidentified adult *Tyrannus*, possibly of this species was caught the 23.06 near the littoral forest close to the seaside of Chetumal bay, Robin's land. On the right wing, it had S7 renewed (also S9?), others SS and PP old, GC 9-10 were new, others old. Only a small part (15 to 30%) of MeC and MaC were new with some MeC still growing. Most of the body-feathers were old, a few (10%) were growing, some were new.

(Tyrannus vociferans)

50.45 tyrvoc

Engl.: Cassin's Kingbird

Fr.: Tyran de Cassin

Not recorded during the survey. Meerman (1993) considers it as "rare". The data was not taken into account by Jones & Valley (2001) and Jones (2003) who accept only one record for the country, in the Orange Walk District. The Shipstern's mention is better left as doubtful.

Tyrannus tyrannus

50.46 tyrtyr

Engl.: Eastern Kingbird

Fr.: Tyran tritri

period	I	II	III	IV	V	VI
contacts	0	0	0	34	2	0

Common transient. The species was very numerous between the end of August and the end of September. The first seen in fall, was one the 23.08 at the Xo-Pol marshes. From the 30.08, Eastern Kingbirds became common. The 4.09, a counting from the Thompson trail, some hundred meters away from the forest edge in herbaceous wetland, gave 1050 transient in 15 min., between 5h45 and 6h00. The 13.10, three Eastern Kingbirds at Fireburn were the latest noted.

Eastern Kingbirds flew over forests and sparsely wooded wetlands. The strongest flow is possibly near the forest edge. They were less encountered over the dwarf mangal and the lagoon. Stopover were noted around the headquarters, close to the road, in the sparsely wooded herbaceous wetland, in Xo-Pol freshwater marsh,...

Several records during the spring include 4 to 5 the 9th and 2 the 17.04 at the headquarters. The species was present at Iguana Camp in mid-April (all data A. Morgenthaler). Other records occurred in May, including birds seen at the headquarters and the road to Sarteneja.

Tyrannus forficatus

50.48 tyrfor

Engl.: Scissor-tailed Flycatcher

Fr.: Tyran à longue queue

Uncommon (rare?), no record for the reserve. One flew the 23.09 (active migration?), near the seaside of Chetumal Bay, Robin's land, during heavy rains due to hurricane Isidoros.

Meerman (1993) does not list the species for the reserve.

Tyrannus savanna 50.49 tyrsav
 Engl.: Fork-tailed Flycatcher Fr.: Tyran des savanes

No record for the reserve. The Fork-tailed Flycatcher was present near a pond at Little Belize. At least two were seen the 25.07. The species was also seen the 13.02.2001 from the bus, at Little Belize. Jones & Vallely (2001) do not recognize the presence of this species in the Corozal district, but Walker (2002) and Jones (2003) attest to this population.

INCERTA SEDIS
 (ex Tyrannidae or Cotingidae)

From this group, 5 species occur in the region, 9 in Belize. It comprises a mixing of species not necessary related one another, not yet clearly assigned to any family.

Schiffornis turdinus 51.1 schtur
 Engl.: Thrush-like Schiffornis Fr.: Antriade turdoïde
 Map 59, Fig. 48

period	I	II	III	IV	V	VI
contacts	1	3	2	4	4	3

Fairly common in semi-evergreen forests, south of the lagoon both in cohune and semi-evergreen forests and at Xo-Pol. It was uncommon north of the lagoon. Also noted at Fireburn.

Schiffornis were heard in a nearly equal intensity during the whole survey. The species was seen hunting near army-ants.

Meerman (1993) does not list the species for the reserve.

In Costa Rica, egg layings are reported between February and August, chiefly in May (Del Hoyo, Elliott & Christie 2004).

A 1y bird (?) caught the 12.08 showed no current moult, except for a few feathers on the head. Otherwise, the plumage was fresh. The bird was tentatively aged by the similar growth bars in all tail feathers.

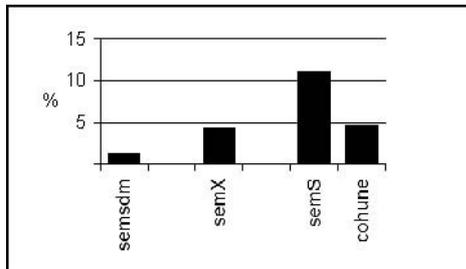
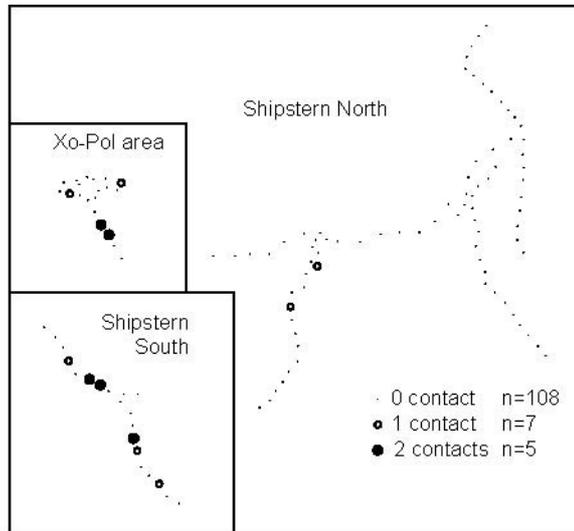


Fig. 48. *Schiffornis turdinus*.
 Habitat preferences.



Map 59. *Schiffornis turdinus*.

Pachyramphus major 51.6 pacmaj
 Engl.: Gray-collared Becard Fr.: Bécarde du Mexique

Uncommon (rare?), one record occurs. A male was seen the 1.03.2001 at the headquarters. Meerman (2003) does not list the species for the reserve.

Pachyramphus aglaiae 51.7 pacagl
 Engl.: Rose-throated Becard Fr.: Bécarde à gorge rose
 Map 60, Fig. 49

period	I	II	III	IV	V	VI
contacts	9	10	6	4	0	2

Locally common resident, but mostly marginal to the reserve. Rose-throated Becards were commonly seen near the road (see fig.). Also in the milpa near Main trail and in the littoral forests close to the Chetumal bay.

Nests were built on the top of wire posts. One nest was on a dead tree near the seaside of Chetumal bay. The species was easy to detect during the breeding season, but became shy from the end of July, when moult probably began. It was easily seen at the end of February and mid-March 2001.

The species breeds from April to June in Costa Rica (Del Hoyo, Elliott & Christie 2004).

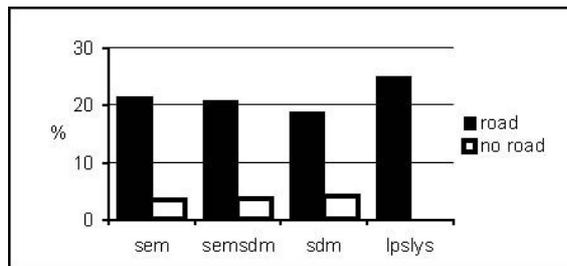
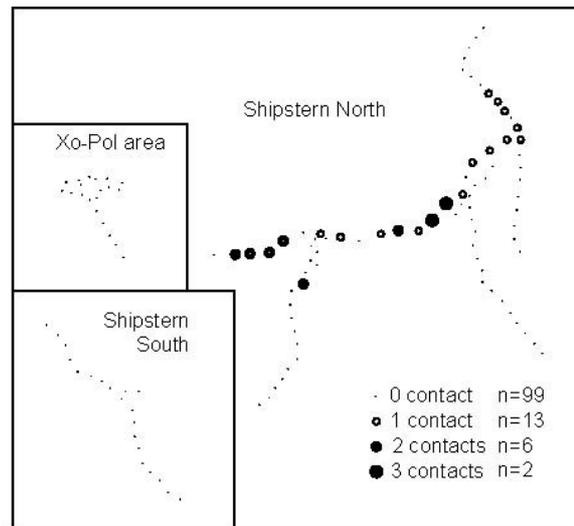
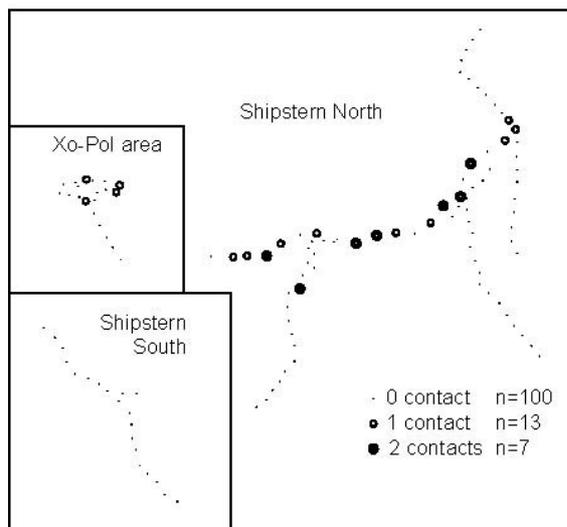


Fig. 49. *Pachyramphus aglaiae*. Influence of the proximity of the road.



Map 60. *Pachyramphus aglaiae*.



Map 61. *Tityra semifasciata*.

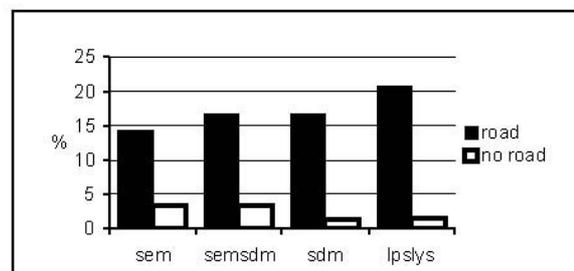


Fig. 50. *Tityra semifasciata*. Influence of the proximity of the road.

Tityra semifasciata

51.8 titsem

Engl.: Masked Tityra

Fr.: Tityra masque

Map 61, Fig. 50

period	I	II	III	IV	V	VI
contacts	4	7	3	4	5	4

Locally common resident. Tityras were mostly recorded near the road (see fig.), but also in the abandoned milpa near the Main trail, and in undisturbed areas, like Xo-Pol near the pond and in the littoral forest close to Chetumal bay. Also at Fireburn.

Three birds were recorded the 15.04 at Iguana Camp (A. Morgenthaler).

In Costa Rica, breeding is recorded between March and June, where they perform sometimes two broods (Del Hoyo, Elliott & Christie 2004).

Tityra inquisitor

51.9 titinq

Engl.: Black-crowned Tityra

Fr.: Tityra à tête noire

Uncommon (rare?), one record occurs. A male was seen the 14.08 at the headquarters. One was reported near Sarteneja between the 21st and 27.01.1991 (Z. Walker). Meerman (1993) does not list the species for the reserve.

PIPRIDAE

2 species in the region, 2 in Belize. This family is restricted to the neotropics. These small forest passerines have amazing courtships.

Manacus candei 53.1 mancan
 Engl.: White-collared Manakin Fr.: Manakin à col blanc

Uncommon, not recorded inside the reserve. One mention occurs from Fireburn during the survey. A female was caught the 20.09, in deep moult.

PP 1-3 new, PP 4-6 growing, PP 7-10 old. SS 1, and 7-9 growing, SS 2-6 old. PC showed a similar pattern as PP. AI 1-2 were growing, AI3 old. All RR were growing Nearly all body-feathers were growing. Skull ossification was in stage B. Complete first-prebasic moult or skull not fully pneumatized by adults?

Meerman (1993) does not lists the species for the reserve, and the presence in Corozal district is left in doubt by Jones & Vallely (2001) although it is considered uncommon in Jones (2003). Its presence in Fireburn forests was already noticed by N. Bayly in July or August 1999 and by E. Mac Rae (comm. pers.).

The species breeds between April and August in Costa Rica (Del Hoyo, Elliott & Christie 2004).

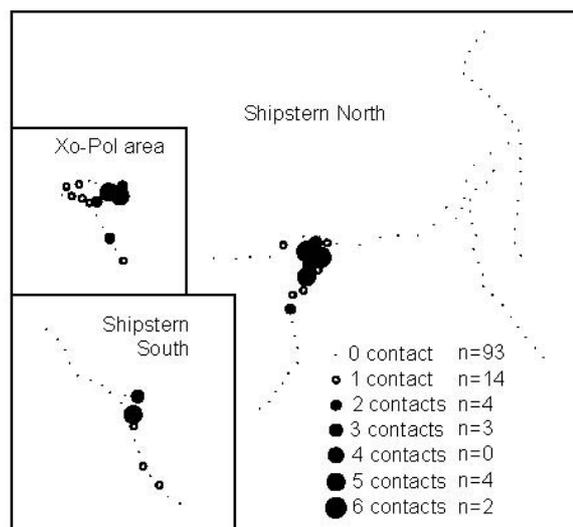
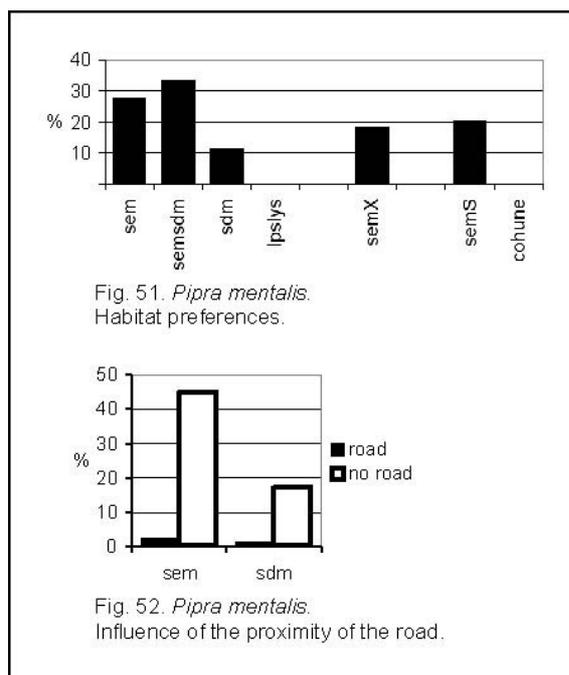
Pipra mentalis 53.2 pipmen
 Engl.: Red-capped Manakin Fr.: Manakin à cuisses jaunes
 Map 62, Fig. 51-52

period	I	II	III	IV	V	VI
contacts	11	12	8	9	9	14

Common resident, somewhat localised in semi-evergreen forests, north and south of the lagoon and at Xo-Pol. Red-capped Manakins were absent from true semi-deciduous forests, except the ones close to semi-evergreen forests. Absent from cohune forests. Near the Main trail, the species possibly avoids the proximity of the road (see fig.). Also present at Fireburn and near Maya ruins.

The species sang less from September when moult probably occurs. It was still fairly easily located by other vocalization.

In Costa Rica, the eggs are laid between March and June (Del Hoyo, Elliott & Christie 2004).



VIREONIDAE

10 species in the region, 15 in Belize. This family is restricted to the new world. Three species are common residents. Another one is a Yucatan endemic, occurring only as a visitor in the region. Others include North American migrants.

Vireo griseus

54.01 virgri

Engl.: White-eyed Vireo

Fr.: Viréo aux yeux blancs

Map 63, Fig. 53

period	I	II	III	IV	V	VI
contacts	0	0	0	0	4	19

Common transient and winter visitor. The White-eyed Vireo was present in all kind of forests, but was mostly tied to artificial clearances like the road (see fig.). The first one seen in fall appeared the 8.10, near the entrance of the Eastern survey trail close to the road. The species was common from mid-October.

In spring, one was seen the 3.04 close to the Thompson trail (A. Morgenthaler).

One adult was caught the 20.10 at the headquarters. Skull ossification was completed.

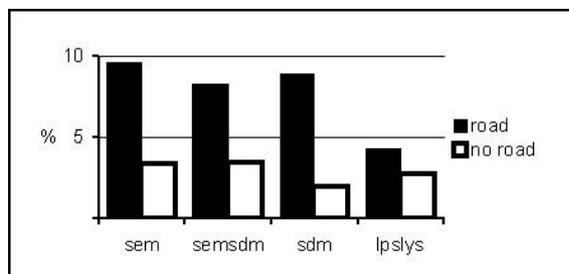
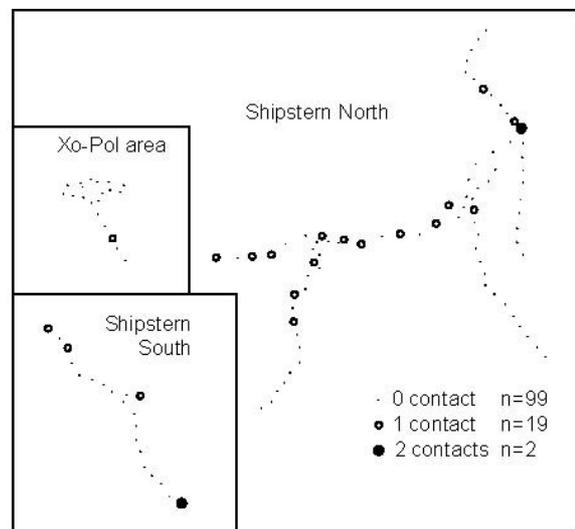


Fig. 53. *Vireo griseus*.
Influence of the proximity of the road.



Map 63. *Vireo griseus*.

Vireo pallens

Engl.: Mangrove Vireo
Map 64, Fig. 54-55

54.02 virpal

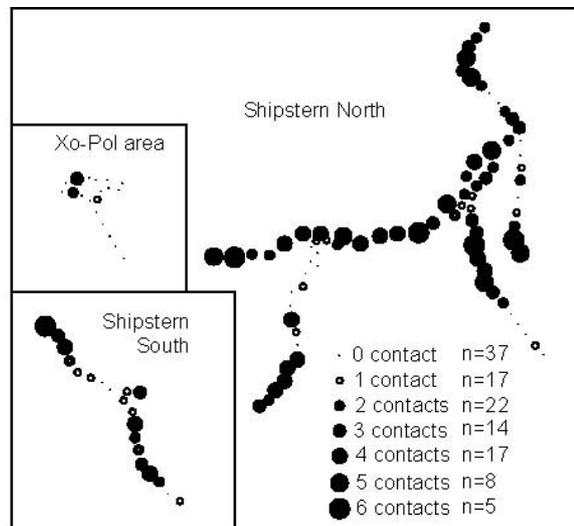
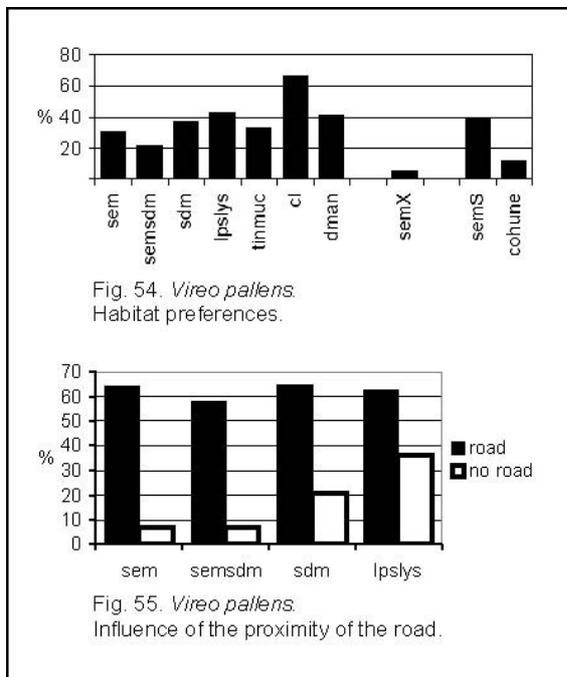
Fr.: Viréo des mangroves

period	I	II	III	IV	V	VI
contacts	39	39	37	51	41	34

Common resident in a wide array of habitats. The Mangrove Vireo was the only passerine to be common, both in semi-open and wooded habitats. It stayed in low arborescent vegetation. The species was always common close to the road, independently on the type of forest. Away from the road, the species was scarcer in semi-deciduous and even more so in semi-evergreen (see fig.). Its presence in semi-evergreen and cohune forests, south of the lagoon is seemingly to be related to artificial clearances due to sparse logging. The species was less common in Xo-Pol were it occurred in low arborescent vegetation near the pond. Also present at Fireburn and near a pond at Chunox.

Two adults were caught the 7.06 at Iguana Camp. No active moult except for about 10% of the head-feathers for one bird. Apparently two generations of feathers among tail-feathers and tertials, suggesting a partial pre-breeding moult. An adult caught the 23.06 in the littoral forest close to Chetumal bay, showed a worn plumage without any sign of moult. Two birds were caught the 18.9 at Fireburn. The skull ossification was in stage B for both. The first bird had PP 9-10 growing, others were new, SS 5-6 growing, others new, including tertials. RR were new. A heavy moult was noted among the body-feathers. The second bird was in a similar state with PP 8-10 growing, others new, SS 4-6 growing, others new. RR 5-6 on both sides were at the end of their growths. A heavy moult occurred among body-feathers, but in a less advanced state than that of the first bird, with the amount of feathers growing reaching only about the 30% on the head and 20% on the upper-body, the other body feathers being old. A bird caught the 7.11 near the Main trail tree-top was in fresh plumage. One head-feather was still growing. Skull ossification was in stage C.

The extent of the skull ossification would suggest that the latest three birds were 1y birds, but a complete moult, as shown by the birds of the 18.09 is curious for this stage. A slow or incomplete skull ossification leading to incompletely ossified 2y or older birds is still possible. Pyle (1997) documents slow pneumatization for other members of the family *Vireonidae* with birds not fully ossified during their first spring or even later.



Vireo flavifrons 54.03 virffr
 Engl.: Yellow-throated Vireo Fr.: Viréo à gorge jaune

Fairly common transient and uncommon winter visitor. The first to occur in fall appeared the 8.10, close to the road to Sarteneja near the entrance to the Main trail (R15). In 2001, one was the 1st and 8.03 at the headquarters.

Vireo philadelphicus 54.07 virphi
 Engl.: Philadelphia Vireo Fr.: Viréo de Philadelphie

Uncommon transient, three records, of which two inside the reserve. One was the 17.05 at the headquarters. One was seen the 12.08 at Shipstern landing. One, possibly two, were the 18.10 at Fireburn. Meerman (1993) does not list the species for the reserve.

Vireo olivaceus 54.08 viroli
 Engl.: Red-eyed Vireo Fr.: Viréo aux yeux rouges

period	I	II	III	IV	V	VI
contacts	0	0	0	2	2	0

Fairly common transient. The first fall record occurred the 14.08 at the headquarters. It was regularly seen from that day. The species was not recorded after the 1.11 when at least two were at the headquarters. In 1997, H. L. Jones reported one bird the 12.11. Red-eyed Vireo were mostly recorded around the headquarters, but also from the road to Sarteneja, in forests south of the lagoon, at Xo-Pol and at Fireburn.

Vireo flavoviridis 54.09 virfvi
 Engl.: Yellow-green Vireo Fr.: Viréo jaune-verdâtre
 Map 65

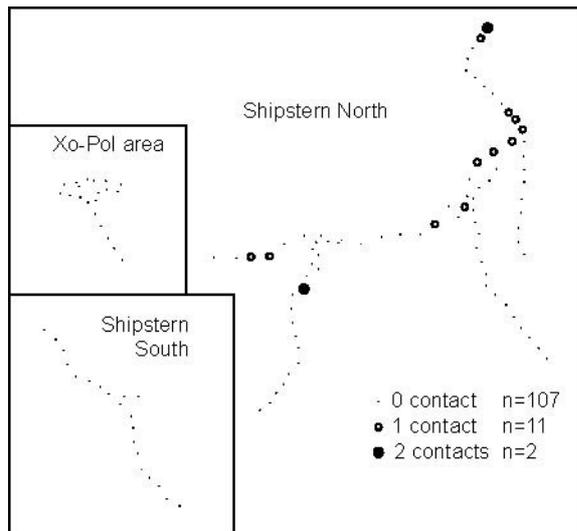
period	I	II	III	IV	V	VI
contacts	11	3	0	1	0	0

Locally common summer resident. Yellow-green Vireos were present in forests along the road to Sarteneja. It was abundant in the littoral forest close to the Chetumal bay seaside, and at Iguana Camp. The species was easily found by voice until mid-July. Later, it became more silent. A difficult identification from the Red-eyed Vireo which arrives in August, makes Yellow-green's departures difficult to follow. The lastest was seen the 5.09 along the road to Sarteneja.

Meerman (1993) does not list the species for the reserve. He possibly still considered *V. flavoviridis* as a sub-species of *Vireo olivaceus*, although he qualified it as "migrant" (like true *V. olivaceus*), but not summer visitor and breeder (like *V. flavoviridis*).

Two adults were caught the 7.06 at Iguana Camp. One had about 10% of the feathers growing on the head. None of the six birds caught the 23.06 in Chetumal bay seaside showed any sign of moult.

Pyle (1997) reports a complete pre-basic moult (in northern populations?) and a partial first pre-basic moult. Moult of Shipstern's birds occurs possibly mostly in July and August.



Map 65. *Vireo flavoviridis*.

Vireo magister

54.11 virmag

Engl.: Yucatan Vireo

Fr.: Viréo du Yucatan

Uncommon visitor, only in winter? Two mentions occur during the survey in the reserve, both in dry forests, near the forest edge. One was the 16.11, near point M9 close to the Main trail. One was the 7.12 near T7, along the Thompson trail. In 2001, one was found the 6.03 at Iguana Camp.

Outside the reserve, one was the 15.12 at Shipstern Caye.

(Vireo crassirostris)

54.99 vircra

Engl.: Thick-billed Vireo

Fr.: Viréo à bec fort

Meerman (1993) lists it for Shipstern as “reported, doubtful”. Jones (2003) accepts no valid record for Belize, and one should indeed better follow Meerman in his judgement.

Hylophilus ochraceiceps

54.12 hyloch

Engl.: Tawny-crowned Greenlet

Fr.: Viréon à calotte rousse

Map 66

period	I	II	III	IV	V	VI
contacts	3	7	1	1	2	2

Fairly common south of the lagoon in semi-deciduous forests, also present in cohune forests. Uncommon to fairly common in semi-deciduous forests at Xo-Pol. The presence of this Greenlet north of the lagoon, outside Xo-Pol has yet to be confirmed. Also present at Fireburn.

Meerman (1993) does not list the species for the reserve.

An adult caught the 9.08 near Shipstern village's ruins was in deep moult. PP 1-3 were new, P4 growing, PP 5-10 old. SS 1 and 8 were growing, SS 2-6 (and 7?) old, S9 missing? Many RR were growing, others were old. Body-feathers moult was proceeding. A juvenile caught the 12.08 was in fresh plumage. Skull ossification in stage B.

Hylophilus decurtatus

54.13 hyldec

Engl.: Lesser Greenlet

Fr.: Viréon menu

Map 67, Fig. 56-57

period	I	II	III	IV	V	VI
contacts	40	48	44	36	37	28

Common resident in all kind of forests. Lesser Greenlets were most abundant in cohune forests, also common in semi-evergreen and semi-deciduous forests, north and south of the lagoon, and at Xo-Pol. Still common, but less in dry forests. The presence of the road had no strong influence in rather humid forests. In the driest forests, the species is clearly more common next to the road (see fig.). It became apparently less vocal during the coldest months.

Also present at Fireburn.

Cyclarhis gujanensis

54.15 cycguj

Engl.: Rufous-browed Peppershrike

Fr.: Sourciroux mélodieux

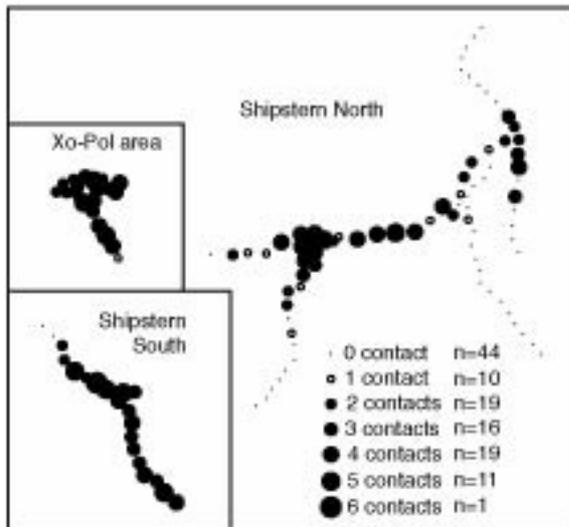
Map 68, Fig. 58

period	I	II	III	IV	V	VI
contacts	12	13	8	2	0	3

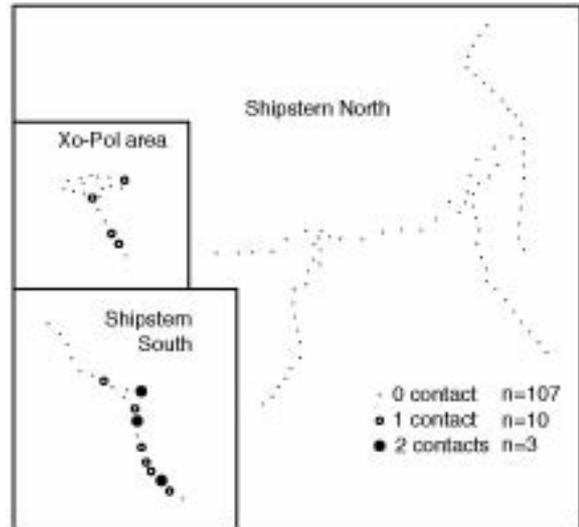
Common. Some movements occur at least locally. The species breeds in sparsely-wooded herbaceous wetlands and dwarf mangals. These habitats seem to be completely deserted outside the breeding season, at least between September and November. Data from this period were scarce. On the breeding grounds, the species was recognised by its song. The characteristic call was learnt only late in the survey, leaving the species largely unnoticed when it was not singing. Regular presence around the headquarters between September and November was confirmed later, once this call was recognized. Other sights occurred in artificially opened forests near Sarteneja and at forest edges, close to the breeding habitat.

A shift in the habitat preferences seemingly occurs between breeding and non-breeding (moult and wintering) season, from sparsely wooded to wooded areas. The map of the point-count survey shows mostly the breeding range. Also present at Iguana Camp in mid-April (A. Morgenthaler). Singing males were settled in early March 2001.

A female caught the 23.06 showed an incubation patch. The plumage was fairly worn without any sign of moult.



Map 67. *Hylophilus decurtatus*.



Map 66. *Hylophilus ochraceiceps*.

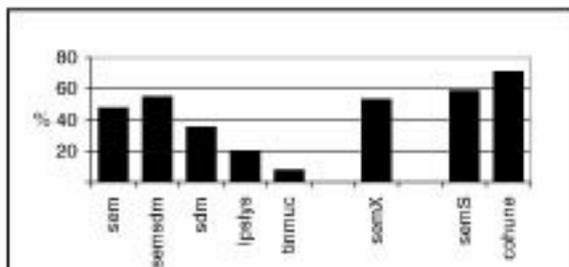


Fig. 56. *Hylophilus decurtatus*. Habitat preferences.

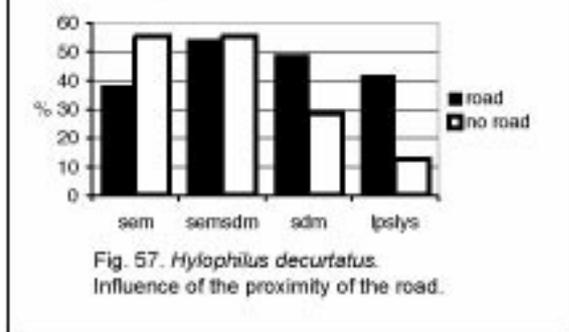
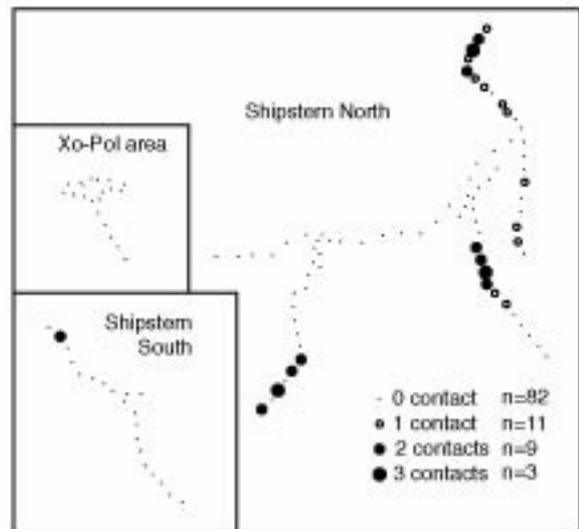


Fig. 57. *Hylophilus decurtatus*. Influence of the proximity of the road.



Map 68. *Cyclarhis gujanensis*.

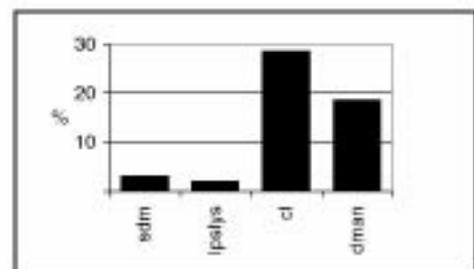


Fig. 58. *Cyclarhis gujanensis*. Habitat preferences.

CORVIDAE

3 species in the region, 3 in Belize. This family is that of the Crows, Jays and allies. They are nearly represented worldwide. All three species are residents in the reserve. Two are common, one of those being a Yucatan endemic.

Cyanocorax yncas 55.1 cyaync
Engl.: Green Jay Fr.: Geai vert
Map 69

period	I	II	III	IV	V	VI
contacts	1	0	0	1	4	2

Uncommon resident, but reported daily near the headquarters, at least from July. It was present in forest, mostly (only?) near artificial clearances especially from the road to Sarteneja. Walker (2002) lists it for Fireburn.

Cyanocorax morio 55.2 cyamor
Engl.: Brown Jay Fr.: Geai enfumé
Map 70

period	I	II	III	IV	V	VI
contacts	14	19	11	10	11	16

Common resident. The Brown Jays wander in most kind of wooded habitats, from sparsely wooded herbaceous wetland to various types of forests north and south of the lagoon and at Xo-Pol. They seem to prefer forests with openings like the road, forest edges, clearances or ponds (Xo-Pol). Also present at Fireburn.

A nest occupied by fledglings was found the 2.04 in the sparsely wooded wetland near the Main trail (A. Morgenthaler).

Laying occurs by this species from March to June, chiefly in May (Madge & Burn 1994).

Cyanocorax yucatanicus 55.3 cyayuc
Engl.: Yucatan Jay Fr.: Geai du Yucatan
Map 71, Fig. 59

period	I	II	III	IV	V	VI
contacts	15	8	6	7	10	8

Common resident. The species is most common in forests north of the lagoon where it favours semi-deciduous and dry forests, but groups wander in other forests. Also present south of the lagoon and at Xo-Pol forests where they were recorded in every type of forests. They may be tied to the rather dry ones, only visiting the others.

Two juveniles in white plumage were reported the 20.05.

Laying occurs by this species in May and June (Madge & Burn 1994), possibly already in April at Shipstern, according to the sight of juvenile birds out of the nest, the 20.05.

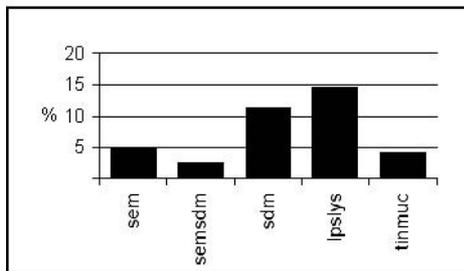
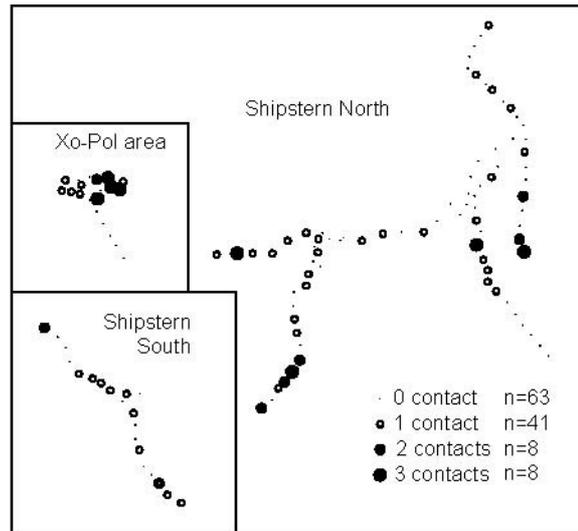
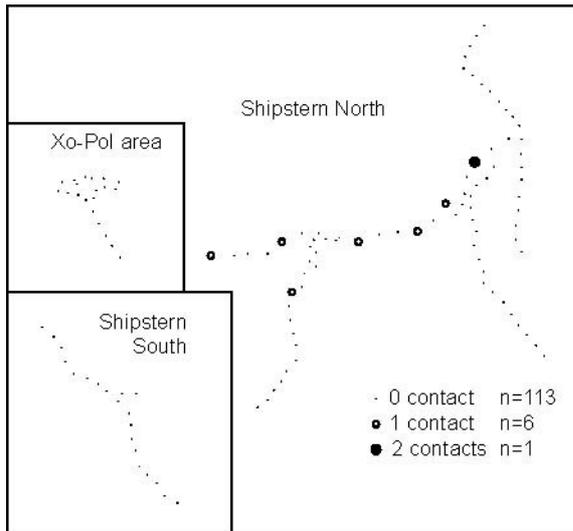
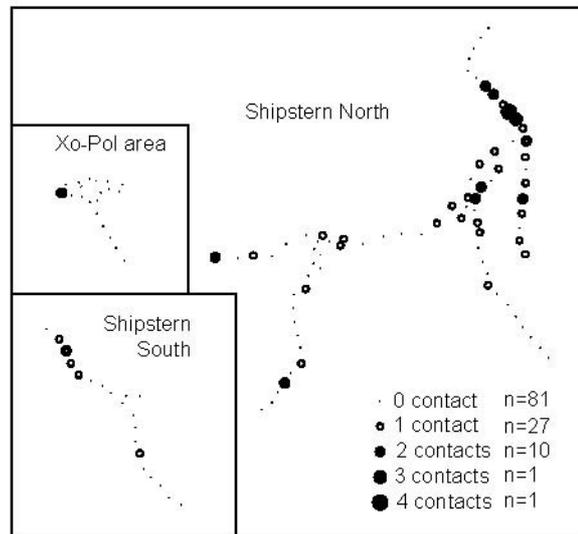


Fig. 59. *Cyanocorax yucatanicus*. Habitat preferences.



Map 71. *Cyanocorax yucatanicus*.

HIRUNDINIDAE

8 species in the region, 10 in Belize. Swallows are represented nearly worldwide. One is a common resident in the reserve. Others are visitors from North America or from nearer.

There is more to learn about swallows in the Shipstern region. Many sights were unidentified birds. Most swallows flying over the forests where difficult to watch properly.

Short "active migration surveys" gave interesting results. They were however too few to give an overall impression of the swallow migration in Shipstern.

Progne subis

Engl.: Purple Martin

56.01 prosub

Fr.: Hirondelle noire

Common transient during a relative short period. Recorded at Iguana Camp in mid-April (A. Morgenthaler). The first seen in fall appeared the 23.07. The 28.07, 95 are passing in 1/4 h (about 9 a.m.) at the end of the Thompson trail, near Cayo Verde. The species became scarcer toward the end of August. Other *Progne* swallows were seen in September, but they could not be properly identified. See under *P. chalybea*.

Progne chalybea

56.03 procha

Engl.: Gray-breasted Martin

Fr.: Hirondelle chalybée

Status unknown. The species was not recorded with certainty during the survey. One bird of the genus *Progne* seen the 3.10 at Xo-Pol pertained perhaps to this species. Records of *Progne* swallows from September were not reliably attributed at the species level. A group of several ten was the 23.09 near the seaside of Robin's land, during rainy weather. Several were seen from the Thompson trail the 24.09. The species is listed for Fireburn (Walker 2002). Meerman (1993) records it as "common migrant", perhaps mistaking it partly with the more common Purple Martin, which is "only" reported as "migrant".

Tachycinetta bicolor

56.04 tacbic

Engl.: Tree Swallow

Fr.: Hirondelle bicolore

Uncommon transient? The species was not recorded during the survey, but it probably flies over the reserve regularly. Ten were seen the 14.12 from the road to Warrie Bight. Meerman (1993) lists it as "migrant".

Tachycinetta albilinea

56.05 tacalb

Engl.: Mangrove Swallow

Fr.: Hirondelle des mangroves

Map 72

period	I	II	III	IV	V	VI
contacts	3	1	1	0	1	4

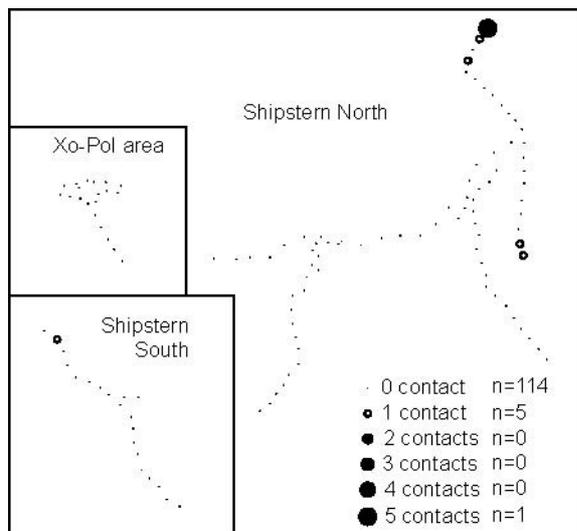
Common, resident. Mangrove Swallows are present close to the lagoon, both of Shipstern and Chetumal. They were regularly seen flying over the savannah. The 18.10, several were reported from the freshwater marsh near Maya ruins. Also present at Fireburn.

The species breeds at Robin's land near the seaside and at Cow Pen, in woodpecker holes (supposed to be of Yucatan Woodpecker) in dead palm trees. It breeds also at Sarteneja in nest-boxes made for them. Those nest-boxes are fixed on posts standing in the water.

Juveniles were fed in and outside a nest (hole in trunk) the 7.05 at Cow-Pen (A. Morgenthaler).

Local movement are suspected. In September the species was absent (or scarcer) at Robin's land where its presence was otherwise nearly permanent.

Breeding season occurs usually between March and July in Mexico and Northern Central America (Turner & Rose 1994).



Map 72. *Tachycineta albilinea*.

Stelgidopteryx serripennis

56.06 steser

Engl.: Northern Rough-winged Swallow Fr.: Hirondelle à ailes hérissées

Uncommon transient (or visitor in the case of *ridgwayi*?). The species stays during the winter at Sarteneja. Both populations of North American migrant *S. [serripennis] serripennis* and of Yucatan resident *S. [serripennis] ridgwayi* possibly occur. The two taxa are recognized as full species by Howell & Webb (1995).

The species was present at least from the 14.11 at Sarteneja (*serripennis*) where about ten or more were wintering. At least four (possibly *ridgwayi*) were the 3.12 at the headquarters. The 7.01, several ten were at Chunox (subspecies not identified).

Meerman (1993) does not list any Rough-winged Swallow for the reserve.

Riparia riparia

56.07 riprip

Engl.: Bank Swallow

Fr.: Hirondelle de rivage

Uncommon transient, two mentions from inside the reserve. One was the 3.03.2001 at Xo-Pol. Several were in transit the 4.09 at the end of the Thompson trail, in front of Cayo Verde. Outside the reserve, several ten were seen flying at the seaside of Chetumal lagoon, Robin's land, the 23.09 during rainy weather.

Petrochelidon pyrrhonota

56.08 petpyr

Engl.: Cliff Swallow

Fr.: Hirondelle à front blanc

Uncommon transient, two mentions of which one was in the reserve. The 23.09 during rainy weather, high numbers of Cliff Swallows (about one hundred) were seen flying above the seaside of Robin's land, Chetumal lagoon. Several were the 24.09 at the end of the Thompson trail, in front of Cayo Verde.

Meerman (1993) does not list the species for the reserve.

Hirundo rustica

56.10 hirrus

Engl.: Barn Swallow

Fr.: Hirondelle rustique

Common transient. Barn swallows were present at Iguana Camp in mid-April (A. Morgenthaler). The firsts appearing in fall were seen at the end of July. The 28.07, 16 were counted in 1/4 h (9 a.m.) from the end of the Thompson trail, in front of Cayo Verde. The 4.09, 41 were counted per 1/4 h (7h30 a.m.) from the same place. High numbers gathered the 23.09 at the seaside of Chetumal lagoon at Robin's land, during rainy weather. Barn Swallows were regularly seen flying over forests and open lands. Also present at Fireburn.

The last one in the Sartenejan region was seen the 18.10 over the freshwater marsh near the Maya ruins. One was the 4.11 at Little Belize.

In 2001, one was seen the 7.03 at Iguana Camp, and at least four the 5.03 at Sarteneja.

Curiously, Meerman (1993) does not list the species for the reserve.

TROGLODYTIDAE

4 species in the region, 9 in Belize. The wrens are widely distributed on the American continent. Only one species reaches the old world. All species present in the reserve are residents. Two are among the most common birds of the forests.

Thryothorus maculipectus 57.2 thrmac
Engl.: Spot-breasted Wren Fr.: Troglodyte à poitrine tachetée
Map 73, Fig. 60-61

period	I	II	III	IV	V	VI
contacts	36	45	32	27	17	20

Common resident in various types of forests. South of the lagoon, it was most frequent in Cohune forests, but was also present in semi-evergreen forests. The species was present in semi-evergreen forests at Xo-Pol. North of the lagoon, Spot-breasted Wren was encountered in most types of forests, but the influence of the proximity of the road was strong. This species was common along it, whereas it became scarcer away from it (see fig.). Spot-breasted Wrens were also common at the border between the forest and the savannah. Also present at Fireburn.

The species sang less from the end of August, which corresponds to the beginning of the moult. Dependant juveniles were noted the 3.07 in the forest south of the lagoon. There again, recently fledged juveniles were seen the 8th and the 12.08.

Spot-breasted Wren breeds between March and July in Oaxaca and Chiapas, Mexico and between April and July in Costa Rica (Brewer 2001).

Two birds were caught at the Fireburn sawmill, one not properly aged the 18.09 and one 1y bird the 20.09. Both had body- and flight-feathers in moult, apparently performing a complete pre-basic moult. The young bird had the skull ossification in stage B.

A 1y bird caught the 28.10 at the headquarters had a fresh plumage. Few feathers were still growing on the head and under-parts (about 5%). Skull ossification was in stage B.

Troglodytes aedon 57.5 troaed
Engl.: House Wren Fr.: Troglodyte familier

Not recorded during the survey. Meerman (1993) lists it as "uncommon". The species is not reported for Fireburn (Walker 2002).

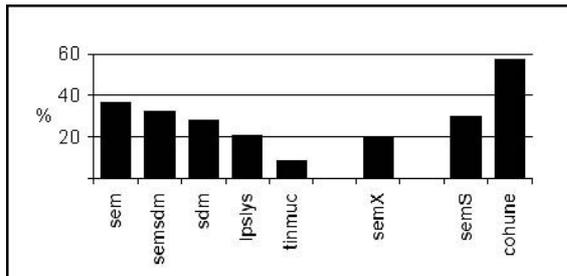


Fig. 60. *Thryothon maculipectus*. Habitat preferences.

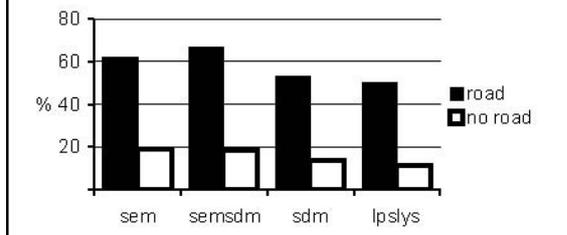


Fig. 61. *Thryothon maculipectus*. Influence of the proximity of the road.

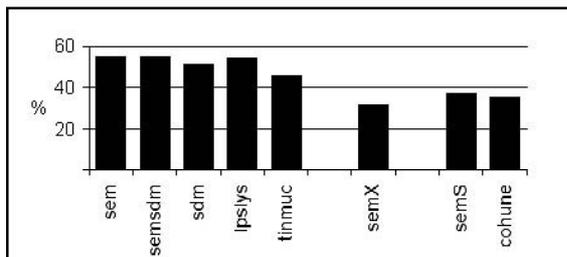


Fig. 62. *Uropsila leucogastra*. Habitat preferences.

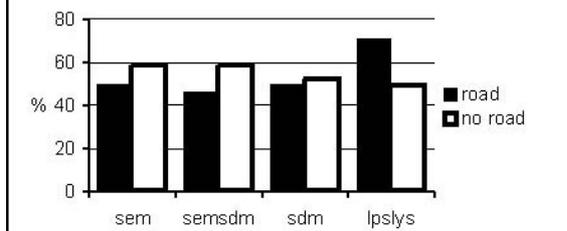
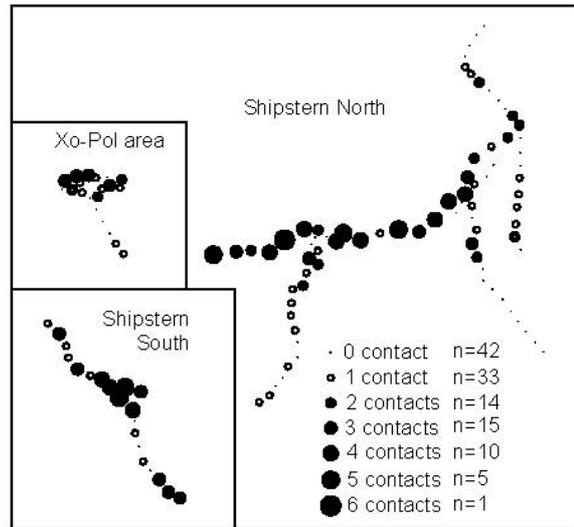
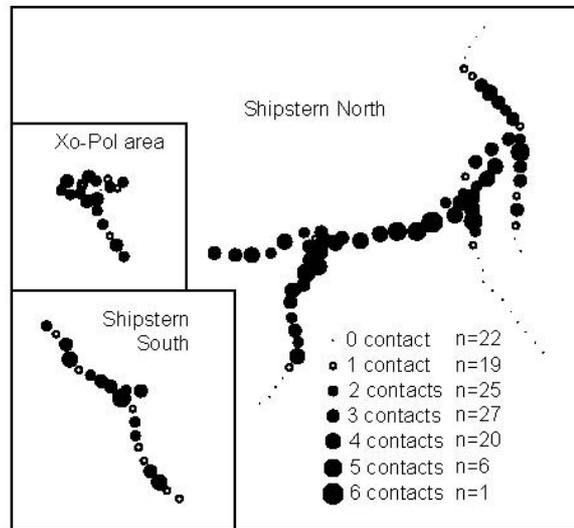


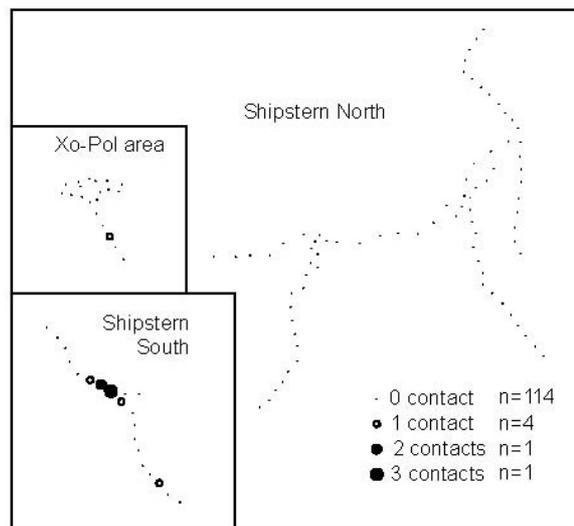
Fig. 63. *Uropsila leucogastra*. Influence of the proximity of the road.



Map 73. *Thryothon maculipectus*.



Map 74. *Uropsila leucogastra*.



Map 75. *Henicorhina leucosticta*.

Uropsila leucogastra
Engl.: White-bellied Wren
Map 74, Fig. 62-63

57.7 uroleu
Fr.: Troglodyte à ventre blanc

period	I	II	III	IV	V	VI
contacts	47	55	52	41	37	34

Common resident in every type of forests. White-bellied Wren is one of the most abundant birds of Shipstern forests. It was easily found once the call was known. The species was somewhat less common in the forests south of the lagoon and at Xo-Pol, but was still fairly common. Also present at Fireburn. The proximity of the road had no strong influence on its density (see fig.).

Adult feeding young birds outside the nest, were noted the 12.07 and 16.08. Nest building occurred the 1.12. The species was seen following army-ants.

Breeding season appears to be between March and June (Brewer 2001).

An adult was caught the 24.08 and recaptured the 30.08 near the headquarters. The 24th PP 1-4 were new, PP 5-6 growing, PP 7-10 old ; PC followed PP ; SS 8-9 were new, PP 1 and 7 were growing, PP 2-6 were old A strong moult of the body-feathers was noted. During the 6 days between the two catches, flight feathers in moult grew of about half of their length. The 30th, S2 had about the length of that of S1 six days earlier and P6 that of P5. In this instance, one can assume that about one new feather was renewed more or less every six days. Taking in account that S1 began to grow simultaneously with P5, the complete moult of flight feathers would last about 60 days. No Rectrice was renewed the 24th, but the central ones, still short, were replaced the 30th. Body-feathers were in deep moult. This bird performed a complete (or nearly complete) pre-basic moult.

A 1y bird caught the 20.09 at Fireburn was at the end of a complete first pre-basic moult and had the skull ossification in stage B. PP 1-5 were new, PP 6-8 growing, PP 9-10 old ; PC followed PP ; SS 1-2 and 7-9 were new, S3 growing, S4 lacking, SS 5-6 old. All coverts were new. Al 1-2 were growing, Al3 was old. RR 1-4 were new, RR 5-6 were growing in both sides.

A 1y bird (skull ossification in stage C) caught the 11.10 had a completely new plumage. The same state was noted for a bird caught the 24.10 near the Main trail treetop.

Henicorhina leucosticta

57.8 henleu

Engl.: White-breasted Wood-Wren
Map

Fr.: Troglodyte à poitrine blanche

Local resident. White-breasted Wood-Wren was only noted south of the lagoon in cohune and semi-evergreen forests where it was fairly common. Only one mention occurred north of the lagoon, one the 6.12 at Xo-Pol. Also present at Fireburn.

Two different adults were caught the 8th and the 9.08 near Shipstern village's ruins. The plumage was worn without any sign of moult.

In Costa Rica, eggs are laid between February and May, rarely in January (Brewer 2001).

SYLVIIDAE

3 species in the region, 3 in Belize. Nowadays, the three American genus traditionally included in this family are suspected not to be closely related to the true *Sylviidae*, but to be more closely related to the Wrens. They are now currently separated in their own family, the *Poliophtilidae* (for example del Hoyo, Elliott & Christie 2006). They are small passerines, resident in various habitats.

Ramphocaenus melanurus

58.1 rammel

Engl.: Long-billed Gnatwren

Fr.: Microbate à long bec

Uncommon resident. Vocalization not dealt. The species was probably under-recorded because the vocalization were not recognized and the species might be fairly common. It was recorded from the road, near the Main trail, at Xo-Pol and near Fireburn.

Nests are recorded in April in Costa Rica and May in Honduras (del Hoyo, Elliott & Christie 2006).

Polioptila caerulea
 Engl.: Blue-gray Gnatcatcher
 Map 76, Fig. 64

58.2 polcae
 Fr.: Gobemoucheron gris-bleu

period	I	II	III	IV	V	VI
contacts	7	9	4	6	4	3

Common resident in the dwarf mangal and the sparsely-wooded herbaceous wetlands. The Blue-gray Gnatcatcher was rare elsewhere, and was normally not present in same habitats as the Tropical Gnatcatcher. The species was mostly recorded north of the lagoon inside the reserve and at Robin's land. Also at Cow Pen and near Iguana Camp in similar habitats. Curiously, Meerman (1993) considers it as a "migrant". In Oaxaca, Mexico, egg dates are reported to be between the 5th and 21.06 (del Hoyo, Elliott & Christie 2006).

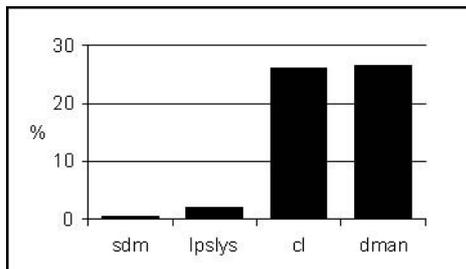
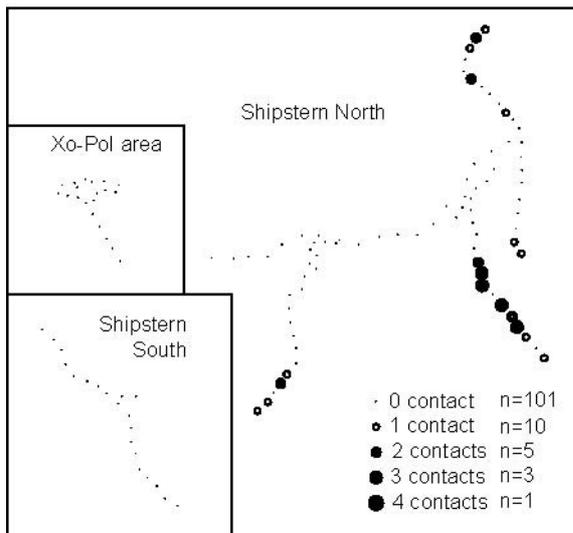
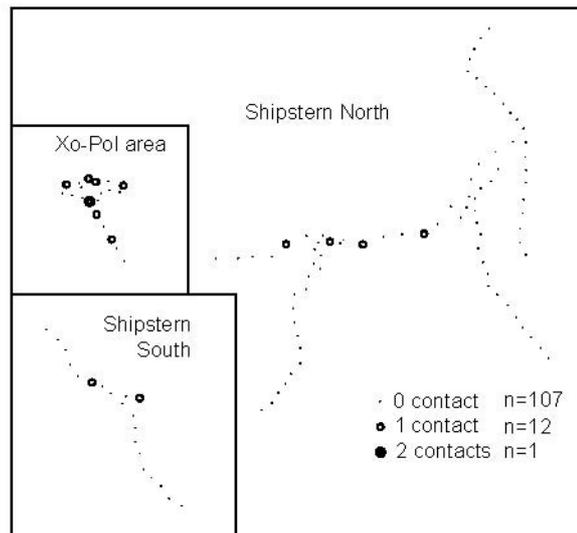


Fig. 64. *Polioptila caerulea*.
 Habitat preferences.



Map 76. *Polioptila caerulea*.



Map 77. *Polioptila plumbea*.

Polioptila plumbea
Engl.: Tropical Gnatcatcher
Map 77

58.3 polplu
Fr.: Gobemoucheron tropical

period	I	II	III	IV	V	VI
contacts	0	1	0	3	4	6

Fairly common resident, but not easily seen. The Tropical Gnatcatcher seems to be most common at Xo-Pol in semi-evergreen forests. It was also present south of the lagoon in cohune and semi-evergreen forests, and in the various types of forests, north of the lagoon. One or two individuals were seen nearly daily at the headquarters from the 5.09 and afterwards. It was seemingly a long stay of the same bird(s).

Greater numbers of contacts during period IV to VI were due to a better recognition of the species' call.

The breeding was reported in mid-March in Veracruz (Mexico) and between February and June in Costa Rica (del Hoyo, Elliott & Christie 2006).

TURDIDAE

3 species in the region, 9 in Belize. This important family is represented worldwide. None is reported to breed in the Sartenejan region. The Clay-coloured Robin is a common resident throughout Belize, but perhaps only a visitor in the reserve. The two other species are North American migrants. Other migrant *Catharus* Thrushes may turn up in the region too.

Catharus ustulatus
Engl.: Swainson's Thrush

59.5 catust
Fr.: Grive à dos olive

Uncommon transient. In spring, the Swainson's Thrush was recorded the 22nd or 23.04 at Fireburn (Z. Walker, E. Mac Rae). The first recorded in fall appeared the 20.09 at the Fireburn sawmill. The 23.09 and the 8.10, one was at the headquarters. The 2.10, one was seen in the forest south of the lagoon. The 9.10, one was seen close to the New-trail near the Main trail (N98). The last one occurred the 1.11, next to the road, west of the headquarters.

Meerman (1993) does not list the species for the reserve.

A bird caught the 20.09 at Fireburn was an adult with a completely fresh plumage.

Hylocichla mustelina

Engl.: Wood Thrush

Map 78

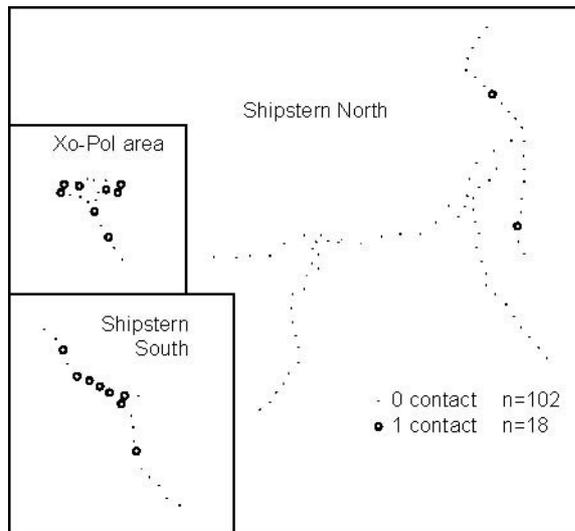
59.6 hylmus

Fr.: Grive des bois

period	I	II	III	IV	V	VI
contacts	0	0	0	0	6	12

Fairly common transient and winter visitor. The Wood Thrush was not well covered by the point-count census because of its late arrival. The species was most common in semi-evergreen forests south of the lagoon and at Xo-Pol, but was also present in the forests north of the lagoon. Present at Fireburn.

The first to appear in fall was recorded the 17.10 in a semi-evergreen forest south of the lagoon. It was regularly noted afterwards. An adult in fresh plumage was caught the 7.11 near the Main trail treetop.



Map 78. *Hylocichla mustelina*.

Turdus grayi

Engl.: Clay-colored Robin

59.7 turgra

Fr.: Merle fauve

Uncommon to rare, possibly only visitor, one mention inside the reserve. One bird was heard the 31.12 and 1.01 at the headquarters. Another one was heard the 6.12 at the forest-edge to the farmlands near Xo-Pol. Two Robins were reported in the region by H. L. Jones the 12.11.1997, without a mention of the location.

The species is neither recorded by Meerman (1993) for Shipstern, nor by Walker (2002) for Fireburn.

MIMIDAE

3 species in the region, 3 in Belize. This is an American family. One species is a North American migrant. The others two are residents, one is a very common bird of the savannah and the other one is a Yucatan endemic of conservation concern.

Dumetella carolinensis

60.1 dumcar

Engl.: Gray Catbird

Fr.: Moqueur chat

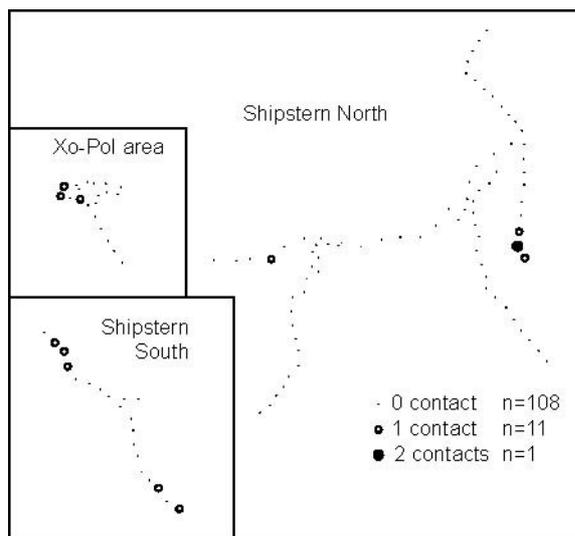
Map 79

period	I	II	III	IV	V	VI
contacts	0	0	0	0	2	11

Common transient and winter visitor. This species was not well covered by the point-count census because of its late arrival. It is present in various types of wooded habitat, mostly in semi-evergreen forests south of the lagoon and at Xo-Pol, or on the edge of other forest types of forests (road, headquarters, forest edges, forested island in sparsely wooded herbaceous wetland).

The last one to appear in spring was seen the 21.04 close to the road (A. Morgenthaler) and the 22nd or 23.04 at Fireburn (Z. Walker, E. Mac Rae). The first to appear in fall was seen the 17.10 in the forest south of the lagoon. The species was regularly seen afterwards.

One 1y bird was caught the 20.10 at the headquarters. The only feathers still growing were on the head (about 10%). Otherwise, the partial first pre-basic moult was ended. The moult limit amongst GC was found between the 4th and the 5th on the left wing and between the 3rd and the 4th on the right wing. All PP and SS were old. The skull ossification was still in stage A.



Map 79. *Dumetella carolinensis*.

Melanoptila glabrirostris

Engl.: Black Catbird
Map 80, Fig. 65

60.2 melgla
Fr.: Moqueur noir

period	I	II	III	IV	V	VI
contacts	11	12	2	4	4	6

Annick Morgenthaler studied this species during its breeding season 2002. Many data showed here are taken from her Master thesis report (Morgenthaler 2003). For complements, please refer to her work that can be consulted on www.shipstern.org.

Fairly common resident. Inside the reserve, only Iguana Camp holds a good density of breeders. During the breeding season, the species was present in rather low density in sparsely-wooded herbaceous wetland, north and south of the lagoon. Other sites close to the reserve hold denser breeding populations. They were found in Cow Pen, Robin's land (littoral forest) and Corozalito (south-western part of the lagoon). Singing males were mostly recorded in littoral forests, mixed mangroves and forest edges. Breeding birds were seen foraging 100 to 400 meters away from their nest site, in forest islands or in forests. The diversity of the vegetation communities seems important to explain the distribution of the Black Catbird (Morgenthaler 2003).

Local movements seem to occur. The habitat preferences shift between breeding and post-breeding period. Sparsely-wooded herbaceous wetland and dwarf mangal were preferred during period I to II (mid-June to mid-July). During period IV to VI (September to December) dwarf mangal was mostly deserted and records from forests and forest edges were more regular (see fig.).

The first sight of nest building was recorded the 10.05. The first adult feeding to the nest (not the same nest) occurred the 9.06. Fledglings were seen the 5.07, but potentially could occur at least from mid-June. The last breeding record occurred the 29.07, when a bird was seen sitting on an empty nest (Morgenthaler 2003).

On a sample of 18 adults caught between the 29.05 and 23.06, no one showed any sign of moult. The main period of moult is probably situated in the period III (end of July to end of August) when only two contacts were noted during the point-count census. A bird caught the 7.11 near the Main-trail treetop, presumably adult, wore a completely fresh plumage, apparently of one generation. Skull ossification was completed.

The species is classified as globally near threatened by Birdlife international (2001).

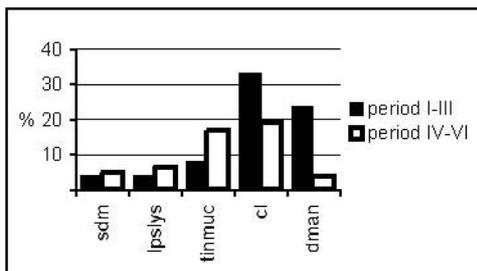
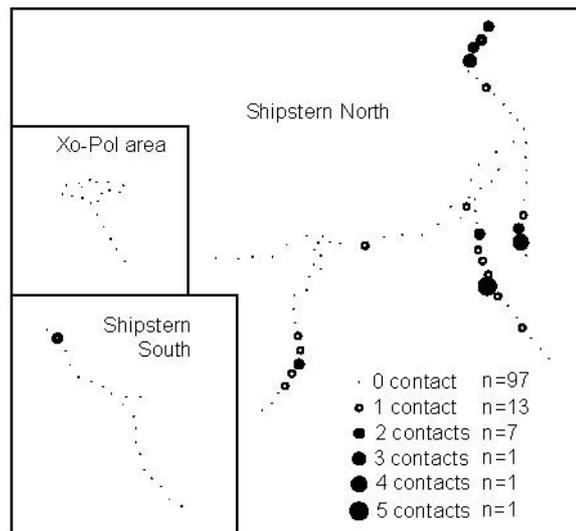


Fig. 65. *Melanoptila glabrirostris*.
Habitat preferences depending on the season.
Period I-III are from June to August,
IV-VI from September to December



Map 80. *Melanoptila glabrirostris*.

Mimus gilvus

Engl.: Tropical Mockingbird
Map 81, Fig. 66

60.3 mimgil
Fr.: Moqueur des savanes

period	I	II	III	IV	V	VI
contacts	13	19	22	19	22	19

Common resident. The tropical Mockingbird is an emblematic bird of the savannah. It is common in sparsely-wooded herbaceous wetlands and dwarf mangals (see fig.), north and south of the lagoon where it is probably the most common bird. Also present at Fireburn. The species bred at the headquarters (artificial clearance), but was not present there all year round. Some moved to the forests to *Ficus* trees where they ate figs.

The song was heard during the whole survey.

In Belize, the species breeds in May and June (Brewer 2001).

A young bird was caught the 7.06 at Iguana Camp. All feathers were juvenile. The skull ossification was in stage A. An adult (2y?) caught the 30.05 at Cow-Pen did not show any sign of active moult, but two generation of GC were noted. On the right wing, GC 1, 6 and 8-10 were old, GC 2-5 new. GC7 showed strong growth bars unlike other GC. It may have grown in a period of shortage or stress rather than being of a third earlier generation. Adult Mockingbirds do usually only one complete prebasic moult and young Mockingbirds one partial prebasic moult (Pyle 1997, Del Hoyo, Elliott & Christie 2005).

One 1y bird was caught the 7.11 near the Main-trail tree-top. All body-feathers were new, although a few (5-10%) were still growing. No active moult occurred on the wings. On the right wing GC appeared new but not the carpal covert. Al 1-2 were new, Al3 old. S9 was new, others were old. PC, PP and RR were old. Skull ossification was in stage B. Another bird caught the same day at the same place was not aged. The skull ossification and the pre-basic moult were both completed. The bird showed a moult limit among PC, between the 3rd and the 4th on the right wing and between the 2nd and the 3rd on left wing.

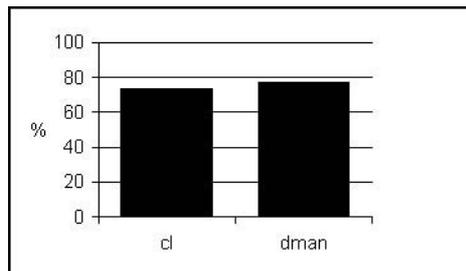
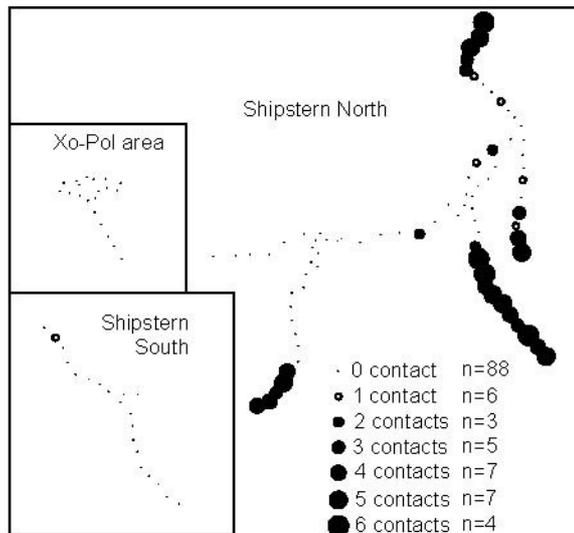


Fig. 66. *Mimus gilvus*.
Habitat preferences.



Map 81. *Mimus gilvus*.

BOMBYCILLIDAE

1 species in the region, 1 in Belize. A family represented by three, mainly holarctic species. The waxwings are stragglers in Belize.

Bombycilla cedrorum

Engl.: Cedar Waxwing

61.1 bomced
Fr.: Jaseur d'Amérique

Not recorded during the survey. The Waxwing is probably a rare transient / winter visitor. Meerman (1993) mentions it as "rare migrant". The species is also listed for Fireburn (Walker 2002).

PARULIDAE

29 species in the region, 43 in Belize. This family of small passerines is restricted to the American continent. Three species are residents. The others are typically North American migrants.

Many common migrants or winter visitors were not well covered by the point-count census. For most migrant species, only the two latest census-periods gave data. Few species were identified reliably by the call.

Vermivora pinus 62.01 verpin
Engl.: Blue-winged Warbler Fr.: Paruline à ailes bleues

Uncommon transient, two mentions. The 26.09, one was seen at the headquarters. The 23.10, one was at Xo-Pol.

Vermivora chrysoptera 62.02 verchr
Engl.: Golden-winged Warbler Fr.: Paruline à ailes dorées

Uncommon to rare transient, not recorded inside the reserve. One female was the 18.10 at Fireburn. The species was already listed for Fireburn (Walker 2002). Meerman (1993) does not list this warbler for the reserve.

Vermivora peregrina 62.03 verper
Engl.: Tennessee Warbler Fr.: Paruline obscure

Common transient in various types of forests, north and south of the lagoon, and at Xo-Pol. A few records come from sparsely wooded herbaceous wetland. Also at Fireburn.

A massive arrival occurred the 21.09 (none before) at the headquarters. It became less common from about the 10.10. The lasts to be found were two seen the 2.11 at the headquarters and two seen the 5.11 at Sarteneja.

The species was recorded the 22nd or 23.04.2002 at Fireburn (Z. Walker, E. Mac Rae).

Parula americana 62.06 parame
Engl.: Northern Parula Fr.: Paruline à collier

Fairly common transient and winter visitor in different types of forests, mostly north of the lagoon. Also at Shipstern landing and Fireburn. One was the 15.12 at Shipstern Caye.

The first recorded in fall appeared the 28.08 and the day after at the headquarters. Mentions stayed scanty up to the 11.10 when the species became more regular. This warbler stayed permanently afterwards at the headquarters. In spring, one was seen the 8.03.2001 at Iguana Camp (A. Morgenthaler).

Dendroica petechia 62.08 denpetechia
 Engl.: Yellow Warbler Fr.: Paruline jaune

Two sub-species occur in the region (although further can turn up amongst the *aestiva* group). Both were most of the time (but not always!) distinguished in the field. They are here treated separately because of their distinct status.

Dendroica petechia aestiva 62.08 denpet
 Engl.: Yellow Warbler Fr.: Paruline jaune

Fairly common transient, no wintering documented, but possible. Yellow Warblers were present in different types of forests, north and south of the lagoon. Also at Iguana Camp and Fireburn. The status in sparsely-wooded herbaceous wetland was difficult to assess due to confusion in the field with the Mangrove Warbler.

The last one recorded in spring was seen the 19.05 next to the road. In 2001, the species was noted the 14.02 at the reserve and the 5.03 at Sarteneja.

The first in fall appeared the 12.08, south of the lagoon (V. Palomares, J. Bottinelli, R. Béguelin). The Yellow Warbler was regularly contacted from the 23.08 in the headquarters. It became rare again during the beginning of September. Few were recorded between mid-September and October. Two the 2.11 at Robin's land, next to the Chetumal lagoon, were the lasts properly identified. Several were noted by H. L. Jones the 10th and 11.11.1997.

Dendroica petechia erithachorides 62.08 denpee
 Engl.: Mangrove Warbler Fr.: Paruline des mangroves
 Map 82, Fig. 67

period	I	II	III	IV	V	VI
contacts	6	5	4	7	4	2

Common resident in dwarf mangals and sparsely wooded herbaceous wetlands. The Mangrove Warbler seems to be more common in the first above-mentioned habitat (see fig.). It is common north of the lagoon, but also present near Shisptern landing, at Iguana Camp and Cow Pen. One 1y bird was caught the 20.08 in a Tassistal inside the dry forest, close to the headquarters (near T2). It was identified as being from the "*erythachorides* group" by the wing formula (p9<p8=p7=p6). See below about its moult.

Several were found the 15.12 at Shipstern Caye.

The Mangrove Warbler breeds mainly in May and June in Mexico and Northern Central America (Curson, Queen & Beadle 1994)

Two juveniles were caught the 23.06 at Robin's land, next to Chetumal lagoon. They wore juvenile plumage with about 30% of feathers of the first plumage still growing. The skull ossification was in stage A. Six adults (2y and older) were caught during the same period (30.05 to 23.06), two were females and two were males. One male caught the 5.06 at Iguana Camp renewed the left central R, GC 10 on the left wing and GC 7 on the right wing. Carpal coverts were new too. A female caught the 7.06 at the same place had a worn plumage. Two females were moulting: One caught the 23.06 at Robin's land had only few underpart feathers moulting. Another one caught the 7.06 at Iguana Camp showed an active moult of body-feathers. Most GC were moulting as did the carpal covert of the right wing. SS 8-9 of the right wing appeared new. Both birds apparently began their pre-basic moult. The fresher tertials of the second bird were perhaps obtained during the pre-alternate moult.

A 1y bird caught the 20.08 (see above) had renewed all its body-feathers. Only 10% of head feathers were still growing. Skull ossification was in stage C. A 1y bird was caught the 26.10 near the Main-trail treetop. The moult of the body feathers was completed except for one head-feather still growing. Skull ossification was in stage B.

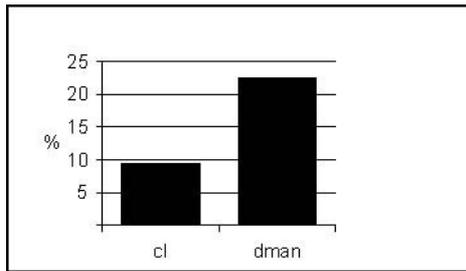
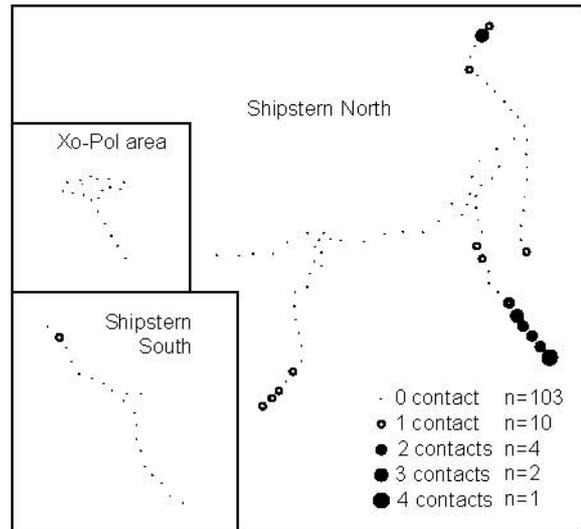
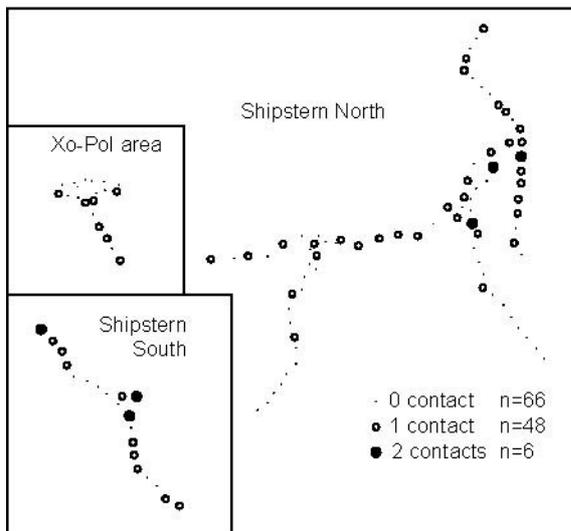


Fig. 67. *Dendroica petechia erythachorides*. Habitat preferences.



Map 82. *Dendroica petechia erythachorides*.



Map 83. *Dendroica magnolia*.

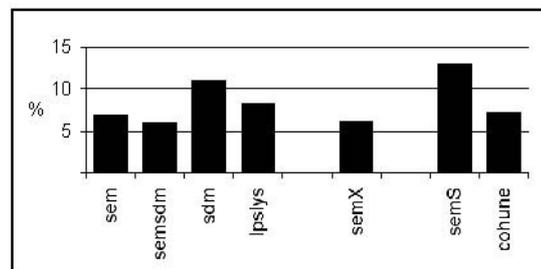


Fig. 68. *Dendroica magnolia*. Habitat preferences.

Dendroica pensylvanica 62.09 denpen
 Engl.: Chestnut-sided Warbler Fr.: Paruline à flancs marrons

Uncommon to fairly common transient, five mentions during the survey. The 30.09, one was at the headquarters. The 2.10, one was in the southern Shipstern forests (S8). The 8th and 10.10 one stayed at the headquarters. One was seen next to the New trail (N95) the 9.10. The last one occurred the 23.10 at Xo-Pol.

Two spring records were reported. One was the 15.04 at Iguana Camp (A. Morgenthaler). Also recorded the 22nd or 23.04 at Fireburn (Z. Walker, E. Mac Rae).

The species is not recorded by Meerman (1993).

Dendroica magnolia
Engl.: Magnolia Warbler
Map 83, Fig. 68

62.10 denmag
Fr.: Paruline à tête cendrée

period	I	II	III	IV	V	VI
contacts	0	0	0	0	17	43

Common transient and winter visitor. The Magnolias Warbler was nearly equally present in all types of forests north and south of the lagoon, and at Xo-Pol (see fig.). Also present at Fireburn.

The last one seen in spring appeared the 2.06 next to the road. The first to arrive in fall was the 26.09 at the headquarters. The species was regularly seen from that time. Several spent the winter at the headquarters.

One 1y was caught the 26.10 near the Main trail tree-top. The skull ossification was in stage D. The pre-basic moult was completed except for one upper-body feather still growing. Three adults were caught the 28.10 at the headquarters, one male and two females. One of the females had two under-body feathers and three tail-coverts still growing. The other two birds did not show any active moult anymore. Skull ossification was completed by all.

Dendroica coronata
Engl.: Yellow-rumped Warbler

62.13 dencor
Fr.: Paruline à croupion jaune

Uncommon transient and winter visitor, two mentions. The 1.11, one was at the headquarters. The 3.01, one was found in a sparsely-wooded herbaceous wetland, east of the Thompson trail. The species was also noted the 5.03.2001 at Sarteneja.

Dendroica virens
Engl.: Black-throated Green Warbler

62.15 denvir
Fr.: Paruline à gorge noire

Fairly common transient, uncommon winter visitor. Black-throated Warblers were mostly recorded near the headquarters. Also noted at Fireburn and close to the Mahogany museum. The first appeared the 13.10 at the headquarters.

Dendroica fusca
Engl.: Blackburnian Warbler

62.17 denfus
Fr.: Paruline à gorge orangée

Uncommon transient. The Blackburnian Warbler was only recorded at the headquarters. The 23.08, they were two, probably three. One sight followed the 11th and the 16.09, one adult male the 11.10 and at least two birds the 1.11.

In spring, the species was recorded the 22nd or 23.04 at Fireburn (Z. Walker, E. Mac Rae). Meerman (1993) does not list it for the reserve.

Dendroica dominica
Engl.: Yellow-throated Warbler

62.18 dendom
Fr.: Paruline à gorge jaune

Uncommon and mostly marginal to the reserve, transient. No wintering was reported inside the reserve, but it seemed to occur at Sarteneja and possibly at Robin's land, close to the Chetumal lagoon. The first recorded in fall appeared the 21.07 at the headquarters (J. Bottinelli). One occurred at the same place the 23.08 and again (same bird?) the 25.08. The 31.08, one was at Robin's land. Also present a Fireburn.

In 2001, four were seen the 5.03 at Sarteneja. One was reported by H. L. Jones the 11.11.1997 at the Shipstern Caye.

The Yellow-throated Warbler seems to favour trees near extendent water, also in towns like Sarteneja, Corozal and Chetumal (next to Chetumal lagoon) and Orange Walk (near the New River).

Dendroica palmarum 62.21 denpal
 Engl.: Palm Warbler Fr.: Paruline à couronne rousse

Uncommon to rare, possible winter visitor, one mention. One was seen the 1.12 in the sparsely wooded herbaceous wetland next to the Thompson trail (T10). Meerman (1993) does not list the species for the reserve.

Dendroica castanea 62.22 dencas
 Engl.: Bay-breasted Warbler Fr.: Paruline à poitrine baie

Uncommon transient. Two mentions were reported in spring at the headquarters, the 17th and 23.04 (both A. Morgenthaler). In fall, the first to appear was seen the 23.10 at Xo-Pol. Four followed the 1.11 at the headquarters. At least one bird was regularly seen there until the 15.11. Also listed for Fireburn (Walker 2002) with a mention the 22nd or 23.04 (Z. Walker, E. Mac Rae).

Dendroica cerulea 62.24 dencer
 Engl.: Cerulean Warbler Fr.: Paruline azurée

Uncommon transient. Two mentions occur, both at the headquarters. One was present the 20.08 and one the 7.09. Meerman (1993) does not list the species for the reserve.

Mniotilta varia 62.25 mnivar
 Engl.: Black-and-white Warbler Fr.: Paruline noir-et-blanc

period	I	II	III	IV	V	VI
contacts	0	0	0	1	4	4

Common transient and winter visitor. The species was not well represented during the point-count census for it stayed mostly silent. Black-and-white Warblers were present in most types of forests, north and south of the lagoon and at Xo-Pol. Also at Iguana Camp and Fireburn.

In spring, it occurred in mid-April at the headquarters and Iguana Camp (A. Morgenthaler). The first bird recorded in fall appeared the 20.08 near the headquarters, followed quickly by others.

Setophaga ruticilla

62.26 setrut

Engl.: American Redstart

Fr.: Paruline flamboyante

Map

period	I	II	III	IV	V	VI
contacts	0	0	0	0	17	39

Common transient and winter visitor. The American Redstart was found in all types of forests but was more common in the moistest, especially south of the lagoon and at Xo-Pol. It was also commonly encountered north of the lagoon but was less common in the dry forests (see fig.). Also at Iguana Camp and Fireburn.

The last bird of the spring was seen the 21.05 in a sparsely-wooded herbaceous wetland next to the Thompson Trail. In fall, the first to appear was a female seen the 10.08 near Shipstern village's ruins. Several appeared the 23.08 at the headquarters. This species was absent up to the 3.10. It became regular and common afterwards. The species was most recorded during the period VI of the point-count census thanks to a better recognition of the call, not to a higher numbers of birds.

In spring 2001, the American Redstart was recorded in mid-February and early March. They were seemingly more numerous during the first period.

One female or 1y was seized in a cobweb near the headquarters the 11.11.

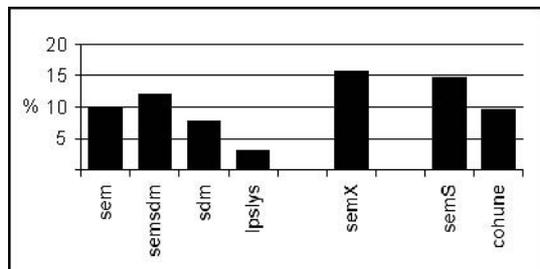
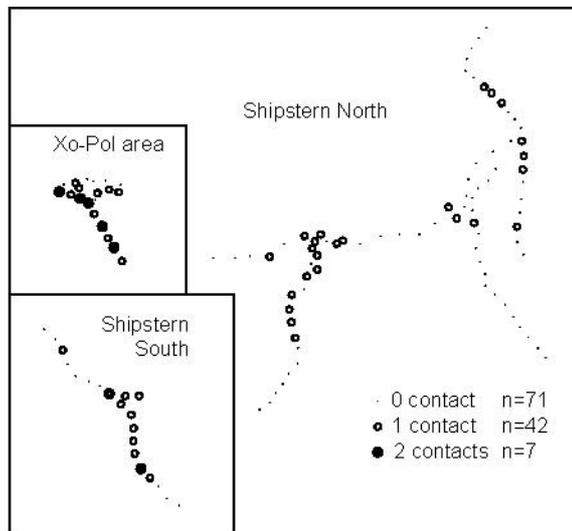


Fig. 69. *Setophaga ruticilla*.
Habitat preferences.



Map 84. *Setophaga ruticilla*.

Protonotaria citrea

62.27 procit

Engl.: Prothonotary Warbler

Fr.: Paruline orangée

Fairly common transient in various types of forests. Prothonotary Warblers were recorded north and south of the lagoon and at Xo-Pol. Also at Fireburn.

The last one in spring appeared the 2.06 next to the road. In fall, the species was seen from the 7.08 (V. Palomares, J. Bottinelli, J. Charbonnier). It occurred regularly up to the beginning of October. The last one was a female seen the 23.10 in the mangrove of Xo-Pol.

Helmitheros vermivorus 62.28 helver
 Engl.: Worm-eating Warbler Fr.: Paruline vermivore

Fairly common transient and winter visitor. Worm-eating Warblers were mostly seen south of the lagoon and at Xo-Pol in semi-evergreen forests. One was recorded the 5.01 from the New trail near the crossing with the Main trail in transitional semi-evergreen to semi-deciduous forests. In spring 2001 it was noted twice. The 14.02, one was near the headquarters and the 9.03 one was seen from the Main trail. In fall, they were first recorded at Fireburn between the 16th and the 20.09 in high numbers. Meerman (1993) does not list the species for the reserve.

Limnothlypis swainsonii 62.29 limswa
 Engl.: Swainson's Warbler Fr.: Paruline de Swainson

Uncommon transient and winter visitor, two mentions during the survey. One adult was caught the 8.09 at the Fireburn sawmill and another adult was caught the 26.10 near the Main-trail treetop. In 2001, one was seen at Shipstern landing the 7.03. The caught birds did not show any sign of active moult. Meerman (1993) does not list the species for the reserve.

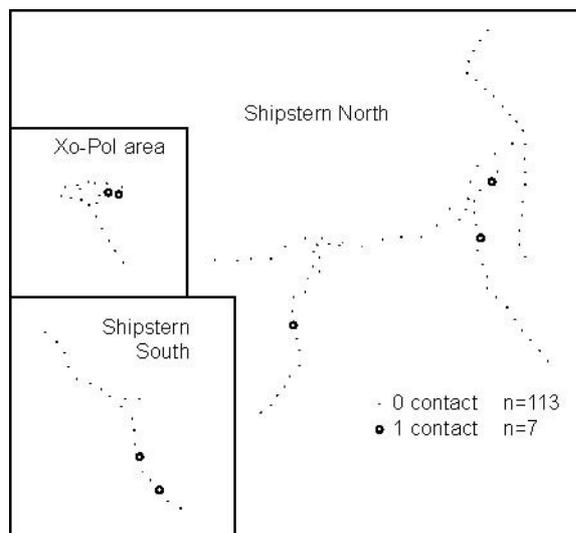
Seiurus aurocapillus 62.30 seiaur
 Engl.: Ovenbird Fr.: Paruline couronnée
 Map

period	I	II	III	IV	V	VI
contacts	0	0	0	1	4	2

Fairly common transient and winter visitor. Present in various types of forests, north and south of the lagoon and at Xo-Pol. The Ovenbirds forage on the floor, avoiding dense undergrowth.

The first Ovenbird seen in fall appeared the 19.09 on the trail south of the Shipstern village's ruins. Several were encountered the day after near Fireburn. Several sights were reported in spring 2001 between the 14.02 and the 9.03.

An adult caught the 20.09 at the Fireburn sawmill had still quills on one feather on the head and on one tail covert. An adult caught the 20.10 had about 20% of head feathers growing, but none elsewhere. A 1y bird caught the same day had the outer right R fresher than the others. No feather was growing except one in the head. Skull ossification was in stage C.



Map 85. *Seiurus aurocapillus*.

Seiurus noveboracensis 62.31 seinov

Engl.: Northern Waterthrush
Map

Fr.: Paruline des ruisseaux

period	I	II	III	IV	V	VI
contacts	0	0	0	3	5	6

Common transient and winter visitor. The species was not well covered by the point-count census. The Northern Waterthrushs stay often near the water. It favours sparsely wooded herbaceous wetlands and to a lesser extent, dwarf mangals. Also present in various types of forests with partially bare floor, typically on inundated trails. It was found north of the lagoon, at the border of the Xo-Pol marsh, at Cow Pen, Iguana Camp and Fireburn. The 15.12, they were at least two at Shipstern Caye.

The first recorded in fall was seen the 8.09 on the Main trail. It became regular from that day. The Northern Waterthrush was noted in mid-April at Iguana Camp (A. Morgenthaler).

A 1y bird caught the 11.10 at the headquarters had the right R6 fresher than the others (included in the partial pre-basic moult?). Two further 1y birds were caught the 8.11 near the Main-trail treetop. Both had the skull ossification in stage C. Central RR of one of the bird were beginning their growth (a quarter of their full size). No body feather was moulting.

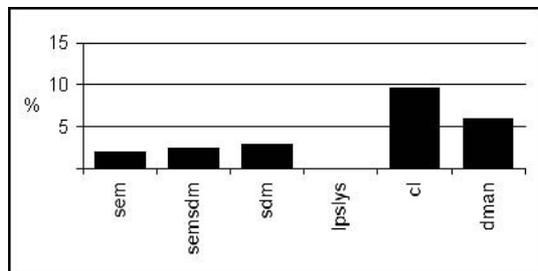
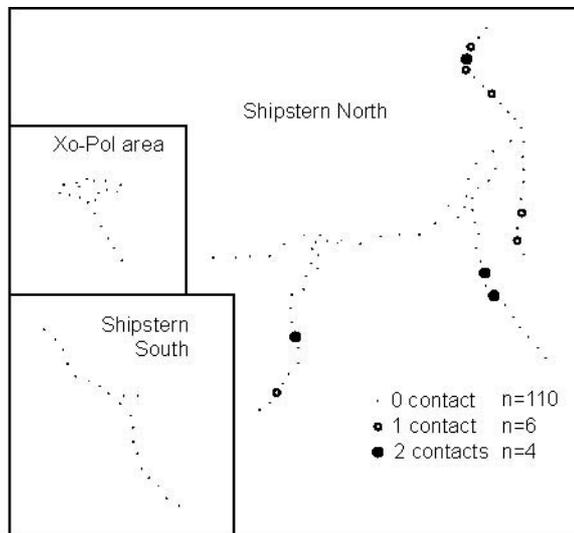


Fig. 70. *Seiurus noveboracensis*.
Habitat preferences.



Map 86. *Seiurus noveboracensis*.

Seiurus motacilla

62.32 seimot

Engl.: Louisiana Waterthrush

Fr.: Paruline hochequeue

Uncommon transient, two mentions. One was the 30.08 at the headquarters. One was the 31.08 next to the lagoon of Chetumal, at Robin's land. One Waterthrush seen the 10th and 11.08 in the forest south of the lagoon could pertain to this species rather than to the Northern Waterthrush.

Meerman (1993) reports the species as "migrant". It is also listed for Fireburn (Walker 2002) with a mention the 22nd or 23.04 (Z. Walker, E. Mac Rae).

Oporornis formosus

62.33 opofor

Engl.: Kentucky Warbler

Fr.: Paruline du Kentucky

Fairly common transient and winter visitor in semi-evergreen forests. The Kentucky Warbler was recorded from Xo-Pol and in forests south of the lagoon, but not north of it. Also at Fireburn.

The first recorded in fall was a female seen the 12.08 in the forest south of the lagoon (J. Bottinelli). Others arrived at the end of August at Xo-Pol. One followed army-ants the 4.01 at Xo-Pol.

Two 1y females were caught the 18.09 at the Fireburn sawmill. Both had completely renewed body-feathers. One showed a few under-tail coverts still growing. Skull ossification was in stage C.

Geothlypis trichas

62.35 geotri

Engl.: Common Yellowthroat

Fr.: Paruline masquée

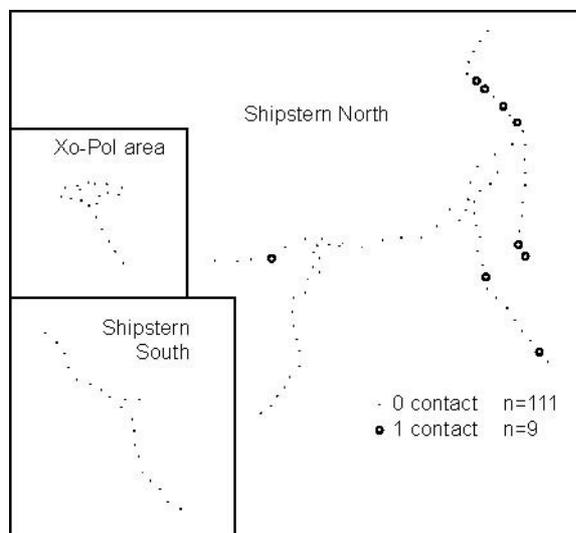
Map 87

period	I	II	III	IV	V	VI
contacts	0	0	0	0	2	7

Common transient and winter visitor. The species was not well covered by the point-count census because of its late arrival. The Common Yellowthroat was present in sparsely-wooded herbaceous wetlands, especially in "forested islands". It was less commonly encountered in wooded habitat with clearances. The species seem to avoid close forests. It was mostly recorded north of the lagoon, but also at Iguana Camp, Fireburn and the freshwater marsh, near the Maya ruins. The 15.12, it was seen at Shipstern Caye.

The first to appear in fall was recorded the 30.09 at Sarteneja. One was caught the 15.04 at Iguana Camp (A. Morgenthaler). In 2001, it was commonly seen at mid-February and at the beginning of March.

One adult female caught the 26.10 near the Main-trail treetop was in fresh basic plumage. Few upper-tail coverts (about 5%) were at the end of their growth.



Map 87. *Geothlypis trichas*.

Geothlypis poliocephala

Engl.: Gray-crowned Yellowthroat
Map

62.36 geopol

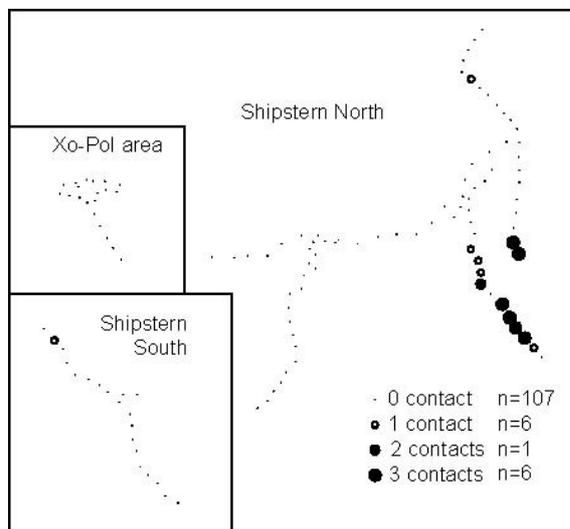
Fr.: Paruline à calotte grise

period	I	II	III	IV	V	VI
contacts	5	5	4	1	8	3

Common resident in open landscape. It was found in sparsely-wooded herbaceous wetlands and dwarf mangals (see fig.). During the point-count census, the species was mostly recorded from the Thompson trail and the Eastern Survey line, but also at Robin's land and Shipstern landing. Also present near the Main-trail treetop, near Iguana Camp, Cow Pen and the fresh water wetlands near the Maya ruins.

During period IV (beginning of September to beginning of October) only one contact is reported. This lower vocal activity may correspond to the main period of moult. The higher number of data during the periods V and VI was not only due to the activity of the species, but also to a better understanding of its calls. Juveniles were seen the 17.08 near the Main-trail treetop and the 22.08 at Cow Pen.

Throughout its range, the species breeds between April and July (Curson, Queen & Beadle 1994).



Map 88. *Geothlypis poliocephala*.

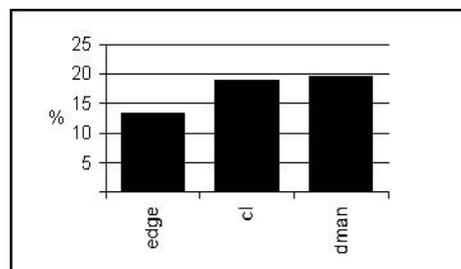
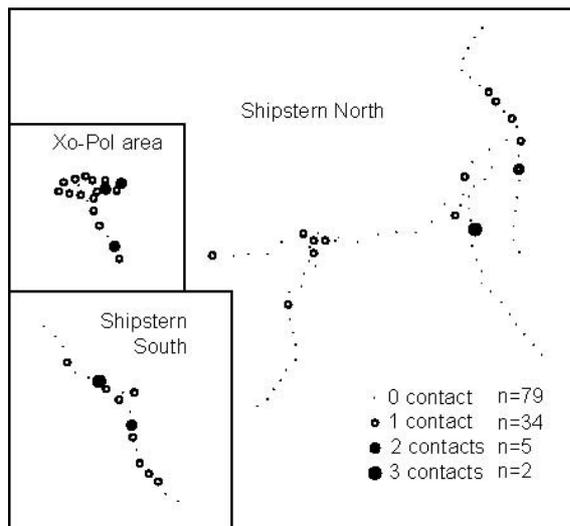


Fig. 71. *Geothlypis poliocephala*. Habitat preferences.



Map 89. *Wilsonia citrina*.

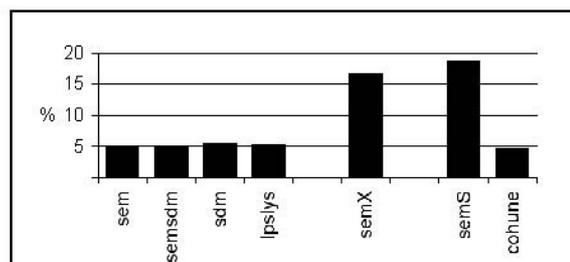


Fig. 72. *Wilsonia citrina*. Habitat preferences.

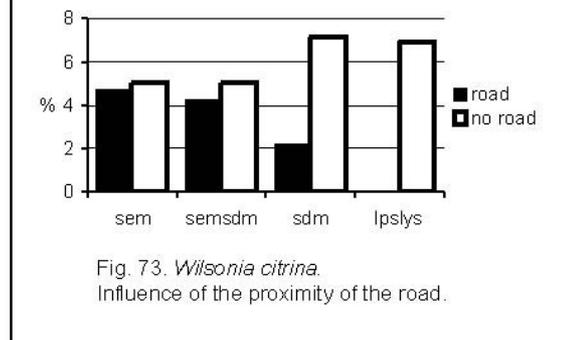


Fig. 73. *Wilsonia citrina*. Influence of the proximity of the road.

Wilsonia citrina

62.37 wilcit

Engl.: Hooded Warbler

Fr.: Paruline à capuchon

Map

period	I	II	III	IV	V	VI
contacts	0	0	0	9	20	21

Common transient and winter visitor in most types of forests. The Hooded Warbler was abundant in semi-evergreen forests south of the lagoon and at Xo-Pol. It was present in various types of forests north of the lagoon. Habitat segregation between male and female is mentioned by different authors (Curson, Quinn & Beadle 1994 ; Dunn & Garrett, 1997). This appears to be true in Shipstern. Not all birds were sexed during the point-counts. At Xo-Pol and south of the lagoon where forests are the moistest, eleven males were recorded and no female. North of the lagoon where forests are the driest, sex ratio is somewhat equilibrated with three females on seven sexed birds.

First bird to arrive in fall was a male seen the 25.08 at the headquarters. More followed the next days. Spring departures were not well covered. The species was still present the 20.04 on the Main trail (A. Morgenthaler).

Three 1y birds were caught the 18th and 20.09 at Fireburn sawmill. The skull ossification was in stage B in two females and C in one male. The 20.10 a young male was caught at the headquarters. The skull ossification was in stage C. The 28.10 an adult male showed a completed skull ossification.

Wilsonia pusilla

62.38 wilpus

Engl.: Wilson's Warbler

Fr.: Paruline à calotte noire

Uncommon transient (and winter visitor?), two mentions. The 23.09, one male was at the headquarters. The 14.11, one female was at Cow Pen (outside the reserve). Meerman (1993) mentions it as "migrant".

Icteria virens

62.42 ictvir

Engl.: Yellow-breasted Chat

Fr.: Paruline polyglotte

Fairly common transient and winter visitor, but rather unobtrusive and hard to detect. Firsts recorded in fall were three birds caught the 20.09 at the Fireburn sawmill. The species was recorded several times the following months.

Two adults (one male and one female) caught the 20.09 were in fresh basic plumage. The skull ossification was completed. The same day, a young male had finished its partial pre-basic moult. PP 1-4 were old, PP 5 -10 were new. SS 6-10 were old, 1-4 new ; AI 3 was old, AI1-2 were new; GC new; PC old; skull ossification was in stage C. An adult caught the 26.10 near the Main trail treetop had few upper-body feathers (about 10%) and one head feather growing. Outer right R was finishing its growth. S1 appeared fresher and shorter than the other ones.

Granatellus sallaei

62.43 grasal

Engl.: Gray-throated Chat

Fr.: Paruline à plastron

Probably fairly common resident in rather dry forests. The song was heard early in the survey, but almost never afterwards. It became already mostly silent from June. The species was hardly contacted otherwise. Further research during April and May would be helpful to specify the status of this species in the region. The Gray-throated Chats were recorded only north of the lagoon, but it is listed for Fireburn (Walker 2002).

The species was seen following army-ants.

THRAUPIDAE

9 species, 25 in Belize. This new world family is mainly constituted of fruit-eaters. Two *Piranga* Tanager are North American migrants. A third one is a Yucatan endemic. The other *Thraupidae* are residents, although movements occur in some species.

Eucometis penicillata 64.02 eucpen
 Engl.: Gray-headed Tanager Fr.: Tangara à tête grise

Uncommon and local, probably resident. Reliable mentions come only from the Xo-Pol forests. Several were seen the 22nd and 23.08, and one the 23.10. About 5 individuals followed army-ants the 4.01.

Meerman (1993) does not list the species for the reserve. Jones & Valley (2001) leave the presence of this species in Corozal district in doubt. Jones (2003) does not answer the question, providing only an evasive distribution for the country.

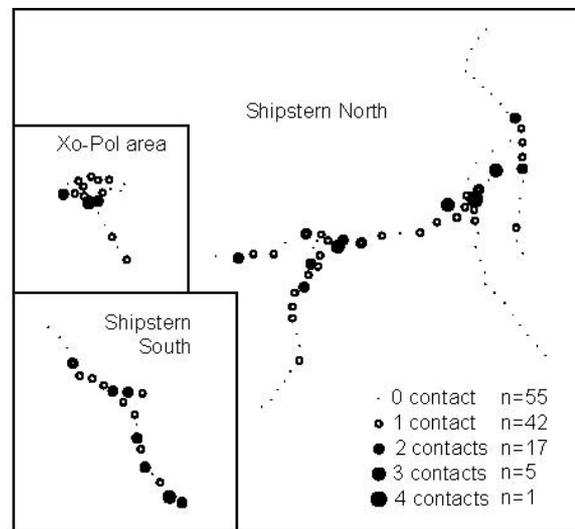
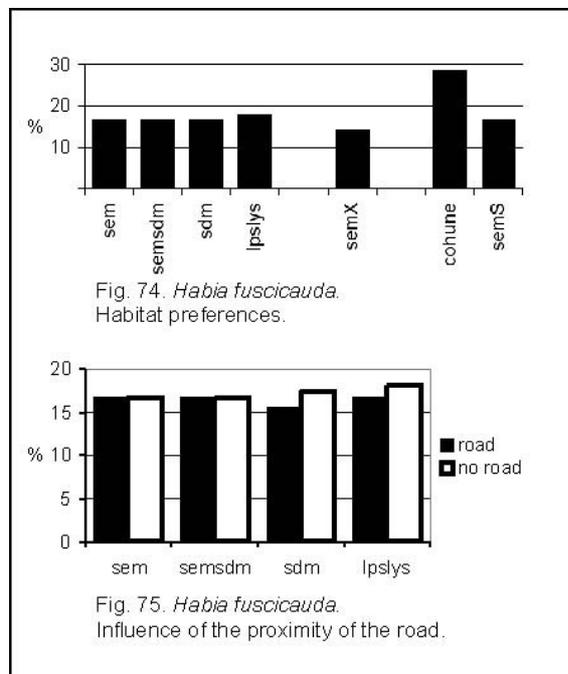
Habia fuscicauda 64.05 habfus
 Engl.: Red-throated Ant-Tanager Fr.: Tangara à gorge rouge
 Map 90, Fig. 74-75

period	I	II	III	IV	V	VI
contacts	15	19	19	15	13	14

Common resident found in every type of forests north and south of the lagoon, and at Xo-Pol. The proximity of the road had no strong influence (see fig.). Also present at Fireburn.

The period of song is not well documented. Almost no song was heard in October, and lacked perhaps already before. Red-throated Tanagers were readily found all year round, thanks to their alarm calls.

The species was seen following army-ants.



Piranga roseogularis

64.06 pirros

Engl.: Rose-throated Tanager

Fr.: Tangara à gorge rose

Map 91, Fig. 76-77

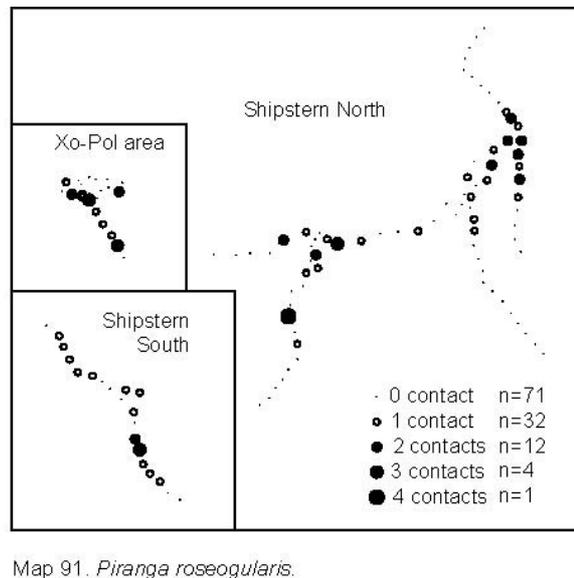
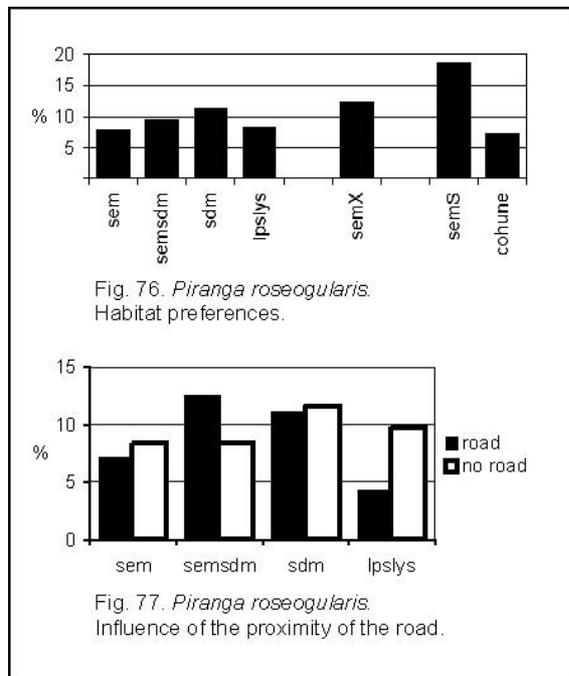
period	I	II	III	IV	V	VI
contacts	11	15	4	9	9	24

Common resident. Present in all types of forests, without obvious preference outside the breeding season. The species may be more common in rather dry forests during the breeding season, but the point-count census began only at its end. Also present at Xo-Pol and in the forests south of the lagoon including the surroundings of Fireburn.

A possible habitat segregation exists between sexes outside the breeding season. In dry forests, females (and young birds?) were dominant whereas males could be more common in moister forests.

The Rose-throated Tanager sang during period I and II (mid-June to mid-July, but also before). It became more silent from that time, probably in connection with the moult. More numerous data were gathered during period VI. The call often heard was identified late, explaining the high number of contacts in period VI. This certainly does not reflect a highest abundance of the species.

Rose-throated Tanager was seen following army-ants.



Piranga rubra

64.08 pirrub

Engl.: Summer Tanager

Fr.: Tangara vermillon

Fairly common transient and uncommon winter visitor. Summer Tanagers were mostly seen at the headquarters. Some were also encountered along the road and south of the lagoon, in the forest.

In spring, the last one to appear was seen next to the Main trail the 1.05 (A. Morgenthaler). In 2001, the species was noted in mid-February and early March.

In fall, Summer Tanagers were back from the 29.09, and seen regularly afterwards up to at least the 3.12. It may winter in scanty numbers.

Piranga olivacea

Engl.: Scarlet Tanager

64.09 piroli

Fr.: Tangara écarlate

Fairly common transient. Scarlet Tanagers were mostly seen at the headquarters or along the road. It was seen feeding of *Ficus* fruits.

In spring, the species was recorded between the 20.04 (A. Morgenthaler) and the 27.05 (a female at the headquarters). In fall, Scarlet Tanagers were regularly seen between the 8.10 and the beginning of November. The last one was recorded the 30.11 at the headquarters.

Thraupis episcopus

Engl.: Blue-gray Tanager

64.15 threpi

Fr.: Tangara évêque

Not recorded during the survey. The species was reported the 22nd or 23.04 at Fireburn (Z. Walker, E. Mac Rae). Meerman (1993) does not list the species for the reserve.

Euphonia affinis

Engl.: Scrub Euphonia

Map 92, Fig. 78-79

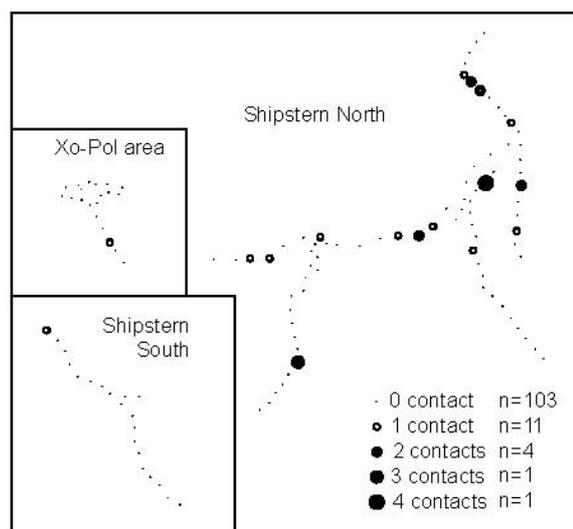
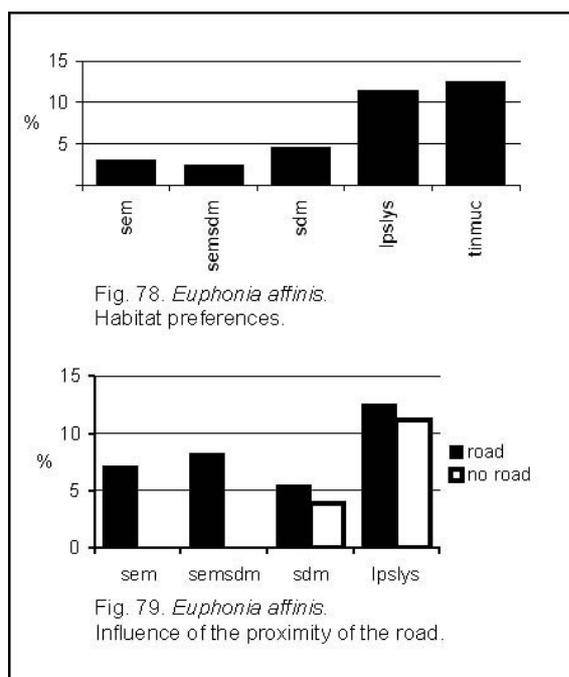
64.17 eupaff

Fr.: Organiste de brousse

period	I	II	III	IV	V	VI
contacts	2	4	2	4	7	7

Fairly common resident. The Scrub Euphonia was often found with the Yellow-throated Euphonia, gathering in *Ficus* trees to feed. The Scrub Euphonia was usually less numerous there than the Yellow-throated Euphonia. Otherwise, it clearly preferred drier forests, unlike the Yellow-throated. The Scrub Euphonia was rarely found in semi-evergreen forests, except at its edge, along the road for instance. Dry forests and Tintal were preferred. Field observations corroborate with what shows the habitat-preference's graphic (see fig.), which is based on a few data collected in the Tintal which was poorly covered by the point-count census. Also recorded in similar habitats south of the lagoon, near Shipstern landing and in the wooded marshes, east of Shipstern village's ruins. Uncommon at Xo-Pol.

The habitats possibly change between seasons. Data are too few to ascertain this.



Euphonia hirundinacea

64.18 euphir

Engl.: Yellow-throated Euphonia

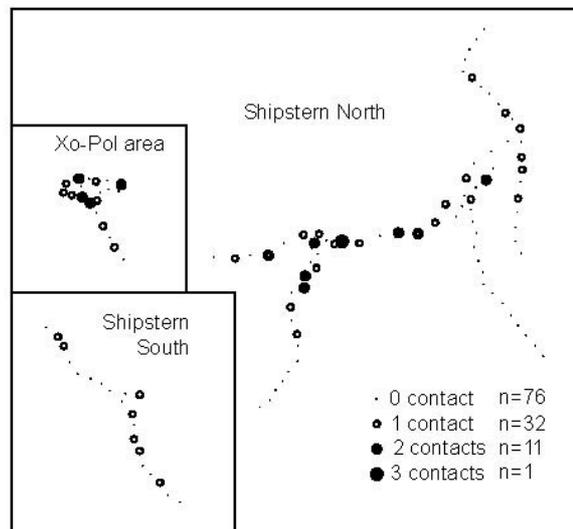
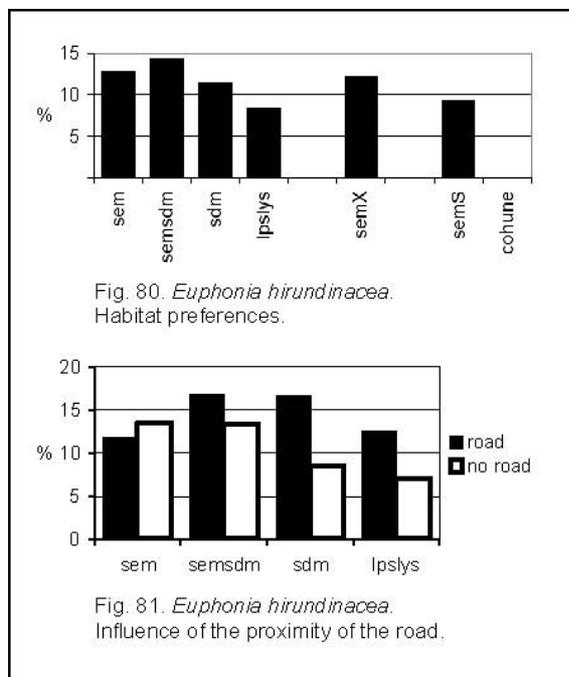
Fr.: Organiste à gorge jaune

Map 93, Fig. 80-81

period	I	II	III	IV	V	VI
contacts	13	8	14	11	7	4

Common resident. Yellow-throated Euphonias wander in groups in nearly every type of forests. The species seems to avoid Cohune-dominated forests (no data from the point-count census). During periods I (mid-June to beginning of July) and VI (beginning of November to mid-December), the species was mostly recorded in dry forests, whereas the moistest forests seem to be favoured during periods IV and V (September to October). Periods II and III (July to mid-August) show homogenous abundance. More data are needed to support the possible habitat shifting between seasons. Timing of *Ficus*-tree fructification could explain the preference for moister forests during the rainy season.

From July, when young birds left their nests, groups of several ten gathered near *Ficus* trees, where they fed from figs. Juveniles were recorded from the end of July. The duration of the juvenal plumage is not known.

**Cyanerpes cyaneus**

64.25 cyacya

Engl.: Red-legged Honeycreeper

Fr.: Guit-guit saï

Fairly common, but rather local. Only (mostly?) summer visitor. Honeycreepers was seen feeding of *Ficus* fruits. The species was recorded from the end of March at the headquarters (A. Morgenthaler) to the 23.08 at Xo Pol. Never afterwards.

In 2001, no Honeycreeper was found during a visit between the 28.02 and the 10.03. The species may be absent between September and late March.

All males seen well were in alternate blue plumage.

EMBERIZIDAE

4 species in the region, 21 in Belize. This family is represented nearly worldwide. All local species are resident. The two *Arremonops* are sister-species inhabiting different habitats.

Volatinia jacarina

65.01 voljac

Engl.: Blue-black Grassquit

Fr.: Jacarini noir

Possible marginal presence in the reserve. The species was not found inside it during the survey. It was recorded close to the reserve border at R18, in an abandoned Milpa. Grassquits were common in the farmlands near Xo-Pol. Also present at Fireburn.

Sporophila torqueola

65.04 spotor

Engl.: White-collared Seedeater

Fr.: Sporophile à col blanc

Map 94, Fig. 82

period	I	II	III	IV	V	VI
contacts	6	11	5	0	2	1

Resident, mostly marginal to the reserve, but present in sparsely-wooded herbaceous wetlands north and south of the lagoon. It appeared uncommon there during the breeding season and was not found there otherwise (at least, local movements occur). Seed eaters were common next to the road and on the path to Robin's land. Also at Cow Pen and in Fireburn farmlands.

The species was easily seen until August (period III). It became unobtrusive later.

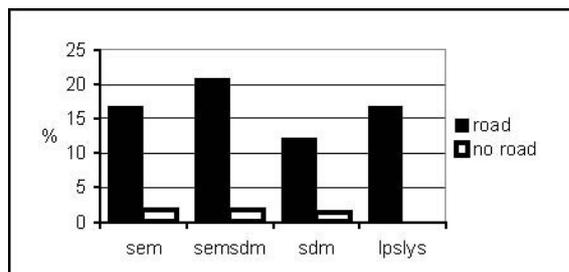
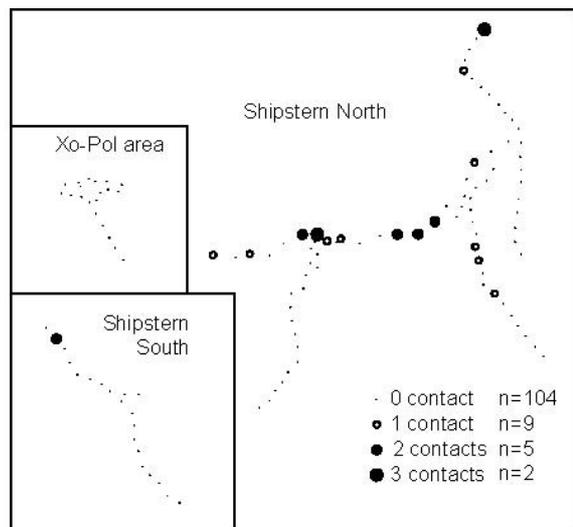


Fig. 82. *Sporophila torqueola*.
Influence of the proximity of the road.



Map 94. *Sporophila torqueola*.

Arremonops rufivirgatus

65.10 arrruf

Engl.: Olive Sparrow

Fr.: Tohi olive

Map 95, Fig. 83

period	I	II	III	IV	V	VI
contacts	12	19	11	0	0	1

Common in open landscapes north and south of the lagoon. Olive Sparrows were nearly as common in dwarf mangals as in sparsely-wooded herbaceous wetlands. However, most birds left the first above-mentioned habitat after the breeding season. It occurred at the forest edges but not inside the forest, usually not sharing the same habitat with the very similar *A. chloronotus*.

Olive Sparrows sang until the end of August (period III). Later, it became silent and hard to find. At this moment, many retired probably in forest edges or dense bushes. In 2001, it was commonly heard in mid-February.

One adult caught the 26.10 near the Main-trail treetop was in deep complete pre-basic moult. PP 1-7 were new and fully grown. PP 8-9 were growing. SS 1 and 7-9 (tertials) were new; SS 2 and 5-6 were growing; SS 3-4 were old. Body-feathers were fresh, but some were still growing. Following Pyle (1997), adult pre-basic moult occurs between June and October (supposedly in Texas, USA). It may happen later in Northern Belize. Two adults caught the 23.06 at Robin's land, close to Chetumal lagoon, did not show any sign of moult.

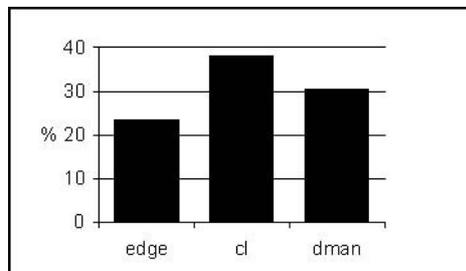
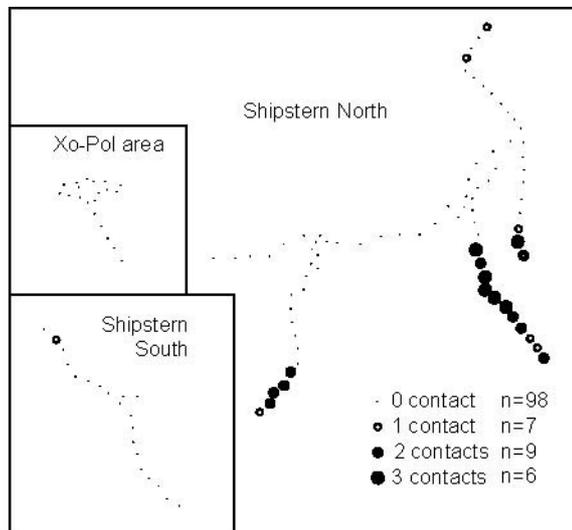


Fig. 83. *Arremonops rufivirgatus*.
Habitat preferences.



Map 95. *Arremonops rufivirgatus*.

Arremonops chloronotus
 Engl.: Green-backed Sparrow
 Map 96, Fig. 84-85

65.11 arrchl
 Fr.: Tohi à dos vert

period	I	II	III	IV	V	VI
contacts	4	9	11	10	0	3

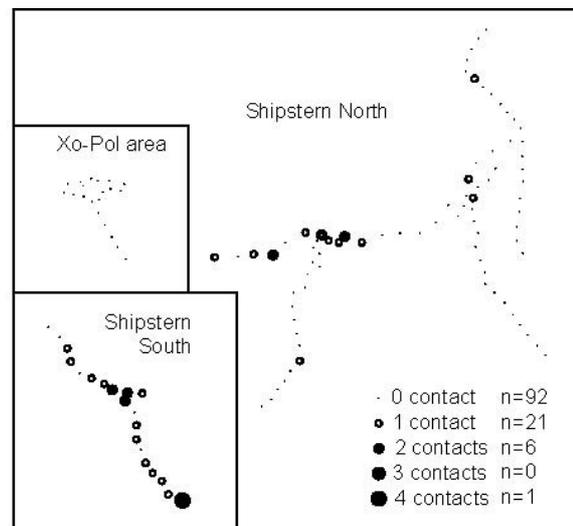
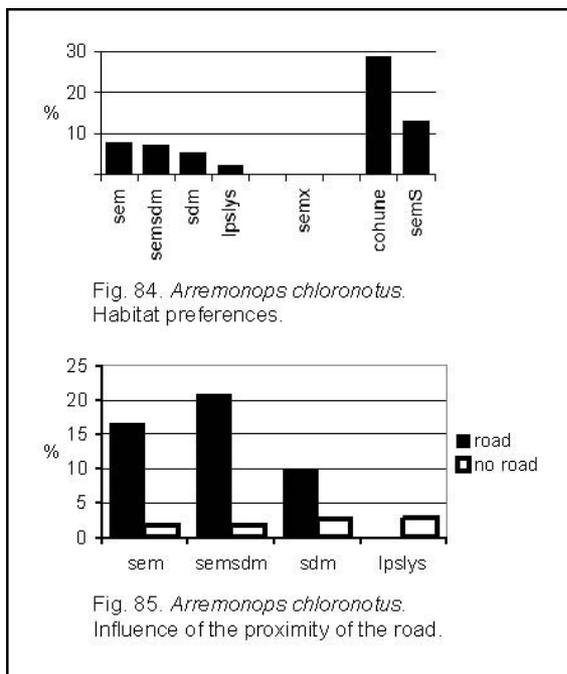
Fairly common to locally common resident. Present in various types of forests. The Green-backed Sparrow was most common in the forests south of the lagoon. North of the lagoon, it was rarely recorded far from the road. The dense undergrowth of the forest edges determines probably its presence there. Especially during the breeding season, this Sparrow was less encountered in the driest forests. Clearances due to loose logging were made in cohune and semi-evergreen forests south of the lagoon. This allowed a development of dense entangled undergrowths attractive for this species. The Green-backed Sparrow was not recorded in the Xo-Pol area during the point-count survey, but occurred there. Also present at Fireburn.

The species sang until mid-September (period I to IV). It was hardly recorded after that time. Some birds were singing again in December.

A young bird was caught the 12.08 near Shipstern village's ruins. The bird was in juvenal plumage but the pre-basic moult already began. The upper body and tail coverts showed some moulting feathers.

Loose body feathers made this bird readily aged as juvenal. P2 on the right wing was growing (accident or included in the first prebasic moult?). The characters apparently different from adults were the greater and median wing-coverts largely pointed with ochre. The head was dull with only two small black spots on forehead whereas in adults, black marks are continuous along the crown, like a railway. Crown-feathers were otherwise brown tipped ochre. Eye-line was ill defined. External RR seemed to be thinner at their end. No adult was caught for comparison, but similar *A. rufivirgatus* showed wider RR in adults than that of the young Green-backed Sparrow caught.

Howell & Webb (1995) failed to find a description of this plumage.



CARDINALIDAE

10 species in the region, 12 in Belize. North American migrants and Belizean residents represent this American family in the Sartenejan region. Not all local species are breeding in the reserve.

Saltator coerulescens 66.01 salcoe
Engl.: Grayish Saltator Fr.: Saltator gris

Not recorded inside the reserve. Noted at Chunox where one was seen the 24.07.

Saltator atriceps 66.03 salatr
Engl.: Black-headed Saltator Fr.: Saltator à tête noire

Not recorded inside the reserve, but marginal presence probably occurs. Two birds were seen the 3.07 close to the reserve border, next to the road in point R18. Noted between the 16th and the 20.09 at Fireburn. The Black-headed Saltator seems to favour semi-evergreen forests with clearances.

Meerman (1993) considers the species "uncommon".

Cardinalis cardinalis 66.05 carcar
Engl.: Northern Cardinal Fr.: Cardinal rouge

Fairly common resident in sparsely-wooded herbaceous areas. Northern Cardinals were recorded near the Main trail and the Eastern Survey-line. Also at Cow Pen and Robin's land. The singing period was not well documented, but it seems to end in May at the beginning of the survey. The species became difficult to detect from July.

Pheucticus ludovicianus 66.06 phelud
Engl.: Rose-breasted Grosbeak Fr.: Cardinal à poitrine rose

Fairly common transient during a short period. The Rose-breasted Grosbeak was mainly recorded at the headquarters, including two sights in April, one male the 9th and one bird the 17th. Apart from this site, one female the 20th and one male the 21.04 were seen feeding on a *Ficus* tree next to the road between the Main trail entrance and the headquarters (all spring sights A. Morgenthaler). At Fireburn, the species was noted the 22nd or 23.04 (Z. Walker, E. Mac Rae) and the 16.10 (two males).

The first to appear in fall was a female seen the 11.10 at the headquarters. The 19.10, one male and one female were at the headquarters. The 1.11, the last bird was seen there again.

Cyanocompsa cyanoides 66.07 cyacoi
Engl.: Blue-black Grosbeak Fr.: Evêque bleu-noir

Not recorded during the survey. The Blue-black Grosbeak was reported at Fireburn in July or August 1999 (N. Bayly). Meerman (1993) does not list the species for the reserve.

Cyanocompsa parellina

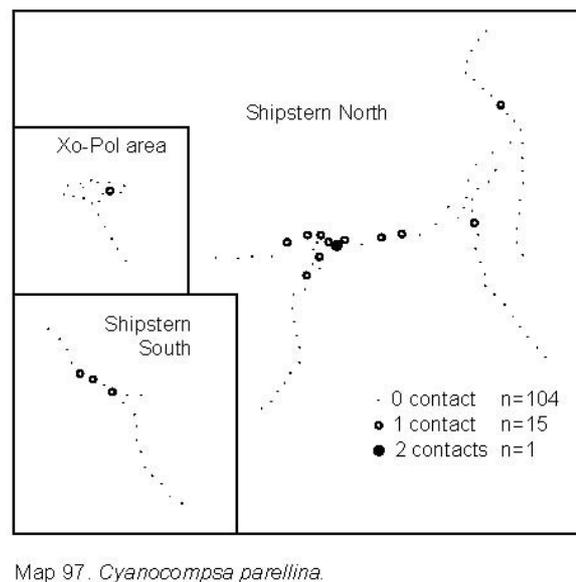
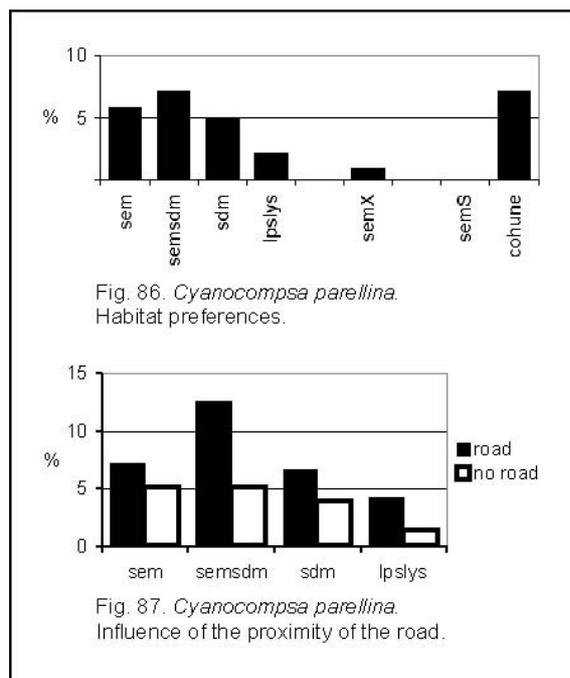
Engl.: Blue Bunting
Map 97, Fig. 86-87

66.08 cyapar
Fr.: Evêque pare

period	I	II	III	IV	V	VI
contacts	4	7	4	0	2	0

Fairly common resident in all types of forests. Blue Buntings were more common in rather moist forests, especially near the beginning of the Main trail (see map). The species was present south of the lagoon. There, the Cohune-dominated forests was possibly preferred, but data are scarce. Also present at Xo-Pol and Fireburn. Blue Buntings were readily heard during breeding, up to the end of July. Later, it became silent and hard to detect during the moult.

The 18th and 20.09, a young male and two females, a young one and an adult, were caught near Fireburn's sawmill. The state of their plumages suggests that adult and young birds perform a complete prebasic moult. RR of the adult female were of half the size of their length and were growing simultaneously. SS 1-2 and 7-9 were new, SS 3-4 were growing, SS 5-6 were old. PP 1-6 were new, PP 7-8 growing, P9 (10?) old. PC followed PP pattern. GC and possibly MC and LC were new; body-feathers were new, except for about 30% of the under-tail feathers. A 1y male caught the 18.09 was in deep moult. S 7 was new, SS 2 and 8-9 growing, SS 2-6 old. PP 1-2 were new, PP 3-4 growing, others were old. The four innermost PC were new, others old (some growing?). GC were new ; AI and RR old. About half of the body-feathers, MC and LC were new. A 1y female caught the 20.09 was in a similar stage. A 1y male seen the 3.10 at Xo-Pol next to the road, had nearly reached the adult-basic plumage.



Guiraca caerulea

Engl.: Blue Grosbeak

66.09 guicae
Fr.: Guiraca bleu

Not recorded during the survey. Probably uncommon to rare transient, possible rare winter visitor(?). Meerman (1993) records it as "migrant".

Passerina cyanea
Engl.: Indigo Bunting

66.10 pascya
Fr.: Passerin indigo

period	I	II	III	IV	V	VI
contact	0	0	0	0	1	3

Common transient, probably uncommon winter visitor.

A pair was still present the 20.05 at Iguana Camp. The species was recorded the same day at Chacan Chac Mol, Warrie Bight (E. Mac Rae).

Massive arrival occurred the 18.10 and the days after, testified by several birds at Fireburn and at the fresh water marsh near Maya ruins. Several were present the 19.10 at the headquarters. Indigo Buntings were common at least up to the 3.11. They became much scarcer afterwards. The 11.12, at least one was at Cow Pen.

The species favours grassy floor near the forest edges of artificial (road, headquarters, Fireburn) or natural clearances (fresh water marsh near Maya ruins).

The 28.10, three birds were caught at the headquarters. Two adults, one female and one male were in fresh basic plumages. One young female was finishing its partial first pre-basic moult. Some under-body feathers were still growing. Otherwise, moult was finished with PP 4-10, external PC and all but the outermost right R renewed (SS old?).

Passerina ciris
Engl.: Painted Bunting

66.11 pascir
Fr.: Passerin nonpareil

Uncommon (rare?) transient, one mention outside the reserve. The 3.11, one female or 1y bird was standing within a group of Indigo Buntings near the Mahogany museum, Sarteneja. Meerman (1993) reports one mention from the reserve, without any detail.

Spiza americana
Engl.: Dickcissel

66.12 spiame
Fr.: Dickcissel d'Amérique

Not contacted during the survey. Transient uncommon to rare (?).

E. Mac Rae reported one near Cow Pen (comm pers.). Meerman (1993) does not list the species for the reserve.

ICTERIDAE

13 species in the region, 19 in Belize. This American family is mostly represented by residents in the Sartenejan region. The important genus *Icterus* includes among others, two migrants and a Yucatan endemic, which reaches its southern limit in the Sartenejan region.

Agelaius phoeniceus
Engl.: Red-winged Blackbird

67.02 agepho
Fr.: Carouge à epaulettes

Local in the reserve. Some movements certainly occur. Red-winged Blackbirds were seen several times at Xo-Pol marshes in July (M. Pittet). The species was present nearby, at Chacan Chac Mol, Warrie Bight, the 20.05 (E. Mac Rae). The 24th and 25.07, they were numerous in marshes at Little Belize. The species seems to be mostly present in summer in fresh water marshes.

Meerman (1993) records it as "rare, only present in the southern part of the lagoon".

Dives dives

67.04 divdiv

Engl.: Melodious Blackbird

Fr.: Quiscale chanteur

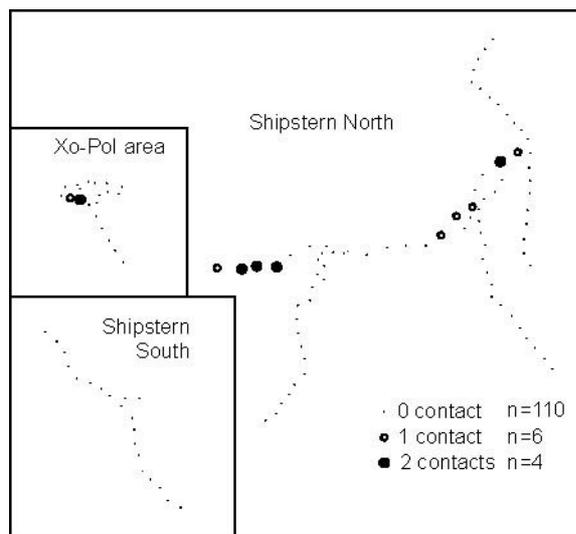
Map 98

period	I	II	III	IV	V	VI
contacts	8	4	0	0	1	3

Resident. Local in and marginal to the reserve. The Melodious Blackbird was found along the road, at the headquarters where it bred, and close to the Xo-Pol pond in preserved habitat.

It sang constantly in spring up to the beginning of July (period I and II), and less from mid-July. Lower vocal activities may correspond to the post-breeding moult.

In Belize, nesting begins in mid-May and in Guatemala nests were reported in May and July (Jaramillo & Burke 1999).



Map 98. *Dives dives*.

Quiscalus mexicanus

67.05 quimex

Engl.: Great-tailed Grackle

Fr.: Quiscale à longue queue

Mostly resident, but some breeding grounds were deserted during winter (i. e. Iguana Camp). Marginal in the reserve, common at Sarteneja, Chunox and Little Belize. Great-tailed Grackles were regularly seen in the mangrove next to the Chetumal lagoon at Robin's land. It breeds at Iguana Camp, where it was noted from April (A. Morgenthaler) to June.

In 2001, one was seen in a woodstork colony the 15.02. The species was rarely encountered elsewhere in the reserve. It used to breed at the headquarters some years ago, but the Grackles were chased.

Molothrus aeneus

67.06 molaen

Engl.: Bronzed Cowbird

Fr.: Vacher bronze

Bronzed Cowbirds were not regularly seen. They were probably marginal to the reserve and not present all year round. Most were noted at or near the headquarters. Also present at Cow Pen, Fireburn and Chunox.

At the headquarters, the species was recorded from at least April, including a male in courtship the 9th (A. Morgenthaler), to July. One was present the 8.08 (V. Palomares, J. Bottinelli & J. Charbonnier) and one the 18.09. None was reported afterwards.

Icterus prosthemelas
 Engl.: Black-cowled Oriole
 Map 99

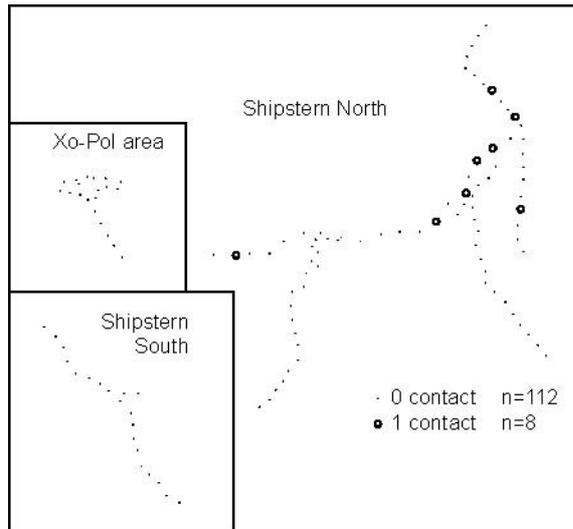
67.09 ictpro
 Fr.: Oriole à capuchon

period	I	II	III	IV	V	VI
contacts	0	2	1	0	3	2

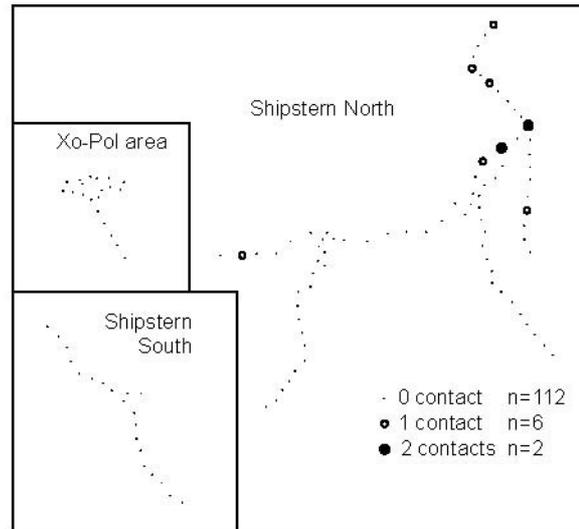
Resident, local and marginal to the reserve, but fairly common in the surroundings. Black-cowled Orioles were mostly seen close to the road. Also at Xo-Pol and Fireburn. One was mid-April at Iguana Camp (A. Morgenthaler).

The 8.10, one young bird was seen with adults next to the road to Sarteneja.

In Central America, nesting takes place between March and July (Jaramillo & Burke 1999).



Map 99. *Icterus prosthemelas*.



Map 100. *Icterus cucullatus*.

Icterus spurius
 Engl.: Orchard Oriole

67.10 ictspu
 Fr.: Oriole des vergers

Uncommon transient, perhaps fairly common in spring. The Orchard Oriole was not seen during the survey. The 17th and the 20.04, two were at the headquarters (A. Morgenthaler). Meerman (1993) reports the species as "migrant".

Icterus cucullatus
 Engl.: Hooded Oriole
 Map 100

67.11 ictcuc
 Fr.: Oriole masque

period	I	II	III	IV	V	VI
contacts	1	1	2	3	2	1

Resident. Hooded Orioles are local and somewhat marginal to the reserve, but fairly common in the neighbourhood. It was found in wooded habitat with artificial clearance and in the littoral forest at Robin's Land (B1) where it breeds. Breeding was also noted at the headquarters where it was regularly seen. One pair hid its nest in a palm roof.

The 11.09, two birds flew above the dwarf mangrove, next to the lagoon, near Iguana Camp suggesting local movements.

Hooded Orioles were building nests at the beginning of May. The 23.06 at the headquarters, they brought food to the nest. Young birds left the nest the 25.06.

Three birds were seen the 16.08 inside the dry forest, next to the headquarters. Were they hidden there to moult?

Icterus chrysater

67.12 ictchr

Engl.: Yellow-backed Oriole

Fr.: Oriole noir-et-jaune

Uncommon, probably resident. The Yellow-backed Oriole was only seen at one site, between T9 and T12, in sparsely-wooded herbaceous wetland.

The species was first seen the 14.07. Two were regularly found afterwards, until mid-November when 3 were present the 12.11. Walker (2002) lists the species for Fireburn.

In Central America, it breeds from February to May (Jaramillo & Burke 1999).

Icterus auratus

67.14 ictaur

Engl.: Orange Oriole

Fr.: Oriole orange

Uncommon. Probably resident, but not regularly seen. Orange Orioles were only seen near the headquarters, and once near Sarteneja, a pair the 2.11.

The 5.05, a pair builds a nest at the headquarters (A. Morgenthaler), but the nest was not finished. The species was no more seen between June and September. The 11.10, one pair and the 14.12, one male were present.

The species is also listed for Fireburn (Walker 2002). This Yucatan endemic reaches its southern limit in the region.

Icterus gularis

67.15 ictgul

Engl.: Altamira Oriole

Fr.: Oriole à gros bec

Map 101

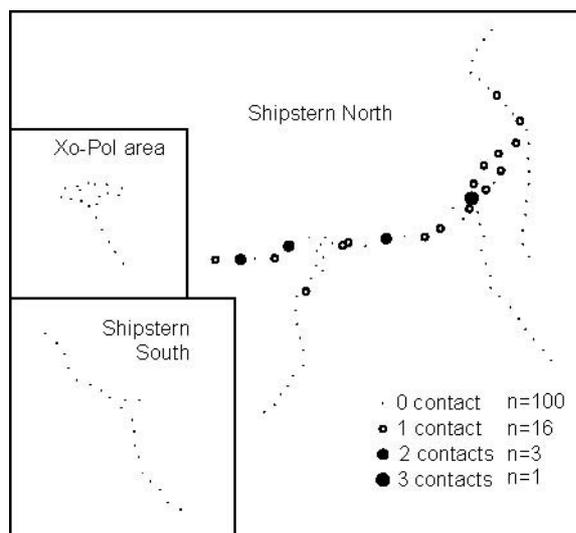
period	I	II	III	IV	V	VI
contacts	6	5	1	5	3	5

Resident. Common, but somewhat local and marginal to the reserve. Altamira Oriole was tied to artificial clearances, like the road or in disturbed forests. Also present at Fireburn.

The species bred at the headquarters and along the road. Nests hung on posts or electric wire.

Nest construction was noted from April at the headquarters (A. Morgenthaler) up to at least the 5.05.

The species sang less at the end of July and in August (period III) which may correspond to the time of the pre-basic moult occurring in August and September in Texas, USA (Jaramillo & Burke 1999, Pyle 1997).

Map 101. *Icterus gularis*.

Icterus galbula

67.16 ictgal

Engl.: Baltimore Oriole

Fr.: Oriole de Baltimore

Transient. Common to fairly common during a short period (status unknown for spring migration).

The 19.09, one female was at Fireburn. Later, Baltimore Orioles were regularly sighted in various habitats between the 21st and the 26.09 shortly after hurricane Isidoros passed near the region. No more record afterwards.

Amblycercus holosericeus

67.18 ambhol

Engl.: Yellow-billed Caciue

Fr.: Cassique à bec jaune

Map 102

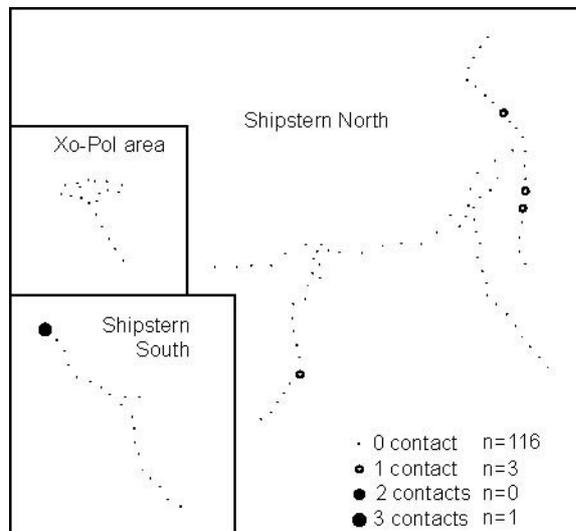
period	I	II	III	IV	V	VI
contacts	1	0	0	1	2	3

Fairly common to uncommon. Possibly mostly marginal to the reserve. The Yellow-billed Caciue is a permanent resident.

It is said to be common by Meerman (1993). During the survey, the species was uncommonly seen also because of its unobtrusive habits. A census during the singing time (March – April?) would give a better picture of its status.

The species is present in various habitats. Only one point-count (S1, Shipstern landing) gave several contacts. Habitat there is a bed of *Bravaisia* with high protruding trees, close to the lagoon. Otherwise the species was found in a wide range of habitats: disturbed and intact forests, forest edges, mangrove. It seemed to favour dense undergrowth.

The 2.11, a young bird was seen in a dense mangrove, on the Eastern Survey line (E4).



Map 102. *Amblycercus holosericeus*.

Psarocolius montezuma

67.19 psamon

Engl.: Montezuma Oropendola

Fr.: Cassique de Montezuma

Marginally occurs in the reserve. The Oropendola is probably a permanent resident in the surroundings.

Meerman (1993) considers the species as "vagrant".

A colony settled in the farmland near Xo-Pol, seemingly several years ago. It was already seen in March 2001.

The species was rarely seen (although it was not specifically searched) until mid-November. Later, the birds of the colony were seen gathering around it, showing courtship displays. Other birds were noted nearby (Chacan Chac Mol), Warrie Bight, the 20.05 (E. Mac Rae). Also noted at Chunox, the 2.11 where they are known to feed in vineyards (H. Mesh, comm. pers.).