BIRD SURVEYS ON CAY CAULKER, BELIZE

21-28 APRIL 1993

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NYZS THE WILDLIFE CONSERVATION SOCIETY
Gallon Jug, Belize
INTRODUCTION

The Black Catbird has a limited distribution (Phillips, 1987) and therefore is a species of concern for conservation. Map 1 shows this the known distribution of this species. Questions remain about the species distribution in Belize, especially on the smaller Cayes. Although we reported (Miller and Miller, 1991) that we had not yet verified the occurrence of Black Catbirds in the Shipstern Reserve, west of the village of Sarteneja, we have received verification that the species does exist in this area (Robbins pers. comm.). This year at least one pair has been verified to be nesting within the Shipstern Reserve (Meerman pers. comm.). The nest is on a small island in the Shipstern Lagoon and is within one of the two known breeding Wood Stork colonies.

During November 1989, we evaluated the southern end of Cay Caulker for possible reserve status for the rare Black Catbird *Melanoptila glabrirostris*. We also conducted point count transects and mist netting (Miller & Miller, 1991). We were requested by the mangrove unit of the Forest Department to conduct follow up studies on Cay Caulker.

Simon Zisman, mangrove consultant to the Forest Department, outlined the objectives of our studies as follows: 1) to establish the quality of the habitat for the Black Catbird on the northern half of the island, 2) highlight areas on the north half suitable for reserve designation, 3) look at the impact of the airstrip on the Black Catbird population, 4) examine bat species on the cay.

This time of year was of particular interest to us since neotropical migrant bird species were likely to be in evidence. We were also interested to see what changes had occurred on the island during the intervening years as well as progress toward a protected area for the Black Catbird and its associated habitat. With the addition of a GPS (Global Positioning System provided by Trimble Navigation) unit and GIS (Geographic Information System provided by Ecological Consulting, Inc.) we were able to accurately map habitats on the island.

METHODS

An inventory of the avifauna of Cay Caulker was conducted using a variety of techniques. These techniques included transects of fixed radius point counts using standard techniques (Hilden et al., 1991; Ralph and Scott, 1981; Ralph et al. 1991). Three transects were conducted during the early morning activity period beginning at 0600. Experience shows that after 10:00 AM, ± one hour, depending on local weather conditions, detection of additional species tapers off dramatically and can lead to an underestimating diversity for an area being surveyed.

Mist netting was carried out using standard ATX 36 mm mesh, 12 meter by 2 meter nets. All birds netted were weighed, scored for fat, breeding condition and stage of moult and when possible age and sex. All neotropical migrants were banded with United States Fish & Wildlife Service bands under my USFW banding permit (master banding permit number 22118). Resident species were either tail clipped (in the case of hummingbirds) or banded with bands identical to those supplied
by the US Fish and Wildlife Service which we specially purchased for use on resident species. Mist
net hours are calculated for all netting efforts by multiplying the number of standard nets by the
number of hours the nets were operated. Capture rates can then be compared with other studies by
using captures per 100 net hours.

We use Ludwig and Reynolds (1988) statistical methods to calculate the diversity indices and use
Hill's numbers which are the easiest to interpret of the multitude of methods, as they represent units
of actual species and not a mathematical construct.

We have increasingly been looking at bat diversity to supplement the bird diversity data used in
evaluating habitats in Belize. Although using bats as indicators is relatively new concept, others
(Fenton et al., 1992) are also now suggesting that bats may be indicators of habitat disruption in the
neotropics. Depending on the length of time in the field we either work primarily on birds or set
several nights aside for bats. It is difficult at best to do justice to both simultaneously. Frequently
we opportunistically look at bats during the early hours of the night until 10 pm or so.

At Caye Caulker we attempted to see what bat species were present during the early evening hours.
Our short stay precluded any in depth look at the bats on Caye Caulker. We did set up and run
mist nets for bats during two nights without any captures.

RESULTS AND DISCUSSION

We conducted three fixed radius point counts from 0545 until 0700 along the windward side of the
Caye from the southern edge of the community and continuing to the southern tip. These transects
went through the same areas we surveyed in 1989. The results of our point count transects are
listed in the appendix.

We also operated mist nets from 0600 until 1800 for a total of 230 total net hours. We were able to
compare the two sites by the number and diversity of bird species trapped, banded and released.
One site was on the southern portion of the Caye and the other at the extreme northern tip. Table B
in the appendix lists numbers and species netted.

We found interesting activity pattern differences between the northern and southern netting areas
(figure z) which suggest that the habitat of the northern tip is not suitable for Black Catbirds to live
in the immediate area. They seem to arrive later in the day to feed and depart to return to more
appropriate habitat.

During the day after the point count transects were completed we evaluated the northern part of the
Caye specifically for Black Catbird habitat. The highest densities seemed to be in the higher dry
ground area of littoral forest. The habitat which appears to be favored by the Black Catbird is one
where the fruiting shrub *Erithalis fruticosa* was abundant. Standley and Record (1936) indicate that
this shrub is found along the edges of mangrove swamp. We found the fruits of this shrub to be the
major food item of the Black Catbird during our 1989 studies (Miller and Miller, 1991). more
discussion on this.
House site clearing and high ridge most abundant. Loss of habitat in south, pending development in north?

Regarding construction of the airstrip... Property owner Steve Liebert said that there has been a great drop in bird activity around his home since the airstrip was constructed. His house is located on the north end of the airstrip and east of the dump. In 1989 we conducted point counts near his house which was located on a footpath among littoral thicket.

IV. RECOMMENDATIONS

Habitat enhancement/restoration.
Follow up studies

V. APPENDIX I: SPECIES LIST


Brown Pelican *Pelecanus occidentalis* (s)
Magnificent Frigatebird *Fregata magnificens* (s)
Double-crested Cormorant *Phalacrocorax auritus* (s)
Great Blue Heron *Ardea h. herodias* (s)
Great White Heron (s)
Great Egret *Casmerodius albus* (s)
Little Blue Heron *Egretta caerulea* (s)
Tricolored Heron *Egretta tricolor* (s)
Cattle Egret *Bubulcus ibis* (s)
Green-backed Heron *Butorides striatus* (s)
Yellow-crowned Night-Heron *Nycticorax violaceus* (s)
White Ibis *Eudocimus albus* (s)
Osprey *Pandion haliaetus* (s)
Common Black-Hawk *Buteogallus anthracinus* (s)
Black-bellied Plover *Pluvialis squatarola* (s)
Spotted Sandpiper *Actitis macularia* (s)
Ruddy Turnstone *Arenaria interpres* (s)
Dowitcher *Limnodromus sp.* (s)
Least Sandpiper *Calidris minutilla* (s)
Laughing Gull *Larus atricilla* (s)
Royal Tern *Sterna maxima* (s)
White-crowned Pigeon *Columba leucocephala* (n)
White-winged Dove *Zenaida asiatica* (s)
Cinnamon Hummingbird *Amazilia rutila* (n)
Belted Kingfisher *Ceryle alcyon* (s)
Red-vented Woodpecker *Melanerpes pygmaeus* (h)
Golden-fronted Woodpecker *Melanerpes aurifrons* (s)
Caribbean Elaenia *Elaenia martinica* (n)
Tropical Kingbird *Tyrannus melancholicus* (s)
Eastern Kingbird *Tyrannus tyrannus*
Eastern Wood-Pewee *Contopus virens* (n)
Mangrove Swallow *Tachycineta albilinea* (s)
Barn Swallow *Hirundo rustica* (s)
Veery *Catharus fuscens* (s)
Wood Thrush *Hylocichla mustelina* (s)
Gray Catbird *Dumetella carolinensis* (h)
Black Catbird *Melanoptila glabrirostris* (n)
Tropical Mockingbird *Mimus gilvus* (s)
Yucatan Vireo *Vireosylva magister* (n)
Tennessee Warbler *Vermivora peregrina* (n)
Yellow Warbler *Dendroica petechia* (n)
Mangrove Warbler *Dendroica erithachorides* (n)
Magnolia Warbler *Dendroica magnolia* (s)
Yellow-rumped Warbler *Dendroica coronata* (s)
Blackburnian Warbler *Dendroica fusca* (s)
Yellow-throated Warbler *Dendroica dominica* (s)
Bay-breasted Warbler *Dendroica castanea* (n)
Black-and-white Warbler *Mniotilta varia* (s)
American Redstart *Setophaga ruticilla* (n)
Worm-eating Warbler *Helmitheros vermivorus* (s)
Ovenbird *Seiurus aurocapillus* (n)
Northern Waterthrush *Seiurus noveboracensis* (n)
Gray-crowned Yellowthroat *Geothlypis poliocephala* (s)
Hooded Warbler *Wilsonia citrina* (n)
Bananaquit *Coereba flaveola* (n)
Summer Tanager *Piranga rubra* (s)
Scarlet Tanager *Piranga olivacea* (s)
Rose-breasted Grosbeak *Pheucticus ludovicianus* (s)
Dickcissel *Spiza americana* (s)
Indigo Bunting *Passerina cyanea* (s)
White-collared Seedeater *Sporophila torqueola* (n)
Great-tailed Grackle *Quiscalus mexicanus* (n)
Orchard Oriole *Icterus spurius* (s)
Hooded Oriole *Icterus cucullatus* (n)

**APPENDIX II: FIXED RADIUS POINT COUNT DATA**

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**APPENDIX III: MIST-NETTING CAPTURES**

NORTH = Northern end of Cay Caulker, an area of cocal and mangrove.
SOUTH = Southern end of Cay Caulker, an area of cocal, mangrove, littoral forest, some land clearing for development.
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VIII. REFERENCES


Meave, J., M. Kellman, A. MacDougal, and J. Rosales. 1991. Riparian habitats as tropical forest
refugia.


U.S. Fish and Wildlife Service. pp. 646.


ACKNOWLEDGMENTS

We thank the Forest Department, in particular, the mangrove unit for the opportunity to work at Cay Caulker. Simon Zisman, mangrove consultant, coordinated the field work and logistics. George Hansen, Conservation Division, Forest Department, and Elridge Castillo, Fisheries Department, were helpful with transport and field work. Ellen McRae, marine biologist, lent expertise and lore based on her years of residence on Cay Caulker. Jan Meerman, Shipstern Nature Reserve, was a congenial and knowledgeable colleague as always. Trimble Navigation....

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