

The status of the Black Catbird *Melanoptila glabrirostris* on Caye Caulker, Belize

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Summary

An evaluation of the relative abundance of the Black Catbird *Melanoptila glabrirostris* was undertaken on Caye Caulker, an offshore island along the barrier reef of Belize, Central America. Although the species is locally abundant in part of the Sian Kaàn Biosphere Reserve in Mexico, the species is facing habitat fragmentation and loss due to development, both along the Mexican coastal areas and on the island habitats in Belize. The Caye Caulker population appears to be the largest in Belize. Transects of fixed radius point counts resulted in 15.5% and mist-netting resulted in 22.4% of all birds recorded being Black Catbirds. The Neotropical migrant Grey Catbird *Dumetella carolinensis* apparently shares the same habitat on Caye Caulker and comprised 11.2% of all birds netted. The netted Black Catbirds were noted to have substantial fat deposits. The habitat on Caye Caulker is facing probable fragmentation from recent accelerated land speculation and development of an airstrip.

Introduction

The Black Catbird *Melanoptila glabrirostris* is found sparsely along coastal mangroves and island cayes of the Belize barrier reef and appears to be declining. AOU (1983) lists it as resident in the Yucatán Peninsula (including Cozumel, Holbox and Mujeres islands, and Caye Culebra), northern Guatemala (Petén), Belize and extreme northern Honduras (Omoa). Phillips (1986) limits present distribution to the Yucatán Peninsula, south to Belize and into the Petén in northern Guatemala. He questions records from Holbox, Contoy and Mujeres islands and maintains that the Omoa, Honduras, location is in error; Ridgely and Gwynne (1989) corroborate this and suggest that the Honduras specimen may have been mislabelled and was actually taken in Belize.

In Mexico Edwards (1989) considers the species common only on Cozumel Island. However, B. MacKinnon (*in litt.*) has pointed out that the species is also common to abundant along the mainland coastal strip starting 15 km south of Maya site Tulum and continuing to Punta Allen at the opening of the Bahía de la Ascensión, within the Sian Kaàn Biosphere Reserve. In September 1988, Hurricane Gilbert slammed into Cozumel and a portion of the Black Catbird population was blown inland and shortly thereafter was frequently seen along the coast in the Sian Kaàn Biosphere Reserve; in 1988 a few pairs nested inland, in the Sian Kaàn Biosphere Reserve area. The status of the Cozumel population has now stabilized, but is thought to have been reduced by the impact of Hurricane Gilbert (MacKinnon *in litt.*).

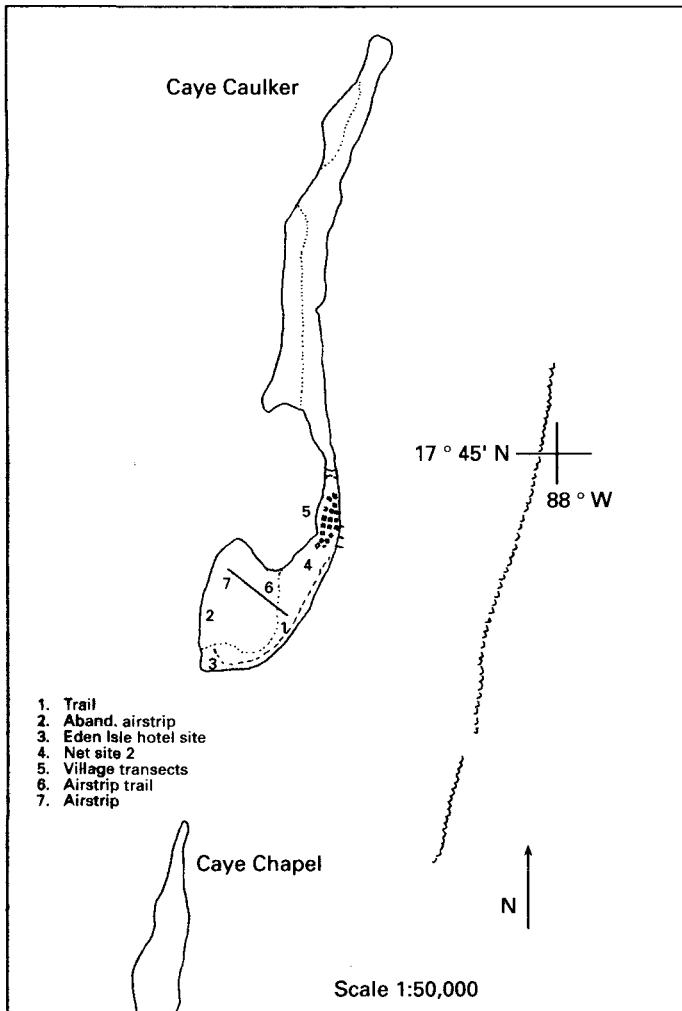
MacArthur and Wilson (1967) suggest that no island species will become extinct when found on more than one island and continue, "as a consequence we can conclude that species that can establish populations on more than one larger island in an archipelago greatly reduce the risk of extinction". Until man's intervention this would have applied to Black Catbird distributions. Although hurricanes are part of natural cycles on islands and cayes, the recent disruption of adjacent habitat in Mexico and Belize by man may eliminate refuges from which the Black Catbird population could rebound. In the case of Mexico, the rate of habitat destruction due to rapid development along the fragile coastal habitat precludes refuges for birds displaced by hurricanes. The fate of the Black Catbird in Mexico is therefore uncertain; the only certainty is that its habitat is being lost at an accelerated rate.

In Belize, Russell (1964) reported that specimens were taken from Back-Landing and Half-Moon Caye, and cites published records from Corozal, Glovers Reef with possible collections or sightings at Long Caye and Middle Caye, the northern two cayes of Lighthouse Reef. He goes on to note that the species had not been recorded in "British Honduras" since 1931 and suggests it was once more widespread. Phillips (1986) comments that the species may now be extinct on some of Belize's cayes, based on commentary by Amadeo M. Rea. It is possible the species still exists on some of the numerous smaller cayes along the reef, but many of these are very small and unlikely to provide habitat to support viable populations.

Working in Belize since 1987 we have had reports of Black Catbird sightings inland just west of the village of Sarteneja in the Corozal district during 1987–1988, but on personal inspection found that the birds were actually misidentified Bronzed Cowbirds *Molothrus aeneus*. Ambergris Caye, although locally considered an island, is located on the extreme southern tip of the Yucatán Peninsula, and historically supported Black Catbirds. In recent years Ambergris has undergone tremendous development with the growth of San Pedro town. The area has been subdivided and developed, squeezing the Black Catbird population into the southern part of the caye. Now another resort community, San Pablo, is being developed to the south of San Pedro. With this new development, the remaining small Black Catbird population faces increasing pressure due to additional loss of habitat and may be extirpated from southern Ambergris Caye by the end of the present decade. Two birds were noted on the coast of the mainland during the 1990 Belize City Christmas Bird Count, but it is unlikely that they are nesting in the area.

A viable population – evidently the last large one in Belize – still exists on Caye Caulker. This caye (Cay Corker on some maps) is a 494 ha island located along Belize's barrier reef, approximately 30 km north-northeast of Belize City and 8 km south of Ambergris Caye at 17°45'N 88°02'W. It is accessible from the mainland by small boat, or flight to nearby Caye Chapel. Settled about 140 years ago, today it has a population of about 600 people. Until recently the main industry on the caye has been lobster fishing but a reduced lobster catch has encouraged the growth of tourism, which takes the form of locally owned guesthouses and caters for diving and snorkelling on the nearby reef.

The recent sale of private lands for impending development, as well as spraying of the pesticide malathion for sandflies on the island, prompted our concern.



Map 1

We chose to undertake a baseline survey as a small project supported by the Pan American Section of the International Council for Bird Preservation to determine the current status of the Black Catbird on Caye Caulker.

Most of the villagers reside in the centre of the island near the "cut", leaving the northern and southern parts free of settlement. The south end of the island is littoral thicket made up principally of cocoplum *Chrysobalanus icaco* from which the caye takes its name, zircote *Cordia sebestena*, coconut palm *Cocos nucifera*, black poisonwood *Metopium brownei*, sea grape *Coccoloba uvifera*, the shrub *Eritharalis fruticosal* and other smaller shrubs, and is separated from the sea by mangrove. MacKinnon (*in litt.*) reports that in Cancún, Mexico, the Black Catbird only nests in white mangrove *Laguncularia racemosa* which follows succession of red and black mangrove from wetter to drier soils. It is this similar undeveloped southern area which comprises the habitat for the Black Catbird on Caye Caulker.

Materials and methods

We conducted fixed-radius point-counts and used mist-nets in evaluating the Black Catbird's status. Point-counts were conducted along three transects using 25 m fixed-radius points at 100 m intervals. Each count was conducted for five minutes with three observers, recording all individuals seen or heard both within the fixed radius and noted those outside the radius. The method used varied from Hutto *et al.* (1986) in duration of count and USFWS Wintering Bird Surveys in radius size (C. S. Robbins, pers. comm.). Only terrestrial species were recorded. Two transects utilized a trail running through prime habitat along the windward side of the island to the southern tip, then continuing west along the southern portion of the caye until it ended at the mangrove marsh on the leeward side.

Our experience has proven that the most productive time for transects is during the early morning activity period. On 16 and 17 November we began the transects at first light. On 16th we began the transect about 500 m south of the village. On the morning of 17th we conducted a replicate transect through the same area beginning 50 m south of the first point used on 16th. This staggered the count-points between the points of the previous count. Upon completion of this transect we attempted to find an overland trail through the mangrove marsh to the partially cleared airstrip site and noted species seen while traversing this area of the island.

During the afternoon of 17th we also conducted a transect through the village using existing roads, paths and trails, evaluating roadside, gardens, a soccer field and fields covered by second growth.

Using standard mist-nets, we captured, marked and released birds at two locations on 18 and 19 November. Nets were run from first light to sunset. Once birds were netted, we recorded species, mass, wing length, culmen length in some species, age, sex, amount of body fat, location of net, and time of day to the nearest 10 minutes. As part of our ongoing work on tropical residents we noted eye colour using a Munsell Color Limit Cascade and the Naturalist's Color Guide (Smithe 1975). Resident birds were marked by tail-clipping and Neotropical migrants were banded using USFWS bands. Birds were released immediately after processing.

On 18 November, four mist-nets, each separated by > 100 m, were set along the trail where we had conducted our transects. Due to exposure of the sun and to prevent possible heat stress in netted birds, three nets were closed for an hour and a half, moved and reopened shortly after noon. On 19 November we netted in a more open habitat located to the south-west of the village.

During the walking surveys recordings were also made of Black Catbird vocalizations. Original tapes of these recordings are archived at the Library of Natural Sounds, Cornell University, Ithaca, N.Y.

Results

Three fixed-radius point-count transects were conducted over two days. On 16 November, 123 individuals of 20 species and on 17 November, 79 individuals of 10 species were recorded. A second transect on 17 November was conducted

through the residential area of the island resulting in 100 individuals of 23 species.

Ludwig and Reynolds (1988) suggest that Hill's diversity numbers are easier to interpret than other diversity indices, as they represent units of actual species numbers, where N_1 equals the number of abundant species and N_2 is the number of very abundant species. We combined the two southern transects through the littoral thicket and used means of occurrence to compute Hill's diversity numbers. Black Catbirds were a dominant species, comprising 15.5% of all individuals recorded in this low-diversity ($N_1 = 10.76$ and $N_2 = 7.66$) habitat.

Although we predicted 100 net-hours for two days of netting, only 70 were accumulated. On both days our closure of some nets for varying times resulted in a lowering of total net-hours. The capture rate, however, was standardized to captures per 100 net-hours by dividing net hours/total captures and multiplying by 100. The capture rate of 59.8/100 net-hours is satisfactory and compares with much greater efforts in our deep forest work. A number of Black Catbirds were recaptured, indicating a reasonable sampling effort. The results of both days of netting were combined and Hill's diversity numbers computed. Black Catbirds were again the dominant species comprising 22.4% of all individuals captured. Mist-netting yielded a higher diversity ($N_1 = 16.05$, $N_2 = 11.74$) index than point-count data.

It is interesting to note that the Neotropical migrant Grey Catbird *Dumetella carolinensis* was the second most abundant species and comprised 11.2% of all birds netted. If we combine these related species, we find they comprised 33.6% of all individuals netted.

Discussion

This very short study was not intended to provide an absolute census of Black Catbirds on Caye Caulker. We have simply determined that the population appears viable and constitutes a large percentage of the land-based birds on the caye, and that its preferred habitat is restricted to a relatively small portion of the island.

The Black Catbirds at Caye Caulker appear to be gregarious or at least tolerant of conspecifics feeding within a very narrow corridor of habitat. It was common to see and hear up to eight birds foraging in one shrub. During opportunistic observations of feeding bouts we witnessed no agonistic behaviour between conspecifics. Both the wintering Grey Catbird and the resident Black Catbird were foraging on the same small elderberry-like fruits of the shrub *Eritharalis fruticosal*, which appears to be one of the dominant plants. At the time of our study this shrub was the major food item for both catbird species. This was corroborated by the composition of droppings and regurgitated berries from netted birds.

It appears that food resources were plentiful prior to this study as many Black Catbirds had significant fat depositions (Table 1). We routinely scored body fat on netted birds using a scale of 0=no fat to 4=large subcutaneous fat depositions. We have previously seen such high levels of fat deposition only in Neotropical migrants such as the Grey Catbird, just prior to spring migration, and rarely

Table 1.

Species/Fat scores	NS	0	1	2	3	4
Black Catbird	2	10	4	4	1	3
Grey Catbird	0	13	0	1	0	0
Yucatán Vireo	1	3	1	3	1	2

All birds netted were evaluated for subcutaneous fat. Three species had fat deposits. NS, not scored; 0, not fat; 1, trace at vent; 2, considerable at vent but not wing axilla; 3, heavy fat at vent and trace at axilla, 4, heavy both vent and axilla.

note any fat in resident species. The resident Yucatán Vireo *Vireo magister* also had significant fat stores (Table 1). The Grey Catbirds netted during this study were, as would be expected after their recent arrival (<40 days), virtually fat-free (Table 1).

Why do the Black Catbirds put on these fat stores? Are there seasonal resource shortages which force the birds to store high levels of fat? Is it a necessary condition preceding nesting? The Black Catbird appears to remain on the caye year-round and is always abundant (E. McRae verbally) and there are no indications that it migrates between cayes or to the mainland. It is suspected that the large fleshy cocoplum may have provided an additional seasonal resource at this time. On a subsequent evaluation of habitat, 11 March 1990, there were no cocoplum in fruit and the *E. fruticosal* shrubs had few ripe berries, although they were flowering heavily and many hard green fruits were noted, so perhaps shortages do occur.

It appears that the Black Catbird population on Ambergris Caye is now fragmented as a result of habitat disruption and destruction from development. In the past this development has been slow, but as rapid growth is predicted with the development of San Pablo, the Black Catbird's future there is in question. It appears at present that on Caye Caulker the largest known population of the Black Catbird in Belize is healthy, but the future degradation of habitat by land speculators and probable losses due to predation by introduced species need to be considered now.

On a short trip into the area on 11 March 1990, it was immediately evident that accelerated development has already begun on Caye Caulker. Extensions to an existing road and many new plots had been bulldozed in the previous 30 days.

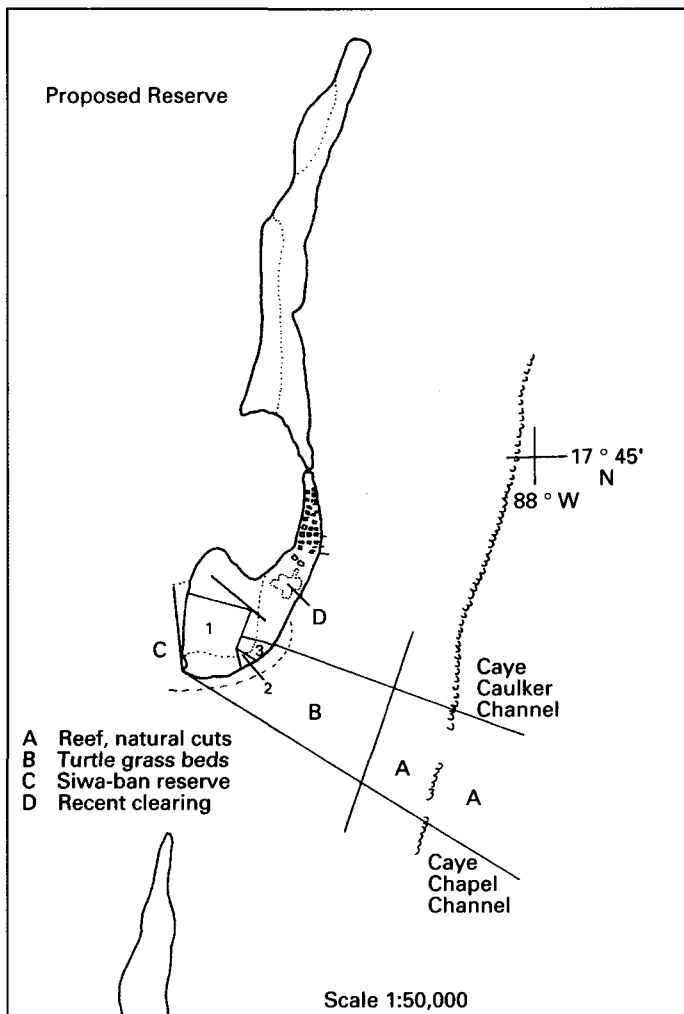
Another immediate concern is the feral cat population, which may be adversely affecting the Black Catbird as well as other species found on the island. There are a substantial number of domestic cats found in and around the village. It is well established that feral cats, rats and other introduced species are directly responsible for island extinctions (King 1985, Veitch 1985, Atkinson 1989). Feral cats alone have been responsible for 26% of island extinctions (King 1985).

Feral cats are solitary predators capable of hunting both by night and by day. They need fresh water only when food is scarce and may live 7–8 years (Veitch 1985). Density estimates as low as four cats per km² are known to affect adversely island bird populations (Veitch 1985). Caye Caulker is only a little more than 5 km² and Black Catbird habitat is estimated to be less than 2 km². It will take very few feral cats to decimate this population.

Recommendations

In November 1989, Ellen McRae discussed with us the concept of the Siwa-ban Foundation whose aim is to establish a reserve on Caye Caulker. Siwa-ban is the local name for the Black Catbird, possibly Mayan in origin. This reserve would include not only terrestrial habitats on the southern end of the caye but also the cuts in the barrier reef by extending out into the sea, thereby protecting four important habitats: (1) littoral thicket for the Black Catbird, (2) mangrove, (3) sea-grass beds, and (4) coral reef.

The conservation thrust of such a reserve would be to protect habitat for a multitude of species, using the Black Catbird as a flagship species for terrestrial elements, the turtle grass beds for spawning and mangrove nursery areas for marine habitats. Although they have not been studied in detail, the cayes appear



Map 2

to provide important stopovers for migratory birds crossing the Gulf of Mexico, both those which winter in Belize as well as transients which must rest and feed before moving further south.

Aside from the lure of snorkelling and diving, "terrestrial" tourism has not yet been developed on Caye Caulker. Birding tours would no doubt be interested in seeing the Black Catbird, Yucatán Vireo, Rufous-necked Woodrail *Aramides axillaris*, Caribbean Elaenia *Elaenia martinica*, Mangrove Warbler *Dendroica (petechia) erithachorides* as well as many of the migratory species which stop over and are not common on the mainland.

From a practical viewpoint, the timing is ripe at Caye Caulker for such a move. Tourist development is growing and there is local interest regarding the success of the Hol Chan Marine Reserve near Ambergris Caye. A reserve on Caye Caulker would attract more tourists for snorkelling, birdwatching and natural history, and thus supplement traditional lobster fishing which is no longer as lucrative as it was.

Recently private lands on the southern tip of the Caye have become much in demand and are being offered for sale or have recently been purchased. However, much of the remaining area south of the village appears to be good Black Catbird habitat and only marginally suited for development. A small portion of this area is under the control of the village council. The greatest concern here is the recent actions to resurrect plans to complete an airstrip. This would bisect the last large block of habitat, immediately fragmenting it.

The Siwa-ban Foundation, a non-profit NGO, has been formed to facilitate future efforts, to initiate discussions with the Caye Caulker Village Council regarding the land under their control, and to encourage the purchase of all the remaining private land to establish a reserve along the lines of the Community Baboon Sanctuary at Bermudian Landing, Belize. There are still numerous smaller tracts of land (E. McRae verbally) available, and by combining these smaller parcels with a larger piece and a community-supported reserve, Caye Caulker may provide the last secure refuge for the Black Catbird in Belize. Ellen McRae feels there would be voluntary compliance with fishing restrictions along reef areas, and the concept already has grassroots local support.

Nevertheless, it appears that the airstrip figures heavily in the economic development of this small island and may well be completed at any cost, thereby fragmenting the existing habitat. It may be time to look at modifying other possible habitat in a positive manner. For example it may be worthwhile to investigate the northern portion of Caye Caulker, and uninhabited areas of Ambergris Caye, with the intent of planting cocoplum and *Eritharalis fruticosus* as food plants in an attempt to provide areas for the Black Catbird to transfer to as existing habitat is removed.

In 1986 consideration was given to listing the Black Catbird as threatened in the ICBP/IUCN Red Data Book for the Neotropics. At the time, recommendations were not to list it as it was still regarded as common throughout its range. However, our evidence suggests strongly that the species is genuinely at risk; and of course the act of listing a species as threatened in an official manner, when warranted, may provide the necessary impetus to garner local and regional governmental support.

A more thorough evaluation would, of course, be desirable, including band-

ing as much of the population as possible. This would provide data for population estimates, individual longevity and size of individual territories, and it would document individual movement. Informed decisions regarding the minimum critical size of habitat needed to sustain this major Black Catbird population in Belize must be based on more in-depth studies. However, development pressures are real and accelerating: the situation merits urgent action.

Acknowledgements

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Gallon Jug, Belize, Central America