

# **Bird communities in Black Mangrove and other mangrove types - with particular reference to Neotropical migratory birds**

## **Background**

Mangrove habitats are commonplace in Belize, however, their value to birds, especially migratory birds, has not been previously quantified. The various species of mangrove form distinct habitats and each is expected to hold its own unique community of birds. In a study carried out in the Corozal District of Belize, we examined the communities of birds using two types of mangrove habitat, Red Mangrove associated with savannas and lagoons and Black Mangrove, with a special focus on Neotropical migrants.

Neotropical migrants breed in North America and spend the non-breeding season/winter in the tropical regions of Central and South America and the Caribbean. Within Belize nearly 40% of all bird species recorded are Neotropical migrants and thus to satisfy commitments under the Convention of Biological Diversity it is important that the habitats used by these species receive protection. In Belize, migrants can be classed into two groups 1) 'wintering' species that spend the non-breeding season there and 2) transient species which use Belize like a stepping stone on their way to and from non-breeding areas further south. Neotropical migrants have received considerable attention in recent years because despite having large populations and generally broad geographic ranges, many 'common' species are in decline and destruction/degradation of non-breeding/migration habitats has been identified as a likely cause of declines.

Below we discuss the key findings from our study and highlight how mangrove conservation will not only minimise coastal erosion and reduce siltation but also protect numerous bird species, both resident and migratory, many of which are largely unprotected by Belize's current protected area system.

## **Key Findings**

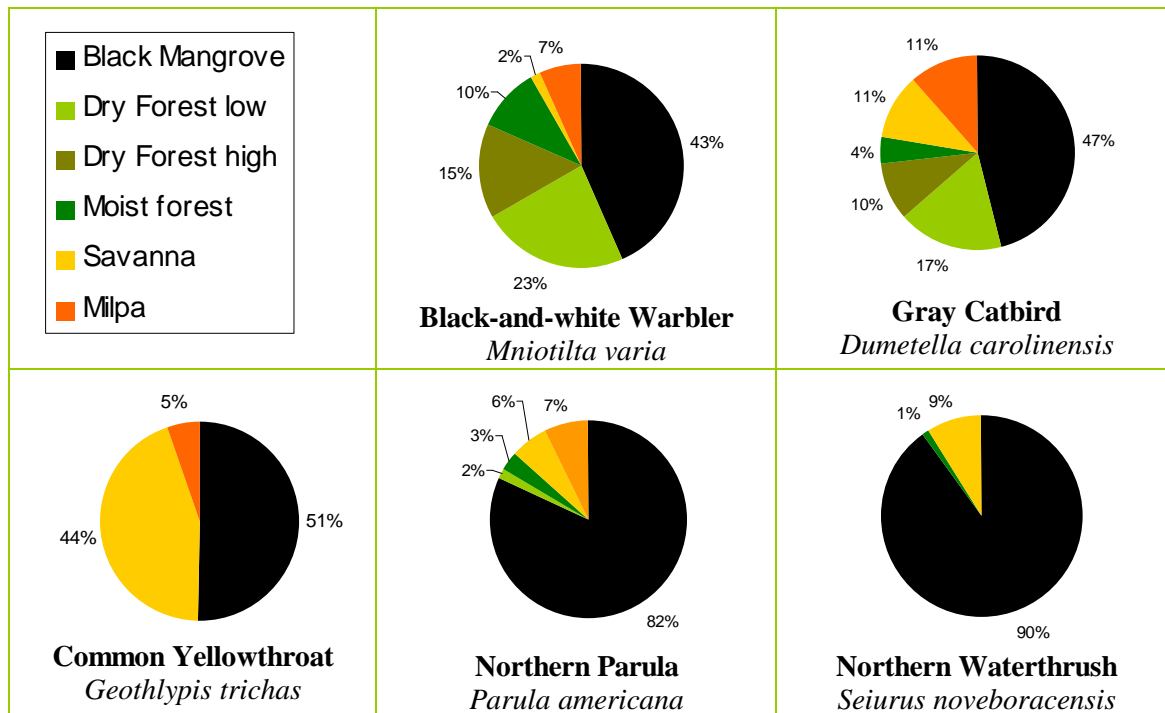
- Over **140** bird species recorded in mangrove habitats
- **77** Neotropical migrant species recorded: comprising of **50** landbirds and **27** waterbirds
- **18** of 23 species of landbird migrants wintering in NE Belize occur in Black Mangrove
- **Densities** of migrants were **3x** higher in Black Mangrove than other forested habitats
- The percentage of migrant vs. resident individuals was **62%** in Black Mangrove
- **Six** migratory species of **concern** occurred in mangrove
- **Five** wintering species favoured Black Mangrove over any other habitat (Fig. 1)
- The near-threatened **Black Catbird** (resident) occurred in large numbers in mangrove/savanna habitats
- Mangrove habitats provide key resources to two declining transients, enabling them to complete their migration – Willow Flycatcher & Prothonotary Warbler

These key findings demonstrate how mangrove habitats, particularly Black Mangrove, are used by a diverse community of birds, made up of a considerable proportion of Neotropical migrants (62%). Not only do many migratory landbirds appear to seek Black Mangrove habitat during both the non-breeding season and migration but they occur at densities considerably higher than in any other habitat (other habitats surveyed included, tropical evergreen broadleaf forest, Milpa, mangrove/savanna and tropical semi-deciduous broadleaf forest). Indeed, whilst being utilised by many waterbird species, Red Mangrove associated with savannas and lagoons held the lowest density of migratory landbirds of all habitats surveyed. For a number of migratory species, Black Mangrove is therefore likely to represent their principal wintering habitat in Belize (see Fig. 1). As a note of caution,

**Citation:** Bayly, N.J. & Gomez, C (2008) *Evaluating a stepping stone for Neotropical migratory birds – the Belizean NE biological corridor*. Final Report, submitted to the Belizean Forestry Department, Belmopan, Belize (Nov 2008).

however, many Black Mangrove patches gradually dry out during the ‘winter’ months and there is an apparent concurrent reduction in resources leading to lower densities of migrants. Consequently, Black Mangrove stands may need to be associated with other habitats to which birds can emigrate, to ensure their maximum conservation value.

**Figure 1:** Habitat preferences in five species of Neotropical migrants, expressed as a percentage of individuals recorded by habitat having corrected for survey effort.



During migration, Black Mangrove provides important resources to a number of transient species that require high resource levels in order to fuel the next stage of their migration. In particular, the declining Prothonotary Warbler, which features on the America to Watch list, occurs in high numbers in this and other mangrove types and estimates suggest that somewhere between **5-10%** of the World population may be passing through the Corozal district on their way to and from their South American wintering sites. Mangroves in Belize as a whole may therefore be vital to the successful migration of this species.

### Summary

The evidence from our study suggests that at certain times of year, Black Mangrove can be a particularly resource rich environment meeting the needs of a wide range of Neotropical migrants and resident species. Of all the habitats in Belize, Black Mangrove is one of the most under-represented in the current protected area system. We therefore recommend that remaining stands of Black Mangrove are mapped and the most viable stands prioritised for protection, especially those found in a matrix of other natural habitats. Black Mangrove stands that remain flooded for a greater part of the year should also be prioritised over those that regularly dry out. We also recommend that further investigation into how migrant birds use Black Mangrove stands at a landscape scale - do larger patches support lower densities? - and into seasonal variation in use is carried out.

Research by Dr. Nick Bayly & Camila Gomez (Nov 2008)

**Contact:** [nick\\_bayly@hotmail.com](mailto:nick_bayly@hotmail.com) **More info:** <http://belizemigrants.wordpress.com>

**Citation:** Bayly, N.J. & Gomez, C (2008) *Evaluating a stepping stone for Neotropical migratory birds – the Belizean NE biological corridor*. Final Report, submitted to the Belizean Forestry Department, Belmopan, Belize (Nov 2008).