Purple Martins occupy lakeside homes at Beaverhill Lake

By Jana Teefy, Assistant biologist, Beaverhill Bird Observatory

The refilling of Beaverhill Lake is increasing bird diversity as noted by the Beaverhill Bird Observatory (BBO). The water levels in the lake are up again this year, and staff at the observatory are seeing, hearing, and catching a higher volume of wetland species this year and have banded species that they haven't caught in many years. One species that the observatory staff are particularly excited to see at the lakeside is the Purple Martin.

Purple Martins at the BBO nest boxes. Photo by Jana Teefy.

Purple Martins showed some interest in the observatory's colony boxes over the past couple of years, but their nest attempts failed. After many years of maintaining a nesting box, the BBO is excited to report that we finally have a successful breeding colony of Purple Martins. We saw more and more Purple Martins at the colony boxes during the daily census in the spring and were hopeful they would try to breed here. We gave the martins time to establish their nests before lowering the boxes to survey them. Between the 2 colony boxes, there are 24 nesting cavities and staff were delighted to find 9 nests, 8 with eggs and one with hatched chicks. When we lowered them a week later, we found 11 occupied nests – 5 of which had hatched young! We went from one failed nest in the last few years to suddenly having a breeding colony – the first ever Purple Martin breeding colony in BBO's history.

What brought on the success this year? Our theory is that it was spurred by the combination of the 2020 replacement of nesting boxes with an updated, Starling-proof design, along with the return of water to the lake. Beaverhill Lake has a history of drying up and filling up on a roughly 50-year cycle – this was the third time in recorded history that the lake has gone dry. Its most recent dry-up was in the mid-2000s, and the water started to return to the lake in a large way in 2016. Since then, the lake has been filling more and more each year. As it fills, the emergent vegetation dies off and exposes more open water. Last spring was the first time we could see open water in the lake from the shoreline in two decades! However, last year's heat wave and lack of precipitation depleted the water levels. This year, we've had lower temperatures until recently and plenty of precipitation. We can see even more open water and a definitive shoreline! The visible open water is getting closer to the historical shoreline, which is where the Purple Martin nesting boxes are located.

Purple Martin colony nesting box at BBO. Photo by Jana Teefy.

Purple Martins are aerial insectivores in the swallow family with an adorable bubby chortling song. They are cavity nesters that have come to rely solely on human-provided nesting boxes for breeding. Preferring condo-style nest boxes, these colony breeders nest in large groups near sources of open water with high insect populations. Sadly, insectivore populations are down by 50% over the past 20 years. This population decline is linked to insecticide use, habitat loss, and nest site competition with invasive bird species, like the European Starling. A popular group of insecticides called neonicotinoids are applied to agricultural seeds to prevent loss from insects. Neonicotinoids are applied topically but enter waterbodies via runoff and kill off entire insect populations in their larval forms before they can emerge from the water. Many terrestrial insects, like dragonflies, mosquitos, and midges, have an aquatic component in their lifecycles. This eliminates food sources for many birds, like Purple Martins and Swallows, and affects entire food chains.

As a migratory species, Purple Martins fly to Brazil to overwinter and return to the nesting areas in the spring to breed. Their route takes them to the Yucatan peninsula, where they pause to moult before completing the journey. Because Purple Martins are colony nesters and nesting box space is limited, they will venture out to find vacancies when their colony boxes are at capacity. Recent examples of their ability to find new nesting sites include the first Purple Martin colony in Calgary in 60 years and the breeding colony at the Beaverhill Bird Observatory near Tofield, both established this year.

A male Purple Martin. Photo by Jonathan Kells, BBO intern

The staff have been busy banding the young at their Purple Martin colony. Once the chicks are between 11 and 15 days old, they will receive a lightweight aluminum band with a unique 9-digit serial number. These bands can be used to track Purple Martin migration, dispersal, survivorship, and colony returns. We don't know what the future holds for Beaverhill Lake and thus the newly established breeding colony, but we are hopeful the Purple Martins will return to the boxes in the spring to breed. In the meantime, the staff are enjoying the cheery chortling of the Purple Martins before they venture south. With a bit of luck, the colony will return next spring. We may need a third colony box to accommodate them!