First record of Least Bittern nesting at Tommy Thompson Park in Toronto, Ontario

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Introduction

The Least Bittern (*Ixobrychus exilis*) is the smallest member of the heron family in North America. It is considered a Threatened species in Canada and in Ontario. In Canada, it ranges from Manitoba to Nova Scotia. The Canadian population is estimated at 1500 pairs and both Environment and Climate Change Canada and the Ontario Ministry of Natural Resources and Forestry have active recovery strategies in place to reduce the threats and aid in reversing the downward population trend (Environment Canada 2011, Ontario Ministry of Natural Resources and Forestry 2016).

Least Bitterns are notoriously difficult to see, as they are small, secretive and well camouflaged. However, their distinctive and loud call makes them much more likely to be heard. They nest in dense vegetation making nest discovery difficult and thus estimation of nesting pairs is usually performed by call-back surveys and still they are not always well detected (Tozer *et al.* 2007, Jobin *et al.* 2011).

Observation Site

Tommy Thompson Park (TTP), is located on the Leslie Street Spit (43.633ºN, 79.329ºW), a 500 ha artificial peninsula that extends approximately 5 km into Lake Ontario (Figure 1). Starting in 1959, Ports Toronto (formerly the Toronto Port Authority) built the long breakwater to create additional lands for port infrastructure in conjunction with the opening of the St. Lawrence Seaway. Toronto waterfront land-use needs changed over the decades, and natural colonization created a wilderness area on the Spit, which is now officially parkland. As of 2017, the park had regenerated into an early successional forest, with areas of maturing forest at the base and a gradient of younger shrubs and early pioneer

Figure 1. Map of Tommy Thompson Park. *Photo: TRCA*

plants closer to its tip. Toronto Region Conservation Authority (TRCA) has created ponds, hemi-marshes and embayments to design a multi-wetland complex at TTP. Three hundred and twenty bird species have been identified at TTP, and 69 species have been recorded breeding (Johnston and Sturdee 2016). Notably, TTP hosts one of the world's largest colonies of Double-crested Cormorant (*Phalacrocorax auritus*), as well as significant Ring-billed Gull (*Larus delawarensis*) and Black-crowned Night-Heron (*Nycticorax nycticorax*) colonies and is recognized as an Important Bird Area (Wilson and Cheskey 2001).

Figure 2. Least Bittern nest with five eggs discovered at Tommy Thompson Park on 1 June 2017.
Photo: M. Dupuis-Désormeaux

Methods

Volunteer naturalists, as well as TRCA staff, have monitored breeding birds at TTP since 2005 (Johnston and Sturdee 2016). TRCA also conducts bird migration monitoring, including bird banding at TTP (Shaw 2014). Breeding birds are recorded using two methods: variable circular plot counts (VCP) (Reynolds *et al.* 1980) and nest searching. The VCP method documents all birds seen or heard over a five-minute period at nine predetermined locations, while the nest searching method documents nests found by actively searching trees, shrubs and wetlands. The nest searching survey method is valuable to bird conservation because it provides indicators of breeding success and parasitism/predation rates. The researchers document nest location (using handheld GPS units), habitat, bird species, height of nest, construction material, number of eggs, evidence of parasitism and also note anything unusual.

Results

In 2017, 37 species were detected using VCP and 32 species using nest searching. Volunteer naturalists recorded the presence of Least Bittern by casual observations over various dates starting on 3 May 2017. In June, two Least Bittern nests were discovered in different wetlands within the park. Both nests were found during routine Red-winged Blackbird (*Agelaius phoeniceus*) nest searches. On 1 June 2017, the first Least Bittern nest was discovered in a dense patch of invasive common reed (*Phragmites australis*) in one of the embayments of the park. The nest contained five eggs and was built over an old Red-winged Blackbird nest (Figure 2).

Figure 3. Least Bittern on nest at Tommy Thompson Park, 2 June 2017. *Photo: M. Dupuis-Désormeaux*

Figure 4. Juvenile Least Bittern captured at Tommy Thompson Park on 7 August 2017. *Photo: Nigel Shaw*

A cautious return to the area of the first nest on 2 June to verify that the nest was active, and observation from a distance of 20 m, confirmed one adult on the nest (Figure 3).

As part of the active nest monitoring protocol, the first nest was checked on 19 June and was found to have an adult sitting on the nest. When the first nest was checked again on 5 July, the nest was detached from its reed structure and resting at an angle much closer to the water. Further, one egg was discovered floating in the water. However, there were no overt signs of predation and it is possible that the weight of adults and chicks might have eventually broken the nest structure as has been previously noted (Weller 1961).

On 7 June, the second Least Bittern nest was discovered in a different location, in a small pond approximately 1.5 km away from the first location, also in a dense area of common reed. This second nest was identical in construction to the first nest but had no eggs; however, an adult was observed a few metres from the nest while another called from across the pond. The second nest had disappeared when checked on 17 July.

On 7 August, staff at the bird research station banded a juvenile Least Bittern from a mist net located in the same embayment as the first detected nest, leading to speculation that this juvenile was from the nearby nest (Figure 4).

Discussion

The discovery of Least Bittern nests at TTP was the cumulative effort of volunteer naturalists working closely with TRCA staff using a combination of monitoring methods: VCP, casual observation, nest searching and banding. These

combined activities allowed for the detection and monitoring of the first nesting of this species at the park. Least Bitterns nesting at TTP bodes well for the continued wetland enhancement work performed by TRCA. These results could eventually lead to TTP being identified as a site with Least Bittern Critical Habitat (Environment Canada 2011).

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