

Greater Yellowlegs opportunistically forage on vulnerable mating darners

Alexandra Anderson and Gill Holmes

Introduction

The Greater Yellowlegs (*Tringa melanoleuca*) is a medium-sized shorebird that breeds in muskeg swamps in the boreal region of Canada and Alaska (Elphick and Tibbitts 1998). In Ontario, these birds are known to breed in the Hudson Bay Lowlands (Harris 2007) and pass through southern Ontario during migration. Although they migrate to wintering areas in a broad front across North America, Greater Yellowlegs are rarely observed in large numbers at a single location during their annual cycle (Elphick and Tibbitts 1998). This, combined with the remote location of their breeding sites, has resulted in a lack of knowledge of the biology of Greater Yellowlegs compared to other shorebird species. During southbound migration, Greater Yellowlegs are commonly observed along the southwestern coast of James Bay, Ontario, an important stopover site for many shorebird species. Shorebirds are surveyed and monitored there by the James Bay Shorebird Project each fall,

and daily counts of Greater Yellowlegs can exceed one hundred individuals per day on these surveys (Friis 2018). This congregation of Greater Yellowlegs provides an opportunity to learn more about the ecology of this under-studied shorebird.

Predation Behaviour

We noticed an unusual foraging behaviour of Greater Yellowlegs during a high-tide shorebird survey at North Bluff Point (51.4839°N, 80.4517°W) on 20 August 2017. We walked 3.5 km of coast to record shorebird abundance, diversity and behaviour as part of the James Bay Shorebird Project. On this day, many darter dragonflies (*Aeshna* spp.) (Figure 1) were flying across exposed intertidal mud flats and mating. This may have been triggered by warmer temperatures that day (20°C at 11:00 compared to temperatures less than 16°C on preceding mornings). Mating darners were attached in tandem (Figure 2),



Figure 1. An up-close view of a Subarctic Darner.

Photo: Alexandra Anderson

Figure 2. Subarctic Darners in tandem mating.

Photo: Gill Holmes



flying together and landing on the mudflats or small exposed rocks. We observed mating darners 800m from shore over the mudflats as the tide was rising. We did not identify all of the species of darners mating on this day, but several species, including Canada Darner (*Aeshna*

canadensis), Lake Darner (*Aeshna eremita*), Variable Darner (*Aeshna interrupta*), Sedge Darner (*Aeshna juncea*), Zigzag Darner (*Aeshna sitchensis*), Subarctic Darner (*Aeshna subarctica*) and Shadow Darner (*Aeshna umbrosa*) have been observed in the Hudson Bay Lowlands (Sutherland *et al.* 2005).

Greater Yellowlegs were foraging at the waterline on the incoming tide during this survey (Figure 3). We observed 62 adult Greater Yellowlegs, six juveniles and an additional 12 un-aged Greater Yellowlegs. Most of the yellowlegs were loafing, but 13 adults and one juvenile were feeding. Of the 13 foraging adults,



Figure 3. Greater Yellowlegs on intertidal flats, southwest James Bay. Photo: Jean Iron

we observed four birds preying upon mating darners. The yellowlegs grabbed vulnerable darners while pairs were attached in tandem. They then dunked the darter pairs under water repeatedly until the darners detached or appeared stunned. The yellowlegs swallowed the darners one at a time in only a few gulps and then continued foraging. The whole process, capture to consumption, occurred in approximately 30 seconds. This was the first and only instance that we noticed yellowlegs depredating darners during the daily shorebird surveys which occurred over two months. We did not notice darners mating over the intertidal area in large numbers any other day during the season. Most prey items consumed by foraging shorebirds in this area are not identifiable by observation with a spotting

scope; however, it is easier to identify large prey items, for example, we have observed Greater Yellowlegs eating stickleback fish (*Gasterosteus* sp.) at this site.

Importance

Knowledge of the diet of Greater Yellowlegs is limited to stomach contents from fewer than 20 individuals (Elphick and Tibbitts 1998) and personal observations. Greater Yellowlegs have been known to eat dragonfly naiads (Bent 1927, Brooks 1967a, b) and occasionally adult dragonflies (Elphick and Tibbitts 1998). The predation by Greater Yellowlegs of darners in tandem is an observation that, to our knowledge, has not been documented in the literature. The consumption of adult darners is not surprising given their shared habitat; however

dragonflies are agile flyers (Bomphrey *et al.* 2016, Paulson 2019) and may frequently escape predation by yellowlegs. Our observation indicates that Greater Yellowlegs are opportunistic foragers and can prey on vulnerable darners, such as when they are flying in tandem and their flight maneuverability is limited.

Acknowledgements

We thank the James Bay Shorebird Project partners including the Canadian Wildlife Service, Environment and Climate Change Canada, the Ontario Ministry of Natural Resources and Forestry, Moose Cree First Nation and Trent University for their efforts to monitor and conserve shorebirds along James Bay. We thank Don Sutherland and Colin Jones for assistance identifying darners in photos.

Literature Cited

Bent, A.C. 1927. Life histories of North American shore birds, Part 1. Smithsonian Institution United States National Museum Bulletin 142. Dover Publications, Inc., New York, NY, USA. 327 pp. Accessed online at: https://www.gutenberg.org/files/47028/47028-h/47028-h.htm#Page_327

Bomphrey, R.J., T. Nakata, P. Henningson and **H.T. Lin.** 2016. Flight of the dragonflies and damselflies. *Philosophical Transactions of the Royal Society B* 371(1704), p.20150389.

Brooks, W.S. 1967a. Food and feeding habits of autumn migrant shorebirds at a small mid-western pond. *Wilson Bulletin* 79:307-315.

Brooks, W.S. 1967b. Organisms consumed by various migrating shorebirds. *Auk* 84: 128-130.

Elphick, C.S. and **T.L. Tibbitts.** 1998. Greater Yellowlegs (*Tringa melanoleuca*), version 2.0 *In* The Birds of North America Online (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://birdsna.org/Species_Account/bna/species/greyell/introduction

Friis, C. 2018. James Bay Shorebird Project 2017 Report. Environment and Climate Change Canada's Canadian Wildlife Service, Ontario Ministry of Natural Resources and Forestry, Bird Studies Canada, Moose Cree First Nation and Trent University. Toronto, Ontario. 30 pp.

Harris, R. 2007. Greater Yellowlegs. Pp. 224-225 *in* Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage and A.R. Couturier, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. Toronto, Ontario.

Paulson, D. 2019. Dragonflies and damselflies—a natural history. Ivy Press, Brighton, UK. 224 pp.

Sutherland, D.A., M.J. Oldham, C.D. Jones and **P.D. Pratt.** 2005. Odonata of Ontario's Hudson Bay Lowland. *Ontario Odonata* 6:1-11.

Alexandra Anderson

Environmental and Life Sciences
Graduate Program
1600 West Bank Drive
Trent University
Peterborough, Ontario K9J 0G2
E-mail: aande763@gmail.ca

Gill Holmes

Environmental and Life Sciences
Graduate Program
1600 West Bank Drive
Trent University
Peterborough, Ontario K9J 0G2