

Swimming Eastern Chipmunks, *Tamias striatus*, and Hairy-tailed Mole, *Parascalops breweri*, in Kawartha Highlands Provincial Park, Ontario

ROOT GORELICK¹ and SUSAN M. BERTRAM²

¹Department of Biology and School of Mathematics and Statistics, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario K1S 5B6 Canada; e-mail Root_Gorelick@carleton.ca

²Department of Biology, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario K1S 5B6 Canada; e-mail: Sue_Bertram@carleton.ca

Gorelick, Root, and Susan M. Bertram. 2008. Swimming Eastern Chipmunks, *Tamias striatus*, and Hairy-tailed Mole, *Parascalops breweri*, in Kawartha Highlands Provincial Park, Ontario. *Canadian Field-Naturalist* 122(1): 73-75.

We report swimming Eastern Chipmunks, *Tamias striatus*, and a swimming Hairy-tailed Mole, *Parascalops breweri*, in southern Ontario in Kawartha Highlands Provincial Park. Although naturally swimming Eastern Chipmunks have been seen before, they have never been previously documented in the literature. Ours appears to be the first photograph of a swimming Hairy-tailed Mole and the first report of one successfully and apparently voluntarily swimming.

Key Words: Eastern Chipmunk, *Tamias striatus*, Hairy-tailed Mole, *Parascalops breweri*, natatory behaviour, swimming.

Eastern Chipmunk

While canoeing in Kawartha Highlands Provincial Park, Peterborough County, Ontario, in August 2006, we saw at least two swimming Eastern Chipmunks. On 28 August 2006, at about 1700 hr, we watched one scout out the water's edge of a small rocky island (circa 75 m²) at the southern end of Vixen Lake (44°38'37"N, 78°12'31"W). The chipmunk jumped into the water at the place giving it the shortest possible crossing to the mainland, a swim of about 6-7 m. On 29 August 2006 at 12:00 noon, we watched another Eastern Chipmunk swim from the north shore of Long Lake to the large island in the middle of the lake (44°41'20"N, 78°10'31"W). This was a 40-45 m crossing, with a 10 knot cross-wind. Its shoulders were paddling at an impressive rate. Both chipmunks swam with the same style, with a huge proportion of their bodies (or, at least, fur) above water. From the tip of their nose to the tip of their tail, a continuous line of fur was above water except for a very small gap at the base of the neck and base of the tail. It was sunny at the time and place of both swims.

We saw an Eastern Chipmunk crossing at the narrows on the southern end of Vixen Lake during late evening on 28 August 2006, but it was too dark to positively identify the animal. During the day, we have seen individuals on the small rocky island that this narrows separates, indicating that these Eastern Chipmunks must be swimming to and from this island.

The swimming chipmunks we saw must have been extremely vulnerable to predation, swimming high out of the water on bright sunny days, with Great Blue Herons (*Ardea herodias*) usually nearby at both sites, and frequently swimming individuals of the Eastern Rat Snake, *Pituophis spiloides* × *alleganiensis*, (synonym *Elaphe obsoleta*) and Northern Water Snake, *Nerodia sipedon*, at the Vixen Lake site. Great Blue Herons are generalist predators that feed on mammals as large as 15 cm long Muskrats, *Ondatra zibethica*

(Kirkpatrick 1940; Godfrey 1966). Eastern Rat Snakes eat Eastern Chipmunks (Weatherhead et al. 2003). There are no records of Northern Water Snakes eating Eastern Chipmunks, although they may do so (John Himes, personal communication). Hairy-tailed Moles (*Parascalops breweri*) are also occasionally eaten by snakes, albeit water moccasins, *Agkistrodon mokasen* (Eadie 1939), whose range does not extend as far north as Ontario.

None of the local naturalists, including the owners of the Long Lake Lodge, had ever seen chipmunks swimming before. However, Eastern Chipmunks are known to rarely swim, especially when there is a dearth of food (Jeff Skevington, personal communication). This is consistent with the much larger ranges of individuals when food is scarce and smaller ranges during masting events of oaks [*Quercus* spp.] (Mares et al 1976; Lacher and Mares 1996). Contrary to our observations of swimming chipmunks, summer of 2006 was a masting year for oaks in Ontario, in which Jeff Skevington did not see or expect to see any chipmunks swimming in northern Ontario (personal communication). Eastern Chipmunk ranges are also known to expand in autumn, but not as early as August (Forsyth and Smith 1973).

There exist several published accounts of swimming chipmunks (e.g., Wilber and Weidenbacher 1961; Dagg and Wilson 1972), but each of these studies consists of researchers dropping mammals into a pool of water to ascertain whether and how well they swim. We have not found any published reports of chipmunks swimming without being dropped into water by humans. We are, therefore, providing the first known documentation of Eastern Chipmunks swimming naturally and voluntarily.

Hairy-tailed Mole

On 30 July 2007 on Long Lake, we saw a Hairy-tailed Mole, *Parascalops breweri*, swimming across the lake (44°41'27"N, 78°09'53"W). This was roughly



FIGURE 1. Swimming Hairy-tailed Mole, Long Lake, Kawartha Highlands Provincial Park 30 July 2007.

a half kilometer further east along Long Lake than where we saw the swimming chipmunk, roughly one hundred meters east of the islands in the middle of the lake. This mole was swimming in a relatively straight path from south to north and was photographed at least 20 m, and probably 25 m, from shore at 2:15 pm on a cloudy day (Figure 1).

Hairy-tailed Moles are usually found in areas with well-drained soils, not the Canadian Shield, although some locales listed in Dobbyn (1994) are on the Shield. Individuals almost invariably remain underground hence are usually never seen (van Zyll de Jong 1983; NatureServe 2008*). Male Hairy-tailed Moles often leave their tunnels during the breeding season, but this occurs in April in Ontario (NatureServe 2008*), consistent with breeding in late March and early April in southern New Hampshire (Eadie 1939). Summer is far from the breeding season, making our sighting on 30 July very unexpected.

The only other species of mole native to the Kawarthas, the Star-nosed Mole, *Condylura cristata*, is a good swimmer (van Zyll de Jong 1983; Dobbyn 1994). However, neither its nose nor tail resembles that of the Hairy-tailed Mole. The Eastern Mole, *Scalopus aquaticus*, is also native to Ontario, but its range does not extend to the Kawarthas. The Eastern Mole is found only in the far southwestern portion of the province, in Essex County and the Municipality of Chatham-Kent, which is 500 kilometers from Long Lake (Dobbyn 1994). There is at least one report of an Eastern Mole swimming (Hanawalt 1922), but its technique

is different from that we saw in the Hairy-tailed Mole. The Eastern Mole apparently only uses its rear legs for propulsion while swimming, while its front feet are held together like a prow for steering. By contrast, the Hairy-tailed Mole at Long Lake was clearly using both its front and rear legs for propulsion, as can be seen in the figure, and as also reported by Foote (1941).

There only seems to be one published report of a swimming Hairy-tailed Mole that was not intentionally dropped into water by humans (Foote 1941), but it was apparently not swimming of its own volition. Foote implies that the mole accidentally fell into the river and was swimming in circles while being helplessly carried to its death by the incoming tide (at least until killed by Foote and his companions). While the Hairy-tailed Mole we observed may have accidentally fallen or have been chased into the water, it was swimming across a narrow lake with no currents or tides and was making clear progress, moving in a relatively straight line that was the shortest path (circa 50 m) between south and north shores of Long Lake.

Discussion

This appears to be the first documented report of voluntary and successful swimming of Eastern Chipmunks and Hairy-tailed Moles. All previous reports for Eastern Chipmunks are of humans intentionally placing animals in water. The one previous report of a swimming Hairy-tailed Mole was of an individual swimming in circles while being carried by the tides to its apparent death. Our observations are consistent

with other species of typically non-swimming North American mammals, such as the Groundhog, *Marmota monax*, in that the animals might be good swimmers, but only do so rarely (Johnson 1923; Chapman and Feldhammer 1982). We suspect that Eastern Chipmunks swim as foraging strategy, although this guess is somewhat vitiated by the abundance of acorns in summer 2006 and the ubiquity of aquatic chipmunk predators. We are unsure what might have motivated the Hairy-tailed Mole to swim, other than to possibly escape an even less-aquatic predator or the mole's inability to locate the direction of the shore upon accidentally falling into the lake.

Acknowledgments

Thanks to Jeff Skevington, Michael Runtz, Kringen Henein, John Himes, and two anonymous reviewers for their helpful comments.

Documents Cited (marked * in text)

NatureServe. 2008. NatureServe explorer: an online encyclopedia of life; Version 6.2. NatureServe, Arlington, VA. (www.natureserve.org/explorer) (accessed 30 July 2008).

Literature Cited

Chapman, J. A., and G. A. Feldhammer. 1982. Wild mammals of North America: biology, management, economics. Johns Hopkins University Press, Baltimore, Maryland.

Dagg, A. I., and D. E. Wilson. 1972. Swimming in northern terrestrial mammals. *Canadian Journal of Zoology* 50: 117-130.

Dobbyn, J. S. 1994. Atlas of the mammals of Ontario. Federation of Ontario Naturalists, Don Mills, Ontario.

Eadie, W. R. 1939. A contribution to the biology of *Parascalops breweri*. *Journal of Mammalogy* 20: 150-173.

Foote, L. E. 1941. Swimming Hairy-tailed mole. *Journal of Mammalogy* 22: 452.

Forsyth, D. J., and D. A. Smith. 1973. Temporal variability in home ranges of Eastern Chipmunks (*Tamias striatus*) in a southeastern Ontario woodlot. *American Midland Naturalist* 90: 107-117.

Godfrey, W. E. 1966. The birds of Canada. National Museum of Canada, Ottawa, Ontario.

Hanawalt, P. A. 1922. Habits of the Common Mole, *Scalopus aquaticus machrinus* (Rafinesque). *Ohio Journal of Science* 22: 164-169.

Johnson C. E. 1923. Aquatic habits of the Woodchuck. *Journal of Mammalogy* 4: 105-107.

Kirpatrick, C. M. 1940. Some foods of young Great Blue Herons. *American Midland Naturalist* 24: 594-601.

Mares, M. A., M. D. Watson, and T. E. Lacher. 1976. Home range perturbations in *Tamias striatus*: food supply as a determinant of home range and density. *Oecologia* 25: 1-12.

Lacher, T. E., and M. A. Mares. 1996. Availability of resources and use of space in Eastern Chipmunks, *Tamias striatus*. *Journal of Mammalogy* 77: 833-849.

van Zyll de Jong, C. G. 1983. Handbook of Canadian mammals. 1. Marsupials and insectivores. National Museum of Natural Sciences, Ottawa, Ontario.

Weatherhead, P. J., G. Blouin-Demers, and K. M. Cavey. 2003. Seasonal and prey-size dietary patterns of Black Ratsnakes (*Elaphe obsoleta obsoleta*). *American Midland Naturalist* 150: 275-281.

Wilber, C. G., and G. H. Weidenbacher. 1961. Swimming capacity of some wild mammals. *Journal of Mammalogy* 42: 428-429.

Received 1 February 2008

Accepted 6 August 2008

ADDENDUM



FIGURE 2. An additional observation of a swimming Eastern Chipmunk photographed by Root Gorelick while it was making a 6-7 meter swim at the south end of Vixon Lake, Kawartha Highlands Provincial Park, Ontario 19 August 2009. Although the focus and the resolution are poor the photo clearly shows its swimming posture, with much of the dorsal portion of its body out of the water.