

conducive to the growth of nutrient-enriched sedges upon which the geese feed while rearing young (MacInnes 1966; Ryder 1969).

However, small colonies of Lesser Snow Geese have been previously recorded in interior Keewatin District. Clarke (1940: 42) encountered "a flock of adults and young on 7 August, 1937" on Beverly Lake (64°36'N, 100°30'W). During the early 1960s, T. Sterling (Ducks Unlimited, Victoria, British Columbia) recorded seven nesting sites on islands approximately 6 km west of the west end of Aberdeen Lake (64°30'N, 99°00'W). Fifty-five nests were located in 1963 and 97 nests were recorded in 1964. Kuyt (1966) also observed a colony of 30–40 pairs near the west end of Aberdeen Lake. In July 1970, Miller (1972) documented 21 nests at Kazan Falls (63°43'N, 95°51'W). Five colonies, totalling 134 nests, were also observed in the Pitz Lake–Aberdeen Lake area in the mid 1970s (P. L. McLaren and C. Holdsworth. 1978. Summer bird populations in the Pitz Lake–Baker Lake area, District of Keewatin, NWT. Unpublished report by LGL Environmental Research Associates for Polar Gas Project, Toronto. 82 pp.) All of these colonies are located over 200 km inland from marine habitats but are in areas previously inundated by post-glacial lakes (Anonymous 1967).

The Pelly–Lower Garry lakes area has a similar post-glacial history (Craig 1964). Numerous small islands occur along the margins of most of the lakes. The low-lying islands and adjacent shorelines, which support well-developed sedge meadows, are remarkably similar to the habitat of colonies in the Queen Maud Gulf Sanctuary (personal observation; Ryder

1969). On the basis of habitat features, there appears to be considerable potential for Lesser Snow Goose numbers to expand in this area.

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Literature Cited

- Anonymous.** 1967. Glacial map of Canada. Map 1253A, Geological Survey of Canada, Ottawa.
- Clarke, C. H. D.** 1940. A biological investigation of the Thelon Game Sanctuary. National Museum of Canada, Bulletin No. 96, Biological Series No. 25. Ottawa. 135 pp.
- Craig, B. G.** 1964. Surficial geology of east-central District of Mackenzie. Bulletin Number 99, Geological Survey of Canada, Ottawa. 41 pp.
- Kerbes, R. H., M. R. McLandress, G. E. J. Smith, G. W. Beyersbergen, and B. Godwin.** 1983. Ross' Goose and Lesser Snow Goose colonies in the central Canadian Arctic. Canadian Journal of Zoology 61: 168–173.
- Kuyt, E.** 1966. Adjoining unusual nest sites of Snow Goose and Peregrine Falcon. Blue Jay 24: 171.
- MacInnes, C. D.** 1966. Population behaviour of eastern Arctic Canada Geese. Journal of Wildlife Management 30: 536–553.
- Miller D. F.** 1972. Birds nesting at Kazan Falls. Auk 89: 183–185.
- Ryder, J. P.** 1969. Nesting colonies of Ross' Goose. Auk 86: 282–292.

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Nocturnal Activity of the Woodchuck, *Marmota monax*, in an Urban Park in Ohio

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Frequent above-ground nocturnal activity of the Woodchuck was recorded in an urban park. This activity may be related to heavy human recreational use of the park.

Key Words: Woodchuck, *Marmota monax*, nocturnal activity, urban, Ohio.

Diurnal activity patterns of the Woodchuck, *Marmota monax*, have been studied (Bronson 1962; Hayes 1976); however, few studies attempt to examine nocturnal activity. An exception (Hayes 1976) found

evidence of occasional above-ground nocturnal activity until 2400 h during summer and fall. Other reports of nocturnal activity (Howell 1915; Schoonmaker 1966:87; Hamilton and Whitaker 1979:145) are

primarily anecdotal or suggest its rarity. Early researchers believed most sciurids possessed a retina adapted solely to diurnal vision. However, Tansley et al. (1961) and Green and Dowling (1975) demonstrated that the sciurid retina permits vision at low light intensities. Both ecological and physiological evidence suggest that ground squirrels are capable of nocturnal activity. I report here on the frequent above-ground nocturnal activity of Woodchucks in a metropolitan park with heavy human use during daylight hours.

Six burrow systems, each inhabited by a solitary adult, were monitored for above-ground nocturnal activity between 12 July and 14 August 1982 on 0.8 km of roadside in the Rocky River Reservation, Cleveland Metroparks System, Cuyahoga County, Ohio. Burrows were located in woodlands adjacent to a grass (*Festuca* sp.) and White Clover (*Trifolium repens*) berm associated with a two-lane roadway. Berms are heavily used by people for recreation; however, use was limited to vehicular traffic after 2300 h. All burrows were in areas of equal human use. Artificial street lighting was absent from the study area.

Burrow entrances were surrounded one hour after sunset with a 25-cm wide by 1-cm deep, slightly-dampened, sand layer 25 cm from each opening. Light-coloured sand was placed on the soil to a depth of 0.75 cm and covered by 0.25 cm of dark sand. The contrasting sand layers permitted accurate assessment of Woodchuck activity in early morning darkness. Each entrance was examined for activity (presence of Woodchuck tracks) 1.5 h before sunrise.

One hundred and six instances (3.8 ± 0.7 active burrows/night) of above-ground nocturnal activity were recorded, with activity documented on each of 29 nights. Nocturnal activity of this frequency is contrary to previous reports (Howell 1915; Schoonmaker 1966; Hayes 1976). The duration of nocturnal activity is not known; however, foraging on the berm was observed on two nights and small piles (caches?) of vegetation discovered 1 to 3 m from many entrances during evening burrow preparation were absent the following morning. These observations suggest that a biologically significant nocturnal component of daily activity includes foraging.

Because studies in rural locations have not recorded substantial nocturnal activity, I suggest that this occurrence may represent behavioral plasticity to

minimize disturbance from human use patterns. Nocturnal foraging by Woodchucks was noted in response to hunting (Hamilton and Whitaker 1979: 145), suggesting human disturbance as an important influence. Highway traffic does not influence Woodchuck activities (Manville 1966; Doucet et al. 1974) and habituation to vehicles was observed at the study site. Future studies are necessary to determine if nocturnal activity is common among the sciurids, and the actual influence of human disturbance and other factors such as ambient light and weather on nocturnal activity patterns.

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Literature Cited

- Bronson, F. H. 1962. Daily and seasonal activity patterns in woodchucks. *Journal of Mammalogy* 43: 425-427.
- Doucet, G. J., J. P. R. Sarrazin, and J. R. Bider. 1974. Use of highway overpass embankments by the woodchuck, *Marmota monax*. *Canadian Field-Naturalist* 88: 187-190.
- Green, D. G., and J. E. Dowling. 1975. Electrophysiological evidence for rod-like receptors in the gray squirrel, ground squirrel and prairie dog retinas. *Journal of Comparative Neurology* 159: 461-471.
- Hayes, S. R. 1976. Daily activity and body temperature of the southern woodchuck, *Marmota monax monax*, in northwestern Arkansas. *Journal of Mammalogy* 57: 291-299.
- Hamilton, W. J., Jr., and J. O. Whitaker, Jr. 1979. *Mammals of the eastern United States*. Comstock, Ithaca, New York. 346 pp.
- Howell, A. H. 1915. Revision of the American marmots. *North American Fauna* 37: 1-80.
- Manville, R. H. 1966. Roadside abundance of woodchucks. *American Midland Naturalist* 75: 537-538.
- Schoonmaker, W. J. 1966. *The world of the Woodchuck*. J.B. Lippincott, Philadelphia. 146 pp.
- Tansley, K., R. M. Copenhaver, and R. D. Gunkel. 1961. Spectral sensitivity curves of diurnal squirrels. *Vision Research* 1: 154-165.

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