2017 Spotlight Survey
Wildlife Diversity Program Note #17-1

METHODS

The spotlight survey was initiated in 1981, and has been conducted annually since that time. Observers drive slowly (10–15 mph) on public roads, using 100,000-candlepower spotlights to detect animals by seeing their entire bodies or light reflected from their eyes. Sampling begins an hour after sunset. Most routes are 25 miles in length.

Sampling is phased in from Illinois’ southernmost counties (21 March to 4 April) to the northernmost (11–25 April) to account for differences in phenology. Ideally, routes are sampled when relative humidity is ≥60%, air temperature is >32˚F, and rain or heavy fog is absent (Rybarczyk 1978).

RESULTS

During 2017, staff sampled 1005.4 miles and observed 7,337 animals on 41 routes (Table 1). Animals observed in addition to target species included 29 coyotes, 1 bobcat, 5 beavers, and 2 woodcocks. Staff also recorded 4 foxes, 9 owls, 1 duck, and 1 squirrel; in some cases, species could not be determined.

The number of raccoons observed per mile on 41 routes sampled during both 2016 and 2017 increased 4.3% (Table 2). Indices varied from 0.4–3.6 raccoons per mile for individual routes (Table 3). Long-term indices (1981–2016) correlated negatively with harvest levels during the preceding season ($r = -0.684; p < 0.01$).

DISCUSSION

Spotlight surveys are useful for monitoring relative abundance of the raccoon at large spatial and temporal scales (Gehrt et al. 2002). In recent years, the statewide spotlight index was about 2–3 times greater than when surveys started in 1981. The index for 2017 matched a record set in 1996 (1.46 raccoons per mile).

Results allow IDNR to adjust harvest regulations for large changes in abundance of raccoons. Since 1990-91, seasons for trapping raccoon increased four times, adding a total of 30 days in the northern zone and 32 in the south. Hunting seasons increased from 62 days (north) or 55 days (south) to 93 days. Such changes are not likely to affect harvest levels during periods of low pelt values (Hubert 1990). However, liberal seasons maximize recreational opportunities for core participants and make the most of upswings in volatile markets.

Raccoons are an important part of Illinois’ fur harvest. They also cause property damage (Bluett 2003), harbor zoonoses (Page et al. 2016), and affect other wildlife populations through diseases, parasites, and predation (Schmidt 2002, Heske et al. 1999, Mitchell et al. 1999). Spring spotlight surveys provide reliable information for management decisions, ecological research, and efforts to increase public support for wildlife conservation. Like Nielsen et al. (2009), we recommend sampling ≥ 37 routes per year.


Rybarczyk, W.B. 1978. Evaluation of a spotlight survey technique as an index to Iowa white-tailed deer (Odocoileus virginianus) and raccoon (Procyon lotor) populations. Thesis, Iowa State University, Ames, Iowa, USA.


ACKNOWLEDGMENTS

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Prepared by Bob Bluett – 05/17
Illinois Department of Natural Resources
Office of Resource Conservation
Division of Wildlife Resources
Table 1. Numbers of animals observed per mile for spotlight survey routes in Illinois, 2017.

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Comparable routes (n = 41)


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*Based on comparable routes.

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