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ROAD MORTALITY OF SAW-WHET AND SCREECH-OWLS ON THE CAPE MAY PENINSULA

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ABSTRACT.—During a 10-yr study in southern New Jersey, 250 road-killed raptors of six owl and six hawk species were found during 145 km of road travel between mid-October and early April. Northern Saw-whet Owls (*Aegolius acadicus*) and Eastern Screech-Owls (*Otus asio*) accounted for 45% ($N = 114$) and 36% ($N = 91$) of all road kills, respectively. A large percentage of the saw-whet (79%) and screech-owls (88%) found were less than 1 yr old. More than 87% of road-killed saw-whet owls and 71% of Eastern Screech-Owls were found between November and January. Slightly less than one-half of all road kills of these two species occurred within the southernmost 15 km of the Cape May peninsula. We conclude that southern New Jersey, especially the southern Cape May peninsula, hosts a large number of wintering and migrating saw-whet owls and resident screech-owls, and that collisions with automobiles kill a significant number of these owls.

Mortalidad en caminos de la Península de Cape May de *Aegolius acadicus* y *Otus asio*

RESUMEN.—En un estudio de 10 años en el sur de New Jersey, se encontró un total de 250 rapaces muertas por accidentes carreteros, que incluyeron seis especies de búhos y seis especies de halcones. Los ejemplares fueron encontrados a lo largo de una carretera de 145 km, entre mediados de octubre y los primeros días de abril. El 45% de los ejemplares muertos correspondían a *Aegolius acadicus* ($N = 114$) y el 36% a *Otus asio* ($N = 91$). Un gran porcentaje de los ejemplares de *A. acadicus* (79%) y *O. asio* (88%) colectados tenían menos de un año. El 87% de *A. acadicus* y el 71% de *O. asio* colectados fueron encontrados entre noviembre y enero. La mayoría de las muertes carreteras de estas dos especies ocurrieron 15 km al sur de la Península Cape May. Se concluye que el sur de New Jersey, especialmente al sur de la Península de Cape May, hospeda a un gran número de migrantes invernales de *A. acadicus* y del residente *O. asio*, y que las colisiones con automóviles matan a un número significativo de estos búhos.

[Traducción de Ivan Lazo]

Raptors and other birds are being killed in large numbers by automobiles (Hodson and Snow 1965, Hernandez 1988). To better understand the magnitude of automobile mortality on Northern Saw-whet Owls (*Aegolius acadicus*), Eastern Screech-Owls (*Otus asio*), and other raptors, we report the results of a 10-yr study done in southern New Jersey. In addition to quantifying raptors killed on the road, we present information on the abundance, distribution, seasonal incidence of road kills and the age composition of those road kills.

METHODS

Every weekday from 1980–1990, a 145 km route was driven by GL (Fig. 1) between the North Cape May Ferry Terminal and Atlantic City in southern New Jersey. The drive was part of the route to (starting at about dawn) and from (ending near dusk) work. The route includes two county roads and a state road from the ferry terminal in North Cape May to the beginning of the Garden State Parkway; the Garden State Parkway; and the Atlantic City Expressway for about 5 km east of its intersection with the Garden State Parkway (Fig. 1). The study route was changed slightly in 1987 when the starting point moved from North Cape May to a location 24 km northward on the Parkway, although the entire route was done every day. Cruising speed during the study was between 80 and 88 km/hr.

When a dead raptor was seen on the road, its location was noted as the nearest one-tenth mile road marker along with the date and species. Birds that were not damaged badly were collected, and sex was determined by examining gonads. Age was determined by plumage characters, the presence of two or more primary or secondary feathers of different ages indicated birds greater than 1-yr of age as opposed to birds less than a year old whose primary and secondary feathers were all the same age.

RESULTS

A total of 250 road-killed raptors representing six owl and six hawk species were found along the Garden State Parkway and other roads during the 10-year study period (Table 1). Owls predominated (88% of all raptors) with Northern Saw-whet Owls and Eastern Screech-Owls being most numerous. Saw-whet owls accounted for 52% of all owls and

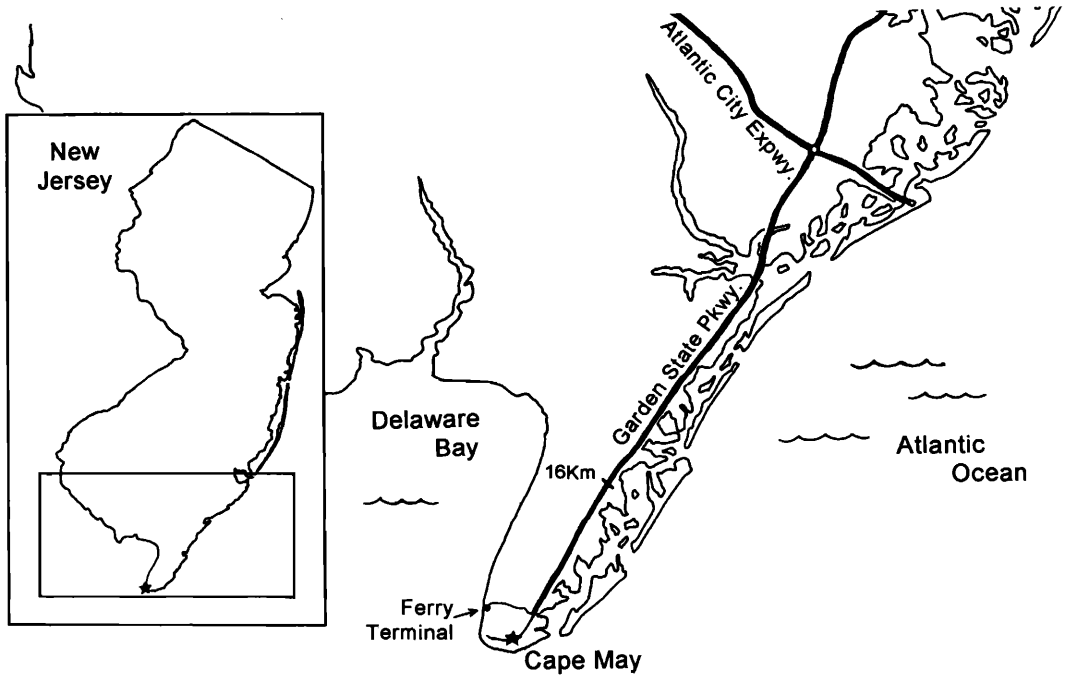

Figure 1. Map of Cape May peninsula, New Jersey, showing the roads where road kills were collected.

screech owls for 42%. The number of road kills per year averaged about 25, although numbers varied greatly from year to year. The smallest number of saw-whet owls found in one year was one in 1984–1985 and the largest was 34 in 1988–1989.

Of the 68 saw-whet owls for which age was determined, 54 (79%) were birds in their first year and the remainder were older than 1 yr. The sex ratio was almost even, with 20 (49%) of 41 owls for which gonads were checked, being female. Among the 32 screech owls for which age was determined, only 13% were older than 1 yr. Males outnumbered females almost two to one (11 males, 6 females), although the sample size was too small to analyze statistically.

More than 87% of the road-killed saw-whet owls were found from November–January, with December accounting for 41% of all road kills (Fig. 2). Five percent of road kills were found in the months of October, March, and April. For screech-owls, November–January also accounted for a majority (72%) of road kills.

The distribution of saw-whet and screech-owls along the study route was not uniform. A much

Table 1. Summary of road mortality of hawks and owls during the study period, 1980–1990, in southern New Jersey. The numbers reflect raptors found on the regular route and other roads during the study period.

SPECIES	NUMBER FOUND
Sharp-shinned Hawk (*Accipiter striatus*)	7
Cooper's Hawk (*Accipiter cooperii*)	1
Red-shouldered Hawk (*Buteo lineatus*)	1
Broad-winged Hawk (*B. platypterus*)	6
Red-tailed Hawk (*B. jamaicensis*)	7
American Kestrel (*Falco sparverius*)	9
Common Barn Owl (*Tyto alba*)	1
Eastern Screech-Owl (*Otus asio*)	91[a,b]
Great Horned Owl (*Bubo virginianus*)	9
Barred Owl (*Strix varia*)	3
Long-eared Owl (*Asio otus*)	1
Northern Saw-whet Owl (*Aegolius acadicus*)	114[c]

[a] Includes 73 found on regular route and 18 found on other roads in Cape May County.

[b] The ratio of red to gray morph owls was 2.15.

[c] Includes 109 found on regular route and 5 found on other roads in Cape May County.

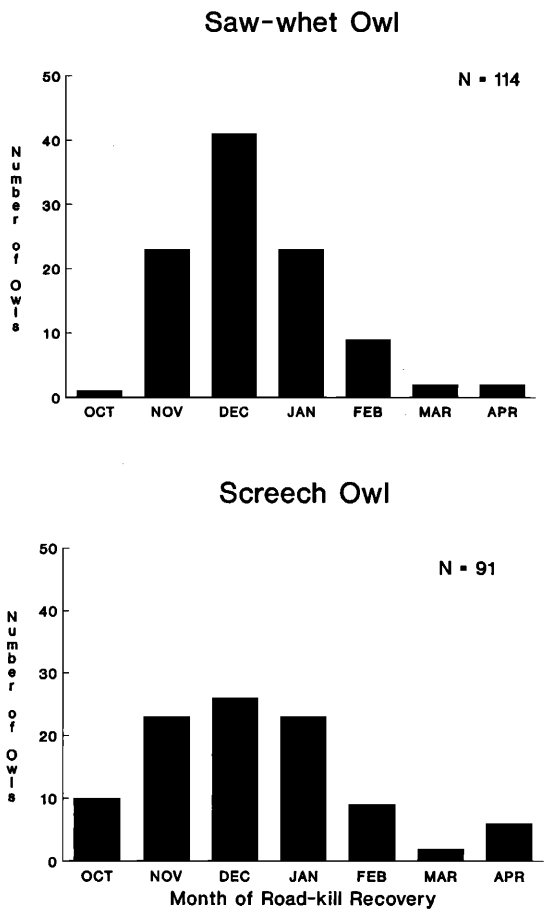

Figure 2. Seasonal distribution of the occurrence of Northern Saw-whet Owl and Eastern Screech-Owl road kills in the Cape May peninsula, New Jersey, during the period 1980–1990.

greater percentage of road kills of both saw-whet and screech-owls were found near the tip of the Cape May peninsula than farther north on the Parkway. The southernmost 10 km of the Garden State Parkway and the road between the ferry terminal and the base of the Parkway accounted for nearly one-half (53 of 111, 47.7%) of all saw-whet owls and 41.2% of all screech-owls found dead. Smaller numbers of owls were found on the Parkway in the region of two stoplights (16–19 km from the end of the Parkway), near the toll booth (32 km)—where cars slow down, and near the bridge over the Great Egg Harbor River (46 km) and its associated toll booth. North of mile-marker 6 (10 km) on the Parkway, the distribution of screech-owls appeared to be uniform. Although north of the Egg Harbor River, very few were found.

DISCUSSION

Our data suggest that a large number of saw-whet owls migrate into and winter in the Cape May peninsula and other portions of southern New Jersey. Our observations, together with recently discovered saw-whet owl roosts in other parts of South Jersey (E. Manners, T. Bailey, and W. Dasey pers. comm.) and the large numbers banded during autumn migration at Cape May Point (Duffy and Kerlinger 1992), suggest that saw-whet owls may winter in greater numbers in this area than in any other area in North America.

The average of 25 road-killed raptors per year seems to be a large number considering that this study was done by one person over a small portion of the peninsula. Furthermore, we know of no other North American studies that report such large numbers of road kills. The fact that most saw-whet owls were recovered after autumn migration suggests that these birds remain in the peninsula for the winter. The preponderance of Eastern Screech-Owls found during November–January and the fact that a large proportion of immature males were in the sample, suggests that this class may be particularly vulnerable to road injuries, especially while dispersing. Road-killed owls are commonplace in the Cape May peninsula. During the same 10-yr period, more than 50 other road-killed raptors, mostly owls, were acquired by the Cape May Bird Observatory. None of these were included in the study. The actual number of saw-whet owls killed on South Jersey roadways is impossible to access, but in areas such as Gloucester County, where communal-type roosts occur, road kills are common (E. Manners pers. comm.).

More than 700 saw-whet owls were banded in Cape May Point during the autumns of 1980 to 1990 (Duffy and Kerlinger 1992). Four of these birds, all banded in November, were recovered by GL from 4–8 km up the peninsula from the banding sites. Of these birds banded in November, one was recovered in April the next year, one in November of the same year, and two in December of the same year. This may indicate that an appreciable number of the owls that migrate into Cape May Point remain on the peninsula for the winter.

The fact that such a large number of Northern Saw-whet Owls, Eastern Screech-Owls, and other

raptors were killed by automobiles demonstrates the magnitude of the threat. It is probably fortuitous for the owls and many other birds that traffic in autumn and winter is much less than in warmer, tourist months. With recent suburban development on the peninsula, habitat has become more limited and local traffic has increased. This could pose an even greater threat to some wintering raptors.

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