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NOTEWORTHY WINTER PREY OF SHORT-EARED OWLS IN SOUTHERN TEXAS: A CASE STUDY

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NOTEWORTHY WINTER PREY OF SHORT-EARED OWLS IN SOUTHERN TEXAS: A CASE STUDY — The winter range of North American short-eared owls (*Asio flammeus*) encompasses much of the United States, including southern Texas, where it is a common winter resident (Oberholser 1974, Rappole and Blacklock 1985). Winter food habits of short-eared owls are relatively well documented, but the majority of investigations have been conducted in eastern Canada and northeastern U.S. (Clark 1975, Holt 1993); midwestern U.S. (Colvin and Spaulding 1983); and British Columbia and Pacific northwestern U.S. (Bogiatto et al. 2001). The short-eared owl has a narrow trophic niche, generally preying on small mammals, with voles (*Microtus* spp.) and deer mice (*Peromyscus maniculatus*) usually reported as the most prevalent prey in North America (Holt and Leasure 1993). Only one study of short-eared owl food habits in Texas (Hogan et al. 1996) can be considered representative. Our objectives were to identify and enumerate mammalian prey in the winter diet of the short-eared owl in an area in southern Texas, and report two previously undocumented prey items in the diet of the short-eared owl.

Our study was conducted on the Escondido Ranch, a property owned by the United States Navy. It encompassed approximately 2,740 ha in southwestern McMullen County, Texas, within the Tamaulipan Biotic Province (Blair 1950). Mean annual rainfall was 60.5 cm, with most precipitation occurring between May and October. The dominant plant community of the ranch was Tamaulipan thorn scrub, but grasslands and riparian deciduous woodlands also occurred. The dominant grass species in the study area was plains bristlegrass (*Setaria leucopila*).

We collected regurgitated pellets (n = 116) of short-eared owls from a communal roost site on Escondido Ranch from 28 November 2007 to 22 February 2008. We located pellets within the communal roost site by systematically walking across the grassland site to flush owls. During each of three collecting trips, we observed 12 to 14 short-eared owls roosting in the study site. Pellets were collected and placed in envelopes labeled with the date, then stored in a freezer for subsequent laboratory analysis.

We dissected pellets by placing each one in a petri dish and carefully teasing it apart using forceps and probes. We included only mammalian prey because our study objectives were limited to identifying and counting mammalian taxa to contrast with known mammalian prey of short-eared owl diets. We examined skulls, jaws, and hair of mammalian prey using a 10× binocular microscope. We used the collection of preserved specimens of locally occurring mammals housed at Texas A&M University-Corpus Christi to identify skulls and hair found in pellets. Most prey items were identified to genus or species based on skulls and dentaries (Glass 1981, Jones and Manning 1992, Elbroch 2006). The number of individuals for each mammalian species was determined by pairing the number of jaws and/or incisors present. We calculated percent count by dividing the number of individuals of a species by the total number of individuals of identified mammalian prey items.

We identified five species of rodents, one species of shrew, and at least one species of leporid from the pellets. Of the 110 mammalian prey items we identified, 82 (75%) were hispid cotton rats (*Sigmodon hispidus*). Numbers of individuals and percentages of total prey for other mammalian taxa included 10 (9%) fulvous harvest mice (*Reithrodontomys fulvescens*), 8 (7%) northern pygmy mice (*Baiomys taylori*), 5 (4%) neonatal Leporidae, 3 (3%) *Peromyscus* spp., 1 (1%) Merriam's pocket mouse (*Perognathus merriami*), and 1 (1%) least shrew (*Cryptotis parva*).

Hispid cotton rats, the dominant prey species of short-eared owls in our study, have been reported only twice previously as the most commonly preyed upon small mammals (Baumgartner and Baumgartner 1944, Long and Wiley 1961). Short-eared owls may have preyed upon large numbers of hispid cotton rats in our study because they are abundant on Escondido Ranch, where Long (2005) found them to be the most frequently captured rodent species.

There are no published reports of short-eared owls preying on Merriam's pocket mouse or northern pygmy mouse, and this is only the second reported instance of fulvous harvest mice being preyed upon by short-eared owls (Smith and Hanebrink 1982). Most research on short-eared owls has been conducted in northern latitudes, well outside the ranges of the Merriam's pocket mouse, the northern pygmy mouse, and the fulvous harvest mouse, as well as the Mexican spiny mouse (*Liomys irroratus*) first reported by Hogan et al. (1996). Additional diet studies in Texas and other southern portions of the range of the short-eared owl may reveal a greater use of mammal species with southern distributions.

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