

DESCRIPTION OF RESIDENCE FOR BURROWING OWL (*Athene cunicularia*) IN CANADA

Section 33 of the *Species at Risk Act* (SARA) prohibits damaging or destroying the residence of a listed threatened, endangered, or extirpated species. SARA defines residence as: “a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating” [s.2(1)].

The prohibition comes into effect immediately upon listing for all threatened, endangered, and extirpated species on federal lands, and for species under pre-existing federal jurisdiction on all lands. Species under pre-existing federal jurisdiction are aquatic species (a wildlife species that is a fish, as defined in section 2 of the *Fisheries Act*, or a marine plant, as defined in section 47 of that Act) or migratory birds protected under the *Migratory Birds Convention Act*. SARA also contains a provision to prohibit the destruction of non-federal species’ residences on provincial, territorial, and private lands by way of an Order by the Governor in Council (GIC), if the Minister of the Environment recommends it necessary to do so [s.34(2), 35(2)].

The following is a description of residence for the Burrowing Owl (*Athene cunicularia*), created for the purposes of increasing public awareness and aiding enforcement of the above prohibition. Burrowing Owls are known to have two different types of residences – nest burrows and roost burrows.

Species Information:

Common Name – Burrowing Owl

Scientific Name – *Athene cunicularia*

Current COSEWIC Status & Year of Designation – Endangered (1995)

Occurrence in Canada – Alberta and Saskatchewan (infrequent occurrences in British Columbia) (Fig. 1)

Rationale for Designation – In decline; still facing habitat loss and fragmentation, increased use of pesticides; increased predator populations.

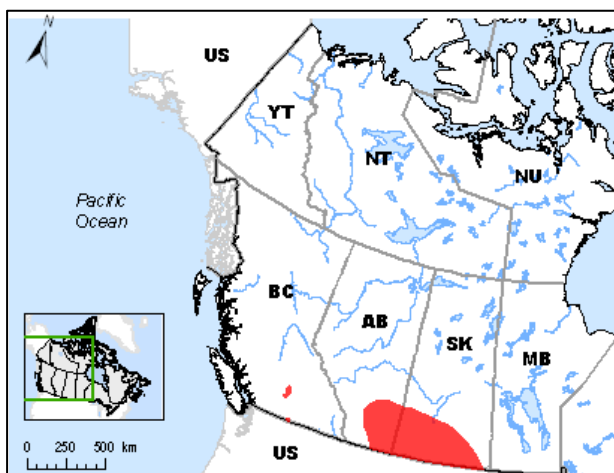


Figure 1. Known current distribution of the Burrowing Owl in Canada.

1) The Nest Burrow

Physical Appearance and Context: Any place used as a nest by Burrowing Owls. In Canada, Burrowing Owls nest underground, in the abandoned burrows of fossorial mammals such as badgers (*Taxidea taxus*), ground squirrels (*Spermophilus* spp.), prairie dogs (*Cynomys ludovicianus*), marmots (*Marmota* spp.) and occasionally foxes (*Vulpes* spp.) or coyotes (*Canis latrans*).

Nest burrows are typically located on flat to gently rolling grasslands¹ (usually grazed cattle pastures, but also roadside ditches, golf courses or other areas with lawn, and occasionally cultivated land) (Fig. 2). Nests are usually surrounded by a high density of other burrows^{2,3}

that serve as roosts for the adult male or for the young when they start to disperse from the nest. Burrow tunnels are typically 1-5 m long (although they can be as much as 7m in length (T.I. Wellicome, unpublished data)) with one or more turns, an enlarged cavity at the end of the tunnel that functions as the nest chamber, and a mound of soil at the entrance⁴. The nest chamber is normally between 15 and 120 cm below ground (Fig. 3). Owls modify and maintain the entrance to the burrow by scratching and digging, and line the tunnel and nest chamber with shredded livestock manure, grass tufts, or litter. Nest burrows can often be recognized by the owl feces ('whitewash') and shredded manure that surrounds the entrance and mound.

Function: The nest burrow functions as a place for the eggs to be laid and provides shelter and protection for the eggs and chicks until fledging. The nest also provides shelter and protection for the adults and storage space for vertebrate prey. Clutches are generally initiated in April or May, and average 9 eggs (ranging from 6-12 eggs)⁵. Laying intervals average 1.5-days between eggs, resulting in a laying period of 9-18 days⁶. Eggs are smooth, white, and round to oval in shape, measuring approximately 32 mm x 26 mm. Incubation is performed solely by the female, and typically lasts 28-30 days, depending on clutch size. Hatching (late-May – mid-June) is asynchronous, so there is typically an age difference of three days (range = 1-7 days) between the oldest and youngest chicks⁶. Chicks are altricial (born featherless, blind, and



R.G. Poulin

Figure 2. Typical Burrowing Owl nest burrow



R.G. Poulin

Figure 3. Inside the nest chamber of a typical Burrowing Owl nest (top view). Here, a nest box was used to enable viewing inside the underground nest. Bedding for the nest is dried, shredded livestock manure.

helpless) and remain underground inside the nest for approximately 10-12 days after hatch, after which time they begin to occasionally emerge from the nest, walking short distances to nearby burrows or waiting for prey deliveries from parents. After owlets are capable of sustained flight (approximately 5 weeks post-hatch), they wander from nest burrows to occupy roost burrows up to a few kilometres away from the nest, although some members of the brood may remain at their natal burrow for the entire summer⁷. After fledging (mid-July – August), the function of the nest burrow changes to that of a roost – owls spend less time inside the nest chamber, but continue to use the burrow mound for roosting and the tunnel entrance as shelter from inclement weather and as protection from potential predators (see Roost Burrows below).

Damage and Destruction of the Residence: Burrowing Owls are most sensitive to disturbance that causes abandonment immediately prior to, or during, the early stages of egg-laying (late April – mid-May). However, any activity that destroys the function of the nest burrow at any time would constitute damage or destruction of the residence. Examples include, but are not limited to, physical destruction of the burrow (collapsing or filling all or part of the nest chamber or tunnel), blocking the burrow entrance or tunnel so that the owls cannot access the nest chamber, or disturbance nearby causing the burrow to collapse or causing owls to abandon their nest (such as blasting or heavy machinery movement nearby, or a constant, new disturbance after the pair has established occupancy). Attempting to move the burrow system and brood would also damage or destroy a Burrowing Owl residence.

Period and Frequency of Occupancy: Burrowing Owls reside in Canada from April to October (approximately 180-200 days). The same burrows are often re-used in subsequent breeding seasons, and can be re-occupied after a year of absence (i.e., can skip a year of occupancy). Consequently, Burrowing Owl nest sites should be considered residences and therefore protected for two full years after the last known month of occupation (i.e. October). If the exact date of last occupation is unknown, any burrow with signs indicating it had been used as a nest in the past (e.g., bones and other prey remains, evidence of manure, whitewash, pellets, or feathers) should receive a mandatory protection of one year from October of the year of discovery.

Man-made nest boxes have been installed for Burrowing Owls in Saskatchewan and British Columbia since the early 1980s. If correctly installed, there is no outward difference in appearance (above ground) between a nest box burrow and a natural burrow. With annual cleaning and maintenance, properly constructed nest box burrows⁸ provide for the same functions as natural burrows that are created by burrowing mammals. Nest boxes can also be reoccupied in several successive years, or after a year or more of being unoccupied. Therefore, nest boxes should receive the same mandatory protections as natural burrows: two full years after the last known month of occupation (October).

2) The Roost Burrow

Physical Appearance and Context: Any burrow (or nest box) habitually used by Burrowing Owls as a roost. Roost burrows have the same general characteristics as nest burrows (i.e., originally excavated by badgers, ground squirrels, prairie dogs, marmots, or foxes), and can be

used as nest burrows in subsequent years, provided there is an adequate nesting chamber. Like nest burrows, roosts typically have 'whitewash' and food pellets around their entrance and mound, but lack the characteristic accumulation of shredded livestock manure (Fig. 4). Breeding males typically have one or two favoured roost sites (usually within 150 m of the nest burrow) that they habitually occupy while the female is laying, incubating, and rearing the brood at the nest. After fledging, each young owl from a brood occupies an average of 5 different roost burrows prior to migration^{7,10}.



Environment Canada

Figure 4. Typical Burrowing Owl roost burrow.

Function: The roost burrow is generally used for resting, as a storage place for prey, for protection from predators such as hawks, falcons, eagles, large owls, or coyotes, or for shelter from inclement weather, such as strong winds, heavy rain, or hot sun.

Damage and Destruction of the Residence: Any activity that destroys the function of the roost at any time would constitute damage or destruction of the residence. See examples above for nest burrows.

Period and Frequency of Occupancy: Burrowing Owls are found in association with burrows at all times throughout the breeding and post-fledging season^{1,4,9}, and typically re-use the same roost burrows for many days or weeks. Since they are often used in close association with nests, and can be reused after being temporarily unoccupied, roosts should receive the same length of protection as nests: 2 full years after the last known month of occupation (October).

References

- ¹Wellicome, T.I., and E. A. Haug. 1995. Second update of status report on the Burrowing Owl in Canada. Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Canadian Wildlife Service, Environment Canada, Ottawa, ON.
- ²Todd, M. W. and P. C. James. 1989. Habitat selection in Canadian Burrowing Owls. Abstract from Raptor Research Foundation Conference, Veracruz, Mexico.
- ³Plumpton, D. L., R. S. Lutz. 1993. Nesting habitat use by Burrowing Owls in Colorado. *Journal of Raptor Research* 27:175-179.
- ⁴Haug, E. A., B. A. Millsap, and M. S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). In *The Birds of North America*, No. 61 (A. Poole and F. Gill, Eds.). Philadelphia: The academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.
- ⁵Wellicome, T. I. 2000. Effects of food on reproduction in Burrowing Owls during three stages of the breeding season. Ph.D. Thesis, University of Alberta.
- ⁶Wellicome, T.I. 2004. Hatching asynchrony in burrowing owls is influenced by clutch size and hatching success but not by food. *Oecologia* 141(4).

- ⁷Todd, L. D. 2001. Survival and dispersal of juvenile Burrowing Owls (*Athene cunicularia*) during the post-fledging, pre-migratory period. M.Sc. Thesis, University of Regina.
- ⁸Poulin, R. G., T. I. Wellicome, R. Longmuir, and D. Scobie. 1998. Burrowing Owl Nest Box Construction and Installation Procedures. Saskatchewan Environment & Resource Management, Fish & Wildlife Branch 9 pp.
- ⁹Clayton, K. M. and J. K. Schmutz. 1999. Is the decline of Burrowing Owls *Speotyto cunicularia* in prairie Canada linked to changes in Great Plains ecosystems? Bird Conservation International 9:163-185.
- ¹⁰King, R. A. and J. R. Belthoff. 2001. Post-fledging dispersal of burrowing owls in southwestern Idaho: characterization of movements and use of satellite burrows. *Condor* 103:118-126.