

SPECIES ACCOUNT

Species Data

Common Name:	Badger
Scientific Name:	<i>Taxidea taxus</i>
Species Code:	M-TATA
BC Status:	Red-listed
Identified Wildlife Status:	Not listed
COSEWIC Status:	Endangered

Project Data

Project Name:	Central Okanagan Terrestrial Ecosystem & Wildlife Habitat Mapping Project
Project Type:	Terrestrial Ecosystem Mapping
Area:	Central Okanagan
Ecoprovince:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau
Ecosections:	Northern Okanagan Basin (NOB)
BGC Units:	IDFxh1, PPxh1
Map Scale:	1:20 000

Distribution

Provincial Range

Badgers primarily occur in the grasslands and open ponderosa pine forests in valleys of the Cariboo and Thompson-Nicola areas, west as far as Lillooet and north as far as Williams Lake and Clearwater, and from the Okanagan valley through to the southern Rocky Mtn. Trench (Blood 1993, Rahme et al. 1995). Recent sightings have been concentrated in the Kamloops area, the south Okanagan and the East Kootenays (Cannings et al. 1999).

Badger distribution in BC is correlated with the occurrence of major prey species and preferred biogeoclimatic zones: Bunchgrass (BG), Ponderosa Pine (PP), and Interior Douglas-fir (IDF) (Rahme et al. 1995). In the East Kootenays they occur in the PP, IDF, Montane Spruce, Engelmann Spruce-Subalpine Fir and Alpine Tundra biogeoclimatic zones, but are most frequently found in the IDF biogeoclimatic zone (Newhouse and Kinley 2000).

Elevation Range

In British Columbia, badgers are usually found from 400m to 1500m, and occasionally to 2400m (Rahme *et al.*, 1995). Newhouse and Kinley (2000) recorded occurrences from 800 to 2700 m in the upper Columbia and upper Kootenay valleys.

Distribution in the Project Area

Badgers are expected to be found patchily throughout the study area, with highest concentrations in the grasslands and open habitats of the IDFxh1 and PPxh1 biogeoclimatic units on the east side of Okanagan Lake. Some badgers have been sighted on golf courses on the lowlands of Kelowna creek.

Ecology and Habitat Requirements

Badgers are solitary, nocturnal carnivores of open habitats, which are highly specialized for digging and spend much of their time in underground burrows. Each badger occupies a permanent home range of at least 100 ha (Rahme *et al.* 1995). The males' larger home ranges of up to 475 ha overlap the females' ranges in the breeding season (Cannings *et al.* 1999).

Badgers are less active and their home range sizes are much smaller in the winter, and they spend most of their time in burrows (Cannings *et al.* 1999). They will enter a state of mild torpor during cold spells (Blood 1995, Rahme *et al.* 1995). Dens are used throughout the growing season as well as during the day, and for maternity sites. A new den may be dug each day in summer, but they are often reused, while one den may be used for the entire winter (Sargeant and Warner 1972, Long 1973). Dens have an elliptical entrance 20-30cm wide, and maternity dens have branched main channels and side tunnels (Blood 1995).

Mating occurs in July or August, but implantation is delayed until January or February, and young are born about April; this allows Badgers to mate in summer when they are the most active and likely to interact, and raise young in the spring when food is most abundant (Blood 1995). Average litter size is two to three, with a maximum of five (Rahme *et al.* 1995). Young disperse in their first summer, and may travel up to 110 km to locate a suitable home range (Messick and Hornocker 1981). Only yearling or older males will reproduce, but some females will mate their first summer, at an age of only four to five months (Messick and Hornocker 1981, Blood 1995).

Badgers generally hunt for fossorial or semi-fossorial prey, primarily Northern Pocket Gopher, Columbian Ground Squirrel, and Yellow-bellied Marmot (Rahme *et al.* 1995). Badgers are opportunistic and will also eat amphibians, snakes, hares, chipmunks, birds, eggs, insects, fish, and carrion (Rahme *et al.* 1995, Blood 1995; Newhouse and Kinley 2000). They will consume corn, grain, herbs and wild grasses when prey availability is low (Cannings *et al.* 1999).

General Living

Food and Security/Thermal Habitat

Badgers require deep, friable soils for digging, and require abundant prey, particularly pocket gophers, ground squirrels, or marmots (Rahme *et al.* 1995). They occur in the dry interior valleys that support grassland, shrub-steppe and open stands of ponderosa pine or Douglas-fir (Blood 1995). However, badgers will use a variety of habitat types, including forests (R. Packup pers.com.).

Habitats preferred by badgers in the East Kootenays were generally associated with relatively open forest or non-forest including grassland, cultivated land, highway rights-of-way, alpine tundra and linear disturbances and, negatively associated with canopy closure (Apps and Newhouse 2000). Sites with 35% canopy cover or less were preferred; sites with 6-15% canopy cover were highly preferred; and sites with 0-5% canopy cover were used extensively (Newhouse and Kinley 2000).

Denning can only occur in dry, friable soils that are > 1 m deep. Badgers in the East Kootenays tended to select glaciofluvial and to a lesser extent, glaciolacustrine soils for denning (Newhouse and Kinley 2000). Positive correlations have been shown for sandy-loam and well-drained soils, but negative associations for gravelly soils (Apps *et al.* 2001).

Badgers have been negatively correlated with elevation, slope and terrain ruggedness, but positively correlated with warm aspects at a fine scale (Apps *et al.* 2001).

Although grasslands and open forests that are overgrazed have lower carrying capacities for rodents and Badgers (Rahme *et al.* 1995), many ground squirrel colonies exploited by badgers are on lands that had been heavily grazed (Newhouse and Kinley 2000).

Ratings

This model employs a 4-class rating scheme because there is insufficient knowledge of habitat requirements to use a 6-Class scheme yet there is sufficient knowledge to go beyond a 2-class rating scheme. This complies with the recommended rating scheme in the RIC standards manual (1999).

Provincial Benchmark

Ecosection	Unknown (OKR, SOB, NOB, SOH, THB, PAR, FRB, EKT)
Biogeoclimatic Zones	BG, PP, IDF
Habitats	Grasslands, shrub-steppe, open Py/Fd forest

Map Themes

Life Requisite	Habitat Use	Season	Rating Code	Ecosystem Attributes
General Living	Security/ Thermal, Food	Growing season	LIA	•open habitats with deep, friable soils

Ratings Assumptions

General Living – Security/Thermal, Food	
Site Series	• Open grasslands rated up to High; shrub-steppe and open Py/Fd forest (<35% canopy cover) up to Moderate.
Structural Stage	• No effect.
Shrub Density	• Dense rated down 1 class.
Range Condition	• Poor condition rated down 1 class.
Aspect	• Cool aspects rated up to Moderate.
Slope	• Very steep rated up to Low; flat to gentle slopes up to Moderate.
Soil Texture	• Very fine (clay) and very course (gravel) rated up to Low.
Soil Depth	• Shallow rated up to Low; very shallow rated Nil.

Map Interpretation

Only one map theme has been portrayed for Badger, which includes denning and foraging (*general living all year*, LIA).

The highest-value method will be used to display suitability ratings, so the highest rating of any of the ecosystem units occurring will be used to colour the entire polygon.

With home ranges of at least 100ha, Badgers need a fairly large area to provide a prey base and denning opportunities. Although home ranges may encompass less suitable habitat, small areas that are isolated from other suitable habitats are less likely to be of value to Badgers.

Management Recommendations

The most critical habitat sites for Badgers are their maternity dens. These dens usually occur on gentle to moderate sloping grasslands, often adjacent to significant populations of ground squirrels or pocket gophers. Soils are typically deep and either lacustrine or glaciofluvial. Management should ensure there is no disturbance to den sites, and that no activities significantly affect prey species or create barriers between foraging areas and denning areas. Corridors or connectivity should be maintained with other natural areas to allow for their high degree of motility and dispersion. Road placement should avoid intersecting suitable badger habitat, as road mortality is the major cause of death for this species. Owners may wish to conduct inventories to specifically identify important badger habitats.

Literature Cited

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Badger Suitability Map

