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## **Badger**

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*This species is endangered in British Columbia due to small numbers, continuing loss of habitat, persecution, and road mortality.*





## Why are Badgers at risk?

The Badger is at risk in British Columbia due to fragmented and threatened habitat, low reproductive success and high mortality. Badger habitat is limited primarily to the dry, southern interior of the province. The key habitats for Badgers – grasslands and open pine or fir forests along the major valleys – have been greatly modified by development of towns, rural subdivisions, ranches, orchards, golf courses and highways. Many former habitats, particularly in the Okanagan area, no longer support Badgers. Reservoir flooding in the East Kootenay area has removed Badger habitat. Forest succession and encroachment into grasslands is reducing available habitat in some regions, although some habitat has been created in areas where productive forests have been cleared for agriculture.

From settlement times until quite recently, Badgers received little or no protection. Many were trapped for their fur or were indiscriminately shot as nuisance animals. Ranchers feared that their cattle or horses would break a leg by stepping in Badger burrows, or that Badger digging would damage irrigation works and interfere with operation of farm machinery. Although damage by Badgers is usually not serious, it has resulted in considerable persecution. Rodent control programs, that poisoned ground squirrels and pocket gophers, probably reduced the food supply for Badgers and resulted in deaths of some that ate poisoned rodents. These historical factors, in combination, are believed to have seriously reduced Badger populations in the province.

Today, trapping and sport hunting of Badgers are not allowed, rodent poisoning is not practised on Crown Lands,

and removal of Badgers that cause property damage is strongly discouraged. Nevertheless, Badgers are probably still illegally killed each year, or caught in traps set legally for Coyotes or Bobcats. In addition, Badgers are now faced with hazards such as getting caught in fences, drowning in irrigation canals or being run over by vehicles or trains. Highway traffic is presently the major cause of Badger mortality in British Columbia. Human activities here may result in relatively few Badger deaths each year, but it must be remembered that the population is already small. Mortality caused directly or indirectly by people, when added to natural losses, could be preventing population increase or causing continued declines in some areas.

Continuing development in Badger habitats across the province for housing, agriculture and other uses is a major concern, particularly in the Okanagan Valley, but also in the Thompson River and Rocky Mountain Trench areas. As land development continues, Badger populations will be further reduced. Very little Badger habitat is protected in parks or reserves.

With its limited distribution, small numbers and ongoing loss of habitat, the Badger is indeed a species at risk in British Columbia.

## What is their status?

Badgers are very difficult to count and intensive monitoring of the British Columbia population has only recently begun. Present estimates of their abundance are based on radio-telemetry studies in the East Kootenay and Thompson-Okanagan regions, as well as on random sightings, digging sign, specimen records, such as from traffic kills, and local knowledge of wildlife biologists and other field workers. Badger populations are difficult to census because Badgers are nocturnal and can

have very large home ranges, and because there appears to be no direct correlation between the number of Badger burrows in an area and the number of Badgers.

Analysis of historical information suggests that there are fewer Badgers in British Columbia now than a century ago. A recent review of Badger abundance in British Columbia concluded that the population is less than 200 breeding adults. This small population, spread thinly over several valleys, is extremely vulnerable to regional and

*Key Badger habitats have been greatly modified or lost to development.*

provincial extirpation due to further human development in the key habitat areas.

The Badger was originally placed on the provincial Blue List of species vulnerable to human activity,

but new information resulting from recent research in the Kootenays and in Thompson-Okanagan resulted in moving this species to the Red List (species being considered for legal designation as Threatened or Endangered). Nationally, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) considers the British Columbia subspecies of Badger to be Endangered. The Ontario subspecies is also considered Endangered by COSEWIC, while the Prairie subspecies is considered Not at Risk.

Since 1967, it has been illegal to trap or shoot Badgers anywhere in British Columbia. It is also illegal to buy or sell Badger pelts, and any Badgers killed accidentally must be reported to a Conservation Officer.

## What do they look like?

North American Badgers (*Taxidea taxus*) are among the largest members of the weasel family. They are stout, shaggy animals, with



distinctive black and white facial markings and a short tail. Usually encountered in grassland or open forest habitats, they are not likely to be confused with any other North American mammal. About 6 to 14 kilograms in weight and 65 to 90 centimetres long, these short-legged animals seem to flow along the ground. The fur is short on the back and longer on the sides, giving the Badger a squat, flattened appearance.

*The provincial Badger population is less than 200 breeding animals.*

Badgers have silver-grey to yellow-brown upperparts, with some intermixing of black and buff. Their undersides are lighter, usually grey, buff or cream. Their feet and lower legs are black. Striking black and white markings on the head include: a conspicuous white stripe along the midline of the head, from the nose to the base of the neck; black fur around the eyes and on the side of the snout; and a triangular black

patch, surrounded by white fur, on the side of the face. These black “badges” – one on each cheek – are the basis for the Badger’s name. Badgers have a very loose, tough skin but can’t, as fable would have it, “turn around in their own skin.”

Adult males are slightly larger and heavier than females, but the markings of both sexes are similar and the sex of Badgers cannot be reliably determined from field sightings.

Badgers are remarkably adapted for digging to obtain prey or to make protective burrows, and they spend a lot of time underground. Such animals are said to be *fossorial*. These adaptations include extremely muscular forelegs, broad front feet with long, curved claws up to 5 cm long, a short, thick neck, a triangular head and membranes to protect the eyes from dirt. The hind feet are smaller than the forefeet and have smaller claws; there are five toes on each foot.

Badger holes, the most prominent sign of this animal, have entrances 20 to

30 cm in diameter and are elliptical in shape, as one would expect from such a flattened animal. Claw marks in the tunnel entrance may be seen along the sides, parallel to the ground, 3 to 5 cm apart. Hair may also be found around the entrance, further identifying the burrow as a Badger’s.

Badger tracks may be found in the excavated soil at the mouth of the burrow. The tracks are extremely “toed-in” and the long front claws generally leave marks. The stride is 15 to 30 cm, with the front track being about 5 cm wide and the hind one slightly less.

Like other carnivores, Badgers have teeth designed for tearing and shearing flesh. Badgers have two pairs of scent glands – one pair on the belly and the other near the anus. The anal glands secrete a strong but relatively inoffensive odour.

### **What makes them unique?**

**N**orth American Badgers have several unique or unusual characteristics. They are highly specialized for digging, and have distinctive

facial markings. Badgers have specialized food habits and a remarkable ability to cope with food scarcity in winter.

Burrows play a central role in the ecology of Badgers, serving as sites for daytime resting, food storage and birth and rearing of kits, and as headquarters for hunting forays. Badgers use hundreds of burrows within their home ranges and many burrows are re-used, sometimes by different Badgers. Dens dug by Badgers are used by many other species of grassland wildlife. In British Columbia, these dens were once particularly important for Western Rattlesnakes and for the rare Burrowing Owl.

Badgers eat large numbers of rodents that may damage pastures or cropland and compete with livestock for forage. Studies of captive Badgers have estimated that they need about 2.3 ground squirrels per day to meet their energy needs. Populations of up to five Badgers per square kilometre have been found in good habitat in Idaho. At these levels, they would be expected to severely reduce rodent numbers, but Badger population densities in British Columbia are much lower.

Badgers are largely solitary and nocturnal in their habits. In British Columbia, where suitable habitats have a patchy distribution, home ranges for females average 50 square km, while for males they can reach up to 500 square km. Home ranges of individuals often overlap and there is no evidence of defended territories. In winter, Badgers confine their activities to a small part of their total home range.

### How do they reproduce?

Badgers lead a solitary existence, except when females are raising young and for brief encounters between mating pairs. Mating occurs in July or

August. Only yearling or older males will breed, but up to 40 percent of juvenile females will breed, as well as yearling and older females. For females to breed in their first summer, at an age of only four to five months, is unusual in mammals the size of Badgers.

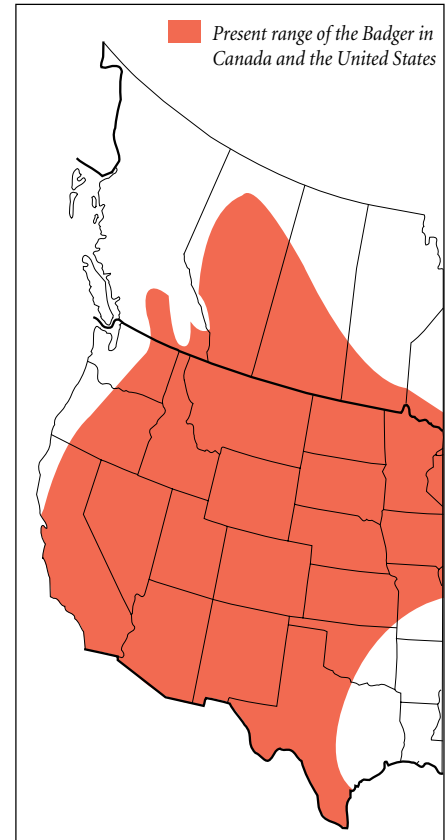
Following conception, fertilized eggs develop to an early stage called blastocysts. Further development is delayed until January or February, when the blastocysts implant on the wall of the uterus. This phenomenon, known as delayed implantation, is fairly common in the weasel family. After implanting, the embryos develop rapidly and the young are born in March or April. Delayed implantation benefits Badgers in at least two ways. Badgers

*Home ranges for males can reach up to 500 square kilometres.*

need only five or six weeks for fetal development, but can breed in summer when adults are most active and likely to find each other. The high energetic costs of gestation (fetal development) and of raising the young then occurs in late winter and spring, when food is most abundant.

Badger litters vary from one to four kits and average about two. Only one litter is produced each year. Newborn Badgers are nursed by their mother for

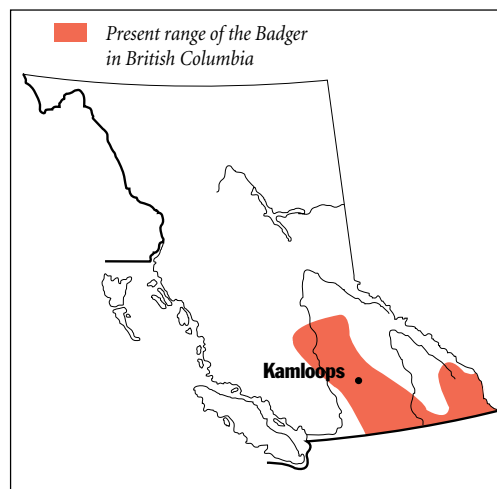
five to six weeks during April and May. Toward the end of the nursing period, mother Badgers bring prey to their young and the active juveniles start to appear above ground. Male Badgers have no role in raising their offspring.



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Females raise their young in dens with a branched main tunnel that allows animals to pass one another. Pockets and side-tunnels are maintained as grass-lined bedding chambers and for disposal of faeces. The mound of soil at the entrance to maternity dens is usually large and contains droppings and shed hair. Females with young frequently change dens, carrying the kits in their teeth if they are too small to follow on their own.

After 10 to 12 weeks of care by their mothers, most juvenile Badgers begin to disperse in search of suitable home ranges of their own. These movements, from late June to August, may take them up to 100 km from their birth area and involve crossing rivers, highways and farmland. This is the period of highest mortality for Badgers, as the naive



juveniles face starvation, highway traffic, predation by Golden Eagles, Cougars or Coyotes and a host of other hazards. The fortunate few that survive can expect to live a maximum of about 14 years.

### What do they eat?

In British Columbia, the Northern Pocket Gopher, Columbian Ground Squirrel and Yellow-bellied Marmot are the Badger's main foods. Meadow Voles and Red-backed Voles are also important prey in some locations. Animals that take refuge in burrows – for example, snakes, hares and chipmunks – are also eaten. Like most predators, Badgers are opportunistic in their feeding habits, particularly when hungry.

Badgers mostly forage at night, but are sometimes active above ground in early morning or evening. Their highly developed sense of smell is used to find potential prey. Several strategies for finding food have been described. One is to explore the many old Badger dens in their home range, in which hapless animals may have taken refuge. Badgers also capture ground squirrels by plugging all burrow entrances but one, and then excavating the remaining entrance. When hunting for pocket gophers, Badgers will dig into the tunnel system at several places and use their keen sense of smell to find the general location of the gopher. This avoids wasting energy by digging up the whole burrow system. Coyotes are sometimes observed with Badgers that are digging for prey, suggesting that cooperative hunting might be involved.

Winter is a difficult time for Badgers. Rodents are less abundant than at their summer population peak and the burrowing species are deep in hibernation dens. Badgers compensate for this scarcity by greatly reducing their move-

ments and by staying in burrows for long periods to reduce heat loss. During cold spells, Badgers may enter a state of



THE BADGER HAS DISTINCTIVE BLACK AND WHITE FACIAL MARKINGS.  
*Mildred McPhee photo*

mild torpor, a deep sleep characterized by a slowed heartbeat and reduced body temperature. This torpor is not true hibernation.

### Where do they live?

Badgers are widely distributed in North America, from central Mexico north to British Columbia and the prairie provinces, and from California eastward to the Great Lake states and southern Ontario. Within this range, however, they are absent from dense forests, intensively cultivated lands and urban areas. Their centre of abundance is on the grasslands of the Great Plains and Intermountain Basins.

Badger populations in British Columbia have continuity with those in adjacent states of Montana, Idaho and Washington. In this province they occur primarily in the dry southern interior valleys that support grassland, shrub-steppe and open forests of ponderosa pine or Douglas-fir (the Bunchgrass, Ponderosa Pine, and Interior Douglas-fir biogeoclimatic zones). They can, however, travel from valley bottoms through to the alpine, and have been observed in the Montane Spruce, Interior Cedar-Hemlock, Engelmann

Spruce-Subalpine Fir and Alpine Tundra zones. They are most frequently encountered where their favourite prey – ground squirrels, pocket gophers, marmots and voles – are most abundant. Because these prey species have a patchy distribution, Badgers are not evenly spread across their provincial range. Badgers are somewhat tolerant of civilization, as long as prey animals are available. They may be encountered in pastures, on cultivated land and along rural roadsides.

In British Columbia, the majority of Badger sightings and records are from the Okanagan-Similkameen, Thompson River, Nicola Valley and East Kootenay areas. A few have been noted in the South Cariboo and West Kootenay regions. They occur west to Manning Park and Lillooet, and north to Williams Lake and Clearwater. A few have been sighted in the eastern Chilcotin District. In the West Kootenay area, Badgers are restricted to the Lower Columbia and Creston valleys, near the United States border. In the Rocky Mountain Trench, they extend northward to the vicinity of Radium Hot Springs.

### What can we do?

Although trapping of Badgers was prohibited in 1967, this did not result in a noticeable recovery. A review of the species' status was carried out. The resulting status report concluded that the Badger was indeed at risk in British Columbia, and it was assigned to the provincial Blue List in 1993. In 1995, the East Kootenay Badger Project was initiated and the Thompson-Okanagan Badger Project began in 1999. Based on results from these research projects and on observations of habitat loss and direct



**OPEN GRASSY AREAS WITH DEEP SOILS ARE PREFERRED BADGER HABITAT.**  
*Robert Cannings photo*



**COLUMBIAN GROUND SQUIRRELS FORM A LARGE PART OF THE BADGER DIET.**  
*Jared Hobbs photo*


mortality throughout the province, Badgers were moved to the Red List. The BC Conservation Data Centre continues to compile occurrence records.

Much is being done to help Badger populations survive in British Columbia. Research is under way to help further identify the risks that Badgers face and to determine how human activities can be modified to reduce their impact on Badger populations. Studies of the distribution and abundance of the Badger's main food, Columbian Ground Squirrels, will help to explain why Badgers are present or absent, ascertain how many can be supported and identify areas suitable for their re-introduction. Detailed records of highway kills, accidental trapping and other mortality are being collected to find out how serious human-caused mortality really is.

The public can aid Badger conservation in many ways. The first step is to adopt a more sympathetic attitude toward this interesting animal. Ranchers, farmers and golf-course owners are encouraged to tolerate minor amounts of digging by Badgers and ground squirrels. Badgers occasionally stray into settled areas and seek refuge under cars or other objects. Observations of shooting, trapping or harassment of Badgers should be reported. The public is urged to report sightings

of Badgers to the nearest office of the Ministry of Water, Land and Air Protection. As these records accumulate, they provide a better understanding of Badger distribution, abundance and habitat use.

Providing adequate habitat and reducing human-caused mortality are the keys to Badger survival in British

Columbia. This involves control of urban expansion into grasslands, establishment of protected areas, responsible stewardship of ranges used for cattle grazing and mitigation of highway developments. Conservation of Badger populations in British Columbia cannot be achieved without strong public support. 

**FOR MORE INFORMATION ON THE BADGER, CONTACT:**

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