Status of the American Badger
(Taxidea taxus)
in Alberta

Dave Scobie

Alberta Wildlife Status Report No. 43
Status of the American Badger 
(*Taxidea taxus*) in Alberta

Dave Scobie

Alberta Wildlife Status Report No. 43

May 2002

Published By:
Publication No. T/016
ISSN: 1206-4912 (Printed Edition)
ISSN: 1499-4682 (On-line Edition)

Series Editors: Sherry Feser and Robin Gutsell
Illustrations: Brian Huffman

For copies of this report, contact:
Information Centre - Publications
Alberta Environment/Alberta Sustainable Resource Development
Fish and Wildlife Division
Main Floor, Great West Life Building
9920 - 108 Street
Edmonton, Alberta, Canada T5K 2M4

Telephone: (780) 422-2079

OR

Information Service
Alberta Environment/Alberta Sustainable Resource Development
#100, 3115 - 12 Street NE
Calgary, Alberta, Canada T2E 7J2

Telephone: (780) 297-3362

OR

Visit our web site at:

This publication may be cited as:

PREFACE

Every five years, the Fish and Wildlife Division of Alberta Sustainable Resource Development reviews the status of wildlife species in Alberta. These overviews, which have been conducted in 1991, 1996 and 2000, assign individual species “ranks” that reflect the perceived level of risk to populations that occur in the province. Such designations are determined from extensive consultations with professional and amateur biologists, and from a variety of readily available sources of population data. A primary objective of these reviews is to identify species that may be considered for more detailed status determinations.

The Alberta Wildlife Status Report Series is an extension of the general statusing exercises (1996 Status of Alberta Wildlife, The General Status of Alberta Wild Species 2000), and provides comprehensive current summaries of the biological status of selected wildlife species in Alberta. Priority is given to species that are potentially at risk in the province (“At Risk,” “May Be At Risk”), that are of uncertain status (“Undetermined”), or those considered to be at risk at a national level by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Reports in this series are published and distributed by the Alberta Conservation Association and the Fish and Wildlife Division of Alberta Sustainable Resource Development. They are intended to provide detailed and up-to-date information which will be useful to resource professionals for managing populations of species and their habitats in the province. The reports are also designed to provide current information which will assist the Alberta Endangered Species Conservation Committee to identify species that may be formally designated as “Endangered” or “Threatened” under Alberta’s Wildlife Act. To achieve these goals, the reports have been authored and/or reviewed by individuals with unique local expertise in the biology and management of each species.
EXECUTIVE SUMMARY

The North American badger (*Taxidea taxus taxus*) is ranked as a “Sensitive” species in Alberta. Thus, the species is not currently at risk of extinction or extirpation but may require special attention or protection to maintain a healthy population (Alberta Sustainable Resource Development 2001a). Badgers are listed as furbearers under Alberta’s *Wildlife Act*, which allows for year-round hunting.

The badger is distributed throughout southern Alberta, although much of this area has been converted to agricultural, urban and industrial use. The badger expanded its range into the aspen parkland following the clearing of wooded areas by early settlers. Badgers were probably numerous before the arrival of settlers; however, increased trapping in response to rising fur prices, and breaking land for cultivation led to a rapid decline in the Alberta population in the 20th century. Recent anecdotal evidence indicates that local populations may be stable to increasing.

Badgers are opportunistic feeders relying primarily on fossorial and semi-fossorial animals as their main prey items. They help control small mammal populations and in Alberta prey primarily on Richardson’s ground squirrels and northern pocket gophers. Cover and nesting or denning opportunities for other wildlife are also byproducts of badger presence. For example, burrowing owls and swift fox are two of Alberta’s species at risk that could not survive without the burrows provided by badgers.

The badger’s home range size in Alberta is unknown, but studies in the United States reported a wide variation in home range size depending on the season. Also contributing to the problem of determining exact home range is their fossorial way of life; badgers are not easily visible.

The badger is essential to the prairie landscape, yet because of its nocturnal nature, this species is poorly understood. Soil genesis, the ability of water to reach deep into the soil, can directly result from badger activity.

Research on badger biology in Alberta is essential to determine management strategies for this species. Protection should be considered not only for the badger, but also for its habitat and prey species. An education program on the benefits that badgers provide to humans and to other wildlife should be initiated. Without these steps, the future of the badger, as well as of those species that depend on the badger, is uncertain.
ACKNOWLEDGEMENTS

This report would not have been possible without the patience and guidance of Isabelle Michaud, Sherry Feser (Alberta Conservation Association) and the rest of the crew at Alberta Sustainable Resource Development. I am indebted to Sylvia Normand and Hal Reynolds (Environment Canada) for allowing the use of the Draft COSEWIC 2000 Status Update on the badger. I thank Nancy Newhouse (Sylvan Consulting Ltd.), Arlen Todd, Gary Erickson and Joel Nicholson (Alberta Sustainable Resource Development) for supplying documents. A special thanks to Reg Russell for increasing the badger population in BSOD from 4 to 24 and Lyle Lester for sharing a personal badger observation. I am indebted to Kathy Scobie (Avocet Environmental Inc.), Gail Michener (University of Lethbridge), Sherry Feser, Dawn Birn (Alberta Conservation Association), Robin Gutsell, Reg Russell, Arlen Todd, Gary Erickson and Joel Nicholson (Alberta Sustainable Resource Development) for their critical review of earlier drafts of this report.

Preparation and production of this report was funded by the Wildlife Management Enhancement Fund of the Alberta Conservation Association and the Fish and Wildlife Division of Alberta Sustainable Resource Development.
# TABLE OF CONTENTS

PREFACE .......................................................................................................................... iii
EXECUTIVE SUMMARY ................................................................................................ iv
ACKNOWLEDGEMENTS ................................................................................................. v
INTRODUCTION ............................................................................................................... 1
HABITAT ............................................................................................................................. 1
CONSERVATION BIOLOGY ............................................................................................. 1
DISTRIBUTION .................................................................................................................. 4
  1. Alberta .................................................................................................................... 4
  2. Other Areas ............................................................................................................ 4
POPULATION SIZE AND TRENDS ................................................................................. 7
  1. Alberta .................................................................................................................... 7
  2. Other Areas ............................................................................................................ 7
LIMITING FACTORS ....................................................................................................... 8
STATUS DESIGNATIONS ............................................................................................... 8
  1. Alberta .................................................................................................................... 8
  2. Other Areas ............................................................................................................ 9
RECENT MANAGEMENT IN ALBERTA ......................................................................... 9
SYNTHESIS ...................................................................................................................... 9
LITERATURE CITED ...................................................................................................... 10
APPENDIX 1 Definitions of selected legal and protective designations ......................... 14
APPENDIX 2 Alberta badger observations .................................................................... 16
LIST OF FIGURES

Figure 1. Range of the North American badger, *T. t. taxus*, in Alberta, 1998, including recent range expansion...................................................................................................5

Figure 2. Range of the North American badger, *Taxidea taxus*, including its four subspecies in the USA and Canada, 1998.................................................................6
INTRODUCTION

The North American badger (Taxidea taxus) is a member of the family Mustelidae, and is distributed throughout North America with four subspecies recognized as follows: T. t. jeffersonii, T. t. berlandieri, T. t. taxus and T. t. jacksoni. The subspecies T. t. taxus, which occurs in the grassland and parkland regions of Alberta, is ranked “Sensitive”* because of its local distribution. Opinions vary as to its population trend (Alberta Sustainable Resource Development 2001a, Alberta Wildlife Management Division 1996).

Uniquely adapted to a fossorial (digging, burrowing) way of life, badgers help control small mammal populations. Their burrows provide escape, overwintering, den and nesting opportunities for many wildlife species. The decline of this species is apparent when the 18 000 badger pelts harvested in 1928 are compared to the current population estimate of only 10 000. Trapping harvest, habitat loss and suspected declines of essential prey species such as the northern pocket gopher and Richardson’s ground squirrel are contributing to a continued population decline.

This report is intended to compile and summarize recent information on the North American badger as a step toward updating its current status in Alberta.

HABITAT

Badgers are most often found in open, often treeless habitats with an available food source, usually other fossorial mammals. Badgers do not occur in heavily forested areas but inhabit open grasslands in the parkland, prairie and cold desert areas (Banfield 1974, 1982, Smith 1992, Pattie and Fisher 1999). However, a study in Minnesota on the movements and denning habits of a female badger documented the use of a woodlot during summer and autumn as well as during winter when it was used as an exclusive denning area (Sargeant and Warner 1972).

Badgers may be found in a variety of habitats in Alberta. In Waterton Lakes National Park, badgers have been found in the prairie foothills sections of the park that are characterized by open prairie, brushy bottomlands and aspen groves (Soper 1973). Southeast of Wainwright, badgers were found in an area where the major topographic features were the Ribstone Creek, a marsh system, lakes, extensive tract of sand ridges and a mix where the sand-ridge/marsh ecosystems met (Salt 1976). A 1.4-ha study site east of Picture Butte, Alberta, that is part of a 13-year continuous study focusing on Richardson’s ground squirrels (Spermophilus richardsonii), was surrounded by cultivated fields and a farmyard into which badgers ventured (Michener 2000). A study at the Suffield National Wildlife Area documented such a low number of badgers that habitat preference could not be determined (Carbyn et al. 1999).

According to a questionnaire completed by wildlife management personnel in 1998, suitable habitat is widespread in Alberta (Newhouse and Kinley, in prep.). The quality/quantity of habitat decreased dramatically relative to pre-settlement conditions. World Wildlife Fund Canada (1988) states that approximately 24% of the mixed prairie and 25% of the aspen parkland remain in their native state. Clearing of the aspen parkland has allowed for range extensions. However, cultivation, urbanization and industrial activities have probably restricted badgers from areas they once inhabited by eliminating habitat and prey availability (Messick 1987, Newhouse and Kinley, in prep.).

CONSERVATION BIOLOGY

The North American badger is the only species of badger that occurs on this continent. Badgers in the Eastern Hemisphere are larger and are not fossorial (Banfield 1974, Messick 1987). Four subspecies, separated on the basis of skull morphology, pelage color and geographic isolation, are found in North America and

* See Appendix 1 for definitions of selected status designations.
are described by Long (1972). In Canada, 
_T. t. jeffersonii_ is found in southern British 
Columbia; _T. t. taxus_ in Saskatchewan, Alberta 
and Manitoba; and _T. t. jacksoni_ in southern 
Ontario. _T. t. berlandieri_ is distributed through 
the southern United States and northern 
Mexico.

As described by Soper (1964), this nocturnal 
mustelid is thick-set, broad, squat and muscular, 
with short powerful legs. The badger has short 
ears, a short tail, a pointed nose and a broad 
triangular head. The pelage of the sexes is 
similar (Messick 1987, Minta 1993). The thick 
pelage is yellowish gray with a white stripe that 
originates on the nose and extends back into the 
shoulders. The fur is longer on the sides forming 
a fringe that, coupled with loose skin, adds to 
the flattened appearance and flowing nature 
as the animal moves. The "badge" is a dark 
vertical triangular patch behind the eyes that 
is surrounded by white or yellowish fur. The 
lower legs are dark brown terminating in black 
at the extremities. (Soper 1964, Pattie and Fisher 
1999). Uniquely adapted for digging, the front 
feet are partially webbed and have long claws 
up to 5 cm in length.

Northern pocket gophers (_Thomomys talpoides_) 
and Richardson’s ground squirrels are 
considered the badger’s primary prey species 
in Alberta (Newhouse and Kinley, in prep.). 
North American badgers are also opportunistic 
feeders and supplement their diet of fossorial 
and semifossorial prey with a wide variety of 
mammals, birds, eggs, reptiles, amphibians, 
invertebrates, fish, mollusks, and plant material 
(Drake and Presnall 1950, Messick and 
1999). Badgers will also eat carrion and cache 
food items (Snead and Hendrickson 1942, Dagg 
pers. comm.).

Didiuk (1999) reported badgers preying upon 
snakes at their hibernacula in Alberta. They have 
also been documented preying upon ducks and 
nests in studies in Holden, Hay Lakes, Penhold 
and Gayford areas of Alberta and the United 
States (Johnson et al. 1989, Sargeant et al. 
1993, Sovada et al. 1999). Badgers also prey on 
some “At Risk” and “May Be At Risk” species 
in Alberta such as the burrowing owl (_Speotyto 
cunicularia hypugaea_), swift fox (_Vulpes velox_) 
and Ord’s kangaroo rats (_Dipodomys ordii_) 
(Cotterill 1997, Gummer 1997, Wellicome 
1997). However, the burrows that badgers 
create are used by many different species (e.g., 
burrowing owl, swift fox, snakes, etc.)

Dens/burrows (these terms are used 
interchangeably) are essential to the badger, 
serving as sites for diurnal (daytime) activity, 
food storage, parturition (birthing), and as the 
focus for foraging activities. Badgers hunt 
primarily at night and remain underground 
during the day. However, Messick and 
Hornocker (1981) found that the young of the 
year tend to be active during daylight hours. 
Dens are variable in characteristics and are 
sometimes reused, by the same or other badgers 
at different times (Lindzey 1982, Newhouse and 
Kinley 2000, Newhouse and Kinley, in prep.).

Natal dens may be up to 10 m in length with a 
diameter of about 30 cm. The nest is built out of 
bulky grasses in an expanded chamber (Banfield 
in Utah used numerous dens in the summer and 
autumn, but confined her activity to one den in 
the winter (Sargeant and Warner 1972). Lindzey 
(1976) describes natal dens as usually having 
one entrance, a mound twice the size of day-use 
dens, more numerous tracks on the mound and 
an abundance of badger hair mixed in with soil 
on the mound. He found that badger hair mixed 
throughout the soil on the mound was the most 
reliable indicator of a natal den. A female may 
shift her hunting area by moving dependent 
young from one den to another (Lindzey 1976, 
Messick and Hornocker 1981). Soil excavated 
from dens is piled at the entrance to form mounds 
in which badgers will bury their scat. During 
cold weather, badgers will plug the entrance 
of burrows in winter with loose soil (Lindzey 
1982).
The association between badger burrows and mounds of excavated soil is poorly understood but may be important for plants, animals and soils. Small mammals and a variety of other animals use abandoned badger dens (Messick and Hornocker 1981, Snead and Hendrickson 1942). In Alberta, swift fox (Cotterill 1997), burrowing owls (Wellicome 1997) and snakes (Didiuk 1999) use abandoned burrows for dens, nests and hibernacula, respectively. Badger diggings help to aerate the soil, promote the formation of humus (organic part of soil) and allow water to quickly reach deeper soil levels (Messick 1987, Newhouse and Kinley, in prep.).

Badgers do not hibernate in their burrows during winter but enter into torpor – a period of reduced activity in response to cold weather. They are usually not active at temperatures below -15º C, or during periods of reduced prey availability.

Mature badgers (> 15 months old) in the United States range in total length from 66-89 cm (Messick 1987). On average, males weigh about 26% more than adult females, at 8.4 kg and 6.4 kg respectively (Messick 1987). A large male weighed 12.9 kg in one study (Lindzey 1982, Messick 1987). Male and female sex ratios have been reported to be between 1:1 (Stardom 1979, Messick and Hornocker 1981) and 1.75:1 (Minta 1993).

Messick and Hornocker (1981) suggested that badgers are polygynous (males have more than one female mate) under the conditions that all females come into estrus, the sex ratio is balanced and some juvenile females may breed. Mating occurs in late July and August with implantation delayed (a characteristic of mustelids) until February. Litters of one to five young are born between late April and June with the young usually dispersing at three to four months of age (Lindzey 1976, Pattie and Hoffman 1990, Pattie and Fisher 1999). Dispersing young may account for sightings of badgers during the day in unsuitable habitat. In Idaho, Messick and Hornocker (1981) found that most first year badgers dispersed a maximum of 52 km for females and 110 km for males.

Home range size for a female badger in Minnesota varied greatly from 2 ha in winter, to 53 ha in autumn and 761 ha in summer (Sargeant and Warner 1972). Lindzey’s (1978) average reported home range sizes for badgers in Idaho during autumn and winter were 583 ha for males (n=2) and 237 ha for females (n=3). In Idaho, Messick and Hornocker (1981) found that during spring and summer, males (n=5) and females (n=11) had mean home range sizes of 170 ha and 130 ha, respectively. Males tended to have larger home ranges that overlap and may triple in size during the breeding season, whereas females tended to be spatially isolated from each other. Newhouse and Kinley (2000) found home ranges in British Columbia were 5 to 270 times larger than those reported from studies in the United States based on 100% minimum convex polygon. A dispersed prey base, marginal habitat and low population density may have contributed to the large home range size in British Columbia.

Badger density in southeastern Wyoming was estimated to be one adult animal per km² (Goodrich and Buskirk 1998). Messick and Hornocker (1981) estimated that in Idaho there were two to six adult badgers per km², increasing in density during the period when juveniles were dispersing.

Natural forms of mortality are not easily documented because of the badger’s fossorial and nocturnal lifestyle. Cooperative predation by coyotes (Canis latrans) on a badger was witnessed by Rathbun et al. (1980). Other badgers, bears (Ursus spp.), wolves (Canis lupus), cougars (Felis concolor), golden eagles (Aquila chrysaetos) and bald eagles (Haliaeetus leucocephalus) occasionally kill badgers, usually before the badgers reach maturity (Lindzey 1982, Messick 1987). Badgers have been aged to 14 years in the wild but most do not live for more than 4 years (Messick and Hornocker 1981). Coyote control programs can increase badger and
other faunal community abundance (Robinson 1953, Robinson 1961, Linhart and Robinson 1972, Henke and Bryant 1999). A study by Robinson (1953), after the use of Compound 1080 stations to control coyote numbers in the Wyoming, New Mexico and Colorado, showed that badger populations in 1951 were 196% of 1940 levels. Recognizing the natural fluctuations in carnivore populations, the study was repeated in 1960 and showed that badger populations were 8-fold higher in 1960 than 1940 (Robinson 1961). In 1970, the indices did not differ from those of previous decades (Linhart and Robinson 1972).

Several examples of badger-coyote relationships exist in folklore and have been documented in reviewed literature (Hawkins 1907, Cahalane 1950, Seaburg and Amoss 2000). Kiliaan et al. (1991) report a badger and coyote hunting together near Cypress Hills Provincial Park, Alberta. They also review published literature that shows coyote-badger interactions that range from mutually affectionate and cooperative to harassment and predation of badgers by coyotes. Other results showed that a coyote’s available hunting habitat increased greatly while hunting with badgers (Minta et al. 1992). Minta et al. (1992) further surmized that badger-coyote associations were probably neither cooperation, nor mutual consideration, as all behaviour appeared to be directed to prey capture or toleration of the other.

**DISTRIBUTION**

1. **Alberta.** - The range of the North American badger in Alberta extends roughly from the North Saskatchewan River south to the Montana border and from the foothills east to the Saskatchewan border. Coues (1877) adopted the northward limit of the distribution described by Richardson as being no further north than 58° latitude (just south of Wood Buffalo National Park). Quoting Richardson’s accounts from the early 1800s, he goes on to state that the badger (then known as *Meles labradoria*) “frequents the sandy plains or prairies which skirt the Rocky Mountains as far north as the banks of the Peace River, and sources of the River of the Mountains, in latitude 58°.” Soper (1946) notes that in 1927, badgers were abundant in southern Alberta.

A recently killed specimen was reported at a trading post on the Athabasca River below the mouth of the Clearwater River (about 56° 45” N) in 1908 (Soper 1964). Soper goes on to say that no badgers have been recorded north of the North Saskatchewan River in the last half century. Badgers had been hunted to the point of extirpation in the High River District in 1937 (Fowler 1937). Banfield (1974) plots the three extra-limital records as shown by Soper (1964). However, the extra-limital records in the range maps of Soper (1964) and Banfield (1974) appear to be from former fur trading posts, thus the source of the specimens is questionable (Newhouse and Kinley, in prep.)

Newhouse and Kinley (in prep) provide the most recent distribution of the badger in Alberta, which is considered to be relatively accurate (+/- 5%) (Figure 1). This map includes a range extension north of the North Saskatchewan River, similar to that presented by Seton (1909), but different from Stardom’s (1979) distribution map which showed that the range extended into the Peace River area.

The range expansion north of the North Saskatchewan River is supported by Alberta Provincial Museum records that document badgers at the town of Legal (Township 57, Range 25 W4M; Appendix 2), 1.2 km northwest of Calahoo (Township 55, Range 27 W4M). The furthest west records are in Rge. 2 W5M. The range map presented by Newhouse and Kinley (in prep.) and adapted for this report therefore accurately reflects the current badger distribution in Alberta (Figure 1).

2. **Other Areas.** - Newhouse and Kinley (in prep) sent out questionnaires to wildlife managers in North America and the responses are indicated in Figure 2. This map reflects what Seton (1909) proposed for the North American distribution of badgers and reflects changes to delimit records that reflected escaped animals or very recent
Figure 1. Range of the North American badger, *T. t. taxus*, in Alberta, 1998, including recent range expansion. Ranges based on surveys completed by provincial wildlife agency personnel. Available data are limited so ranges shown are approximate (adapted from Newhouse and Kinley, in prep.).
Figure 2. Range of the North American badger, *Taxidea taxus*, indicating its four subspecies in the USA and Canada, 1998. Subspecies range limits corrected based on recent literature and surveys completed by provincial and state wildlife agency personnel or other local experts. Range of *T. t. jacksoni* may extend from Minnesota into northwestern Ontario, either as extralimital forays or possibly as small resident population. Existence of *T. t. jacksoni* in southeast Manitoba is highly questionable; badgers in that area are more likely to be *T. t. taxus*. Lines were smoothed where range limits drawn by respondents did not match across jurisdictional boundaries (adapted from Newhouse and Kinley, in prep.).
introductions into the eastern states and Pacific coastal area. The range boundary also follows Messick (1987) and Lindzey (1982).

**POPULATION SIZE AND TRENDS**

1. Alberta. - It is important to note that historical trapping harvest, particularly when pelt prices were high, had considerable impact on badger populations. The Hudson’s Bay Company recorded over 96,000 badgers traded between 1843-1908. Records for Alberta from 1919-1984 estimate over 122,000 pelts traded, 39% of the total Canadian harvest. In 1928, the average price was considered high at $49.41 per pelt, with an estimated harvest of close to 18,000 pelts in Alberta. The price peaked again in 1978 with an estimated 245 pelts trading for an average price of $35.25 (Novak et al. 1987). Todd and Giesbrecht (1979) state that there was no protection for the badger from trapping until 1935, when a closed trapping season was declared with the exception of those with a special permit. The closed season lasted until 1941 when all protection was removed. From 1944-1977, there were no trapping restrictions on badgers anywhere in Alberta. In 1977, the current regulated open season was established (Todd and Giesbrecht 1979).

The impact historical trapping had on badger populations is supported by the following anecdotal evidence. In 1927, badgers were reported as being common in southern Alberta, with individuals and dens seen on numerous occasions over wide areas (Soper 1946). Between 1934 and 1943, Soper found only scattered signs where badgers had been abundant in 1927. Fowler (1937) and Soper (1964) both note that badgers had been extirpated in many areas. Todd and Giesbrecht (1979) state that from 1935-1941, unregulated harvests clearly suppressed badger populations and resulted in a closed trapping season.

Sixty-four records of badgers are presented in the Appendix 2 and comprise Alberta Sustainable Resource Developments’ Biodiversity Species Observation Database (n=24), Provincial Museum of Alberta (n=22) and Canadian Forces Base Suffield National Wildlife Area (n=18). According to questionnaires distributed to all jurisdictions in North America in 1978, badgers were considered common in Alberta (Stardom 1979). Fur harvest records may indicate population trends if the data are collected systematically and the technique is applied to furbearers of low commercial value (Lindzey 1982). Normally, harvest statistics reflect fur prices and management strategies. Based on a questionnaire, Alberta’s "best guess" badger population is estimated to be from 1000-10,000 individuals (within a range of an order of magnitude) and the recent trend is considered decreasing (Newhouse and Kinley, in prep.). Even the most generous estimate puts the Alberta badger population at only about half of the known 18,000 badger pelts harvested in 1928.

Schowalter (2000) conducted 46 interview surveys of Agricultural Fieldmen, ranchers and others with special knowledge in south-central and southern Alberta during 2000. Schowalter found badger numbers to be increasing in the Lethbridge Region, the Municipal District of Taber, parts of Stettler County, and the area northwest of Hanna. However, interviewees reported long-term declines in the Counties of Vulcan and Starland, on grazing lands west of Nanton, in the areas southwest of Calgary and south of Pincher Creek. Other areas reported stable to increasing numbers, although limited in some areas by locale. In three provincial parks – Dinosaur, Cypress Hills Interprovincial Park and Chain Lakes – badgers were thought to have always been rare or absent (Schowalter 2000). Although badgers are stable to increasing locally in Alberta (Schowalter 2000), populations are thought to be decreasing provincially (Newhouse and Kinley, in prep).

2. Other Areas. - The *T. t. taxus* population, according to a 1998 questionnaire, is estimated to be between 13,700 and 28,900 in Saskatchewan and 3,000 and 5,000 in Manitoba, providing an estimated Prairie population to between 17,700 and 43,900 animals. In British Columbia, the
The total US population is probably several hundred thousand animals (Newhouse and Kinley, in prep.).

According to the same questionnaire used by Newhouse and Kinley (in prep.), the recent trend in Saskatchewan is downward, while Manitoba may be stable, and the trend in Ontario is uncertain. Survey results presented by Messick (1987) indicated that the badger was decreasing in southwestern Idaho, California, New Mexico and some parts of South Dakota, and increasing in Kansas, Missouri, Wisconsin and Michigan. Of the states bordering Canada, only Michigan indicated a small increase in recent years. It should be noted that for much of the United States, trends are unknown or there was no response to questionnaires (Newhouse and Kinley, in prep.).

LIMITING FACTORS

Changing land uses and loss of prey appears to be the major factors negatively affecting badgers. The clearing of forests may have encouraged badgers to expand their range in some areas, but cultivation has probably removed badger habitat (Soper 1964, Stardom 1979, Lindzey 1982, Messick 1987, Smith 1992, Newhouse and Kinley, in prep). Badgers are trapped, shot and poisoned by humans because their diggings are thought to cause broken legs in livestock, lead to water loss from irrigation canals, cause damage to vehicles encountering their burrows and cause damage in cemeteries when excavating into graves. Badgers have also been known to destroy birds and eggs of captive game bird raise/release operations (Soper 1964, Stardom 1979, Lindzey 1982, Messick 1987, Newhouse and Kinley, in prep., G. Erickson, pers. comm., R. Ernst, pers. comm.). Badgers may be hunted without a licence and during all seasons, by residents on privately owned land to which the resident has the right of access (Alberta Sustainable Resource Development 2001b). Rodent control programs can also affect food supply (Robinson 1953).

The most visible cause of mortality of badgers is caused by humans (Lindzey 1982, Messick 1987). Trapping for pelts has affected badger populations, mainly in response to rising fur prices, but has not had a significant influence on badger populations in recent years. During the 1998-1999, 1999-2000 and 2000-2001 seasons in Alberta, 161, 76 and 170 badger pelts were trapped, respectively, for approximately $20-$25 a pelt (Alberta Environment 2000a, 2000b, Alberta Sustainable Resource Development 2001b).

Road kills, high fur prices, and loss of denning sites are possible specific limitations (Stardom 1979, Newhouse and Kinley 2000). Intensive petroleum development and urban expansion have caused increased road mortalities and may limit habitat and prey available to badgers.

The literature does not report direct mortality by fire on badgers. Fire will affect habitat by retarding the encroachment of woody vegetation. Badgers will probably leave an area if prey decreases, but some small mammals increase on fire-disturbed lands, potentially increasing badger populations (Sullivan 1996).

STATUS DESIGNATIONS

1. **Alberta.** - In 1991, the badger was “Yellow-listed” (Alberta Fish and Wildlife 1991) and in 1996 it was ranked “Yellow A” because of concerns expressed over long-term population declines in Alberta (Alberta Wildlife Management Division 1996). According to The General Status of Alberta Wild Species 2000 (Alberta Sustainable Resource Development 2001a) the badger is considered “Sensitive” and may require special attention or protection to prevent it from becoming at risk of extirpation or extinction in Alberta.
2. Other Areas. - The badger was designated “Not At Risk” by COSEWIC in 1979 (Stardom 1979). The Canada-wide listing was deactivated in May 2000 when the North American badger species was split according to subspecies (COSEWIC 2002). *T. t. jeffersonii* (British Columbia) and *T. t. jacksoni* (Ontario) were designated as “Endangered” and *T. t. taxus* (Alberta, Saskatchewan and Manitoba) was designated as “Not At Risk” (COSEWIC 2002).

The badger is listed as S1 (critically imperiled) in British Columbia (BC Conservation Data Centre 2002), S3S4 (Rare-uncommon, common) in Saskatchewan (Saskatchewan Conservation Data Centre 2002), S4 (widespread, abundant and apparently secure) in Manitoba (Manitoba Conservation Data Centre 2002) and S2 in Ontario (Ontario Natural Heritage Information Centre 2002).

The North American badger is not found on the 2000 International Union for Conservation of Nature and Natural Resources Red List of Threatened Species (IUCN 2000). NatureServe (2001) lists *T. taxus* as G5, "demonstrably widespread, abundant, and secure," as it has a large range in the western and central United States, southern Canada, and northern and central Mexico. It is relatively common but probably has declined in areas subject to control of colonial rodents.

**RECENT MANAGEMENT IN ALBERTA**

The badger is classified as a furbearer but is not a major target of wild fur production in Alberta (Alberta Environment 2000a, 2000b). Seasons do exist in all areas of Alberta except Fur Management Zones 1 and 2 found approximately north of Slave Lake. The seasons are open from 1 December to 15 April in most areas except Zone 8 (southern Alberta), where the season is open from 1 December to 31 March (Alberta Sustainable Resource Development 2001b).

To date, there have been no specific management or research activities focusing on the North American badger in Alberta.

**SYNTHESIS**

The badger was once distributed throughout the prairies, but its numbers have declined dramatically since settlers introduced livestock, intensified agricultural practices and increased trapping. The range is thought to have expanded northward because of the clearing of the aspen parkland. However, suppression of fire is contributing to the expansion southward of shrubs and woody vegetation, which limits available badger habitat. Loss of essential prey species like the northern pocket gopher and Richardson’s ground squirrel is thought to have a detrimental affect on badger populations.

It is noteworthy that all information to date on Alberta’s population has been "best guesses" of managers, and no studies have been undertaken. The lack of records in Alberta’s Biodiversity Species Observation Database (BSOD) highlights the need to report on species which are not of immediate management concern. This could include observations of badgers in the field, those trapped, those killed as nuisance animals and those road-killed. Lacking direct observations, reporting areas of recent badger activity (fresh diggings) may indicate preferred habitat and distribution.

Research on the biology of the badger in Alberta is essential for management of the species. Research into its prey species and their combined ecological implications (e.g., burrows providing shelter, soil interactions, etc.) could be coupled with an educational component that would demonstrate the badger’s benefits to both people and wildlife. Some level of protection for badgers (e.g., remove from the list of furbearers subject to trapping), along with their prey and habitat, should be enacted.
LITERATURE CITED


Seton, E.T. 1909. Life histories of northern animals - an account of the mammals of Manitoba. Charles Scribner’s Sons,
New York, New York, United States.
1267 pp.


APPENDIX 1. Definitions of selected legal and protective designations.


<table>
<thead>
<tr>
<th>2000 Rank</th>
<th>1996 Rank</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Risk</td>
<td>Red</td>
<td>Any species known to be at risk after formal assessment and designation as Endangered or Threatened in Alberta.</td>
</tr>
<tr>
<td>May Be At Risk</td>
<td>Blue</td>
<td>Any species believed to be at risk. These species will require a detailed assessment for possible formal designation as Endangered or Vulnerable.</td>
</tr>
<tr>
<td>Sensitive</td>
<td>Yellow</td>
<td>Any species known to be, or believed to be, particularly sensitive to human activities or natural events.</td>
</tr>
<tr>
<td>Secure</td>
<td>Green</td>
<td>Any species known to be, or believed to be, not at risk.</td>
</tr>
<tr>
<td>Undetermined</td>
<td>Status Undetermined</td>
<td>Any species where not enough information exists to adequately use the ranking system (exceptional cases only).</td>
</tr>
<tr>
<td>Not Assessed</td>
<td>n/a</td>
<td>Any species known or believed to be present but which have not yet been evaluated.</td>
</tr>
<tr>
<td>Exotic/Alien</td>
<td>n/a</td>
<td>Any species that have been introduced as a result of human activity.</td>
</tr>
<tr>
<td>Extirpated/Extinct</td>
<td>n/a</td>
<td>Any species no longer thought to be present in the jurisdiction or are believed to be extinct.</td>
</tr>
<tr>
<td>Accidental/Vagrant</td>
<td>n/a</td>
<td>Any species occurring infrequently and unpredictably outside their usual range.</td>
</tr>
</tbody>
</table>

B. Alberta’s Wildlife Act

Species designated as “Endangered” under Alberta’s Wildlife Act include those defined as “Endangered” or “Threatened” by A Policy for the Management of Threatened Wildlife in Alberta (Alberta Fish and Wildlife 1985):

<table>
<thead>
<tr>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endangered</td>
<td>A species whose present existence in Alberta is in danger of extinction within the next decade.</td>
</tr>
<tr>
<td>Threatened</td>
<td>A species that is likely to become endangered if the factors causing its vulnerability are not reversed.</td>
</tr>
</tbody>
</table>

C. Committee on the Status of Endangered Wildlife in Canada (after COSEWIC 2002)

<table>
<thead>
<tr>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extinct</td>
<td>A species that no longer exists.</td>
</tr>
<tr>
<td>Extirpated</td>
<td>A species that no longer exists in the wild in Canada, but occurs elsewhere.</td>
</tr>
<tr>
<td>Endangered</td>
<td>A species facing imminent extirpation or extinction.</td>
</tr>
<tr>
<td>Threatened</td>
<td>A species that is likely to become endangered if limiting factors are not reversed.</td>
</tr>
<tr>
<td>Special Concern</td>
<td>A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.</td>
</tr>
<tr>
<td>Not at Risk</td>
<td>A species that has been evaluated and found to be not at risk.</td>
</tr>
<tr>
<td>Data Deficient</td>
<td>A species for which there is insufficient scientific information to support status designation.</td>
</tr>
</tbody>
</table>
**D. Heritage Status Ranks: Global (G), National (N), Sub-National (S) (after NatureServe 2001)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/N1/S1</td>
<td>Critically Imperiled</td>
<td>Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (&lt;1000) or acres (&lt;2000) or linear miles (&lt;10).</td>
</tr>
<tr>
<td>G2/N2/S2</td>
<td>Imperiled</td>
<td>Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction or elimination. Typically 6 to 20 occurrences or few remaining individuals (1000 to 3000) or acres (2000 to 10 000) or linear miles (10 to 50).</td>
</tr>
<tr>
<td>G3/N3/S3</td>
<td>Vulnerable</td>
<td>Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction or elimination. Typically 21 to 100 occurrences or between 3000 and 10 000 individuals.</td>
</tr>
<tr>
<td>G4/N4/S4</td>
<td>Apparently Secure</td>
<td>Uncommon but not rare (although it may be rare in parts of its range, particularly on the periphery), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern. Typically more than 100 occurrences and more than 10 000 individuals.</td>
</tr>
<tr>
<td>G5/N5/S5</td>
<td>Secure</td>
<td>Common, widespread, and abundant (although it may be rare in parts of its range, particularly on the periphery). Not vulnerable in most of its range. Typically with considerably more than 100 occurrences and more than 10 000 individuals.</td>
</tr>
<tr>
<td>GX/NX/SX</td>
<td>Presumed Extinct</td>
<td>Believed to be extinct throughout its range. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.</td>
</tr>
<tr>
<td></td>
<td>Eliminated</td>
<td>Eliminated throughout its range, with no restoration potential due to extinction of dominant or characteristic species.</td>
</tr>
<tr>
<td>GH/NH/SH</td>
<td>Possibly Extinct</td>
<td>Known from only historical occurrences, but may nevertheless still be extant; further searching needed.</td>
</tr>
<tr>
<td></td>
<td>Presumed Eliminated</td>
<td>Presumed eliminated throughout its range, with no or virtually no likelihood that it will be rediscovered, but with the potential for restoration, for example, American Chestnut (Forest).</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endangered</td>
<td>Any species which is in danger of extinction throughout all or a significant portion of its range.</td>
</tr>
<tr>
<td>Threatened</td>
<td>Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.</td>
</tr>
</tbody>
</table>
APPENDIX 2. Alberta badger observations.

<table>
<thead>
<tr>
<th>BSOD ID</th>
<th>LAT.</th>
<th>LONG</th>
<th>NAME</th>
<th>OBSERVER</th>
<th>DATE</th>
<th>AGE CAT.</th>
<th>SEX</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>57273</td>
<td>50.5347</td>
<td>-111.6870</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>10-Jul-73</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>57274</td>
<td>50.5197</td>
<td>-111.7786</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>24-Nov-88</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>9925</td>
<td>51.0414</td>
<td>-111.4876</td>
<td>BADGER</td>
<td>TREMBLAY, C.</td>
<td>5-Jul-93</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>9926</td>
<td>51.0559</td>
<td>-111.4643</td>
<td>BADGER</td>
<td>TREMBLAY, C.</td>
<td>7-Jul-93</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>9866</td>
<td>50.5611</td>
<td>-111.4995</td>
<td>BADGER</td>
<td>TREICHEL, B.</td>
<td>20-Jul-93</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59136</td>
<td>50.4956</td>
<td>-111.4079</td>
<td>BADGER</td>
<td>ERICKSON, G.</td>
<td>21-Jun-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59138</td>
<td>50.2971</td>
<td>-111.4968</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>17-Jul-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59139</td>
<td>50.3007</td>
<td>-111.4968</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>19-Jul-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59140</td>
<td>50.2862</td>
<td>-111.5025</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>19-Jul-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59141</td>
<td>50.2425</td>
<td>-111.5254</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>24-Jul-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59137</td>
<td>50.2497</td>
<td>-111.4052</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>27-Jul-95</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>57277</td>
<td>50.5786</td>
<td>-111.9039</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>15-Aug-97</td>
<td>U</td>
<td>U</td>
<td>2</td>
</tr>
<tr>
<td>57276</td>
<td>50.2833</td>
<td>-111.5011</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>18-Jun-98</td>
<td>I</td>
<td>U</td>
<td>2</td>
</tr>
<tr>
<td>18915</td>
<td>50.2825</td>
<td>-111.5025</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>24-Jun-98</td>
<td>I</td>
<td>U</td>
<td>2</td>
</tr>
<tr>
<td>18966</td>
<td>50.8959</td>
<td>-112.0417</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>29-Sep-98</td>
<td>U</td>
<td>U</td>
<td>2</td>
</tr>
<tr>
<td>48600</td>
<td>51.6635</td>
<td>-112.0603</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>25-May-99</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59135</td>
<td>50.1735</td>
<td>-110.9004</td>
<td>BADGER</td>
<td>NICHOLSON, J.</td>
<td>19-Apr-00</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>57278</td>
<td>50.5783</td>
<td>-111.9017</td>
<td>BADGER</td>
<td>RUSSELL, R.</td>
<td>15-May-00</td>
<td>A</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59134</td>
<td>50.3482</td>
<td>-111.3078</td>
<td>BADGER</td>
<td>NICHOLSON, J.</td>
<td>15-May-00</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59132</td>
<td>50.8650</td>
<td>-112.1889</td>
<td>BADGER</td>
<td>DECKER, M.</td>
<td>20-May-00</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59131</td>
<td>51.0105</td>
<td>-111.7580</td>
<td>BADGER</td>
<td>NICHOLSON, J.</td>
<td>26-May-00</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59133</td>
<td>50.8650</td>
<td>-112.1717</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>6-Jun-00</td>
<td>U</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>59142</td>
<td>50.2262</td>
<td>-111.4195</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>21-Jun-00</td>
<td>U</td>
<td>U</td>
<td>1</td>
</tr>
<tr>
<td>59143</td>
<td>50.2479</td>
<td>-111.3851</td>
<td>BADGER</td>
<td>SCOBIE, D.</td>
<td>21-Jun-00</td>
<td>U</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

PROVINCIAL MUSEUM OF ALBERTA (PMA)

<table>
<thead>
<tr>
<th>BSOD ID</th>
<th>LAT.</th>
<th>LONG</th>
<th>NAME</th>
<th>OBSERVER</th>
<th>DATE</th>
<th>AGE CAT.</th>
<th>SEX</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>53.7167</td>
<td>-113.9500</td>
<td>BADGER</td>
<td>PMA</td>
<td>25-Jul-96</td>
<td>I</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.6167</td>
<td>-111.9500</td>
<td>BADGER</td>
<td>PMA</td>
<td>23-Jul-95</td>
<td>A</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.7000</td>
<td>-110.9500</td>
<td>BADGER</td>
<td>PMA</td>
<td>17-Aug-95</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.9500</td>
<td>-113.5833</td>
<td>BADGER</td>
<td>PMA</td>
<td>15-Sep-84</td>
<td>U</td>
<td>U</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.1667</td>
<td>-113.6333</td>
<td>BADGER</td>
<td>PMA</td>
<td>3-May-85</td>
<td>A</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>49.0333</td>
<td>-112.8000</td>
<td>BADGER</td>
<td>PMA</td>
<td>1-Jun-82</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>51.2333</td>
<td>-110.2167</td>
<td>BADGER</td>
<td>PMA</td>
<td>7-Aug-83</td>
<td>I</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>51.7833</td>
<td>-114.1000</td>
<td>BADGER</td>
<td>PMA</td>
<td>Aug-78</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.0833</td>
<td>-114.1167</td>
<td>BADGER</td>
<td>PMA</td>
<td>28-Jun-74</td>
<td>I</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BSOD ID</td>
<td>LAT.</td>
<td>LONG</td>
<td>NAME</td>
<td>OBSERVER</td>
<td>DATE</td>
<td>AGE CAT.</td>
<td>SEX</td>
<td>COUNT</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
<td>--------</td>
<td>----------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>53.4167</td>
<td>-113.3833</td>
<td>BADGER</td>
<td>PMA</td>
<td>2-Jul-74</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>52.5167</td>
<td>-112.7500</td>
<td>BADGER</td>
<td>PMA</td>
<td>1-Sep-71</td>
<td>U</td>
<td>U</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>49.7167</td>
<td>-113.3833</td>
<td>BADGER</td>
<td>PMA</td>
<td>24-Aug-72</td>
<td>I</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.5333</td>
<td>-113.5333</td>
<td>BADGER</td>
<td>PMA</td>
<td>1974</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.5833</td>
<td>-113.8833</td>
<td>BADGER</td>
<td>PMA</td>
<td>16-Jul-72</td>
<td>I</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.5333</td>
<td>-114.0000</td>
<td>BADGER</td>
<td>PMA</td>
<td>2-Jul-69</td>
<td>A</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.5333</td>
<td>-113.6500</td>
<td>BADGER</td>
<td>PMA</td>
<td>Apr-68</td>
<td>I</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>51.1167</td>
<td>-111.6000</td>
<td>BADGER</td>
<td>PMA</td>
<td>20-Jun-67</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>53.1500</td>
<td>-112.6167</td>
<td>BADGER</td>
<td>PMA</td>
<td>24-Apr-54</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.5333</td>
<td>-111.8000</td>
<td>BADGER</td>
<td>PMA</td>
<td>Dec-94</td>
<td>A</td>
<td>M</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.5333</td>
<td>-111.8000</td>
<td>BADGER</td>
<td>PMA</td>
<td>Jul-94</td>
<td>I</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50.2333</td>
<td>-110.7000</td>
<td>BADGER</td>
<td>PMA</td>
<td>12-Jun-94</td>
<td>A</td>
<td>F</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>49.1667</td>
<td>-112.8500</td>
<td>BADGER</td>
<td>PMA</td>
<td>29-Aug-94</td>
<td>U</td>
<td>U</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**CFB SUFFIELD NATIONAL WILDLIFE AREA (NWA)**

<table>
<thead>
<tr>
<th>UTM</th>
<th>EAST</th>
<th>NORTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>514800</td>
<td>5573100</td>
<td>BADGER</td>
</tr>
<tr>
<td>514800</td>
<td>5573100</td>
<td>BADGER</td>
</tr>
<tr>
<td>516800</td>
<td>5570000</td>
<td>BADGER</td>
</tr>
<tr>
<td>522200</td>
<td>5582200</td>
<td>BADGER</td>
</tr>
<tr>
<td>533600</td>
<td>5593500</td>
<td>BADGER</td>
</tr>
<tr>
<td>534200</td>
<td>5597100</td>
<td>BADGER</td>
</tr>
<tr>
<td>538700</td>
<td>5586400</td>
<td>BADGER</td>
</tr>
<tr>
<td>541400</td>
<td>5585400</td>
<td>BADGER</td>
</tr>
<tr>
<td>544300</td>
<td>5604000</td>
<td>BADGER</td>
</tr>
<tr>
<td>550700</td>
<td>5617000</td>
<td>BADGER</td>
</tr>
<tr>
<td>550700</td>
<td>5617000</td>
<td>BADGER</td>
</tr>
<tr>
<td>498584</td>
<td>5563430</td>
<td>BADGER</td>
</tr>
<tr>
<td>517050</td>
<td>5602200</td>
<td>BADGER</td>
</tr>
<tr>
<td>518203</td>
<td>5603962</td>
<td>BADGER</td>
</tr>
<tr>
<td>521698</td>
<td>5602444</td>
<td>BADGER</td>
</tr>
<tr>
<td>523409</td>
<td>5576266</td>
<td>BADGER</td>
</tr>
<tr>
<td>541140</td>
<td>5601811</td>
<td>BADGER</td>
</tr>
<tr>
<td>543500</td>
<td>5608000</td>
<td>BADGER</td>
</tr>
</tbody>
</table>
List of Titles in This Series
(as of May 2002)

No. 1  Status of the Piping Plover (*Charadrius melodus*) in Alberta, by David R. C. Prescott. 19 pp. (1997)


No. 4  Status of the Ord’s Kangaroo Rat (*Dipodomys ordii*) in Alberta, by David L. Gummer. 16 pp. (1997)


No. 8  Status of the Peregrine Falcon (*Falco peregrinus anatum*) in Alberta, by Petra Rowell and David P. Stepnisky. 23 pp. (1997)

No. 9  Status of the Northern Leopard Frog (*Rana pipiens*) in Alberta, by Greg Wagner. 46 pp. (1997)


No. 16 Status of the Long-billed Curlew (*Numenius americanus*) in Alberta, by Dorothy P. Hill. 20 pp. (1998)


No. 19 Status of the Red-tailed Chipmunk (*Tamias ruficaudus*) in Alberta, by Ron Bennett. 15 pp. (1999)

No. 20 Status of the Northern Pygmy Owl (*Glaucidium gnoma californicum*) in Alberta, by Kevin C. Hannah. 20 pp. (1999)


No. 30  Status of the Woodland Caribou (*Rangifer tarandus caribou*) in Alberta, by Elston Dzus.  47 pp.  (2001)

No. 31  Status of the Western Spiderwort (*Tradescantia occidentalis*) in Alberta, by Bonnie Smith.  12 pp.  (2001)


No. 35  Status of Soapweed (*Yucca glauca*) in Alberta, by Donna Hurlburt.  18 pp.  (2001)


No. 41  Status of the Shortjaw Cisco (*Coregonus zenithicus*) in Alberta, by Mark Steinhilber.  23 pp.

No. 42  Status of the Prairie Falcon (*Falco mexicanus*) in Alberta, by Dale Paton.  28 pp.

No. 43  Status of the American Badger (*Taxidea taxus*) in Alberta, by Dave Scobie.  17 pp.