

East Kootenay Badger Project 2007-2008 Progress Report

31 March 2008



Prepared for:
Parks Canada Agency
Radium Hot Springs, British Columbia

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1. Project Description

American badger populations in British Columbia, belonging to the *Taxidea taxus jeffersonii* subspecies, are provincially red-listed and nationally endangered. The East Kootenay Badger Project was initiated in 1996 with the primary goal of ensuring the long-term viability of badgers in the East Kootenay area of southeastern British Columbia. Funding was provided for 2005/06 through 2007/08 by Parks Canada's Species at Risk Recovery Action and Education Fund. All of the objectives outlined in that funding proposal were based on ongoing, multi-year recovery, research and communication efforts. This document reports on progress made between 1 April 2007 and 31 March 2008.

2. Activities and Results

The following activities were undertaken and results were achieved, consistent with the expected results stated in the funding application.

2.1 Communication

- Badger sightings made by the public were solicited through a toll-free hotline (1-866-EK-BADGER) which was referenced in the British Columbia 2007-2008 Hunting and Trapping Regulations Synopsis (Figure 1), and also through the provincial *jeffersonii* Badger Recovery Team website (www.badgers.bc.ca). All calls and emails were responded to individually so that exact locations could be determined, and conservation messages could be provided. Sightings were added to an existing database (Section 2.2).
- Several problem-badger complaints were handled. Landowners were provided with information on means of preventing conflicts, living with badgers, and minimizing risk to badgers, domestic animals and landowners.
- The project biologist corresponded with staff from the Knowledge Network regarding a badger video being prepared (featuring research in the Cariboo region), provided input to the Extension Recovery Implementation Group, and prepared and delivered an interpretive walk with a badger theme for a CWS Ecological Gifting meeting.
- A presentation on the conservation implications of badger roadkill – culvert placement relationships was prepared for a workshop focusing on landscape connectivity across Highway 3.
- A meeting was held between project biologists and staff from Parks Canada, the provincial Ministry of Environment and BC Hydro's Fish and Wildlife Compensation Program (Columbia Basin) to develop direction for future activities of the East Kootenay Badger Project.
- An article highlighting the use by badgers of a conservation property was published in The Land Conservancy's newsletter, Landmark (Figure 2).
- A sidebar on badgers and the project was included as a sidebar in another article in Canadian Wildlife (Figure 3).
- Reports were provided for inclusion in the *jeffersonii* Badger Recovery Team website
- Several other websites provided information on badgers in British Columbia, based on input from the East Kootenay Badger Project in previous years these included:
 - Fish and Wildlife Compensation Program (Columbia Basin) (www.cbfishwildlife.org)
 - Parks Canada (www.pc.gc.ca/pn-np/bc/kootenay/natcul/natcul30a_e.asp)

- The analysis of badger roadkill locations in relation to culverts (Section 2.2) was featured in the Winter 2008 edition of the Fish and Wildlife Compensation Program (Columbia Basin) electronic newsletter, Wildbytes, with a link to the report's location (<http://www.fwcp.ca/version2/reports/details.php?reportID=477&searchterms=>)
- A display at the Radium Hot Springs Visitor Centre installed in 2005 remained in place. The display includes a painting of a badger, based on a photo by Tim McAllister of the East Kootenay Badger Project.
- A year-end report was prepared.

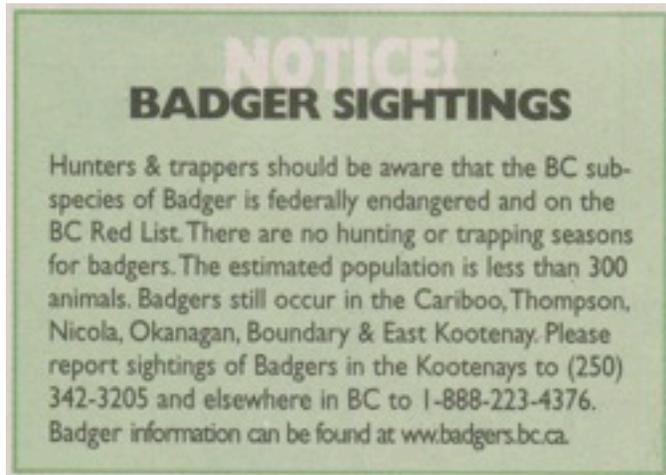


Figure 1. Badger sightings notice from British Columbia 2007-2008 Hunting and Trapping Regulations Synopsis.

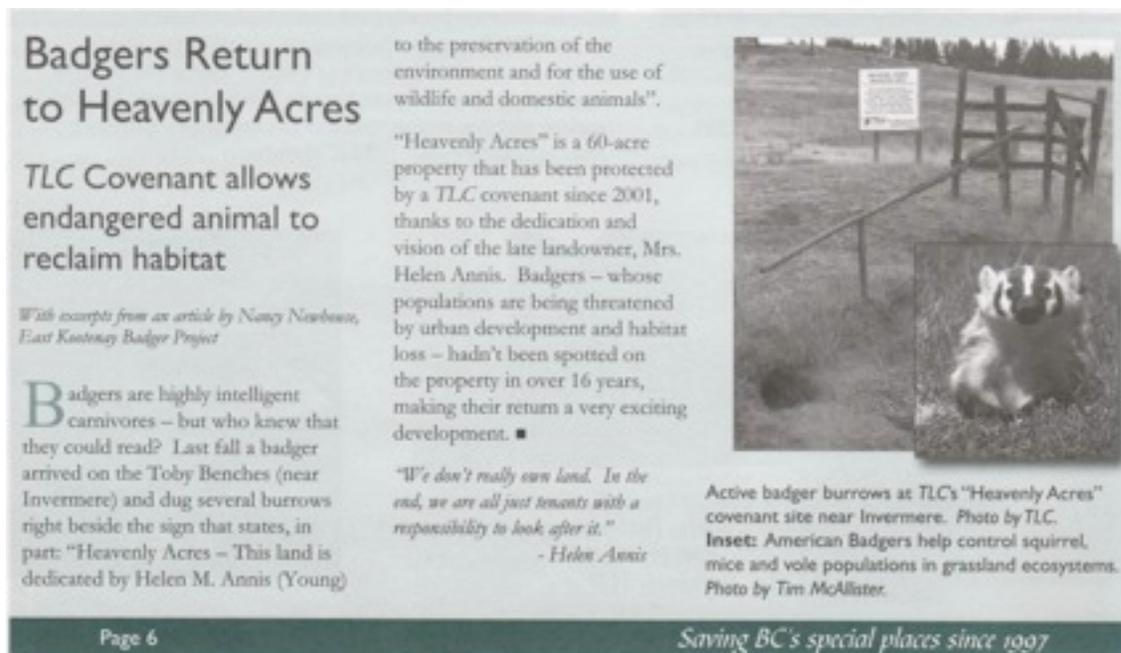


Figure 2. Article in Landmark, the newsletter of The Land Conservancy, Summer 2007.

Badgers of the Columbia Valley

With their four-centimetre claws and muscular six- to 12-kilogram frames, badgers are ideally suited to the benchland soils of the Columbia Valley wetlands. Here they pursue their primary prey, the Columbian ground squirrel (*Spermophilus columbianus*), by using their keen noses to find underground burrows and then digging for their meals.

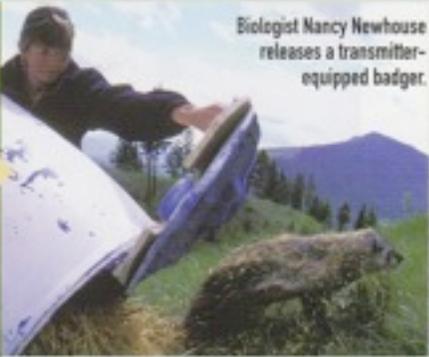
The American badger (*Taxidea taxus*) is listed as endangered by COSEWIC; two subspecies are protected under Canada's *Species at Risk Act*. It is cursed with a preference for the same habitat as humans: both prefer dry, open, valley-bottom terrain. Historically, people were often intolerant of their large burrows, so badgers were trapped, poisoned or shot. Badgers also ended up as roadkill on increasingly busy roads. An estimated 150 badgers remain in East Kootenay.

Invermere biologist Nancy Newhouse has been working with badgers in the Columbia Valley since 1995. Together with local landowners and government agencies, she has initiated a badger recovery program that includes the most intensive radio-telemetry badger study in Canada (31 badgers were radio-tagged and their movements monitored over an eight-year period), landowner education, roadkill mitigation and a successful badger reintroduction program.

Since 2002, 16 badgers have been moved into the Columbia Valley from larger populations in Montana to help re-establish a local group. Early results have been positive: four of the females have bred in their new home, including one second-generation litter.

Newhouse is optimistic about the future of badgers in the Columbia Valley. "Through private land stewardship and government initiatives we still have a chance to maintain this incredibly diverse ecosystem."

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Biologist Nancy Newhouse releases a transmitter-equipped badger.

Figure 3. Sidebar article on badgers and the East Kootenay Badger Project in Canadian Wildlife, authored by Dave Quinn, March/April 2007.

2.2 Research and Monitoring

- No badgers captured in previous years had functioning radiotransmitters, so no monitoring of tagged animals was conducted.
- An article summarizing results of the East Kootenay Badger Project was completed and published (Kinley, T. A., and N. J. Newhouse. 2008. Ecology and translocation-aided recovery of an endangered badger population. *Journal of Wildlife Management* 72:113-122).
- The carcasses of two roadkilled badgers were stored and their DNA catalogued. Hair samples for DNA testing were also stored and catalogued from a juvenile badger rescued from construction trench.
- Preparations were made for updating the regional badger habitat model, in cooperation with Parks Canada staff, including determining model variables, outlining approaches, researching the availability of GIS databases, and attending a workshop outlining potential changes to the biogeoclimatic zonation system in the East Kootenay.
- Nearly 170 sightings of badgers or badger sign reported by the public or resource professionals were recorded from April 2007 through March, 2008 (Figure 4). Sightings for 2007 included 17 reports of family groups (i.e. observation of more than one badger, or of a confirmed kit), believed to represent at least 13 litters and 29 kits (when reports were within 2 km of each other they were assumed to represent the same group). One litter observed in 2006 but not reported until 2007 was also recorded. The number of litters and kits was lower than in 2006 but higher than in other years and the mean litter size was also high (Figure 5). There were also 9 reported roadkills of non-tagged badgers, which is slightly higher than recent years (Figure 6).
- Updated radiolocation and sighting data were provided to the Conservation Data Centre. The CDC will provide the information to NatureServe.
- Sand tracking was used by the Nature Conservancy of Canada to determine if badgers and/or their prey are using a culvert placed for badger crossings under Highway 3/93 near Elko. Regular use by Columbian ground squirrels was documented, and use by badgers was observed for the first time on two occasions this year, during the fall of 2007.
- Under separate contract to BC Hydro's Fish and Wildlife Compensation Program (Columbia Basin) research was conducted to assess culvert density relative to roadkill locations in the East Kootenay. Results indicate that culvert density and roadkill occurrence are inversely related.

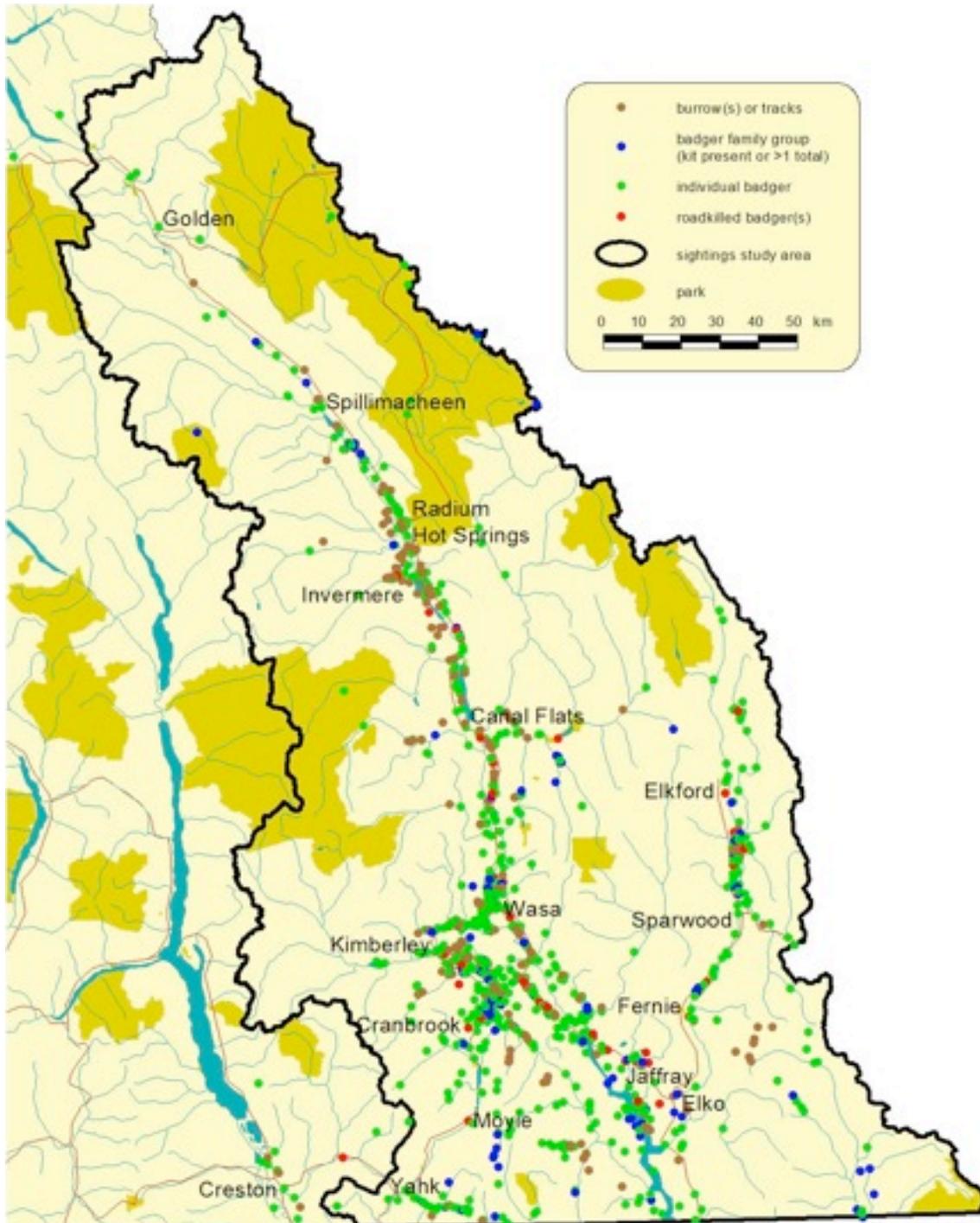


Figure 4. Badger sightings reported by the public or resource professionals in the Rocky Mountains, Rocky Mountain Trench and Purcell Mountains of the Kootenay Region. Sightings from 1945 onward, but primarily from 1991 through March, 2008.

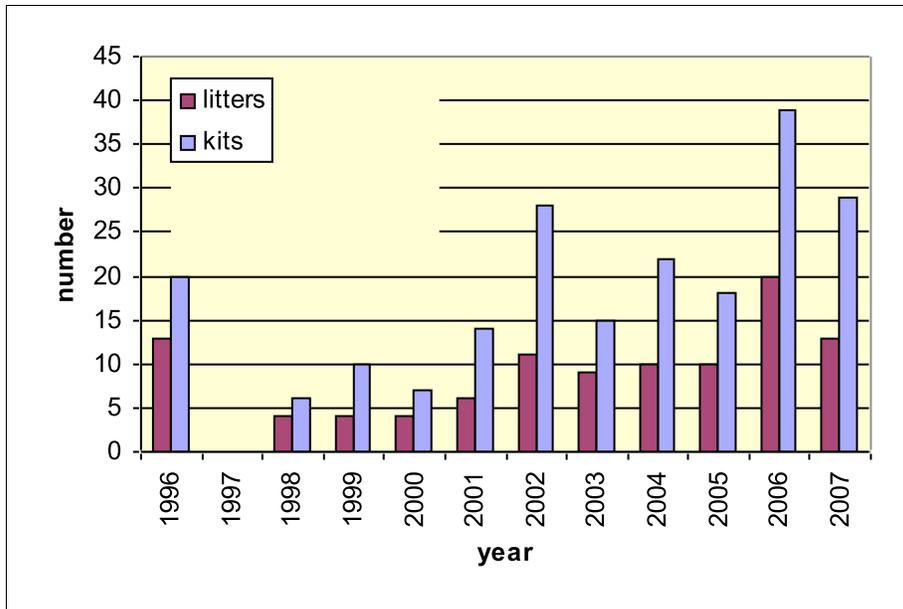


Figure 5. Number of non-tagged badger litters (n = 104) and kits (n = 208) reported in the East Kootenay, 1996 to 2007.

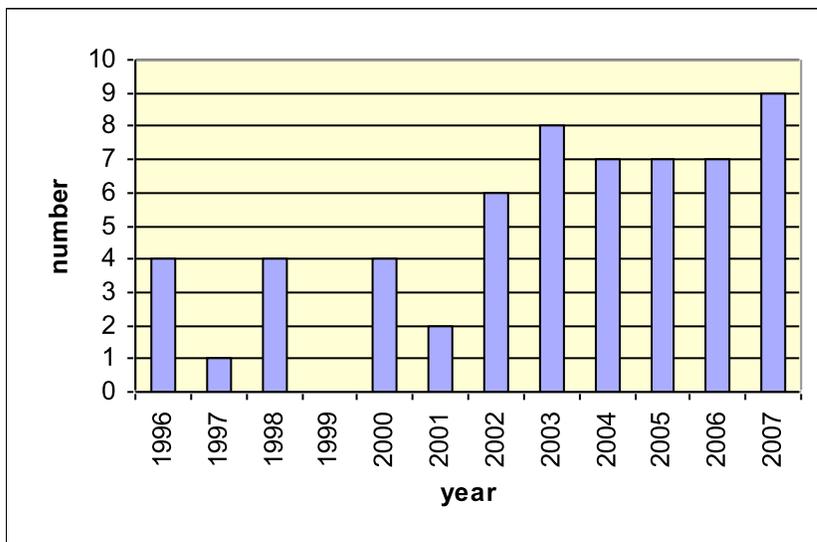


Figure 6. Number of non-tagged roadkilled badgers reported in the East Kootenay, 1996 to 2007 (n = 59, including 2 tagged animals with failed transmitters located through reports from the public).

2.3 Conservation Actions

- The project biologist prepared a presentation for the *jeffersonii* Badger Recovery Team meeting, and participated in email and phone discussions regarding the definitions of “residence” and “critical habitat”, particularly with respect to proposed recreational housing developments on federal land.
- Detailed mapping and information on badger conservation was provided for the Lake Windermere Official Community Plan developed by the Regional District of East Kootenay. This resulted in a Development Permit Area being established specifically to prevent the obstruction of a critical bottleneck in a badger movement corridor east of Invermere.
- An on-site meeting was held with a golf-course developer in Cranbrook to discuss means of minimizing impacts to badgers for a course under construction there.
- Regular dialogue with provincial and private forestry planners was maintained. Badger conservation has been taken into account in recent timber harvesting plans in the East Kootenay, through restrictions on machine use and cutting areas within several harvesting blocks. Updated badger location data has been provided to the Ecosystem Restoration coordinator for the Rocky Mountain Forest District of the Ministry of Forests and Range, for use in planning the restoration of grassland and open-forest habitats.
- Data on badger distribution, locations, roadkills or litter sizes were provided to the Ministry of Transportation and Highways, a graduate student, a consultant for a company developing coal-bed methane, a consultant for a First Nations planning process, and government staff considering a badger toxicology study.
- Options for modeling grassland-badger relationships were discussed with Grasslands Conservation Council staff.
- Potential impacts on badgers of fire management actions within Kootenay National Park were discussed with a Parks Canada staff member.
- A proposal to investigate prey selection via stable-isotope analysis was reviewed, as was a progress report for badger research from the Cariboo region.
- Dialogue was maintained with the BC Ministry of Transportation to attempt to reduce badger highway mortality, including discussion of the results of the roadkill-culvert analysis.
- Under separate contracts to the BC Ministry of Forests and Range, 5 new Wildlife Habitat Areas were proposed in the East Kootenay and effectiveness evaluations were conducted for 6 existing WHAs.