Grizzly Bear Conservation in Alberta

2011 Management Activities and Recovery Implementation

Alberta

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Introduction

In June 2010, the Government of Alberta officially declared grizzly bears a threatened species under Alberta's *Wildlife Act*. The management of grizzly bears is currently guided by the *Alberta Grizzly Bear Recovery Plan*, which recommends several strategies to ensure the long-term viability of grizzly bears in the province. This report summarizes the grizzly bear conservation and management activities conducted in 2011 and describes the progress the Government of Alberta has made in implementing the recovery plan.

2011 Management Activities

Mortality

Eighteen grizzly bear deaths were recorded by Sustainable Resource Development in 2011, including 15 human-caused mortalities (Table 1). Illegal killing (including cases where grizzly bears were mistaken for black bears) was the primary cause of death, accounting for 47 per cent of all human-caused mortalities. One bear was euthanized by Fish and Wildlife staff after it had been involved in livestock depredation. Importantly, only three adult female grizzly bears were known to have died in 2011.

Table 1
Sex, estimated age, bear management area (BMA) and cause of death for grizzly bears known to have died on provincial and private lands in Alberta in 2011.

Month of Mortality	B.M.A.	Sex	Age	Cause
Unknown	Swan Hills	UNK	SubA	Illegal
May	5	M	Adult	Self defence
May	2	M	SubA	Self defence
May	3	M	SubA	Illegal
May	5	F	SubA	Natural
August	5	M	Adult	Natural
August	6	M	Adult	Problem wildlife
August	3	M	Adult	Accidental
September	5	M	Adult	Aboriginal
September	1	M	Adult	Mistaken for black bear
September	3	F	Adult	Unknown
October	2	F	Adult	Illegal
October	2	F	SubA	Roadkill
October	2	UNK	Adult	Mistaken for black bear
October	4	F	SubA	Illegal
October	5	F	Adult	Roadkill
November	5	M	Adult	Mistaken for black bear
December	2	M	Adult	Accidental

Relocation

Fish and Wildlife Division staff captured and relocated 24 different grizzly bears in 2011 (Table 2). Nine bears were moved within their home range to remove them from specific conflict situations. Fifteen bears were moved outside of their respective BMA because they had a history of involvement in conflict situations, or they were unlikely to avoid conflicts in their original home range. Of all situations in which bears were moved, six were in response to public safety concerns, eight were in response to depredations on livestock, four were in response to bears repeatedly accessing and destroying electrified bee yards, and three were in response to bears repeatedly causing property damage to access livestock feed. Three subadult bears were moved in conjunction with their mothers.

Prior to release, all relocated grizzly bears are fitted with a numbered ear tag and either an ear-tag transmitter or a satellite radio collar. Satellite radio collar technology allows department staff to intensively monitor movements and fates of these bears through time. Bears that are fitted with ear-tag transmitters are monitored opportunistically. Since 2004, a total of 31 translocated grizzly bears have been fitted with satellite collars and monitored for one or more years. The department plans to complete this project in 2012 and will be collaborating with the Foothills Research Institute to analyze and report the final results.

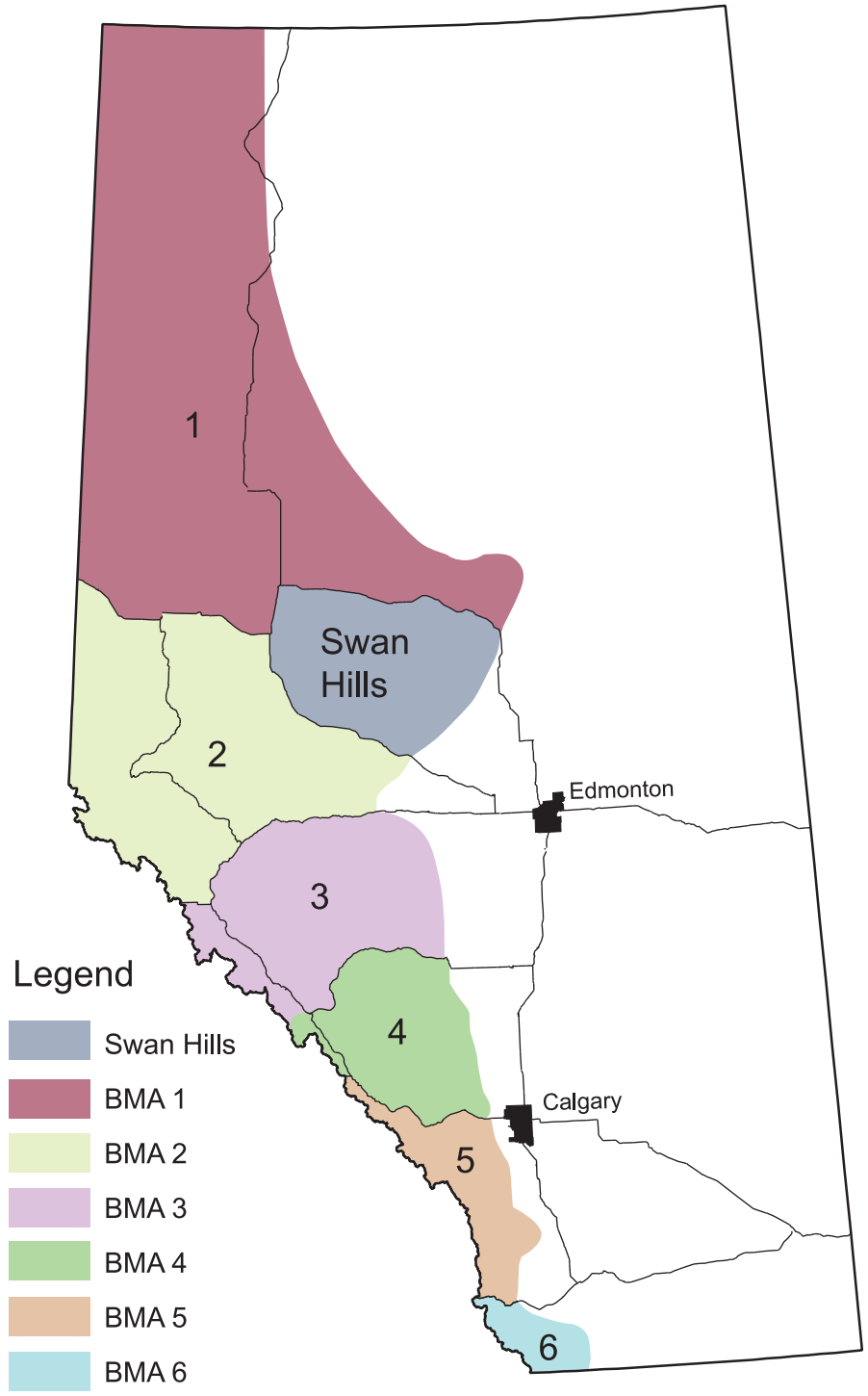


Figure 1
Bear Management Areas (BMAs) in Alberta.

Table 2
Capture month, bear management area (BMA), age, reason for capture and type of relocation for grizzly bears relocated in Alberta in 2011.

Bear ID	Capture Month	BMA	Sex	Age	Reason for Capture	Relocation Type
489451	April	5	M	Adult	Livestock attack	Outside homerange
490109	June	2	F	SubA	Public safety	Within homerange
490110	June	2	M	SubA	Public safety	Within homerange
491520	July	6	M	SubA	Livestock attack	Outside homerange
491521	July	6	M	Adult	Livestock attack	Outside homerange
491522	July	6	F	SubA	Livestock attack	Outside homerange
403292	July	5	M	Adult	Livestock attack	Outside homerange
492466	August	6	M	Adult	Livestock feed	Within homerange
492467	August	6	M	Adult	Public safety	Within homerange
492468	August	5	F	Adult	Property damage	Within homerange
492469	August	5	F	Adult	Property damage	Outside homerange
492470	August	5	M	SubA	With mother	Outside homerange
492471	August	5	F	SubA	With mother	Outside homerange
380189	August	5	F	Adult	Livestock attack	Outside homerange
492472	August	5	M	SubA	With mother	Outside homerange
492589	September	6	M	Adult	Public safety	Outside homerange
504370	September	4	M	Adult	Livestock attack	Outside homerange
492586	September	5	M	Adult	Property damage	Outside homerange
496185	September	5	M	Adult	Property damage	Within homerange
501592	October	2	F	Adult	Public safety	Outside homerange
504396	October	6	F	Adult	Public safety	Within homerange
504397	October	6	F	Adult	Livestock feed	Within homerange
506318	November	5	M	Adult	Livestock attack	Outside homerange
506319	November	6	F	Adult	Livestock feed	Within homerange

Sightings and human-bear conflicts

Staff from the Fish and Wildlife Division and Tourism, Parks and Recreation recorded 541 grizzly bear occurrences in 2011 and spent more than 4,800 hours responding to these situations (Table 3). The total number of occurrences and number of hours spent responding were similar in 2011 to those in 2010, during which 567 occurrences were recorded and 4,599 hours were spent responding. In 2011, most occurrences (58 per cent) were sightings reported by the public. In 96 per cent of these circumstances, actions by officers were limited to monitoring the situation or providing information to the public.

There were 133 situations where monitoring or education did not resolve the occurrence. Officers conducted preventative measures in 89 (67 per cent) of the cases and made attempts to capture bears in 44 (33 per cent) of these situations. Of those 44 attempts to capture the bear, 13 were to resolve public safety concerns and 31 were made to prevent further property damage.

Sixty-six occurrences were situations where public safety was a concern, either by the complainant or by the responding officer. Most (80 per cent) of these cases were resolved without an attempt to capture and relocate the bear. One mauling by a grizzly bear occurred in Alberta in 2011, resulting in non life-threatening injuries. This was a defensive attack by a female with cubs, and the area was temporarily closed to public access.

Most grizzly bear occurrences occurred during May-October, with June the most active month for sightings (Figure 2). In 2011, the peak in sightings occurred later than in 2010, likely due to a late spring following heavy snowfall the previous winter. Situations where bears caused property damage (harassment or attack of livestock, destruction of bee yards or destruction of livestock feed) were highest from August to October, when bears were preparing for denning.

The majority of more serious grizzly bear occurrences (public safety or property damage situations) were recorded in southwest Alberta, particularly in the agricultural landscapes surrounding Pincher Creek and Cardston (Figure 3). Poor natural food availability in this part of the province during 2011 may have caused bears to search for food near humans more intensively, leading to a high number of occurrences. A significant number of occurrences were also recorded near Beaverlodge, just west of Grande Prairie in northwest Alberta.

Table 3
Grizzly bear occurrence types, responses by Fish and Wildlife and Conservation officers, and manpower expenditures during 2011.

Occurrence Type	Response										Hours
	Monitor[1]	Education	Remove Attractant	Close Area	Fence Area	Aversive Conditioning	Compensation Claim	Enforcement	Capture Attempt	Total	
Sighting	256	45	2	2	1	8				**314**	444
Road Kill	5									**5**	13
Bee Yard	2				2				3	**5**	309
Livestock Feed	7	2	1		3	6			10	**29**	429
Livestock Carcasses	3	1	3	1						**8**	101
Livestock / Harrassment/Attack[2]	33	1					14		18	**66**	1998
Illegal Activity								23		**23**	604
Public Safety	17	14	1	16		5			13	**66**	780
Mauling				1						**1**	68
Other	13	9				2				**24**	134
Total	**336**	**72**	**7**	**19**	**5**	**21**	**14**	**23**	**44**	**541**	**4880**

[1]Includes situations where no direct response was required or where officers visited the location and determined no further action was necessary.
[2]Refers to situations where members of the public were concerned that grizzly bears had killed or harassed livestock. Fish and Wildlife officers investigate these complaints to determine whether grizzly bears were actually involved. Owners of livestock killed by grizzly bears can apply for compensation.

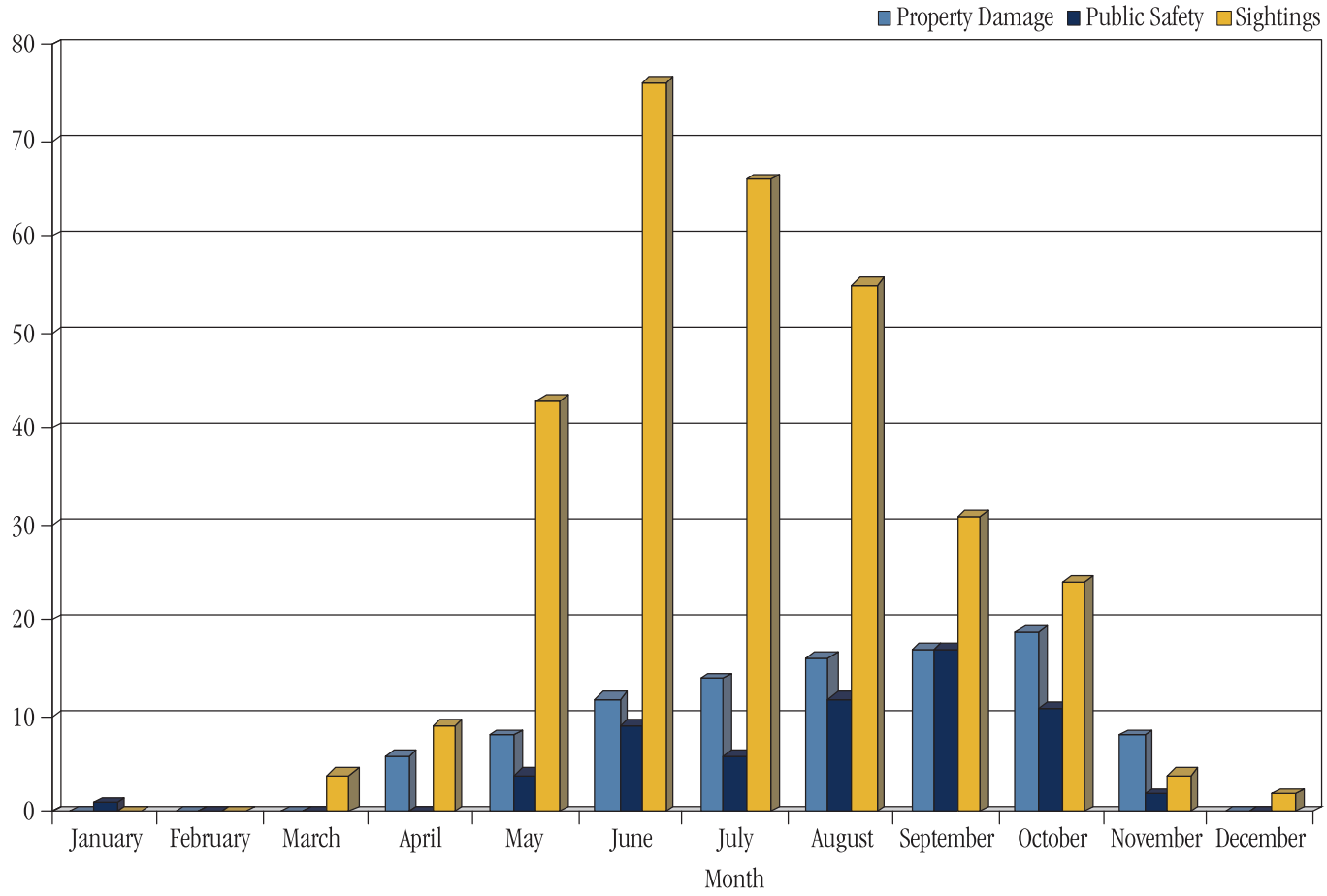


Figure 2
Month of grizzly bear occurrences related to property damage, public safety and sightings in Alberta during 2011.

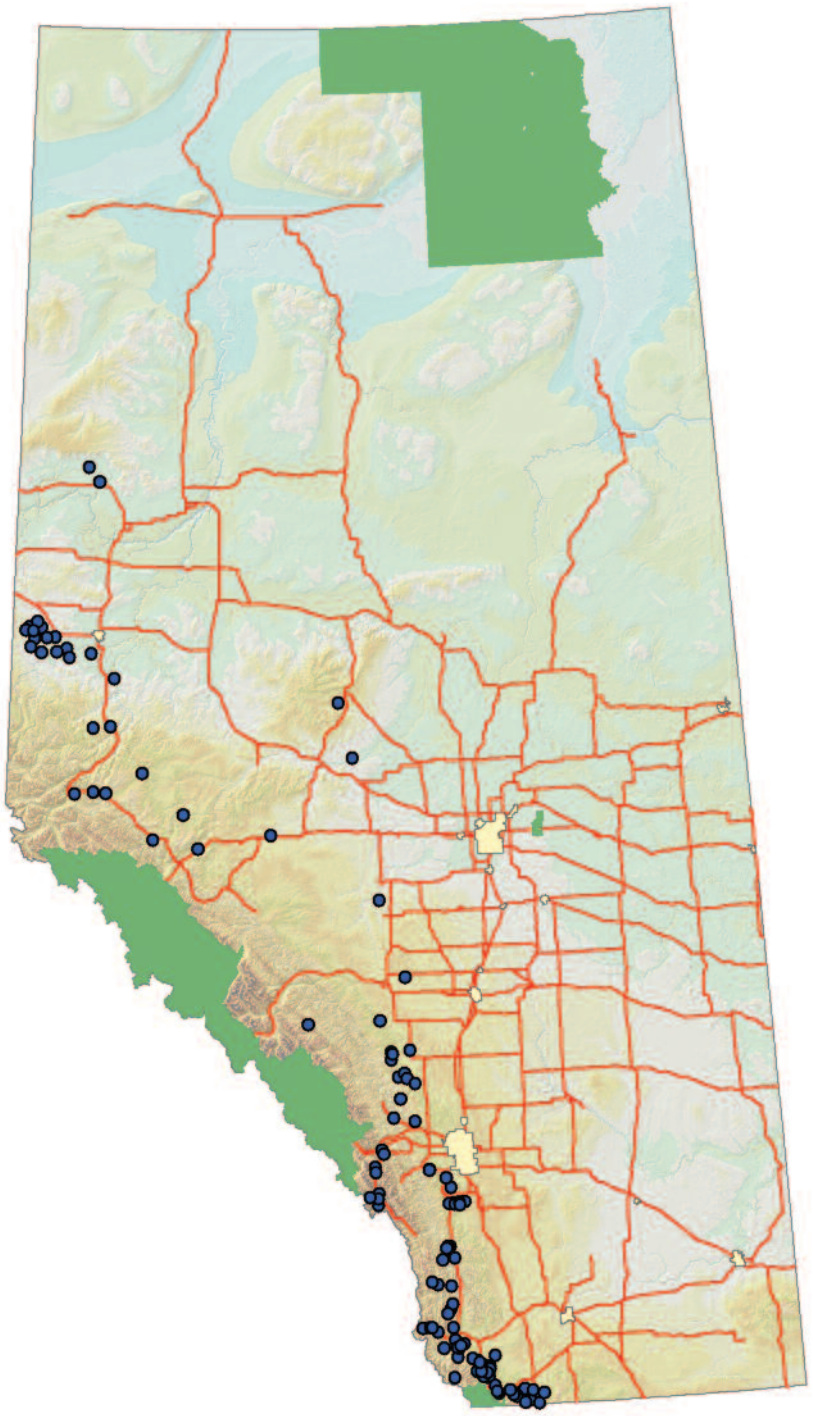


Figure 3
Location of grizzly bear occurrences related to public safety and property damage during 2011.

Recovery Plan Implementation

The Alberta Grizzly Bear Recovery Plan recommends several strategies to promote grizzly bear conservation. These measures include the following:

1) reducing human-caused mortality
2) improving knowledge of grizzly bears
3) reducing human-bear conflicts
4) delivering an education program (BearSmart)
5) maintaining grizzly bear habitat
6) improving coordination with neighbouring jurisdictions

The department and its partners continued to make progress in implementing these strategies in 2011.

Reducing human-caused mortality

The suspension of grizzly bear hunting (established in 2006) continued through 2011 and 2012.

The department continues to monitor, report and analyze grizzly bear mortality data. In 2011, the rates of human-caused grizzly bear mortality in BMAs 2-6 were 2.1 per cent for all bears and 0.7 per cent for female bears (Table 4). BMA 1 and the Swan Hills could not be included in these calculations because only approximate population estimates exist for these areas. Grizzly bear mortalities in National Parks are reported by Parks Canada.

The number of known, human-caused grizzly bear mortalities has averaged 15 per year since the hunting suspension was established in 2006, which is a 45 per cent reduction from the years 2000-2005 (Figure 4). In the past six years, self defence, illegal killing and mistaking grizzly bears for black bears have resulted in over half (56 per cent) of all known human-caused grizzly bear deaths (Figure 5). Accidental deaths (primarily road and railway kills) also comprised a substantial portion, at 22 per cent.

The department is continuing to review strategies for managing motorized access in core and secondary grizzly bear areas in order to reduce interactions between people and bears. Ultimately, it is expected that this approach will reduce human-caused grizzly bear mortalities. Motorized access is currently managed in National and Provincial parks, Wilderness Areas, and Forest Land Use Zones. Outside of these areas, grizzly bear habitat is managed through land disposition processes, in which applications to carry out activities on public land are evaluated. Regional plans developed under the Land-use Framework will consider grizzly bear habitat requirements.

Table 4
Known human-caused mortality rates for grizzly bears in BMAs 2-6 during 2011.

BMA	Population Estimate	Number of Mortalities	Number of Female Mortalities	Mortality Rate	Female Mortality Rate
2	353	4	2	1.1%	0.6%
3	42	2	0	4.8%	0.0%
4	45	1	1	2.2%	2.2%
5	90	4	1	4.4%	1.1%
6	51	1	0	2.0%	0.0%
Total	**581**	**12**	**4**	**2.1%**	**0.7%**

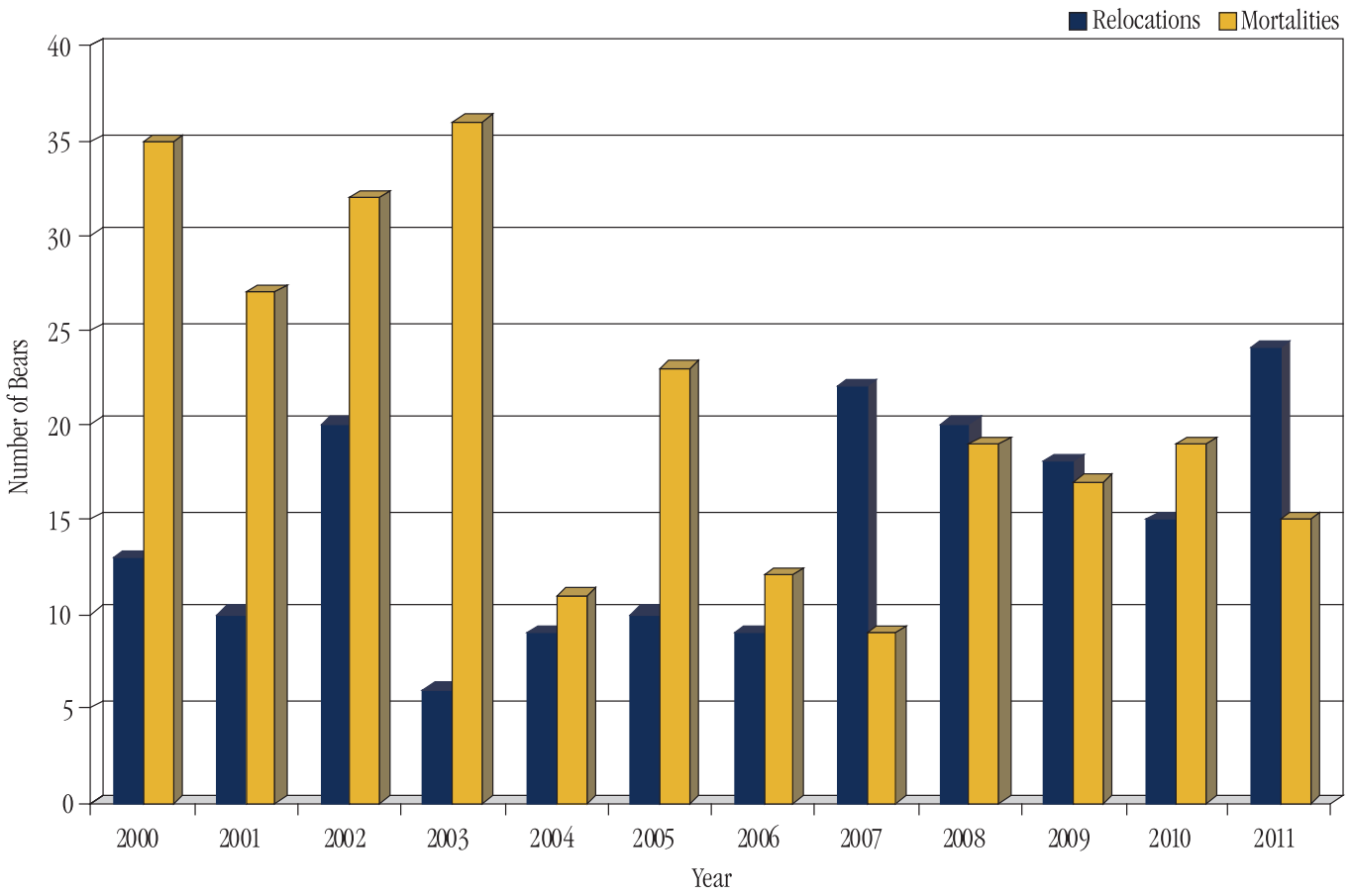


Figure 4
Number of known, human-caused grizzly bear mortalities and number of grizzly bears relocated from 2000-2011.

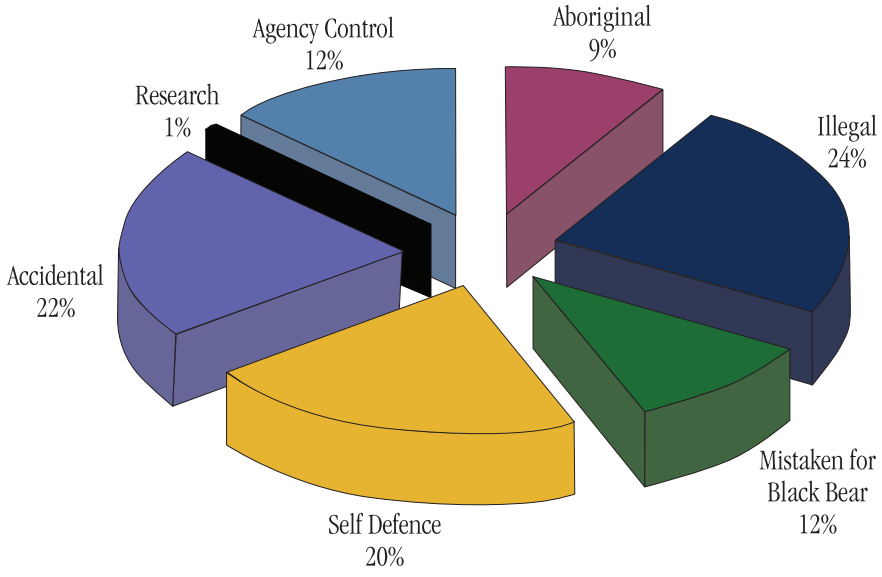


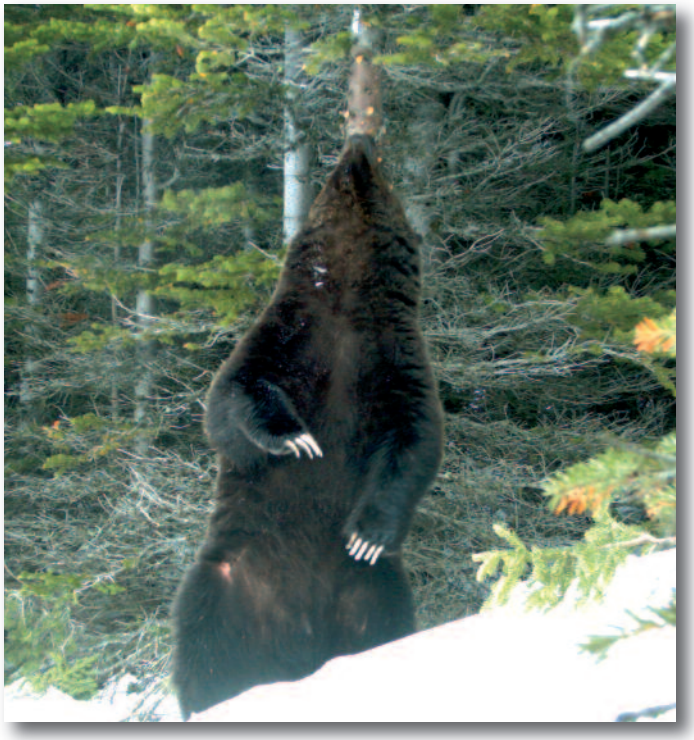
Figure 5
Causes of death for grizzly bears known to have died due to human causes in Alberta, 2006-2011 (n=91).

Improve knowledge of grizzly bears

In 2008, the department created a grizzly bear "Science Advisory Committee" to advise the government on research priorities that will inform grizzly bear recovery. This committee has developed a list of priority research topics to help inform grizzly bear recovery actions. The committee continues to meet once a year to share research results and review research priorities. A list of research priorities are posted on the department's website at www.srd.alberta.ca/grizzlybears.

Several research projects are either ongoing or were initiated in 2011 that address the Science Advisory Committee's recommendations. Importantly, two initiatives are now underway to explore techniques to monitor grizzly bear population trends. Sarah Rovang, an MSc student advised by Dr. Scott Nielsen at the University of Alberta, is collaborating with the Foothills Research Institute to refine non-invasive hair snag DNA sampling approaches in BMA 3 near Hinton. Sarah conducted her first field season in 2011 and will be continuing her project in 2012. Summer 2011 also marked the first field season of a pilot project aimed at finding a long-term solution to monitor grizzly bears in southwest Alberta. The department, in collaboration with Alberta Tourism, Parks and Recreation and Parks Canada, initiated non-invasive rub-tree DNA sampling in BMA 6, with efforts focused in Waterton Lakes National Park and the forest reserve. A total of 501 rub objects (primarily trees, but also including a few sign posts and power poles) were identified, resulting in the collection of approximately 900 hair samples. Samples were sent to Wildlife Genetics International in Nelson B.C. for analysis, with results expected by summer 2012. Based on the success of our 2011 field season, we hope to expand monitoring efforts onto private and lease lands with participating landholders in 2012.

The department is also working collaboratively with the University of Alberta to evaluate the effectiveness of the Spring Intercept Feeding program. In 2011, DNA collection stations were set up at four of the feeding locations in order to determine the number of individual bears utilizing these sites. Grizzly bear hair was collected at all four locations, and is currently undergoing genetic analysis. All of the spring intercept feeding sites will be monitored in 2012.



Research to investigate overall grizzly bear health and impacts of mining, mountain pine beetle management and road access on grizzly bears is ongoing by the Foothills Research Institute and the University of Alberta. The department supports these projects through direct funding, provision of staff time and sharing of spatial information.

Reduce human-bear conflicts

In 2011, department staff from across the province continued to work with landowners, industrial users, agricultural producers, rural residents and recreationalists to prevent and reduce human-bear conflicts. In addition to providing educational information (described below), the Alberta BearSmart program provided and coordinated electric fencing, livestock carcass collection bins, bear-resistant garbage bins, diversionary feeding, removal of bear attractants, such as fruit and vegetation, and aversive conditioning of bears.

Landowners in Cardston County and Municipal District of Pincher Creek continued their efforts of removing dead livestock to reduce conflicts with grizzly bears as part of their ranch protection goals and attractant management objectives. Use of

dead livestock temporary storage bins to prevent scavenging by bears is increasing, with some bins receiving very high use. A total of nine bins have been put in place, with seven in Cardston County and two in the Municipal District of Pincher Creek, with another one pending. Additional efforts, led by two producer-driven community groups, continued efforts to protect livestock feed stored in granaries by using permanent and temporary electrical fencing, installing bear-proof grain bin doors and floors, and installing hopper bottoms on existing bins or, in some cases, replacement with new storage systems. A total of 14 individual projects have been completed, with another six proposed and being reviewed for the spring / early summer of 2012. To continue this effort, a large carnivore working group has been established through a grant to the Waterton Biosphere Reserve, supporting community-based, producer-driven projects and strategies to reduce conflicts with large carnivores. The department plans to further support these community-based efforts to reduce human-bear conflicts in the upcoming year by supporting Cardston County to establish a dead livestock composting facility to further reduce costs of removing attractants, helping to reduce risks to rural communities and large carnivores.

In southwest Alberta, approximately 145 road-killed ungulates were transported to 14 high-elevation sites in March and April 2011 as part of the annual Spring Intercept Feeding Program. This program works to reduce conflicts with agricultural producers by encouraging bears to stay in remote areas during the livestock calving and lambing season. Carcass drop locations were monitored with trail cameras to assess use by grizzly bears and other carnivore species from 2008 to 2010. Although the majority of the sites were not monitored in 2011, full monitoring of the sites will again commence in 2012. All sites in recent years have been known to be used by grizzly bears, some more extensively than others. Some sites also showed use by other carnivores including cougars, black bears, wolves, coyotes and wolverines.

Fish and Wildlife officers continued to use Karelian Bear Dogs (KBDs) to prevent and respond to human-bear conflicts. KBDs are used to search for wildlife carcasses, to improve officer safety in conflict situations and to haze bears away from conflict sites. Use of KBDs reduces the need to relocate or destroy bears. KBDs make

excellent ambassadors for public education and were used at public events to enhance the profile of the BearSmart educational program.

The Wind River Bear Institute (WRBI) has assisted Alberta Sustainable Resource Development and Alberta Tourism, Parks, and Recreation for ten years in proactively managing grizzly bear conflicts in the Bow/Kananaskis area. This includes monitoring and aversive conditioning of grizzly bears when required. Eight grizzly bears, one of them a female with three cubs, were captured, radio collared and added to the aversion program in 2011. Eighteen radio-collared grizzly bears were monitored in 2011, of which 11 (61 per cent) were female, including seven (64 per cent) females with cubs of varying ages. There were more than 795 conditioning actions carried out on bears, 82 per cent of which were directed toward eight radio-collared grizzly bears. Individual bear profiles were completed at the end of the season to assess the effectiveness of conditioning on individual bears. Most bears demonstrated signs of improvement by moving into cover when exposed to people or approaching vehicles. Three radio-collared female grizzly bears, all with cubs in 2011, will require additional conditioning work in 2012 to ensure they respond appropriately when near developed sites. Bow Valley WildSmart

continued to disseminate a weekly bear activity report to Bow Valley residents and recreationists that identified varying levels of bear activity throughout the valley. Natural attractants (primarily buffaloberry shrubs) were mechanically removed from many developed areas, including campgrounds and residential areas, as part of an ongoing effort to discourage bears from using developed areas.

Deliver a comprehensive education and outreach plan

The Alberta BearSmart program is the province's education and outreach program for people living, working or recreating in bear country. The program is a province-wide, multi-stakeholder initiative and uses public education and management of bear attractants to promote public safety, reduce human-caused bear mortality and reduce property damage. The program provides information, such as educational messaging on bear natural history, proper management of bear attractants, methods to avoid bear encounters and appropriate responses to close encounters with bears. Education and conflict prevention efforts are focused on communities, outdoor recreationalists, agricultural producers and industry. In 2011, the department continued to develop the provincial BearSmart website, including a new bear identification tutorial (www.bearsmart.alberta.ca), placed BearSmart ads in several outdoor publications and produced and installed educational signage throughout the province. Since 2009, the department has produced and distributed over 155,000 educational brochures and checklists. In 2011, department staff, community members and volunteers gave 62 BearSmart presentations to community groups, 110 presentations to school groups, 37 presentations to industrial workers, attended 24 tradeshows and visited individually with 485 landowners. BearSmart messaging was featured in 296 newspaper articles and radio ads and 103 additional BearSmart signs were installed across the province.

In addition to provincial efforts, the BearSmart program works with communities to deliver educational messaging and reduce bear attractants at a local level. The department hosted a BearSmart workshop in May 2011 for Fish and Wildlife staff and community group volunteers to help facilitate information exchange among different areas of the province. This workshop

included a tour of rancher initiatives to reduce agricultural bear conflicts, including enhanced electric fencing, grain bin upgrades and dead livestock storage bins. Currently, community BearSmart programs are underway or in development in Cadomin, Canmore, Bragg Creek, Crowsnest Pass, Edson, Fox Creek, Grande Cache, Hinton, Mountain View County and Nordegg. Staff are working in many other locations across the province to initiate or support BearSmart initiatives. Community programs typically include an educational component as well as initiatives designed to help manage bear attractants. In 2011, a bear hazard assessment was completed for the Smoky Management Area (which surrounds Grande Prairie) by the Miistakis Institute, and department staff are beginning to implement the recommendations.

In the Crowsnest Pass, the Crowsnest Conservation BearSmart Committee expanded their efforts significantly in 2011, including recruiting several new volunteers. The committee initiated an

apple-tree swap program, submitted recommended bylaw changes to the municipality and started a bear conflict hot-spot monitoring program. All of this work was in addition to other ongoing efforts, such as a bear-resistant garbage bin loaner program, meetings with residents and business owners to distribute BearSmart information, submitting weekly articles to local newspapers, an annual Bear Awareness and Education Event and a community apple roundup.

Identify, track, and maintain grizzly bear habitat

Grizzly bear range has been mapped in all BMAs in the province, including northern Alberta and the Swan Hills. Core and secondary areas have been delineated in BMAs 2-6 and in the Swan Hills, and these will serve as priority areas for access management. The Foothills Research Institute produces annual updates of grizzly bear resource selection function and mortality risk maps, which are used in forest management planning. Finally, the department plans to continue collecting public sighting information across the province to document potential range expansion or retraction.

Improve interjurisdictional communication

Department staff continue to participate on the Interagency Grizzly Bear Committee and consult frequently with biologists and managers from neighbouring provinces, states and the National Parks. Grizzly bear mortality data are regularly shared with Parks Canada in order to help facilitate management of bears which use both provincial lands and National Parks. Finally, the department is collaborating with Parks Canada, Alberta Tourism, Recreation and Parks, and the United States Geological Survey on grizzly bear trend monitoring in BMA 6, which is part of the Northern Continental Divide Ecosystem shared with British Columbia and Montana.

Improve and apply regulations or legislation

In 2011, the department adjusted baiting regulations for black bears, wolves, and coyotes to reflect improved knowledge of grizzly bear distribution and to manage attractants during times of the year when bears are active. Baiting for black bears was closed in three areas that overlap grizzly bear range. On public land that overlaps grizzly bear range, hunters can now use wolf and coyote baits only during the winter, and baits must be signed with the hunter's contact information.