Grizzly Bear

(*Ursus arctos horribilis*)

State Status: Endangered, 1980
Federal Status: Threatened, 1975 (Selkirk and North Cascades Distinct Population Segments, 'warranted but precluded' from listing as Endangered)
Recovery Plans: Federal, 1993, 1997

Figure 1. Grizzly bear.

Grizzly bears can be distinguished from black bears by longer, curved claws, humped shoulders, and a face that appears to be concave (Craighead and Mitchell 1982). Their coloring ranges from blond to deep brown or black, with the differences now thought to be due primarily to variation in regional diet and climate. In the lower 48 states, the average weight of grizzly bears is generally 250-350 lb for females and 400-600 pounds for males (Craighead and Mitchell 1982). Grizzly bears are long-lived mammals, potentially living to be about 25 years old (LeFranc et al. 1987).

Although adult grizzly bears are normally solitary, home ranges of adult bears frequently overlap and they are not considered territorial (Schwartz et al. 2003). Grizzly bears enter dens in October or November for 4-6 months of hibernation. In preparation for hibernation, bears increase their food intake dramatically (Craighead and Mitchell 1982). Grizzlies must consume foods rich in protein and carbohydrates to build up fat reserves to survive denning and post-denning periods (Rode and Robbins 2000). Grizzly bears are opportunistic omnivores with high diet variability among individuals, seasons, and years. Grizzlies will consume almost any food available including living or dead mammals or fish, insects, and garbage (Mattson et al. 1991a, 1991b, Schwartz et al. 2003). In areas where animal matter is less available, berries, grasses, roots, bulbs, tubers, seeds, and fungi may be important in meeting protein requirements (LeFranc et al. 1987, Schwartz et al. 2003).

Prior to the arrival of Europeans, grizzly bears occupied much of the western half of the contiguous U.S., central Mexico, western Canada, and most of Alaska. By the 1930s, grizzlies had been eliminated from all but 2% of their historical range in the 48 contiguous states (USFWS 1993). Grizzly bears occurred in most of Washington, historically, except on the Olympic Peninsula and the lowlands below the west slope of the Cascades (Almack et al. 1993). Hudson Bay Company records list a large number of grizzly hides shipped from posts in Washington (e.g. 3,477 from Fort Colville, which was near Kettle Falls 1827–1859), but these trading posts received furs from a wider area that included the southeast corner of British Columbia, northern Idaho, and Montana west of the Continental Divide, as well as northeastern Washington (Hudson's

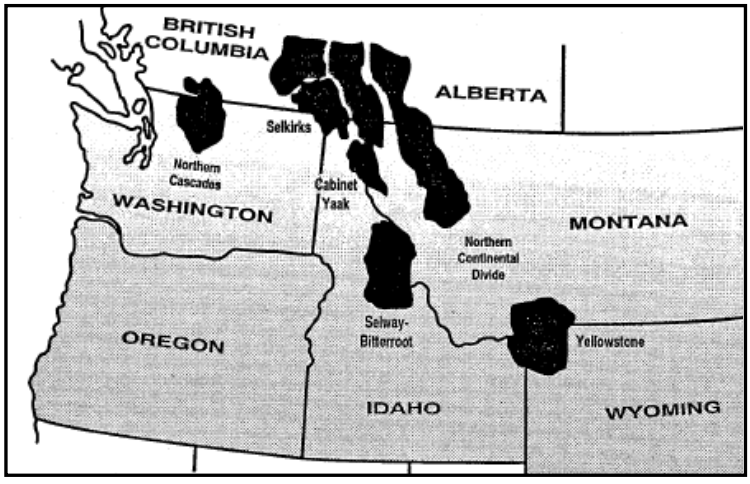

Figure 2. Grizzly bear ecosystems in the coterminous United States (USFWS 1993).

Bay Company Archives, Winnepeg; Mackie 1997:250).

In 2012, photographs of four different grizzly bears were obtained from remote cameras in an area of northern Stevens County known as "the Wedge'; photos included a sow and two cubs. In response, WDFW staff coordinated with relevant staff from other agencies having management jurisdiction, posted bear awareness signs at campgrounds and other suitable locations in the Wedge, and contacted spring black bear hunters. A total of 30 hair samples were obtained from wire hair snags in the area and submitted to USFWS for DNA analysis.

***Selkirk Mountains Ecosystem*.** Proctor et al. (2012) estimated a population size of 88 grizzly bears in the Selkirk Ecosystem (30 in the U.S., 58 in Canada) using DNA-based population surveys and other data. The estimate for the U.S. portion is based on expert opinion; the Idaho Department of Fish and Game is working on a more scientifically rigorous estimate population (USFWS 2011). Wakkinen and Kasworm (2004) estimated this population is slowly increasing at a rate of 1.9% annually (95% CI=0.922-1.098) (Table 1).

Table 1. Estimated grizzly bear population size and population growth rate by recovery zone (modified from USFWS 2011).

Recovery Zone	Population estimate	Trend (% change/yr)
Greater Yellowstone Area	582	+4.7%
Northern Continental Divide	765	+3%
Cabinet-Yaak	42	–3.8%
Selkirk	80	+1.9%
North Cascades	~6[a]	unknown
Bitterroot	0	-

[a] Romain-Bondi et al. (2004)

***North Cascades Ecosystem*.** An assessment by Almack et al. (1993) concluded that adequate habitat exists in the North Cascades of Washington to support a population of grizzly bears. Based on expert opinion and a database of sightings, the population in the North Cascades Ecosystem was estimated to be fewer than 20 animals (USFWS 2011). The population in adjacent B.C. is estimated to be less than 25 grizzly bears (North Cascades GBRT 2004). Romain-Bondi et al. (2004) used DNA hair-snare sampling and catch per unit effort to estimate relative density and population size of grizzly bear population in the North Cascade Ecosystem. During 5,304 trap nights over 3 years (1998-2000), one grizzly bear was detected in the BC portion of the North Cascades, a much lower detection rate than in seven other populations. Using a model, they estimated a grizzly bear density in the North Cascades Ecosystem of 0.15 bears/100 km^2, and a mean population estimate of 6 bears (Romain-Bondi et al. 2004).

During 2010-2012, the North Cascade Ecosystem was surveyed using barbed wire DNA hair corrals and cameras (USFWS 2011). During 2010, 191 hair corrals were placed in North Cascades National Park and

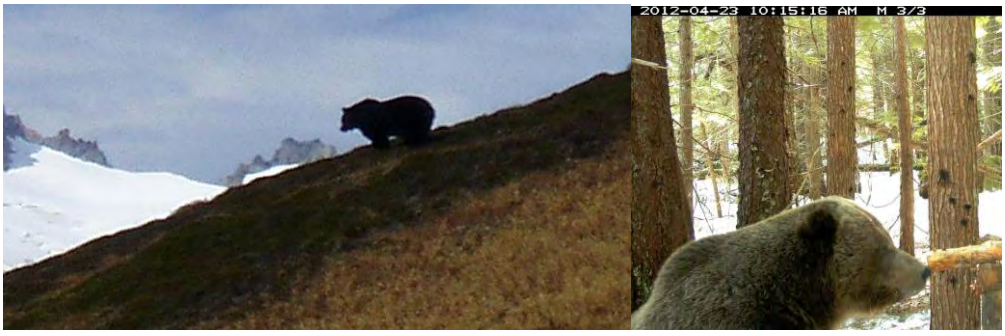

Figure 3. Grizzly bears photographed in the North Cascades of Washington in 2010, left (*photo by Joe Sebille*), and of British Columbia in 2012, right.

adjacent national forests. No grizzlies were detected during surveys, but a hiker photographed a lone grizzly bear in the Upper Cascade River drainage south of North Cascades National Park in October 2010 (Figure 3). This is the first time a grizzly bear has been documented in the American portion of the North Cascades since 1996. During the three years, 2,500 hair samples have been retrieved; 2012 samples are still being analyzed, but no grizzlies have been detected from these samples which covered perhaps 25-30% of the North Cascades. A remote camera set by colleagues photographed a grizzly in the British Columbia portion of the North Cascades in 2012 (Figure 3).

Limiting factors. Proctor et al. (2012) studied the fragmentation of grizzly bear populations in western Canada and the northern United States using genetic and telemetry data. They also related movement rates of male and female grizzlies to highway traffic, settlement, and human caused grizzly bear mortality. They reported that settled mountain valleys and major highways near the Canada-US border area resulted in fragmentation of populations and several small bear populations had male-only immigration. Females grizzlies reduced their movement rates dramatically when settlement increased to >20% of the fracture zone. Small grizzly populations are not viable over the long term without female connectivity (Proctor et al. 2012).

Factors affecting grizzly bear recovery in the Selkirk Mountains Ecosystem include human disturbance, particularly, a lack of food storage orders, human-caused mortality, small population size, and population fragmentation that resulted in genetic isolation (USFWS 2011). Although the Selkirk population may be slowly increasing (Wakkinen and Kasworm 2004), high levels of human-caused mortality and inadequate regulatory mechanisms in B.C. and the U.S. still threaten this population. Wakkinen and Kasworm (2004) reported that 80% of known grizzly mortalities (n=40) in the Selkirk Ecosystem were human-caused.

Factors affecting grizzly bear recovery in the North Cascades recovery zone include very small population size, human disturbance, and population fragmentation resulting in genetic isolation (USFWS 2011). There are no data regarding population size, trend, survival, and reproductive rates for grizzlies in the North Cascades in Washington. The likely isolation of the population in B.C. from other populations limits the chance of natural recovery given the small population size.

Conservation activities. In response to petitions received, the U.S. Fish and Wildlife Service determined that uplisting the North Cascades and Selkirk grizzly bear distinct population segments from threatened to endangered status was warranted but precluded by higher priority actions (USFWS 1998, 1999).

WDFW worked with partners in 2010 and 2011 to conduct hair snare sampling for grizzly bears in the North Cascades and Selkirks. The Grizzly Bear Outreach Project (now Western Wildlife Outreach) has been working in local communities to improve understanding and appreciation of grizzly bears in Washington and Idaho (Morgan et al. 2004). A similar effort has been underway in the North Cascades in B.C. (Davis 2008)

Partners and cooperators: U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service-North Cascades National Park, Grizzly Bear Outreach Project, Idaho Fish and Game, British Columbia Ministry of Forests, Lands, and Natural Resource Operations, Washington State University, Conservation Northwest.

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