STATE OF WASHINGTON June 2019

Periodic Status Review for the Grizzly Bear

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Washington Department of FISH AND WILDLIFE
Wildlife Program

The Washington Department of Fish and Wildlife maintains a list of endangered, threatened, and sensitive species (Washington Administrative Codes 220-610-010 and 220-200-100). In 1990, the Washington Wildlife Commission adopted listing procedures developed by a group of citizens, interest groups, and state and federal agencies (Washington Administrative Code 220-610-110). These procedures include how species listings will be initiated, criteria for listing and delisting, a requirement for public review, the development of recovery or management plans, and the periodic review of listed species.

The Washington Department of Fish and Wildlife is directed to conduct reviews of each endangered, threatened, or sensitive wildlife species at least every five years after the date of its listing by the Washington Fish and Wildlife Commission. These periodic reviews include an update on the species status to determine whether the species warrants its current listing or deserves reclassification. The agency notifies the general public and specific parties interested in the periodic status review, at least one year prior to the end of the five-year period, so that they may submit new scientific data to be included in the review. The agency notifies the public of its recommendation at least 30 days prior to presenting the findings to the Fish and Wildlife Commission. In addition, if the agency determines that new information suggests that the classification of a species be changed from its present state, the Department prepares documents to determine the environmental consequences of adopting the recommendations pursuant to requirements of the State Environmental Policy Act.

This draft periodic status review for the Grizzly Bear was reviewed by species experts and was available for a 90-day public comment period from February 6 to May 9, 2018. All comments received were considered during the preparation of the final periodic status review. The Department presented the results of this periodic status review to the Fish and Wildlife Commission for action at the 14-15 June 2019 meeting in Port Angeles. The recommendation to keep the Grizzly Bear listed as endangered was affirmed by the Commission at this meeting.

For additonal information about Grizzly Bears or other state-listed species, check our website, or contact us by at wildthing@dfw.wa.gov, or by mail to:

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On the cover: *Mother grizzly and cubs by Tom Mangelson; background of Glacier Peak Wilderness by Bill Gaines.*

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EXECUTIVE SUMMARY

The grizzly bear is a native carnivore that once occupied much of the Cascade Mountain Range and much of eastern Washington. The grizzly bear was extirpated from the large majority of its range in Washington as a result of direct killing, loss of habitat, and habitat degradation. Grizzly bears are federally listed as a threatened species under the Endangered Species Act and classified as an endangered species in Washington. Grizzly bears currently occupy the Selkirk Mountain Range in the northeastern corner of Washington, and this area coincides with the extent of the Washington portion of Selkirk Mountain Recovery Zone for grizzly bears, as defined in the federal grizzly bear recovery plan. Grizzly bears are not currently known to occupy the North Cascades Ecosystem in north-central Washington (i.e., the North Cascades Recovery Zone) which is a large area (24,600 km^2) dominated by suitable bear habitat.

In the Selkirk Mountain Recovery Zone (SMRZ), grizzly bears are currently threatened by human-caused mortality, and grizzly bear recovery is hindered by small population size and continued or excessive motorized access in core grizzly habitats. In the NCRZ, grizzly bear recovery is hindered by the isolation and distance of the recovery zone from the closest existing populations (i.e., south-central BC, SMRZ) that could provide immigrants, and by the lack of secure habitat necessary to facilitate successful immigration from an existing population to the NCRZ.

The reintroduction of grizzly bears into the North Cascades Ecosystem is a recovery measure that could improve the conservation status of grizzlies in Washington and across their range. Multiple options for reintroducing grizzly bears in the North Cascades are currently being evaluated by U.S. Fish and Wildlife Service and the National Park Service, and these options are documented in the North Cascades Grizzly Bear Restoration Plan Environmental Impact Statement. Efforts by federal, state and tribal agencies to reduce motorized access to core grizzly bear habitats within recovery zones is expected to benefit grizzly bears in Washington. New hunter education efforts are being instituted in Washington state in 2018 to reduce grizzly bear mortality by reducing the likelihood that black bear hunters will mistakenly kill a grizzly bear.

Ongoing human-caused mortality in the SMRZ and the absence of bears in the NCRZ indicates that continued conservation measures and protections are required to protect and reestablish viable and self-sustaining populations within the State. Because of the small population size, limited distribution and continuing threats to grizzly bears in Washington, we recommend that the grizzly bear retain its status as a state endangered species in Washington.

DESCRIPTION & LEGAL STATUS

The grizzly bear (*Ursus arctos*; Figure 1) is a large member of the bear family (Ursidae) and is one of three bear species that inhabit North America, along with the polar bear (*U. maritimus*) and the American black bear (*U. americanus*). Grizzly bears exhibit sexual dimorphism, and there is substantial variability in the mean sizes of adult grizzly bears among North American populations (Schwartz et al. 2003a). Mean weight for adult (>4 years old) bears in the Selkirk Mountains (i.e., southeastern British Columbia, northern Idaho, and northeastern Washington) was 161 ± 12 (SE) kg for males and 104 ± 7 (SE) kg for females (Kasworm et al. 2016).

Figure 1. Grizzly bear (*Ursus arctos*) (Photo: National Park Service).

The color of grizzly bears can vary from blond to dark brown, and many individuals have creamy or silvery tipped guard-hairs that give their fur a grizzled quality; hence their name (Schwartz et al. 2003a). Because of the great variability in their size and color, grizzly bears can be easily mistaken for the more-common black bear, which also varies considerably in size and color (Pelton 2003). Several other morphological characteristics are used to identify grizzly bears and to distinguish them from black bears: a large shoulder hump, long claws (5-10 cm), a concave (dished) facial profile, and shorter and rounder ears (Western Wildlife Outreach 2017; Figure 1).

The grizzly bear was federally listed as a threatened species within the United States in 1975 (USFWS 1993), and as a state endangered species in Washington state in 1980. Since 1998, the grizzly bear population in the North Cascades Ecosystem has been considered "warranted but precluded" for up-listing from threatened to endangered status under the Endangered Species Act (USFWS 1998, 2016). Grizzly bears are considered threatened or extirpated in areas of British Columbia that border Washington state (British Columbia Ministry of Environment 2012). The grizzly bear population in the Greater Yellowstone Ecosystem was federally de-listed in 2017 (USFWS 2017).

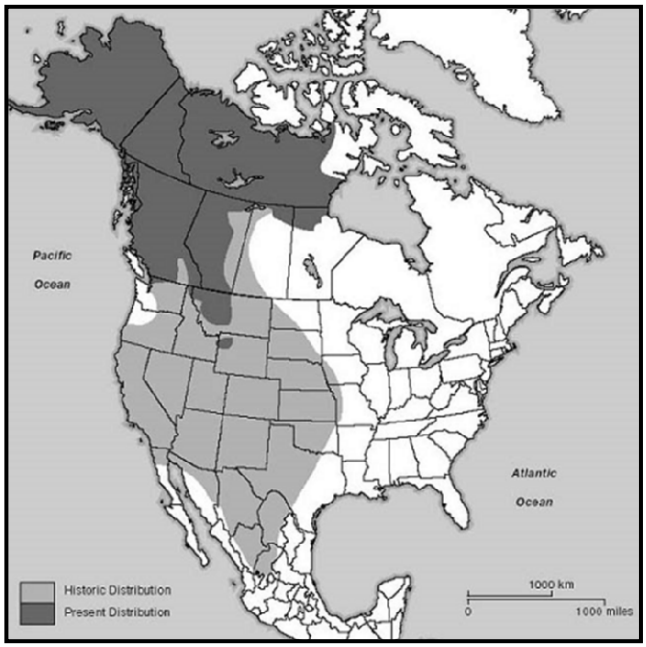

Figure 2. The shaded areas indicate the historical and present range of the grizzly bear in North America (Servheen et al. 1999).

DISTRIBUTION

The grizzly bear occurs in Eurasia and western North America (Pasitschniak-Arts 1993). Following European settlement, grizzly bears were extirpated from ~98% of their historical range in the contiguous United States (Servheen et al. 1999; Figure 2). Grizzly bears are now known to occur within Idaho, Montana, Washington and Wyoming (Figure 2). In Washington, grizzly bears historically occurred throughout the state with the possible exception of the Olympic Peninsula and coastal lowland areas west of the Cascade Range (Almack et al. 1993). Currently in Washington, grizzly bears occur in the Selkirk Mountains of northeastern Pend Oreille County and have occasionally been observed in Stevens and Ferry Counties of northeastern Washington (Figure 3).

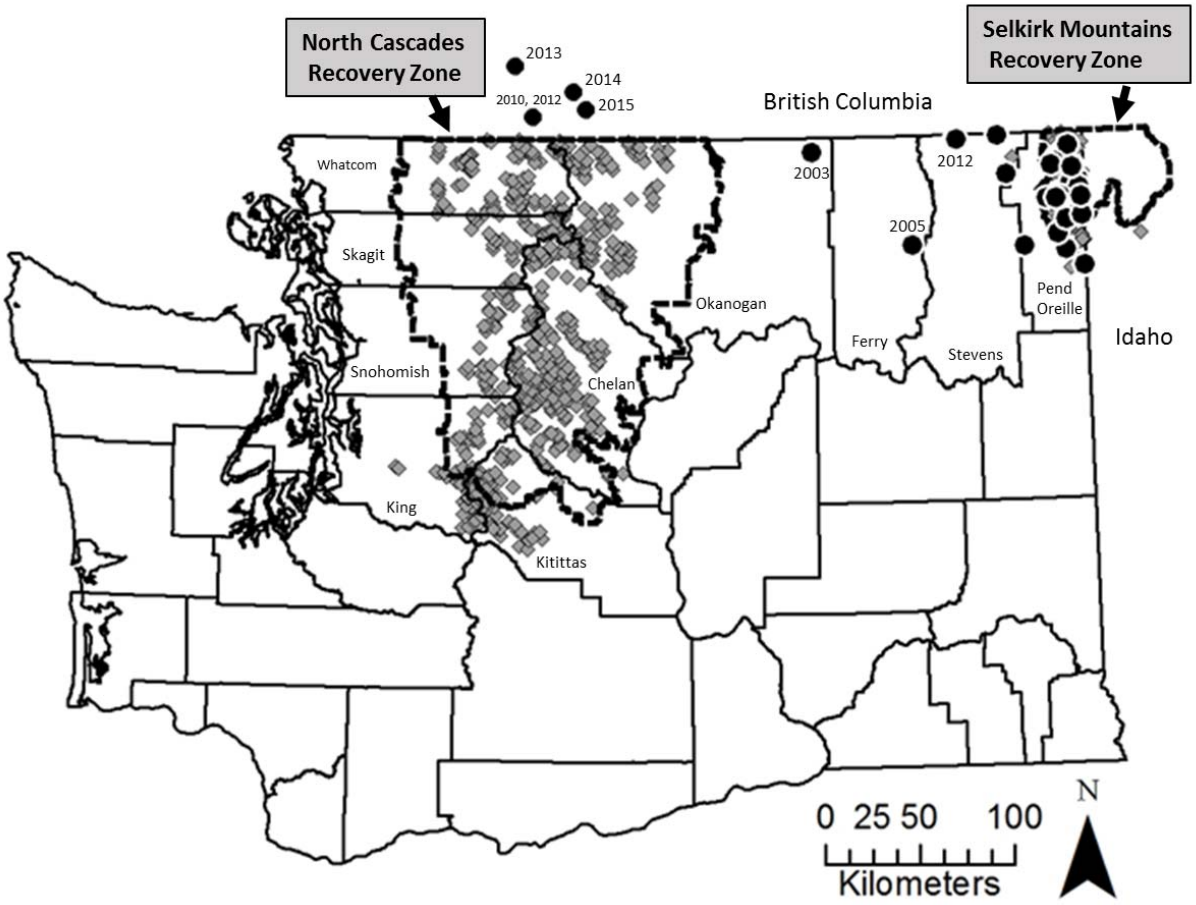

Figure 3. The verifiable and high probability detections (black circles) and survey station locations (gray diamonds) for grizzly bears in Washington State since 2000 (WDFW unpublished data, USFWS unpublished data, Gaines et al., in prep), and the grizzly bear recovery zones in Washington (USFWS 2011). Verifiable detections (photos) of grizzly bears since 2010 are shown for the North Cascades of southern British Columbia.

NATURAL HISTORY

Habitat Requirements

Grizzly bears in North America were habitat generalists that historically occupied a wide-variety of ecosystems including tundra, deserts, grasslands, dry interior forests, wet coastal forests, and mountainous areas, and as such their habitat requirements were shaped more by food availability within an ecosystem (Schwartz et al. 2003a). Because of the grizzly bear's vulnerability to human-caused mortality, secure grizzly bear habitat now relates more closely to the level of human access than to landcover or terrain. This relationship between human access and habitat security is well-established and biologists recognize that landscapes with road densities that exceed 0.6 km/km^2 are less likely to sustain grizzly bear populations (USFWS 1993, Craighead et al. 1995, Mace et al. 1996, Boulanger and Stenhouse 2014).

During winter, grizzly bears typically hibernate in a den on moderate to steep slopes and away from roads and human activity areas (Linnell et al. 2000). They can excavate a den or use an established cave, cavity, or excavation for hibernation. Because of the grizzly bear's ability to excavate a winter den, denning habitat is generally not considered to be a limiting feature for this species (Schwartz et al. 2003a). In the North Cascades Ecosystem, much of the potential denning habitat occurs within protected areas (wilderness, roadless areas, and national park lands; Almack et al. 1993)

Diet and Foraging

Grizzly bears are omnivorous carnivores. A large portion of their diet is made up of a variety of animal prey and carrion (e.g., insects, fish, mammals, birds) and a wide variety of plant materials, from herbaceous vegetation to roots, bulbs, seeds, and berries (LeFranc et al. 1987, Mattson et al. 1991, McLellan and Hovey 1995, Schwartz et al. 2003). Grizzlies are well known for their diverse foraging abilities that allow them to catch spawning salmon and trout, secure ungulate carrion, raid red-squirrel middens that are packed with whitebark pine nuts, and excavate multitudes of army cutworm moths out of talus slopes. The grizzly bear diet varies significantly among populations, depending on the availability of important foods, as evidenced by salmon being an important component in coastal populations and fish in general being less important in most interior populations. Kasworm et al. (2016) used a hair isotope analysis to assess the broad components of the grizzly's diet within the Selkirk Mountain (SMRZ) and Cabinet-Yaak recovery zones. They found that animal matter made up from 6-22% of the diet of bears, the percent of animal matter was higher for bears in the Cabinet-Yaak than in the SMRZ, and males tended to have greater percentages of animal matter than females. They also found that the average percent of animal matter increased from summer to fall.

Because food and its availability differs spatially and temporally, and because the energetic demands of such large individuals are great, the foraging behaviors of grizzlies must be flexible to meet those significant requirements (Schwartz et al. 2003a). Following their emergence from a winter den, the grizzly bear's diet is dominated by herbaceous plants during the spring and early summer (LeFranc et al. 1987), but bears also take advantage of winter-killed ungulates (e.g., moose, elk) throughout the spring (Mattson 1997). In the late spring and early summer, bear predation can focus upon a relative abundance of newborn ungulates (moose, elk, and deer; Mattson 1997). In late summer, bears commonly exploit berry crops (Welch et al. 1997). Grizzlies are also capable at exploiting other patchily available foods from insect aggregations to human-associated foods including livestock and garbage (Schwartz et al. 2003a).

Movements and Dispersal

Grizzly bears are considered a wide-ranging carnivore that use expansive home ranges. They can shift among important but disjunct foraging areas throughout the spring, summer and fall and can disperse large distances as juveniles or adults (Schwartz et al. 2003a). In Yellowstone National Park, mean home range size was 281 km^2 for 48 radio-collared females and 874 km^2 for 28 radio-collared males (Knight and Eberhardt 1985, Blanchard and Knight 1991). In the Selkirk Mountains of southeastern British Columbia and northern Idaho, mean life-range size for 15 radio-collared females was 655 km^2 and 1,088 km^2 for 11 males, and male home ranges may overlap the home ranges of several females (Kasworm et al. 2016).

Consistent with mammalian dispersal patterns (Greenwood 1980), subadult male grizzlies have a greater tendency to disperse and to disperse greater distances than subadult females (Glenn and Miller 1980, Blanchard and Knight 1991). In southwestern Canada, Proctor et al. (2004) found that average dispersal distance was 14.3 km for 55 females and 41.9 km for 43 male grizzly bears. Movements of grizzly bears may be restricted by highways and developed areas in valleys that separate occupied areas and unoccupied suitable habitat (Singleton et al. 2002, Wakkinen and Kasworm 2004; Proctor et al. 2012, 2015)

Reproduction and Survival

Female grizzly bears typically give birth to their first litter of cubs when they are 5-7 years of age, and they typically give birth to 1 to 3 cubs every three years (Weilgus et al. 1994; Schwartz et al. 2003a, Wakkinen and Kasworm 2004, Mace et al. 2012). Male grizzlies typically reach sexual maturity at 4-6 years of age (White et al. 1998). Cubs are born in the den from January to March, while the mother is hibernating, and they weigh ~0.5 kg at birth. Female offspring may stay with their mother until she gives birth to a subsequent litter (in 2-4 years), whereas subadult males (i.e., yearlings, 2-and 3-year olds) may leave their mother's home range sooner. Breeding season varies across the range, but generally occurs from mid-May to July (Lefranc et al. 1987). Grizzly bears exhibit delayed implantation, which is a 5-month delay in the implantation of fertilized eggs from ~June to November, when implantation initiates an active gestation period of 6-8 weeks (Pasitschniak-Arts 1993). Females have been observed to reproduce when as old as 28 years of age (Schwartz et al. 2003b).

Given their older age at first reproduction, their relatively low productivity, and their relatively long lifespans (i.e., up to 30 years), the stability of grizzly bear populations requires relatively high annual survival rates. The annual survival rates reported for adult (≥5 years old) females in North America (0.89 to 0.96), tend to be greater than those of subadult females (0.80 to 0.95), adult males (0.81 to 0.94), subadult males (0.66 to 0.91), yearlings (0.82-0.90), and cubs (0.67-0.87) (summarized by Schwartz et al. 2003a; Wakkinen and Kasworm 2004, Mace et al. 2012).

While mortality via natural sources has been regularly documented for grizzly bears (i.e., old age, starvation, intra or interspecific killing, avalanches, and den-collapse), human-associated causes are the dominant source of mortality for grizzly bears (Schwartz et al. 2003a, USFWS 2011, Kasworm et al. 2016). Kasworm et al. (2016) documented the cause of death of 73 bears in the SMRZ from 1985 to 2015 and determined that 63 (86%) were caused by humans, specifically: management removal of problem bears, unknown human cause, poaching, hunter mistaking a grizzly for a black bear, legal kill by a hunter, in defense of life, and vehicle collision. Human-caused mortalities also include those associated with scientific research of grizzly bears, protection of property (e.g., livestock), electrocution, malicious killing, and train collisions (Schwartz et al. 2003a).

POPULATION AND HABITAT STATUS

North American Population

The grizzly bear was nearly extirpated from the contiguous United States by the early and mid-1900s as a result of direct killing, habitat loss and modification, and range curtailment (USFWS 1993). In the contiguous 48 states, the range of the grizzly bear has been reduced to 1-2% of its historical extent (Figure 2). Grizzlies now occur within 4 of 6 designated federal recovery areas (USFWS 1993, 1997; Figures 3 and 4); two of which occur in Washington state (North Cascades Recovery Zone [NCRZ] and Selkirk Mountains Recovery Zone [SMRZ]). The grizzly bear populations within the US portions of recovery zones have been estimated at ~1800 individuals (USFWS 2017b) and include 70-80 bears in the SMRZ (northeastern Washington and northern Idaho), 56 in the Cabinet-Yaak Ecosystem, 960 in the Northern Continental Divide Ecosystem, and 695 in the Greater Yellowstone Ecosystem; no bears are currently known to exist within the NCRZ or Bitteroot-Selway Recovery Zones (USFWS 2011, 2016, 2017b). Canada currently supports a relatively large, widespread and contiguous population of grizzly bears (Figure 2), which has been estimated at approximately 26,000 individuals (COSEWIC 2012).

Habitat Occupancy in Washington

Grizzly bears consistently occupy habitats within the northeastern portion of in Pend Oreille County (Figure 3), and this area of Washington (1,020 km^2) is part of the SMRZ (USFWS 1993; Figure 3). The US portion of this recovery zone is composed of 80% federal lands, 15% state lands and 5% private lands (USFWS 2011). Occupancy within the last 10 years is evidenced by telemetry locations of five radio-collared bears, observations of one or more females with cubs, the recent capture and radio-collaring of a subadult male grizzly, and other verifiable detections and observations of grizzly bears (Figure 3; Kasworm et al. 2016, Kasworm 2016).

The NCRZ (Figure 3) of Washington (and southern British Columbia) historically supported a resident population of grizzly bears (USFWS 1997, 2011) as recently as the 1990s (Almack et al. 1993). In Washington, the NCRZ (24,605 km^2) is composed of 88% federal lands (58% managed as wilderness), 6% state public lands, and 6% private lands (USFWS 2011). In British Columbia, the NCRZ (3,784 km^2) is composed of ~20% protected lands (Manning, Snowy, Skagit Valley, Chilliwack Lake and Cathedral Provincial Parks) and ~80% integrated resource management lands, which are open to commercial uses including logging, mining, and grazing, and recreation (USFWS 2011). During the past 10 years, there have been only five observations of grizzly bears in the NCRZ and all five were in British Columbia (Figure 3). Grizzly bears are considered threatened or extirpated in areas of British Columbia that border Washington (British Columbia Ministry of Environment 2012; Figure 4) and hunting is prohibited in areas of British Columbia that are adjacent to protected populations and recovery zones in the US (USFWS 2011).

Population Trend and Viability

In 2004, Wakkinen and Kasworm (2004) reported an increasing trend of ~2% per year for the grizzly bear population that occupies the Selkirk Mountains of British Columbia, Idaho and Washington. This trend is consistent with the results of recent grizzly bear monitoring and research efforts in the US portion of the SMRZ. Since 2014, females with cubs have been observed within three of the four bear management

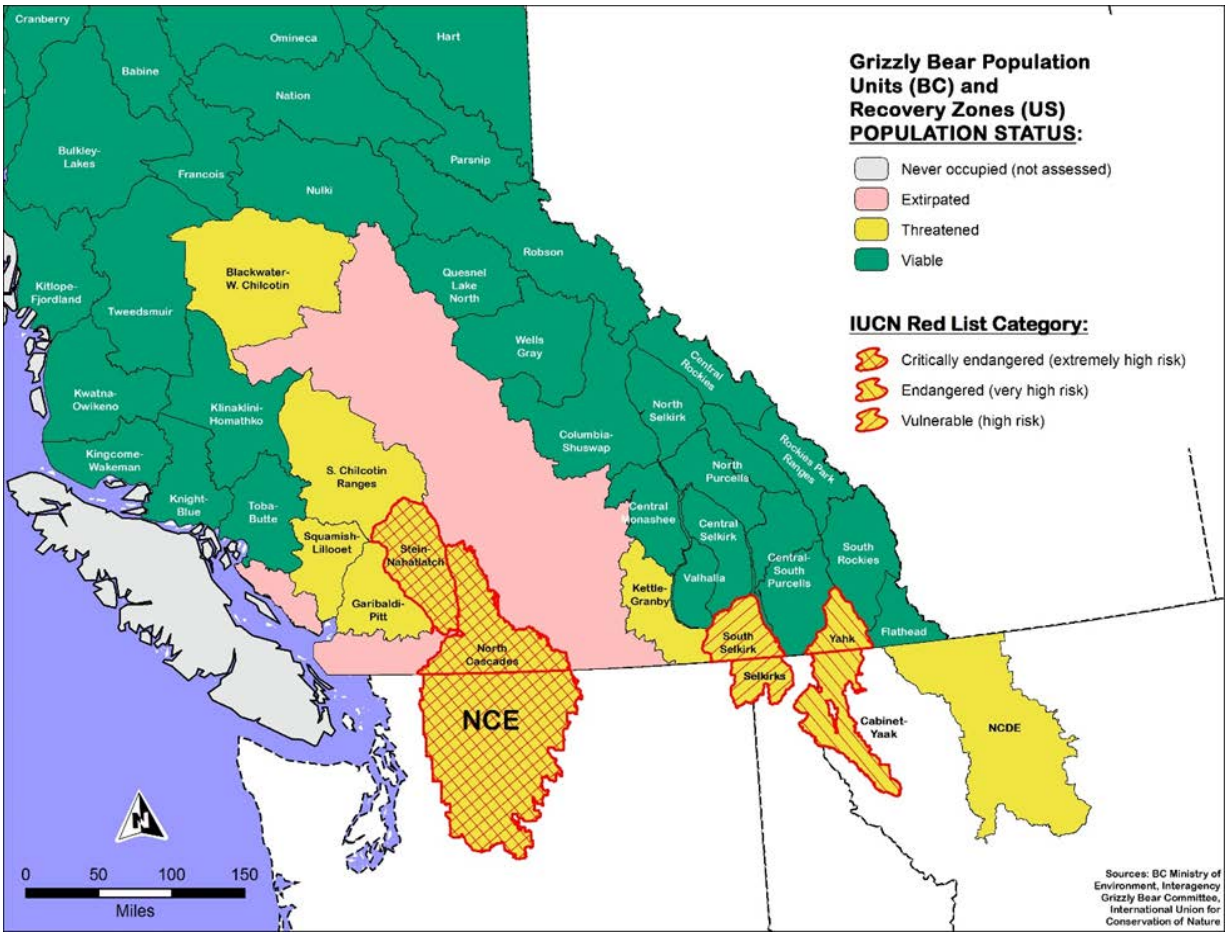

Figure 4. Recovery zones, population units, and statuses for grizzly bears in the transboundary area of western Canada and the United states (sources: BC Ministry of Environment and IUCN). The grizzly bear recovery zones in the North Cascades (NCE; 25,108 km^2 occurs in Washington), Selkirk (1,020 km^2 occurs in Washington), Cabinet-Yaak, and Northern Continental Divide Ecosystem (NCDE) are shown; the Bitterroot (in MT and ID) and the Greater Yellowstone Ecosystem (in WY, MT and ID) recovery zones are not shown.

units (BMUs) of the SMRZ that occur in or overlap with Washington (Kasworm et al. 2016). Females with cubs have been observed in six of the 10 BMUs within the SMRZ in both 2014 and 2015, which is the highest number the BMUs with these observations since 1996. From 2010 to 2015, females with cubs have been observed in seven of the 10 BMUs, which is a recovery target for this recovery area (USFWS 2011). And in 2016, for the first time in 30 years, a grizzly bear was captured and radio-collared in Washington (Kasworm 2016).

A small resident population of grizzly bears may have occupied the Washington portion of the NCRZ as recently as the 1990s, however, the lack of recent verifiable detections (Romain-Bondi et al. 2004, Gaines et al. in review; Figure 3) suggests that there are no resident populations or individuals currently occupying the NCRZ. Therefore, we conclude that a declining population trend has affected this population over the last 25-30 years.

FACTORS AFFECTING CONTINUED EXISTENCE

Adequacy of Regulatory Mechanisms

The grizzly bear is federally listed as a threatened species under the Endangered Species Act (USFWS 1993, 2011) and classified as an endangered species in Washington state. Consequently, grizzly bears are provided protection from take, which is defined by the Act as actions that "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct". The U.S Fish and Wildlife Service listed the grizzly bear because of the loss of bears in the contiguous US due largely to direct killing of bears by humans, loss of habitat, and curtailment of the species' range (USFWS 2011). The loss of habitat was due to the conversion of habitat to agriculture, resource extraction, human occupancy, whereas loss of habitat suitability has resulted from increased human presence and disturbance in otherwise suitable habitat. The lack of occupied range was due to direct and indirect killing of bears (USFWS 2011). Whereas grizzly bears are protected from killing outside of recovery areas due to their protected status, most recovery actions are focused within recovery zones (USFWS 2011; Figure 4).

In their 5-year review of the status of the grizzly bear in 2011, the USFWS (2011) identified 3 factors where protections for grizzly bears were not fully effective or fully implemented. With regard to the loss of habitat and subsequent efforts to protect or restore habitat, the USFWS indicated significant improvements in habitat management have been made throughout the current range and that there are plans and mitigation actions in place to address most known habitat threats where they still exist. With regard to disease or predation, the USFWS indicated that **"**Due to small population sizes, inherently low growth rates of grizzly bear populations, and potential fragmentation with Canadian populations, the increase in human-caused mortality over the current decade in both the Cabinet-Yaak Ecosystem and the Selkirk Ecosystem indicates that human predation is a threat to grizzly bears in both of these ecosystems" (see ecosystems [i.e., recovery zones] in Figure 4)." With regard to the inadequacy of existing regulatory mechanisms, the USFWS (2011) determined "grizzly bears in the lower 48 States to be threatened by the inadequacy of regulatory mechanisms until motorized access management is implemented in all occupied ecosystems."

The USFWS (1998, 2016) considers any grizzly bears that may occur within the NCRZ as "warranted but precluded" for up-listing from threatened to endangered under the Endangered Species Act due to the lack of recent verifiable detections and higher priority listing actions. While regulatory protections may be irrelevant where no resident or transient individuals are known to exist, recognition that a species is "warranted" for greater protective status may provide greater incentive for initiating and completing conservation actions that facilitate a species' recovery.

Loss, Fragmentation and Isolation of Habitat

The NCRZ is essentially a large island of highly suitable habitat, however its distance from potential source populations and the quality of intervening habitats appears to prevent immigration to the NCRZ in Washington. Lower quality habitats include landscapes within the BC portion of the NCRZ and outside the entire NCRZ that have high road densities (>1.6 km/1.96 km^2) and allow management activities or land uses (i.e., commercial or recreational) that increase the likelihood of grizzly bear mortality or create barriers or impediments to bear dispersal/immigration (USFWS 2011, Proctor et al. 2012). Proctor et al. (2012) found that grizzly bear movements, especially those of females, are restricted by areas with >20% human settlement and increased traffic volumes. They also found that restrictions in movement resulted

in genetic structuring among populations within the SMRZ and that impediments to movements could hinder demographic rescue among adjacent bear populations/recovery zones.

Demographic Factors

The absence of a resident population of grizzly bears within or near the boundaries of the NCRZ indicates that recovery is hindered by small population size and by the isolation from potential source populations (USFWS 2011). Although grizzly bears can disperse large distances, the large majority of females disperse short distances, in part because many use home ranges that overlap with their mother's home range (McLellan and Hovey 2001, Stoen et al. 2005). The distance between the NCRZ and extant populations, coupled in many locations with anthropogenic barriers and impediments to movement, makes natural immigration to the NCRZ unlikely. For this reason, the U.S. Fish and Wildlife Service and the National Park Service (2017) are evaluating the feasibility of a grizzly bear reintroduction in the NCRZ.

MANAGEMENT ACTIVITIES

Habitat Management

A number of habitat management measures have been employed within and outside recovery zones (Figure 4) to improve habitat connectivity, habitat security, and safety for grizzly bears and humans, where interactions are likely (USFWS 2011). These measures include management of human access to suitable grizzly bear habitat, reducing the number of livestock grazing allotments in core habitats, improved sanitation and food storage measures to prevent or minimize human-grizzly bear interactions, restricting oil and gas development, minimizing development/settlement in areas that have been identified as important movement corridors between populations or subpopulations, removing carcasses from roadways and railroads that could attract grizzly bears and place them at risk to collision or other killing (USFWS 2011).

Management of human access is one of the most important and significant habitat management strategies for grizzly bears. It includes balancing the need for road and motorized trail access, with providing secure areas for grizzly bears (i.e., reducing road density below 0.6 km/km^2; IGBC 1998, USFWS 2011). Considerable efforts have been made to reduce the impacts of human access on grizzly bear habitats within both the Selkirk and North Cascades recovery zones. To date, access management standards have been met within the Grizzly Bear Management Units in the Washington portion of the SMRZ. Access management in the NCRZ is guided by a "no net loss of core" policy (core = areas >500 meters from an open road) that has been in place since 1997. In addition, considerable progress has been made to install bear resistant food and garbage storage devices. In the NCRZ, all recreation sites within the North Cascades National Park have been fitted with bear resistant devices and many areas on national forest lands have been. In the SMRZ, all recreation sites have been fitted with bear resistant devices.

Reducing Human-Caused Mortality

In an effort to minimize mistaken identification and hunting mortality of grizzly bears, substantial outreach efforts have been in place to inform hunters and the public in general on how to identify a grizzly bear, and in particular, the differences between grizzly bears and black bears (e.g., Western Wildlife Outreach 2017). WDFW is currently proposing a hunting regulation that requires black bear hunters to take and pass a bear identification test when hunting black bears in specific areas within grizzly

bear recovery areas. The intent of the test is to minimize accidental killings of grizzly bears by reducing the likelihood that black bear hunters mistakenly identify a grizzly bear as a black bear. Recognizing other western states (Idaho, Montana, Wyoming) offer bear identification tests, WDFW has proposed to honor tests from other states that help discern between grizzly and black bears. If the proposal is approved by the Washington Fish and Wildlife Commission, this bear identification test may be implemented as early as fall 2018.

Reintroduction

The USFWS and NPS initiated an environmental impact assessment in 2015 to evaluate the social, economic and ecological impacts of a number of alternatives designed to restore a grizzly bear population to the NCRZ (USFWS and NPS 2017). Because no resident population currently occurs in the NCRZ, the EIS contemplates that a reintroduction may be required to restore grizzly bears to this ecosystem as it is unlikely that the no action alternative will result in recovery. Among the conservation actions outlined in the federal grizzly bear recovery plan for the North Cascades Ecosystem was the augmentation of grizzly bears to the small population that was thought to occur in the NCRZ (USFWS 1997).

The NCRZ is dominated by federal lands and landscapes managed as wilderness, which provide a large area of suitable habitat on protected lands. Lyons et al. (2016) assessed the carrying capacity of the NCRZ and they estimated that the NCRZ could support approximately 250-300 grizzly bears. It is not yet known if or when a grizzly bear reintroduction will occur, however a decision on this action is expected in 2018. The development of the North Cascades Grizzly Bear Restoration Plan EIS is being led by the National Park Service and the U.S. Fish and Wildlife Service. The Washington Department of Fish and Wildlife is a cooperating agency in this effort rather than a lead entity due to the federally listed status of the bear and because state law prohibits the Department from translocating grizzly bears from other states or provinces (Revised Code of Washington 77.12.035).

Population Monitoring

Extensive surveys within the two grizzly bear recovery zones in Washington represent substantial and meaningful effort to detect grizzly bears (Figure 3). Given the lack of detections within the Washington portion of the North Cascades Ecosystem in the last 20 years, it is unlikely that a population resides within this recovery zone.

Monitoring efforts for grizzly bears within the Selkirk Mountain Ecosystem are ongoing in an effort to determine if recovery goals are being met. These monitoring efforts indicate that bears consistently occur in northeastern Washington, including females with cubs and radio-collared individuals, and that this area of Washington is part of the larger population that occupies the Selkirk Mountain Ecosystem (Kasworm et al. 2016). Cooperative monitoring efforts by USFWS, Idaho Department of Fish and Game, U.S. Forest Service, Kalispel Tribe, Kootenai Tribe and WDFW personnel are ongoing and are expected to continue as the status and recovery of grizzly bears in the Selkirk recovery zones are evaluated in relation to federal recovery goals. Agency monitoring efforts have been augmented by detections provided by the public (e.g., photographs, videos, or photos via remote camera stations).

Research

Ongoing monitoring efforts in the Selkirk Mountain Ecosystem have been expanded or incorporated into research projects to characterize home range, habitat use, habitat connectivity, genetic characteristics,

food habits, and numerous demographic characteristics of resident grizzlies (Wakkinen and Kasworm 2004, Proctor et al. 2012, 2015).

CONCLUSIONS AND RECOMMENDATIONS

The grizzly bear was extirpated from the large majority of its range in Washington as a result of direct killing, loss of habitat, and habitat degradation; and its range is now largely restricted to the northeastern corner of the state (i.e., the Washington portion of the SMRZ). Grizzly bears are listed as federally threatened species and an endangered species in Washington; they currently occupy only one of the two federal recovery areas that exist in Washington. Grizzly bears no longer occupy the NCRZ in north-central Washington which is a large area (24,600 km^2) dominated by suitable bear habitat. Because grizzly bear recovery in the NCRZ is unlikely to occur via natural immigration, multiple reintroduction scenarios are being considered by federal agencies as a means to improve the conservation status of grizzlies in Washington and across their range.

Recent monitoring efforts indicate that grizzly bears occupy a very small portion of their historical range in Washington, coinciding largely with the SMRZ. The apparent absence of bears in the remainder of its historical range in the state (and most notably the NCRZ), indicates that continued conservation measures and protections will be required to reestablish viable and self-sustaining populations within the State. Because of the small population size, limited distribution and continuing threats to grizzlies in Washington, we recommend that the grizzly bear retain its status as a state endangered species in Washington.

REFERENCES CITED

References are organized alphabetically, by first author. The "code" column indicates the appropriate source category (level of peer review) for the reference, pursuant to RCW 34.05.271, which is the codification of Substitute House Bill 2661 that passed the Washington Legislature in 2014. These codes are as follows:

Table A. Key to 34.05.271 RCW Categories:

34.05.271(1)(c) RCW	Category Code
(i) Independent peer review: review is overseen by an independent third party.	i
(ii) Internal peer review: review by staff internal to the department of fish and wildlife.	ii
(iii) External peer review: review by persons that are external to and selected by the department of fish and wildlife.	iii
(iv) Open review: documented open public review process that is not limited to invited organizations or individuals.	iv
(v) Legal and policy document: documents related to the legal framework for the significant agency action including but not limited to: (A) federal and state statutes; (B) court and hearings board decisions; (C) federal and state administrative rules and regulations; and (D) policy and regulatory documents adopted by local governments.	v
(vi) Data from primary research, monitoring activities, or other sources, but that has not been incorporated as part of documents reviewed under the processes described in (c)(i), (ii), (iii), and (iv) of this subsection.	vi
(vii) Records of the best professional judgment of department of fish and wildlife employees or other individuals.	vii
(viii) Other: Sources of information that do not fit into one of the categories identified in this subsection (1)(c).	viii

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APPENDIX A. PUBLIC COMMENTS.

WDFW received responses to public comments during the 90-day public review period for the draft *Periodic Status Review for the Grizzly Bear in Washington* conducted from 8 February 2018 to 9 may 2018. WDFW received 21 individual comment letters (email responses) from citizens. Eight of the 21 response letters (38%) indicated support for WDFW's status recommendation to maintain the grizzly bear as an endangered species in Washington. Seven of the 21 response letters (33%) indicated opposition to WDFW's recommendation. Although WDFW did not ask for responses from the public regarding the proposed reintroduction of grizzly bears in Washington (i.e., a proposed federal action by the U.S. Fish and Wildlife Service and the National Park Service), WDFW did receive 17 response letters that indicated opposition to the reintroduction of grizzly bears in Washington. We reviewed all public comments and none of these comments resulted in changes to the Periodic Status Review (PSR) document.

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WASHINGTON STATE PERIODIC STATUS REVIEWS, STATUS REPORTS, RECOVERY PLANS, AND CONSERVATION PLANS

Periodic Status Reviews

2017 Fisher
2017 Blue, Fin, Sei, North Pacific Right, and Sperm Whales
2017 Woodland Caribou
2017 Sandhill Crane
2017 Western Pond Turtle
2017 Green and Loggerhead Sea Turtles
2017 Leatherback Sea Turtle
2016 American White Pelican
2016 Canada Lynx
2016 Marbled Murrelet
2016 Peregrine Falcon
2016 Bald Eagle
2016 Taylor's Checkerspot
2016 Columbian White-tailed Deer
2016 Streaked Horned Lark
2016 Killer Whale
2016 Western Gray Squirrel
2016 Northern Spotted Owl
2016 Greater Sage-grouse
2016 Snowy Plover
2015 Steller Sea Lion

Conservation Plans

2013 Bats

Recent Status Reports

2017 Yellow-billed Cuckoo
2015 Tufted Puffin
2007 Bald Eagle
2005 Mazama Pocket Gopher, Streaked Horned Lark, and Taylor's Checkerspot
2005 Aleutian Canada Goose
1999 Northern Leopard Frog
1999 Mardon Skipper
1999 Olympic Mudminnow
1998 Margined Sculpin
1998 Pygmy Whitefish
1997 Aleutian Canada Goose
1997 Gray Whale
1997 Olive Ridley Sea Turtle
1997 Oregon Spotted Frog
1993 Larch Mountain Salamander
1993 Oregon Silverspot Butterfly

Recovery Plans

2012 Columbian Sharp-tailed Grouse
2011 Gray Wolf
2011 Pygmy Rabbit: Addendum
2007 Western Gray Squirrel
2006 Fisher
2004 Sea Otter
2004 Greater Sage-Grouse
2003 Pygmy Rabbit: Addendum
2002 Sandhill Crane
2001 Pygmy Rabbit: Addendum
2001 Lynx
1999 Western Pond Turtle
1996 Ferruginous Hawk
1995 Pygmy Rabbit
1995 Upland Sandpiper
1995 Snowy Plover

Status reports and plans are available on the WDFW website at:
http://wdfw.wa.gov/publications/search.php