

U.S. Fish & Wildlife Service

# Grizzly Bear Recovery Program

## *2022 Annual Report*



Figure 1. Adult female grizzly bear 822 in Hellroaring Creek, Yaak Mountains, September 2022.

**Grizzly Bear Recovery Program**  
U.S. Fish and Wildlife Service  
University of Montana, 309 University Hall  
Missoula, MT 59812  
406-243-4903  
[USFWS Grizzly Bear Recovery Program Website](#)

## GRIZZLY BEAR RECOVERY PROGRAM MISSION

The mission of the Grizzly Bear Recovery Program (GBRP) is to recover grizzly bears in the lower-48 States. We coordinate research, management, and recovery efforts with the Interagency Grizzly Bear Committee (IGBC), Federal, State, and Tribal agencies, the provinces of British Columbia (B.C.) and Alberta, as well as non-governmental organizations (NGOs). The Grizzly Bear Recovery Plan (USFWS 1993, 1996, 1997, 2007, 2017, 2018) serves as the foundation for this work.

In 1975, the U.S. Fish and Wildlife Service (USFWS) listed the grizzly bear as a threatened species in the lower-48 States under the Endangered Species Act (ESA). The Grizzly Bear Recovery Plan outlines six recovery areas, including the Greater Yellowstone Ecosystem (GYE), Northern Continental Divide Ecosystem (NCDE), Cabinet-Yaak Ecosystem (CYE), Selkirk Ecosystem (SE), North Cascades Ecosystem (North Cascades), and Bitterroot Ecosystem (BE) (Figure 2). This report describes the current status of these grizzly bear populations, as well as program accomplishments during 2022.

Our Species Status Assessment (SSA) for grizzly bears in the lower-48 States describes foundational and up-to-date science, including a compilation of the best available information on the species' life history, habitat and taxonomy, the current condition of the species' habitat and demographics, and probable explanations for past and ongoing changes in abundance and distribution within the species' range. Finally, the SSA forecasts the species' response to probable future scenarios of environmental conditions and conservation efforts. The SSA will be revised annually; the most recent [version 1.2](#) was posted on January 25, 2022. The GBRP is currently updating the SSA to include new data and scientific information through 2022.

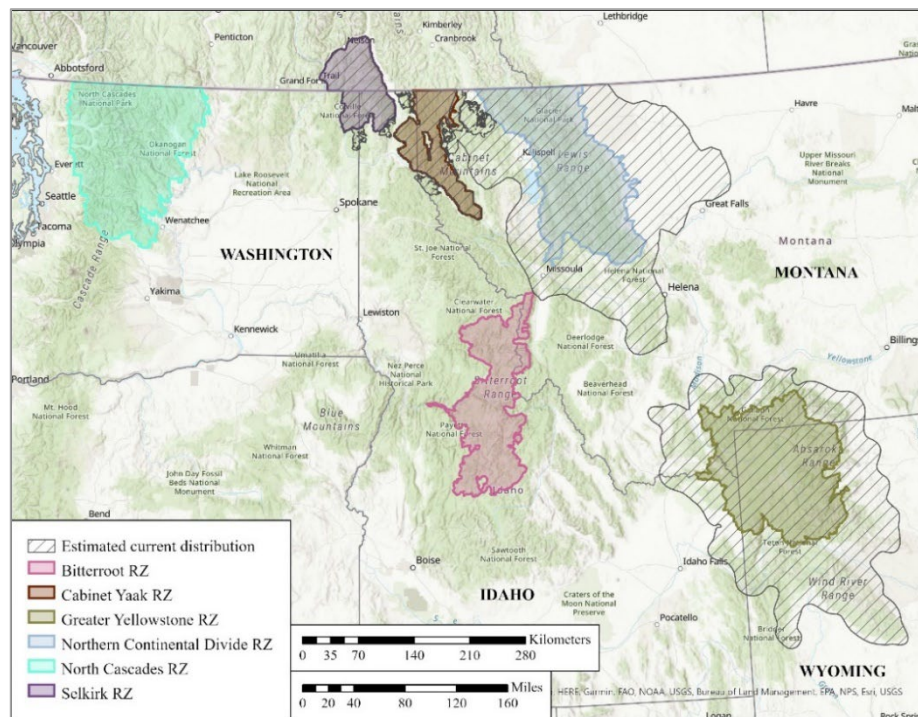


Figure 2. Recovery zones and current estimated distributions for the six ecosystems identified in the Recovery Plan. Estimated distributions are current as of 2020 for the Greater Yellowstone and the Northern Continental Divide and are current as of 2019 for the Cabinet-Yaak and Selkirk. There are currently no known populations in the North Cascades and Bitterroot. Current estimated distributions represent “occupied range,” which do not include low-density peripheral locations and represent a minimum known area of occupancy, not extent of occurrence.



# GRIZZLY BEAR ECOSYSTEM UPDATES

## GREATER YELLOWSTONE ECOSYSTEM

The Yellowstone Recovery Zone (23,853 km<sup>2</sup>) sits in northwest Wyoming, eastern Idaho, and southwest Montana (Figure 3). Ninety-eight percent of the Recovery Zone is federally-managed land, including all of Yellowstone National Park (YNP), as well as portions of Grand Teton National Park (GTNP), the Shoshone, Beaverhead-Deer Lodge, Bridger-Teton, Caribou-Targhee, and Custer-Gallatin National Forests (including 7 Wilderness Areas). The Demographic Monitoring Area (DMA) encompasses the recovery zone and an additional 23,131 km<sup>2</sup> of suitable habitat around the Recovery Zone.

### Population Status

As of 2022, the GYE grizzly bear population was estimated at 965<sup>1</sup> individuals inside the DMA (IGBST 2022), more than double the estimated population size of 136 to 300 at the time of listing in 1975 (Cowan et al. 1974, Craighead et al. 1974, McCullough 1981) and triple the extent of their occupied range in the GYE since the early 1980s (USFWS 1982, IGBST 2022). Grizzly bears currently occupy about 98 percent of suitable habitat (45,992 km<sup>2</sup>) and 98 percent of the DMA (48,898 km<sup>2</sup>). Thirty percent of the current estimated distribution occurs beyond the DMA (21,570 km<sup>2</sup>) (Bjornlie and Haroldson 2021). These grizzly bears outside the DMA are not included in the population estimate. The Interagency Grizzly Bear Study Team is currently evaluating the feasibility of implementing an integration population model and therefore 2022 data are not ready to report at this time.

**Recovery Criterion 1:** Maintain a minimum population size of 500 animals and at least 48 females with cubs-of-the-year within the DMA. **Progress:** There were an estimated 965 bears and 80 unique females with cubs in the DMA in 2022. This criterion has been met.

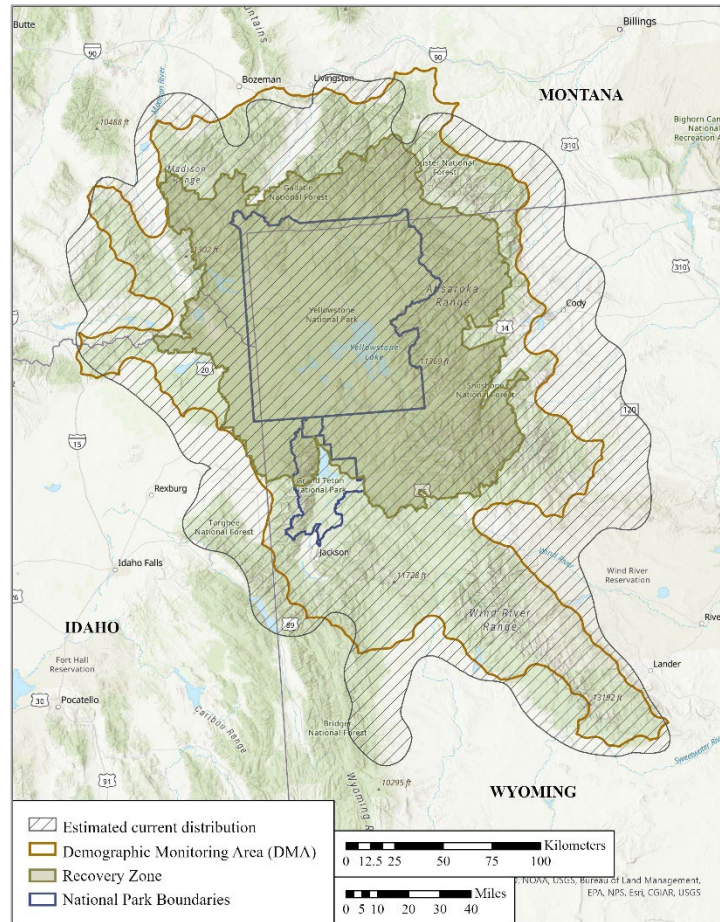


Figure 3. Map of the Greater Yellowstone Ecosystem recovery zone and demographic monitoring area (DMA) boundaries. The DMA surrounds and includes the recovery zone.

<sup>1</sup> Using the integrated population model (IPM).

Recovery Criterion 2: 16 of 18 Bear Management Units (BMUs) within the Recovery Zone must be occupied by females with young, with no 2 adjacent BMUs unoccupied, during a 6-year sum of observations. Progress: 18 of 18 BMUs occupied by females with young in 2022 and during the most recent 6-year period of 2017–2022. This criterion has been met.

Recovery Criterion 3: Maintain the population within the DMA around the 2002–2014 model-averaged Chao 2 estimate (average = 674; 95% CI = 600–747; 90% CI = 612–735) by maintaining annual mortality limits for independent females, independent males, and dependent young. The 2021 total mortality limits were 9% for independent females and 20% for independent males, and the human-caused mortality limit was 9% for dependent young. Progress: 2021 mortality rates were 5.7% for independent females, 8.1% for independent males, and 2.5% for independent young; all of which are under current recovery criteria thresholds. The IGBST recently transitioned from using the model-averaged Chao2 estimate to an integrated population model (IPM) and application of the new IPM to recovery criterion 3 is still in development.

Habitat-based recovery criteria for the GYE incorporate thresholds for secure habitat (areas with no motorized access), livestock allotments, and developed sites (USFWS 2007). All habitat-based recovery criteria have been maintained since 1998.

The GYE grizzly bear population is currently isolated from other grizzly bear populations, with no documented genetic interchange. Despite this isolation, the genetic health of the GYE population has not declined over the last several decades (Miller and Waits 2003, Kamath *et al.* 2015). Additionally, natural connectivity is expected to occur in the near future as both the GYE and NCDE populations expand in distribution. Based on 2020 distributions, the two populations are growing closer together and are now only 57 km apart, with additional verified locations between the two distributions.

The Interagency Grizzly Bear Study Team (IGBST) is an interdisciplinary group of State, Tribal, and Federal scientists responsible for long-term monitoring and research on grizzly bears in the GYE. Detailed monitoring information, including data summarized here, including annual reports and research results, can be found on the [IGBST website](#).

## NORTHERN CONTINENTAL DIVIDE ECOSYSTEM

The Northern Continental Divide Recovery Zone (23,135 km<sup>2</sup>) occurs in northwest Montana and connects to large populations in Canada (Figure 4). It includes all of Glacier National Park (GNP), as well as portions of the Flathead, Helena-Lewis and Clark, Kootenai, and Lolo National Forests (including 4 Wilderness Areas), and the Flathead and Blackfoot Indian Reservations. The Demographic Monitoring Area (DMA) encompasses the Recovery Zone and a 19,444 km<sup>2</sup> buffer (Zone 1). Monitoring of population size, mortality limits, and distribution of females with young occurs within the DMA (NCDE Subcommittee 2020). Monitoring of secure habitat occurs within the Recovery Zone (USFWS 2018). Due to its connectivity to large populations in Canada, the NCDE has the potential to serve as an important genetic corridor between Canadian grizzly bear populations and the GYE, the BE, and the CYE, and is a potential source population for the BE, which is currently unoccupied.

## Population Status

Since the 1975 listing of grizzly bears as threatened under the Act, the NCDE grizzly bear population has more than doubled in size and range (from 24,800 km<sup>2</sup> to 67,652 km<sup>2</sup>) (Dood et al. 1986, USFWS 1993, Kendall et al. 2009, Mace et al. 2012, Costello et al. 2016b, Costello and Roberts 2021). The NCDE population increased from as few as 300 bears in 1986 to an estimated 765 bears in 2004, based on a genetic capture/recapture population estimate (Dood 1986, Kendall et al. 2009). The population is contiguous with grizzly bears in Canada. Applying a calculated population growth of 2.3 percent annually since 2004, the 2022 population estimate was 1,138 individuals in the NCDE (Costello et al. 2016b, Costello and Roberts 2022).

The 1993 Recovery Plan identified three demographic recovery criteria to: (1) establish a minimum population size through the monitoring of unduplicated females with cubs; (2) ensure reproductive females (i.e., females with young) are well distributed across the recovery zone; and (3) outline human-caused mortality limits that would allow the population to achieve and sustain recovery. Since establishment of these criteria, monitoring methods have improved and estimation techniques have become more accurate. We have incorporated these scientific improvements into demographic objectives outlined in the NCDE Conservation Strategy (NCDE Subcommittee 2020). These objectives assess the same indicators of population status as described in the 1993 demographic criteria. Not all data is available for 2022 at this time.

### Objective 1: Maintain a well-distributed grizzly bear population within the DMA.

**Occupancy threshold:** Maintain the documented presence of females with dependent offspring in at least 21 of 23 BMUs of the Recovery Zone and in at least 6 of 7 occupancy units of Zone 1 at least every six years. **Progress:** For the 6-year period 2017–2022, all 23 BMUs within the recovery zone and all 7 occupancy units within Zone 1 were occupied by females with young, above the minimum thresholds of 21 BMUs and 6 occupancy units.

**Objective 2: Manage mortalities from all sources to support an estimated probability of at least 90% that the grizzly bear population within the DMA remains above 800 bears, considering the uncertainty associated with all of the demographic parameters.**

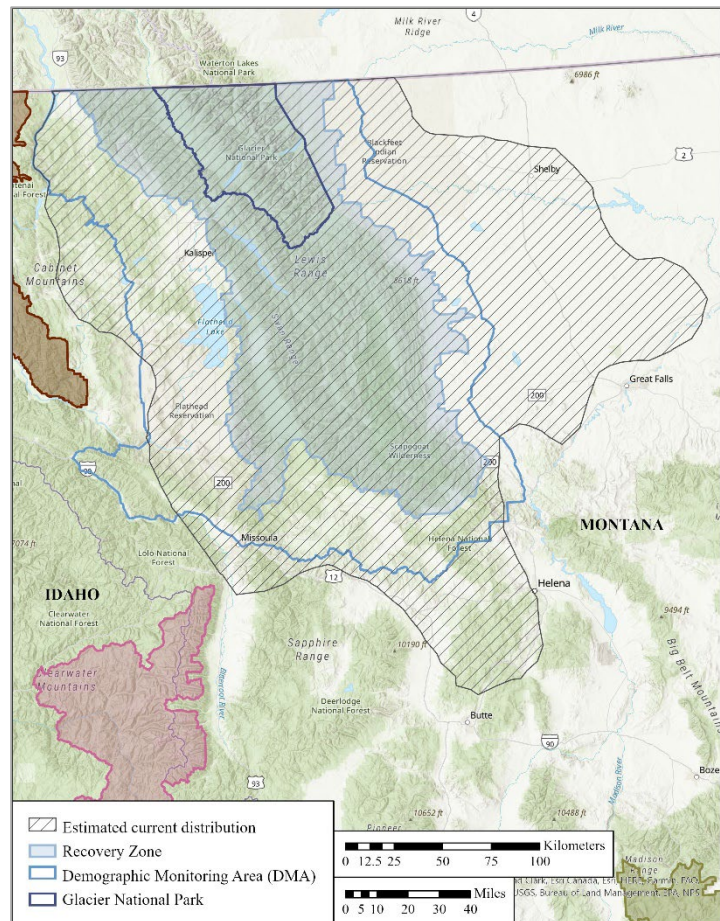


Figure 4. Map of the Northern Continental Divide Ecosystem recovery zone and demographic monitoring area (DMA) boundaries. The DMA surrounds and includes the recovery zone.



Independent female survival threshold: Using a six-year running average, maintain estimated annual survival of independent females within the DMA of at least 90% and a rate at or above the minimum level consistent with a projected probability of at least 90% that the population within the DMA will remain above 800 grizzly bears based on population modeling. The minimum female survival threshold for 2022 was 0.92. Progress: For the 6-year period 2017–2022, the average estimated annual survival rate for independent females in the DMA was 0.93. This objective has been met.

Independent female mortality threshold: Using a six-year running average, limit annual estimated number of total reported and unreported mortalities of independent females within the DMA to a number that is no more than 10% of the number of independent females estimated within the DMA based on population modeling and a number that is at or below the maximum consistent with a projected probability of at least 90% that the population within the DMA will remain above 800 grizzly bears based on population modeling. For 2022, the maximum threshold was 25. Progress: For the 6-year period 2017–2022, the average total reported and unreported mortalities for independent females within the DMA was 15. This objective has been met.

Independent male mortality threshold: Using a six-year running average, limit annual estimated number of total reported and unreported mortalities of independent males within the DMA to a number that is no more than 15% of the number of independent males estimated within the DMA based on population modeling. For 2022, the maximum threshold was 30. Progress: For the 6-year period 2017–2022, the average total reported and unreported mortalities for independent males within the DMA was 25. This objective has been met.

### **Objective 3: Monitor demographic and genetic connectivity among populations.**

The distribution of the NCDE grizzly bear population will be estimated biannually. Progress: As of 2020, bears occupy 67,652 km<sup>2</sup>, which includes 40,509 km<sup>2</sup> inside the DMA (95 percent of the DMA) and 27,143 km<sup>2</sup> outside the DMA.

The population of origin for individuals sampled inside and outside of the DMA will be identified to detect movements of individuals to and from other populations or recovery areas. Progress: Genetic samples and telemetry in the Cabinet-Yaak from 1983-2020 identified 4 bears that immigrated from the CYE to the NCDE (Kasworm et al. 2021). All were males and one animal is known to have reproduced and one is known dead. We have no evidence of immigration from the SE into the NCDE. We also have no evidence of immigration into the NCDE from the GYE or emigration from the NCDE into the GYE.

Habitat-based recovery criteria for the NCDE incorporate thresholds for secure core (areas with no motorized access), livestock allotments, and developed sites (USFWS 2018). All habitat-based recovery criteria have been met since 2011.

Montana Fish, Wildlife and Parks (MFWP), in collaboration with Glacier National Park, the Confederated Salish & Kootenai Tribes (CSKT), and the Blackfeet Nation are the primary agencies responsible for monitoring of the NCDE grizzly bear population. Additional details, annual reports, and select publications are available on the [MFWP website](#).

## CABINET-YAAK ECOSYSTEM

The Cabinet-Yaak Recovery Zone (6,705 km<sup>2</sup>) occurs in northwest Montana and northeast Idaho (Figure 5). Blocks of contiguous habitat extend into B.C., making this an international population. The Recovery Zone includes portions of the Kootenai, Idaho Panhandle, and Lolo National Forests (including 1 Wilderness Area). The Kootenai River bisects the CYE, with the Cabinet Mountains to the south and the Yaak River drainage to the north. The degree of grizzly bear movement between the Cabinet Mountains and Yaak River drainage is believed to be minimal but several movements by males into the Cabinet Mountains from the Yaak River and the Selkirk Mountains have occurred since 2012.

### Population Status

Based on known fates of radio-collared individuals and reproductive outputs, the population of grizzly bears in the CYE is currently growing at approximately 1.6% per year (Kasworm et al. 2023a). This is a significant improvement from earlier trend calculations that indicated the population was declining, and now represents 14 years of an improving trend since 2006 (Kasworm et al. 2023a). The population estimate is based on the 2012 estimate of 49 bears, a growth rate of 1.6%, and additional augmentation bears, less known mortality, resulting in a population estimate of 60-65 bears.

**Recovery target 1:** 6 females with cubs over a running 6-year average both inside the Recovery Zone and within a 10-mile area immediately surrounding the Recovery Zone. **Progress:** Unduplicated females with cubs averaged 3.3 per year from 2017–2022. This target has not been met.

**Recovery target 2:** 14 of 22 BMU's occupied by females with young from a running 6-year sum of verified evidence. **Progress:** 16 of 22 BMUs were occupied from 2017–2022. This recovery target has not been met.

**Recovery target 3:** The running 6-year average of known, human-caused mortality shall be  $\leq 4\%$  of the population estimate; and  $\leq 30\%$  shall be females. The mortality limit for 2022 was 1.9 bears/year and 0.6 females/year. **Progress:** Average human-caused mortality for 2017–2022 was 3.2% (1.5 bears/year) and female mortality was 1.7% (0.8 females/year). During 2017–2022, the total mortality target was met but female mortality came in over the limit.

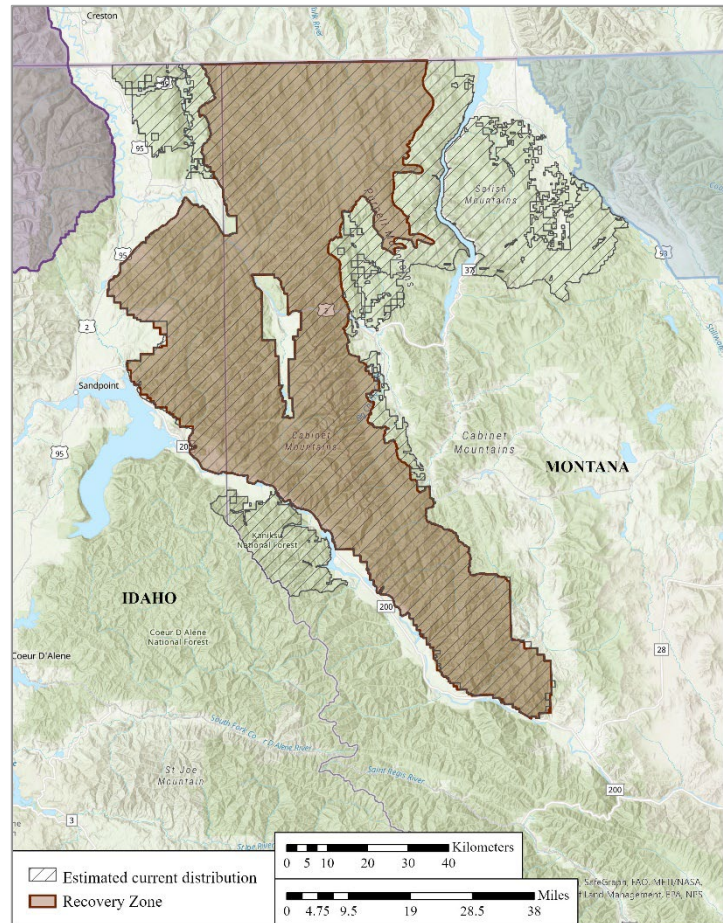


Figure 5. Map of the Cabinet-Yaak Ecosystem recovery zone.



Population linkage (and more importantly, gene flow) is needed to achieve and maintain long-term genetic health. We have documented gene flow from sources unrelated to the augmentation program (see below); four migrants, all originating from the Purcell Mountains north of HWY 3 in B.C., have produced 14 offspring south of HWY 3 from 1988–2021. We have yet to document gene flow from either the SE or NCDE.



*Figure 6. Subadult female grizzly bear 886 research capture in Cabinet Mountains, July 2022.*

The USFWS has been leading research and monitoring in the CYE since 1989. Key research partners include Idaho Department of Fish and Game, Montana Fish, Wildlife and Parks, Kootenai Tribe of Idaho, Idaho Panhandle National Forest, Kootenai National Forest, and Lolo National Forest. Further monitoring and research details can be found in the [Cabinet-Yaak Grizzly Bear Recovery Area 2021 Research and Monitoring Progress Report](#).

### **Augmentation Program**

An augmentation program in the Cabinet Mountains portion of the population began in 1990 after research estimated fewer than 15 animals in the area. Primary objectives are to bolster reproduction through the addition of female bears and improve overall genetic diversity through the addition of female and male bears. Twenty-two bears have been added in the Cabinet Mountains since 1990. All bears have no history of conflicts with people and were moved in the summer to take advantage of developing food supplies in the form of huckleberries. Initial augmentation consisted of females but in recent years males have also been added. Of 22 bears released through 2021, 8 are known to have left the target area, 5 were killed by humans, and 2 died of unknown causes. Reproduction has been documented by at least 5 of the transplanted bears, with 3 females and 2 males that are known to have produced at least 15 first generation offspring, 23 second generation offspring, and 4 third generation offspring. In 2021, no bears were moved into the Cabinet Mountains due to poor berry production.



## SELKIRK ECOSYSTEM

The Selkirk Mountains Grizzly Bear Recovery Zone (6,575 km<sup>2</sup>) occurs in northwest Idaho, northeast Washington, and southeast B.C. (Figure 7). It includes portions of the Idaho Panhandle and Colville National Forests (including 1 Wilderness Area) and the South Selkirk unit in B.C.

### Population Status

In 2012, Proctor et al. (2012) estimated 83 bears in the international SE population. We expect to publish a new population estimate for the international population in 2024 based on DNA hair snare surveys conducted in 2020-2021. Based on known fates of radio-collared individuals and reproductive outputs, the population of grizzly bears in the SE, including Canada, is currently increasing, with an annual growth rate of 2.6% between 1983 and 2022 (Kasworm et al. 2023b). The trend calculation utilizes all collared bears in the U.S. and B.C.

**Recovery target 1:** 6 females with cubs over a running 6-year average both inside the Recovery Zone and within a 10-mile area immediately surrounding the Recovery Zone. **Progress:** Unduplicated females with cubs averaged 3.7 per year from 2017–2022. This target has not been met.

**Recovery target 2:** 7 of 10 BMUs occupied by females with young from a running 6-year sum of verified evidence. **Progress:** 9 of 10 BMUs were occupied during 2017–2022. This recovery target has been met.

**Recovery target 3:** The running 6-year average of known, human-caused mortality shall be  $\leq 4\%$  of the population estimate; and  $\leq 30\%$  shall be females. The 2022 mortality limit was 2.0 bears/year and 0.6 females/year. **Progress:** The 6-year average human caused mortality for 2017–2022 was 5.4% (2.7 bears/year) and female mortality was 1.6% (0.8 females/year). Total mortality numbers for this period and female mortality came in over the limit.

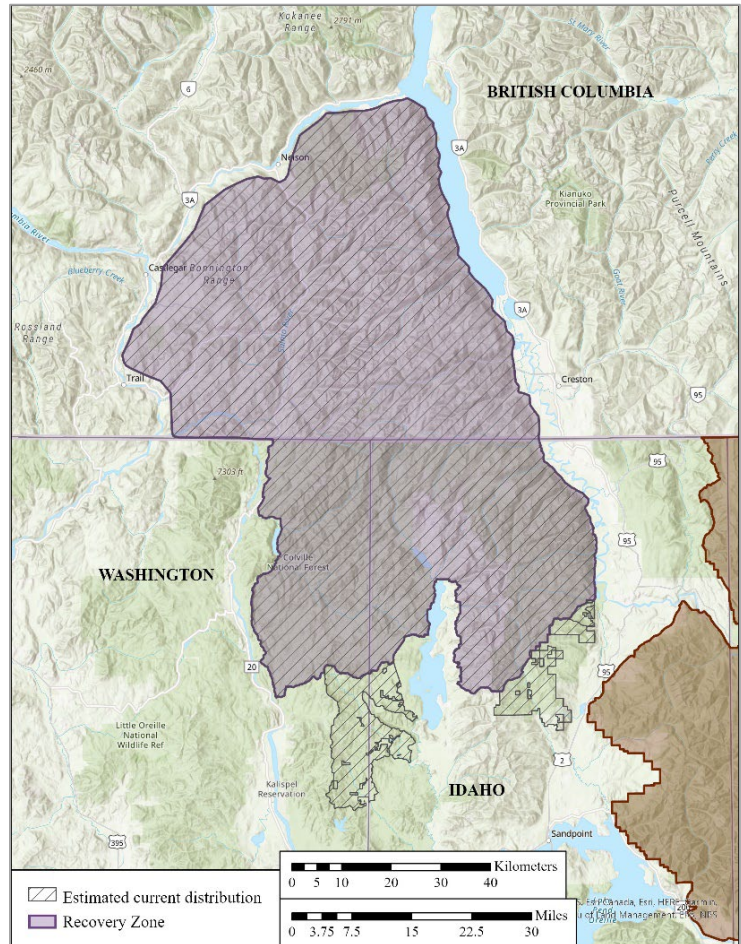


Figure 7. Map of the Selkirk Ecosystem recovery zone.





Figure 8. Adult female grizzly bear with young in McCormick Creek, Selkirk Mountains, August 2022.

The SE population is historically isolated, having among the lowest documented genetic diversity of interior North American populations ( $H=0.54$ , Proctor et al. 2012). Recently, we documented movement between the Selkirk population and the Purcell Mountains population north of HWY 3 in B.C. Perhaps more importantly, we have detected gene flow into the Selkirks from three migrant males and one female from the Purcells. These immigrants have produced 17 known offspring in the Selkirks (median birth year 2010) from 1999–2019. Recent genetic monitoring has detected increased genetic variability since monitoring began in 1983 through greater heterozygosity and number of alleles in the population (Proctor et al. 2018).

The USFWS has been leading a grizzly bear monitoring and research program in the SE since 2012. Key research and funding cooperators include Idaho Department of Fish and Game, the Panhandle National Forest, the Colville National Forest, Idaho Department of Lands, the Kalispel Tribe, the Kootenai Tribe of Idaho, and Washington Department of Fish and Wildlife. The B.C. effort was led by Dr. Michael Proctor with key funding provided by B.C. Habitat Conservation Trust Fund and B.C. Fish and Wildlife Compensation Fund. Further monitoring and research details can be found in the [Selkirk Mountains Grizzly Bear Recovery Area 2021 Research and Monitoring Progress Report](#).



Figure 9. Adult male grizzly bear 718 management capture south of Bonners Ferry, Idaho, September 2022.



## NORTH CASCADES ECOSYSTEM

The North Cascades Recovery Zone (25,305 km<sup>2</sup>) occurs in northcentral Washington (Figure 10). It includes all of North Cascades National Park and portions of the Mount Baker-Snoqualmie, Wenatchee, and Okanogan National Forests (including 9 Wilderness Areas). The ecosystem extends north of the border into B.C., and is isolated from grizzly bear populations in other parts of the U.S. and Canada.

### Population Status

The North Cascades recovery zone is considered extirpated (USFWS 2022) due to no confirmed evidence of grizzly bears within the US portion of the North Cascades since 1996. There have been only 4 confirmed detections of grizzly bears in the North Cascades in the past 10 years, all of which occurred in B.C. and may comprise only 2 individuals.

### Recovery Efforts

In November 2021, the USFWS and North Cascades National Park announced initiation of a new Environmental Impact Statement (EIS) process to evaluate options for restoring and managing grizzly bears in the North Cascades of Washington. The EIS process will identify a range of alternatives for restoring bears to the mountainous region to support the recovery and eventual delisting of grizzly bears under the Endangered Species Act in the contiguous United States. We are also examining a 10(j) experimental population designation, which would allow for additional management flexibility. A previous EIS process for the restoration of grizzly bears in the ecosystem was terminated by the Department of Interior in 2020 without a Record of Decision.

In B.C., First Nations have declared grizzly bears within the North Cascades Grizzly Bear Population Unit as in immediate need of restoration and protection (ONA 2014, entire, Piikani Nation 2018, entire). A Joint Nation partnership has been established in collaboration with the British Columbia Government to outline population recovery objectives and strategies in a 'North Cascades Grizzly Bear Stewardship Strategy' (in review). The team is also developing a communication strategy to assess public reception for recovery in the area.

Recovery criteria have not yet been established for the North Cascades. The population will be considered recovered when monitoring indicates: (1) that the population is large enough to offset some level of human-induced mortality and be self-sustaining despite foreseeable influences of demographic and environmental variation; and (2) reproducing bears are distributed throughout the recovery area.

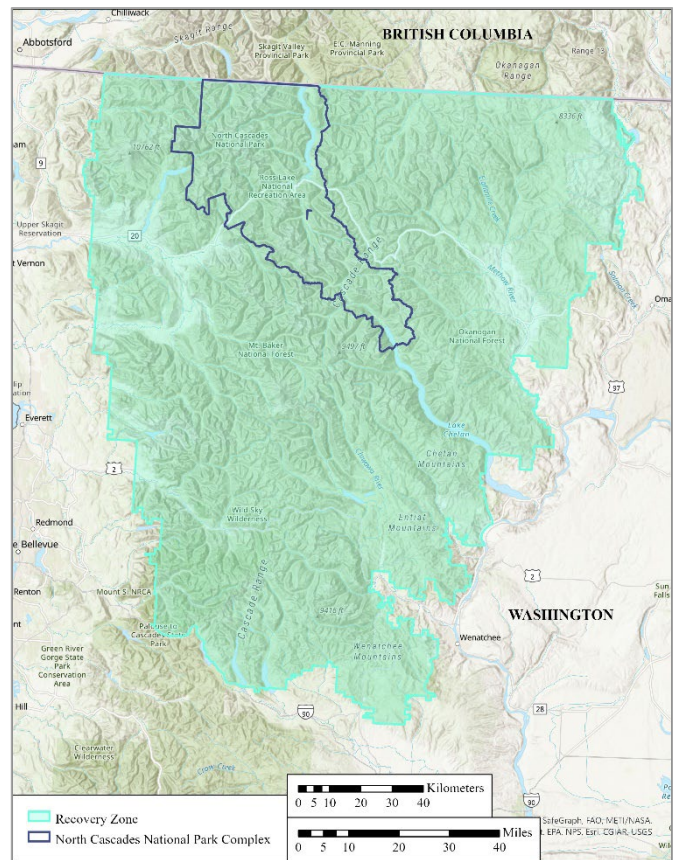


Figure 10. Map of the North Cascades Ecosystem recovery zone.

## BITTERROOT ECOSYSTEM

The Bitterroot Recovery Zone (15,100 km<sup>2</sup>), located in central Idaho and western Montana, is one of the largest contiguous blocks of Federal land in the lower-48 States (Figure 11). Ninety-eight percent of the Recovery Zone, as identified in the preferred alternative, is contained within two Wilderness Areas in the Nez Perce-Clearwater, Bitterroot, and Salmon-Challis National Forests.

### Population Status

The BE is thought to be unoccupied by a grizzly bear population (two or more reproductive females or one female reproducing during two separate years). At the time of listing, there were no known grizzly bears in the BE. In 2007, a young male grizzly bear was killed just to the north of the recovery zone. This was the first known bear in the ecosystem since the 1940s. During 2008 and 2009, USFWS conducted a systematic survey between Hwy 12 and I-90 using DNA hair corrals and cameras to determine if other grizzly bears occupied the area (Servheen and Shoemaker 2010, entire). No photos or hair samples from grizzly bears were obtained during this study.

However, as the GYE and NCDE populations continue to expand, grizzly bears have increasingly been confirmed nearby and within the BE, including a grizzly bear captured in Stevensville, Montana in October 2018. In June 2019, male bear number 927, traveled south of I-90, spending two months moving around the Bitterroot Ecosystem and in the northern part of the recovery zone before heading back north into the Cabinet Mountains to den in October (see map above). Also in 2019, a male grizzly bear was confirmed to the west of the recovery zone near Grangeville, Idaho. Genetic analysis of hair collected at the site concluded that this bear was from the SE. In 2020, a lone grizzly bear was confirmed near Lolo, Montana and in 2021 a male grizzly bear was confirmed east of Sula, Montana.

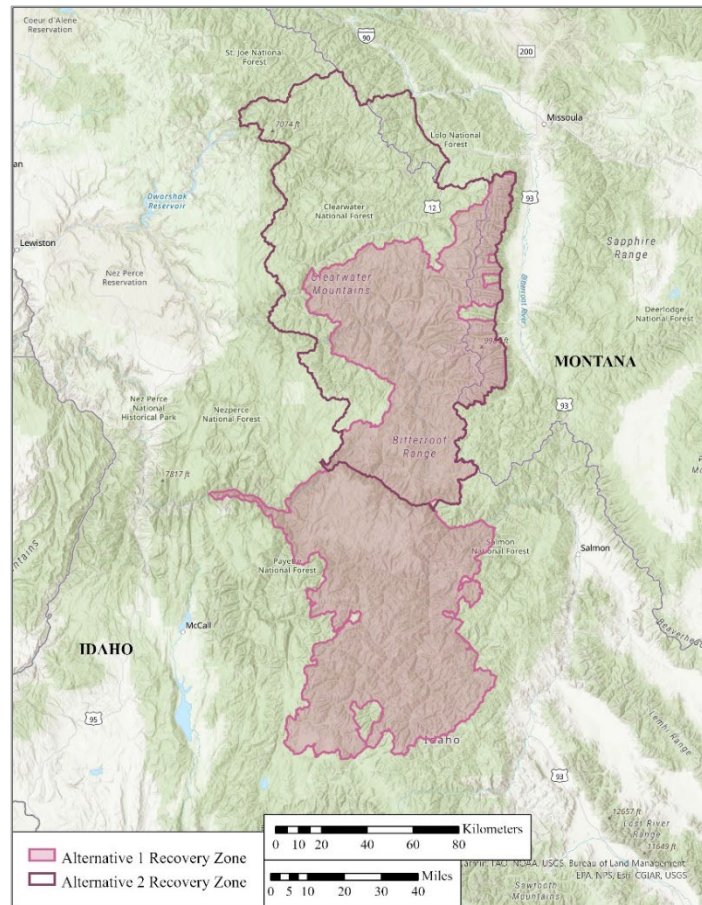


Figure 11. Map of the Bitterroot Ecosystem recovery zone as identified in the Final EIS under the preferred alternative, reintroduction, and alternative 2, natural recovery.



In 2022, two subadult sibling bears (one male, one female) traveled south from the NCDE and spent time in the northern Bitterroot valley during late summer and early fall. Over the course of several weeks these bears frequented areas with high volumes of unsecured attractants (garbage, fruit trees, etc.). We do not believe these bears were involved in conflict, but they were drawing increased attention from local residents. After lengthy consultation between USFWS, MFWP, and the U.S. Forest Service (USFS), these bears were captured preemptively, collared, and released at a nearby remote relocation site in the north Sapphires on the eastern edge of the Bitterroot Valley. According to GPS data from their collars, both bears independently moved north into the NCDE, and ultimately ended up rejoining one another in the Scapegoat Wilderness. It is possible that additional undetected individuals are currently in the area. The BE is within maximum dispersal distance of three ecosystems, including the GYE, CYE, and NCDE, and we expect grizzly bears to naturally recolonize the BE, albeit slowly.

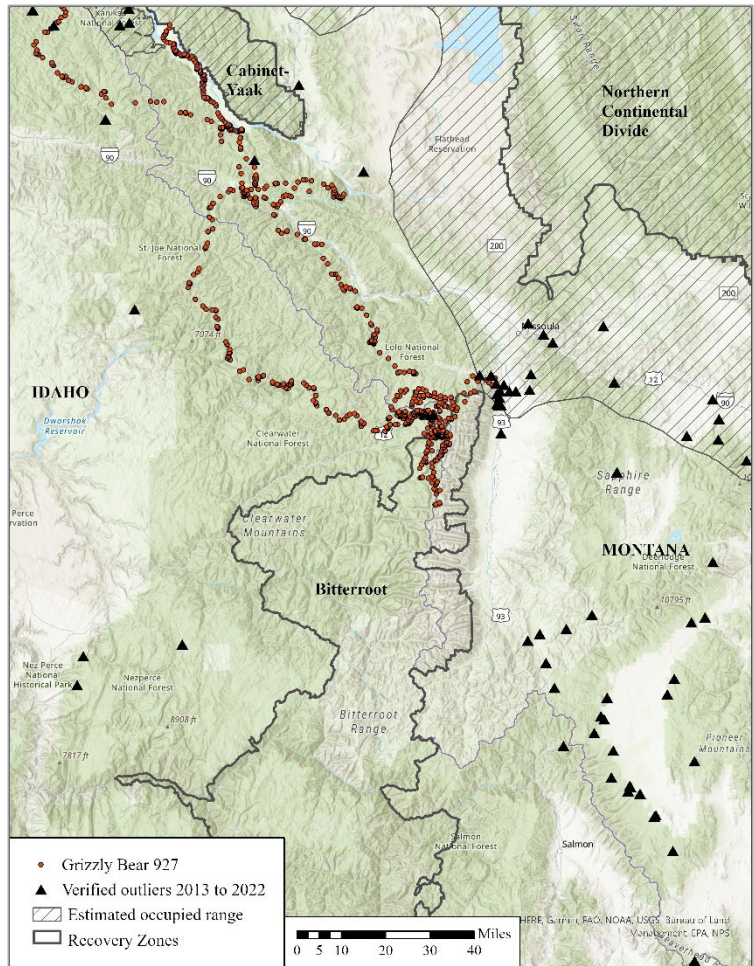


Figure 12. Estimated distributions of grizzly bears in the NCDE (2020) and CYE (2019), and verified grizzly bear locations between the ecosystems based on data from 2013 to 2022.

In 2000, the Service released a Final Environmental Impact Statement (2000 FEIS), Record of Decision (ROD), and final section 10(j) regulation to reintroduce grizzly bears into the BE as a nonessential experimental population with citizen management. In 2001 DOI published a Notice of Intent proposing to reevaluate our ROD and select the “no action” alternative, and a proposed rule to remove the 10(j) regulation. That proposal was never finalized, and we took no further action to reevaluate our ROD or withdraw the 10(j) designation and associated regulation. In November 2021, the Service was challenged in the Montana District Court due to an “unreasonable delay” in implementing non-discretionary actions described in the action alternative. The court remanded this matter to the Service and ordered the Service to propose a timeline and plan for completion of a supplemental EIS and if warranted, a new ROD and final rule. In April 2023, the court issued an order approving the Service’s proposal and timeline to complete this process by October 2026.

---

## GRIZZLY BEAR CONFLICT PROGRAM

---

When signed into law in 2021, Montana Senate Bill 337 limited MFWP involvement in relocation efforts outside of recovery zones. In 2022, USFWS established 5 new conflict positions (1 conflict coordinator and 4 conflict specialists) within the Grizzly Bear Recovery Program. In addition to relocating grizzly bears captured outside of recovery areas, these positions were created to assist tribes, state, and federal agencies with grizzly bear conflict management and mitigation, as well as outreach and education. In addition, these positions were intended to work collaboratively with other stakeholders (e.g., nonprofits, citizen groups, and landowners) on grizzly bear conflict reduction. The 4 conflict specialists were hired during May-July of 2022, and are distributed across Montana and Wyoming within or near areas experiencing high volumes of grizzly bear conflict: Kalispell, covering the Flathead, NW MT, and N Idaho; Helena, covering the Rocky Mountain Front and adjacent areas; Missoula, covering the southern edges of the NCDE, the Bitterroot, and Upper Clark Fork Region; and Jackson, WY, covering areas adjacent to the GYE within Wyoming and Idaho. The conflict coordinator was hired in April and is based out of Missoula.

### Relocations and Coordination

During May-November 2022, conflict specialists relocated 18 grizzly bears, including 12 bears that were in conflict, 4 bears captured preemptively, and 2 bears that were non-target captures. Of the 18 relocated bears, 14 were in or adjacent to the NCDE and 4 were in or adjacent to the GYE. Seventeen of the relocated bears were in Montana in collaboration with MFWP, with 1 relocation in Wyoming in coordination with Wyoming Game and Fish Department (WGFD). For all



*Figure 13. Electric fence project in Dupuyer, MT.*

relocations, USFWS conflict staff maintained close coordination with the state, federal, or tribal managers handling the bear(s), and appropriate land management agencies. Beyond grizzly bear relocations conducted by USFWS conflict specialists, USFWS coordinated with MFWP, WGFD, Idaho Department of Fish and Game (IDFG), Wildlife Services (WS), Blackfoot Indian Reservation, CSKT, and USFS on over 100 grizzly bear management actions, including captures, relocations, and removals across Idaho, Montana, and Wyoming. In addition, USFWS communicated with bear managers on numerous conflict situations that did not ultimately result in a capture or removal (traps were never set, bears were never captured, etc.).

### Conflict Mitigation



Conflict specialists either led or took part in 15 electric fencing projects to secure attractants across the NCDE in Montana and CYE in Idaho. In doing so, specialists collaborated with a range of stakeholders, including state and federal wildlife agencies, tribes, NGOs, landowners, and producers (Appendix A). Grizzly bear 863 and her cubs were frequently visible along Highway 26/287 near Togwotee Pass. While she and her cubs became less visible after early June, our conflict specialist in the Jackson area coordinated monitoring and outreach efforts with personnel from USFWS, Wyoming Department of Transportation Highway Patrol, Wyoming Highway Patrol, and Teton Co. Sheriff's department.



*Figure 14. Conflict Program staff with landowners at an electric fence project in Heron, MT.*

### **Information, Outreach, and Partnerships**

In addition to the public presentations in the Education and Outreach section below, conflict staff have assumed roles on various IGBC subcommittees, in BearWise WY communities, and Partners for Fish and Wildlife. We have a specialist on the IGBC IE&O committee for the Selkirk-Cabinet-Yaak, Bitterroot, and GYE subcommittees, a specialist taking over as the chair of the NCDE IE&O subcommittee, and a specialist as a member of BearWise Jackson Hole. Two of our specialists will be stepping into coordinating roles for the IGBC Bear Smart Communities framework. One specialist started assisting recovery program FOIA response efforts as a grizzly bear “subject matter expert”, collecting records from staff to review what can and cannot be released to the public. A specialist is also collaborating with the USFWS Partners for Fish and Wildlife Program to develop shared capacity in the Upper Clark Fork and Flint Creek areas in west-central Montana.

## Meetings and Coordination

In addition to numerous educational events, individual, and small group meetings, USFWS conflict staff attended meetings, workshops, and conferences across Montana, Idaho, and Wyoming. The USFWS Conflict program was represented, virtually or in person, at all IGBC subcommittee meetings, the IGBC spring and fall Executive Committee meeting, and the Human-Bear Conflicts Workshop in Reno, NV. Conflict staff held or attended meetings and events with various stakeholders, including community groups, livestock producers, non-governmental agencies, state agencies in Idaho, Montana, Washington, and Wyoming; WS in Idaho and Montana; the CSKT and Blackfoot tribes in Montana, the Nez Perce Tribe in Idaho, and the Kalispel Tribe in Washington; USFS in Idaho, Montana, and Wyoming; Glacier, Grand Teton, and Yellowstone National Parks.



Figure 15. Conflict Program staff at an education event in Ronan, MT.

USFWS also coordinated with the Beaverhead-Deerlodge, Bitterroot, Custer Gallatin, Flathead, Helena-Lewis and Clark, Kootenai, and Lolo National Forests, to establish communication plans for the relocation of grizzly bears on USFS lands. These plans are intended to identify suitable relocation sites on USFS lands and establish communication and reporting guidelines within each forest. They also include a framework for annual reviews, site adjustments, and future coordination. At the time of reporting, USFWS had met with Forest Leadership Teams from 5 of the 7 forests and jointly signed communication plans with 3 of the 7. Efforts are ongoing with the remaining 4 forests, with additional meetings planned for late winter and early spring.

---

## GRIZZLY BEAR PROGRAM PROJECTS

---

### Huckleberry Habitat Modeling

The GBRP is developing a huckleberry habitat model in the Cabinet-Yaak and Selkirk recovery areas. The study modeled abiotic and biotic features associated with ground-truthed GPS locations of collared bears to identify huckleberry habitat and examine the human or natural actions that may have created or maintained these sites (e.g., wildfire, prescribed fire, or timber harvest). Important variables ( $P < 0.00001$ ; positive [+] or negative [-] relationship) include canopy closure (-), moisture deficit (-), time since last wildfire (-), solar radiation (+), snow water equivalent (-), and summer maximum temperature (+). Secondly, we found that quality and quantity of predicted huckleberry habitat influences dispersal patterns, degree of female range overlap, and seasonal space use within a range. We also found that huckleberries provide a significant calorie base, and, as an important food resource, may nutritionally cue body size of Selkirk-Cabinet-Yaak bears. A draft manuscript has been completed and is under internal program and coauthor review. Submission expected late spring 2023. For more information, contact Wayne Kasworm.



## **Selkirk-Cabinet-Yaak Genetic Diversity and Structure**

We are collaborating with University of Idaho graduate student, Megan Turnock (also a wildlife biologist with the Kalispel Tribe) to evaluate and update our knowledge about the genetic diversity and landscape connectivity of Selkirk and Cabinet-Yaak grizzly bear populations. The study focuses on estimating current and historic heterozygosity, levels of inbreeding, and effective population sizes ( $N_e$ ) of these populations. Megan is also examining the effects and consequences of past and future natural gene flow or management actions (e.g., Cabinet Mountains augmentation program) on genetic diversity. Finally, Megan will investigate any measurable population structure occurring within and between ecosystems, possibly identifying historic partial barriers to genetic connectivity. Megan presented a poster in November 2022 at the national conference of The Wildlife Society in Spokane, WA, and has an accepted abstract for oral presentation at the annual meeting of the Washington state chapter of The Wildlife Society (see “Professional presentations” for title). Megan is advised by Dr. Lisette Waits at the University of Idaho. The GBRP has provided genetic data and is participating in the student’s graduate thesis committee. For more information, contact Justin Teisberg.

## **Assimilated diets of CYE and SE grizzly bears**

Our program is developing a hair and blood isotope dataset for the CYE and SE, including samples dating back to the early 1980s ( $N = 633$ ). Using known isotopic ratios of plant and animal food items common to bears, we estimate annual assimilated diets of CYE grizzly bears include 10–22% animal meat on average, differing by age-class and sex. Diets of sampled SE bears have even lower proportions of animal meat (12%, on average). These trophic level patterns differ from the Greater Yellowstone and Northern Continental Divide Ecosystems, where use of animal matter is either greater or less spatially uniform than the CYE and SE. In addition, berries (huckleberries in particular) carry a unique isotope signature in the CYE and SE, allowing us to (1) estimate the berry portion of a grizzly bear diet and (2) specifically assesses the nutritional importance of huckleberries to CYE and SE grizzly bears. Preliminary results suggest grizzly bear diets, on average, are composed of at least 20% berries during the summer months (4–15 quarts of berries per day). As next steps, we are assessing whether these diet estimates predict or align with patterns of habitat use, dispersal, body condition, and individual reproductive fitness. Expected draft manuscript by summer 2023. For more information, contact Justin Teisberg.

## **Army Cutworm Moths in the GYE**

Army cutworm moths occur in remote, high-elevation alpine sites dominated by talus and scree slopes in parts of the GYE and NCDE. When available, they are an important food source for grizzly bears because of their high caloric and nutrient content. Moth sites in the GYE have been well mapped and grizzly bear use of moth sites is monitored annually. Stable isotope analysis has previously been used to estimate assimilated meat and plant matter for GYE grizzly bear diets but intake of army cutworm moths by grizzly bears has not previously been quantified. Initial results from grizzly bear food items in the GYE, including army cutworm moths, indicate that stable isotope analysis can be used to quantify the intake of army cutworm moths by grizzly bears in the GYE. Hair samples collected near army cutworm moth feeding sites were initially submitted for DNA analysis such that only 1 sample per year per individual was submitted for stable isotope analysis. From 2018 to 2020, we submitted and received results for 79 food samples, including 18 moth samples, and 13 grizzly bear hair samples for analysis. Analysis for an additional 3 moth samples and 17 grizzly bear hair samples were submitted to the lab in early 2023. Expected draft manuscript expected in 2024. For more information, contact Jennifer Fortin-Noreus.

## SW MT DNA Study

During the summer of 2021 and 2022, the GBRP partnered with the U.S. Forest Service and Defenders of Wildlife to conduct a pilot project using digital cameras and hair snare corrals to look for the presence of grizzly bears in southwest Montana and document range expansion. In 2021, the project detected two unrelated male grizzly bears near the headwaters of the east fork of the Bitterroot River. In summer 2022, we placed 124 hair corrals on the Bitterroot, Lolo, and Beaverhead-Deerlodge National Forests. Site locations were based on previous verified and possible sightings and biologists' recommendations. Potential grizzly bear samples were submitted for DNA analysis and results are expected later in 2023. The project is planned to continue during the summer of 2023, for a third year of this study. For more information, contact Jennifer Fortin-Noreus.



*Figure 16. Bear hair snagged on barbed wire at a hair corral set up in the north Sapphire Mountains.*

---

## EDUCATION AND OUTREACH

---

GBRP staff participated in 28 educational and outreach events beyond our regular management meetings with governmental organizations. These efforts include presentations to community groups, schools, and the public. For a detailed list of events, please see Appendix A.

---

## PROFESSIONAL PRESENTATIONS

---

- 2022 National Wildlife Society Meeting:
  - Cabinet Mountains Augmentation Program (Wayne Kasworm)
  - Identifying huckleberry habitat of importance to Cabinet-Yaak and Selkirk grizzly bears (Justin Teisberg)
  - Conservation genetics of fragmented grizzly bear populations in the Selkirk and Cabinet-Yaak Ecosystems (Megan Turnock, and GBRP coauthors)
- Grizzly Bear Handling Workshop – GBRP developed a 2-day virtual training for interagency staff
- 2022 Human-Bear Conflicts Workshop:
  - One of These Ears is not like the Other Poster-Case Study of Grizzly Bear 770 and Human Encounter (Amber Kornak)



---

## GRIZZLY BEAR PROGRAM FUNDING

---

The GBRP supports a number of programs and projects to promote grizzly bear conservation in the lower-48 States. are integral to grizzly bear conservation and recovery. The majority of our support goes towards population monitoring and status assessment, conflict management, and research. We also fund various NGOs, groups, landowners, and projects that promote awareness and understanding of grizzly bears, and work to prevent or reduce conflicts. Projects listed below are funded through ESA recovery dollars; the USFWS funds additional grizzly bear projects not mentioned here through other programs, including Tribal Wildlife Grants, Section 6 Agreements, and the Refuges program. The list of expenditures below does not include Federal staffing, or administrative support, USFWS travel, vehicles, or office supplies.

<b>Cooperative/Interagency Agreements: Management + Monitoring</b>	<b>TOTAL \$685,000</b>
Montana Fish, Wildlife & Parks (MFWP) Idaho Department of Fish & Game (IDFG) USGS: Interagency Grizzly Bear Study Team (IGBST) USFS: Interagency Grizzly Bear Committee (IGBC) USDS APHIS Wildlife Services - Montana NPS: Grand Teton Interagency Conflict Management in Teton County, WY	
<b>NGO Support: Conflict Prevention + Information, Education, Outreach (IEO)</b>	<b>TOTAL \$36,500</b>
Swan Valley Connections: Outreach and educational events in the NCDE Defenders of Wildlife: Electric fencing outreach and education Blackfoot Challenge: Wildlife Coordinator position support	
<b>USFWS: Conflict Prevention + IEO</b>	<b>TOTAL \$194,000</b>
Conflict Supplies & Equipment IEO Materials Culvert Traps & Travel Trailers Blackfoot Challenge - Conflict Prevention Support	
<b>USFWS: Research + Monitoring</b>	<b>TOTAL \$166,000</b>
CYE and SE Monitoring & Research SW Montana DNA Study Washington State University Bear Center	
<b>2022 TOTAL</b>	<b>\$1,081,500</b>

---

## RECENT PUBLICATIONS

---

- Proctor, M. F., W. F. Kasworm, J. E. Teisberg, C. Servheen, T. G. Radandt, C. T. Lamb, K. C. Kendall, R. D. Mace, D. Paetkau, and M. S. Boyce. 2020. American black bear population fragmentation detected with pedigrees in the trans-border Canada-United States region. *Ursus* *i31:1–15*.
- Lyons, A. L., W. L. Gaines, P. H. Singleton, W. F. Kasworm, M. F. Proctor, and J. Begley. 2018. Spatially explicit carrying capacity estimates to inform species specific recovery objectives: Grizzly bear (*Ursus arctos*) recovery in the North Cascades. *Biological Conservation* *222:21–32*.
- Proctor, M. F., W. F. Kasworm, K. M. Annis, A. G. Machutchon, J. E. Teisberg, T. G. Radandt, and C. Servheen. 2018. Conservation of threatened Canada-USA trans-border grizzly bears linked to comprehensive conflict reduction. *Human Wildlife Interactions* *12:348–372*.
- Robbins, C.T., and J. K. Fortin-Noreus. 2017. Nutritional Ecology. Pages 46–61 in P.J. White, K. A. Gunther, and F. T. van Manen, eds. *Yellowstone Grizzly Bears: ecology and conservation of an icon of wilderness*. Yellowstone Forever, Yellowstone National Park, Wyoming.
- Fortin, J. K., K. D. Rode, G. V. Hilderbrand, J. Wilder, S. Farley, C. Jorgensen, and B. G. Marcot. 2016. Impacts of human recreation on brown bear (*Ursus arctos*): A review and new management tool. *Plos One* *11: e0141983*.
- Jansen, H. T., T. Leise, G. Stenhouse, K. Pigeon, W. Kasworm, J. Teisberg, T. Radandt, R. Dallmann, S. Brown, and C. T. Robbins. 2016. The bear circadian clock doesn't 'sleep' during winter dormancy. *Frontiers in Zoology* *13:42–56*.
- Ebinger, M. R., M. A. Haroldson, F. T. van Manen, C. M. Costello, D. D. Bjornlie, D. J. Thompson, K. A. Gunther, J. K. Fortin, J. E. Teisberg, S. R. Pils, P. J. White, S. L. Cain, and P. C. Cross. 2016. Detecting grizzly bear use of ungulate carcasses using global positioning system telemetry and activity data. *Oecologia* *181:695–708*.
- Coltrane, J. A., S. Farley, D. Saalfeld, D. Battle, T. Carnahan, and J. Teisberg. 2015. Evaluation of dexmedetomidine, tiletamine, and zolazepam for the immobilization of black bears. *Wildlife Society Bulletin* *39:378–382*.
- Proctor, M. P., Nielson, S. E., W. F. Kasworm, C. Servheen, T. G. Radandt, A. G. Machutchon, and M. S. Boyce. 2015. Grizzly bear connectivity mapping in the Canada–United States trans-border region. *Journal of Wildlife Management* *79:544–558*
- Barta, J. L., C. Monroe, J. E. Teisberg, M. Winters, K. Flanigan, and B. M. Kemp. 2014. One of the key characteristics of ancient DNA, low copy number, may be a product of its extraction. *Journal of Archaeological Science* *46:281–289*.
- Schwartz, C. C., J. K. Fortin, J. E. Teisberg, M. A. Haroldson, C. Servheen, C. T. Robbins, and F. T. van Manen. 2014. Body and diet composition of sympatric black and grizzly bears in the Greater Yellowstone Ecosystem. *Journal of Wildlife Management* *78:68–78*.



- Schwartz, C. C., J. E. Teisberg, J. K. Fortin, M. A. Haroldson, C. Servheen, C. T. Robbins, and F. T. van Manen. 2014. Use of isotopic sulfur to determine whitebark pine consumption by Yellowstone bears: A reassessment. *Wildlife Society Bulletin* 38:664–670.
- Teisberg, J. E., S. D. Farley, O. L. Nelson, G. V. Hilderbrand, M. J. Madel, P. A. Owen, J. A. Erlenbach, and C. T. Robbins. 2014. Immobilization of grizzly bears (*Ursus arctos*) with dexmedetomidine, tiletamine, and zolazepam. *Journal of Wildlife Diseases* 50:74–83.
- Teisberg, J. E., M. A. Haroldson, C. C. Schwartz, K. A. Gunther, J. K. Fortin, and C. T. Robbins. 2014. Contrasting past and current numbers of bears visiting Yellowstone cutthroat trout streams. *Journal of Wildlife Management* 78:369–378.
- Fortin, J. K., C. C. Schwartz, K. A. Gunther, J. E. Teisberg, M. A. Haroldson, M. A. Evans, and C. T. Robbins. 2013. Dietary adjustability of grizzly bears and American black bears in Yellowstone National Park. *Journal of Wildlife Management* 77:270–281.
- Fortin, J. K., J. V. Ware, H. T. Jansen, C. C. Schwartz, and C. T. Robbins. 2013. Temporal niche switching by grizzly bears but not American black bears in Yellowstone National Park. *Journal of Wildlife Management* 94:833–844.

---

## LITERATURE CITED

---

- Almack, J. A., W. L. Gaines, R. H. Naney, P. H. Morrison, J. R. Eby, G. F. Wooten, M. C. Snyder, S. H. Fitkin, and E. R. Garcia. 1993. North Cascades grizzly bear ecosystem evaluation. Final Report to the Interagency Grizzly Bear Committee.
- Bjornlie, D. D., and M. A. Haroldson. 2021. Grizzly bear occupied range in the Greater Yellowstone Ecosystem, 1990–2020. Pages 24–27 in F. T. van Manen, M. A. Haroldson, and B. E. Karabensch, editors. *Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2020*. U.S. Geological Survey, Bozeman, Montana, USA.
- Costello, C. M., and L. Roberts. 2016. Northern Continental Divide Ecosystem grizzly bear population monitoring annual report – 2015. Montana Fish, Wildlife & Parks, Kalispell, Montana, USA.
- Costello, C. M., and L. Roberts. 2021. Northern Continental Divide Ecosystem grizzly bear population monitoring annual report, 2020. Montana Fish, Wildlife & Parks, Kalispell, Montana, USA.
- Cowan, I. M., D. G. Chapman, R. S. Hoffmann, D. R. McCullough, G. A. Swanson, and R. B. Weeden. 1974. Report of the Committee on the Yellowstone grizzlies. National Academy of Sciences Report.
- Craighead, J.J., J. R. Varney, and F. C. Craighead, Jr. 1974. A population analysis of the Yellowstone grizzly bears. Bulletin 40, Montana Forest and Conservation Experiment Station, University of Montana, Missoula, Montana, USA.
- Dood, A. R., R. D. Brannon, and R. D. Mace. 1986. Management of grizzly bears in the Northern Continental Divide Ecosystem, Montana. Transcripts of the 51st North American Wildlife & Natural Resources Conference:162–177.

- Interagency Grizzly Bear Study Team. 2021. Research and monitoring summary 2021. Presentation to the Yellowstone Ecosystem Subcommittee. 8 November 2021.
- Kamath, P.L., M.A. Haroldson, G. Luikart, D. Paetkau, C. Whitman, and F.T. van Manen. 2015. Multiple estimates of effective population size for monitoring a long-lived vertebrate: an application of Yellowstone grizzly bears. *Molecular Ecology* 24:5507–5521.
- Kasworm, W. F., T. G. Radandt, J. E. Teisberg, T. Vent, M. Proctor, H. Cooley and J. K. Fortin-Noreus. 2022a. Cabinet-Yaak grizzly bear recovery area 2021 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. 114 pp.
- Kasworm, W. F., T. G. Radandt, J. E. Teisberg, T. Vent, M. Proctor, H. Cooley, and J. K. Fortin-Noreus. 2022b. Selkirk Mountains grizzly bear recovery area 2021 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. 73 pp.
- Kasworm, W. F., T. G. Radandt, J. E. Teisberg, T. Vent, M. Proctor, H. Cooley and J. K. Fortin-Noreus. 2023a. Cabinet-Yaak grizzly bear recovery area 2022 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. *In Review*.
- Kasworm, W. F., T. G. Radandt, J. E. Teisberg, T. Vent, M. Proctor, H. Cooley, and J. K. Fortin-Noreus. 2023b. Selkirk Mountains grizzly bear recovery area 2022 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. *In Review*.
- Kendall, K. C., A. C. Macleod, K. L. Boyd, J. Boulanger, J. A. Royle, W. F. Kasworm, D. Paetkau, M. F. Proctor, K. Annis, and T. A. Graves. 2016. Density, distribution, and genetic structure of grizzly bears in the Cabinet-Yaak ecosystem. *Journal of Wildlife Management* 80:314–331.
- Kendall, K. C., J. B. Stetz, J. Boulanger, A. C. Macleod, D. Paetkau, and G. C. White. 2009. Demography and genetic structure of a recovering grizzly bear population. *Journal of Wildlife Management* 73:3–17.
- Lyons, A. L., W. L. Gaines, P. H. Singleton, W. F. Kasworm, M. F. Proctor, and J. Begley. 2018. Spatially explicit carrying capacity estimates to inform species specific recovery objectives: grizzly bear (*Ursus arctos*) recovery in the North Cascades. *Biological Conservation* 222:21–32.
- Mace, R. D., D. W. Carney, T. Chilton-Radandt, S. A. Courville, M. A. Haroldson, R. B. Harris, J. Jonkel, B. McLellan, M. Madel, T. L. Manley, C. C. Schwartz, C. Servheen, G. Stenhouse, J. S. Waller, and E. Wenum. 2012. Grizzly bear population vital rates and trend in the Northern Continental Divide Ecosystem, Montana. *Journal of Wildlife Management* 76:119–128.
- McCullough, D. R. 1981. Population dynamics of the Yellowstone grizzly bear. Pages 173-196 in Fowler, C. W. and T. D. Smith, editors. *Dynamics of large mammal populations*, John Wiley and Sons, New York, New York, USA.
- Miller, C. R., and L. P. Waits. 2003. The history of effective population size and genetic diversity in the Yellowstone grizzly (*Ursus arctos*): Implications for conservation. *Proceedings of the National Academy of Sciences* 100:4334–4339.
- National Parks Service and U.S. Fish and Wildlife Service. 2017. Draft grizzly bear restoration plan / environmental impact statement: North Cascades Ecosystem.



- Northern Continental Divide Ecosystem Subcommittee. 2020. Conservation strategy for the grizzly bear in the Northern Continental Divide Ecosystem.
- Proctor, M. F., D. Paetkau, B. N. McLellan, B. B. Stenhouse, K. C. Kendall, R. D. Mace, W. F. Kasworm, C. Servheen, C. L. Lausen, M. L. Gibeau, W. L. Wakkinen, M. A. Haroldson, G. Mowat, C. D. Apps, L. M. Ciarniello, R. M. R. Barclay, M. S. Boyce, C. C. Schwartz, and C. Strobeck. 2012. Population fragmentation and inter-ecosystem movements of grizzly bears in western Canada and the northern United States. *Wildlife Monographs* 180:1–46.
- Proctor M. F., W. F. Kasworm, K. M. Annis, A. G. MacHutchon, J. E. Teisberg, T. G. Radandt, and C. Servheen. 2018. Conservation of threatened Canada-USA trans-border grizzly bears linked to comprehensive conflict reduction. *Human-Wildlife Interactions* 12:348–372.
- Pyare, S., S. Cain, D. Moody, C. Schwartz, and J. Berger. 2004. Carnivore re-colonization: reality, possibility and a non-equilibrium century for grizzly bears in the southern Yellowstone Ecosystem. *Animal Conservation* 7:1–7.
- Schaub, M., and F. Abadi. 2010. Integrated population models: a novel analysis framework for deeper insights into population dynamics. *Journal of Ornithology* 152:227–237.
- U.S. Fish and Wildlife Service. 1982. Grizzly bear recovery plan. Denver, Colorado, USA.
- U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 1996. Grizzly bear recovery plan supplement: Bitterroot Ecosystem recovery plan chapter. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 1997. Grizzly bear recovery plan supplement: North Cascades Ecosystem recovery plan chapter. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 2007. Grizzly bear recovery plan supplement: Habitat-based recovery criteria for the Yellowstone Ecosystem. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 2017. Grizzly bear recovery plan supplement: Revised demographic recovery criteria for the Greater Yellowstone Ecosystem. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 2018. Grizzly bear recovery plan supplement: Habitat-based recovery criteria for the Northern Continental Divide Ecosystem. Missoula, Montana, USA.
- U.S. Fish and Wildlife Service. 2020. Letter from Jodi Bush and Chris Swanson, USFWS office supervisors to supervisors of the Bitterroot, Nez Perce-Clearwater, Lolo, and Salmon-Challis National Forests.

---

## PROGRAM CONTACTS

---

**Missoula Office:** University of Montana, 309 University Hall, Missoula, MT 59812; Ph: 406-243-4903

**Libby Office:** 385 Fish Hatchery Rd, Libby, MT 59923; Ph: 406-293-4161 x205

NAME	TITLE	EMAIL
Hilary Cooley	Grizzly Bear Recovery Coordinator	hilary_cooley@fws.gov
Jennifer Fortin-Noreus	Grizzly Bear Biologist	jennifer_fortin-noreus@fws.gov
Ben Jimenez	Grizzly Bear Conflict Coordinator	ben_jimenez@fws.gov
Wayne Kasworm	Grizzly Bear Biologist	wayne_kasworm@fws.gov
Amber Kornak	Grizzly Bear Conflict Specialist	amber_kornak@fws.gov
Becca Lyon	Grizzly Bear Conflict Specialist	rebecca_lyon@fws.gov
Tom Radandt	Grizzly Bear Biologist	thomas_radandt@fws.gov
Kate Smith	Program Administrator	kate.smith@cfc.umt.edu
Justin Teisberg	Grizzly Bear Biologist	justin_teisberg@fws.gov
Rory Trimbo	Grizzly Bear Conflict Specialist	rory_trimbo@fws.gov
Morgan Vance	Grizzly Bear Conflict Specialist	morgan_vance@fws.gov

**Appendix A.** Educational and outreach efforts by USFWS Grizzly Bear Recovery Program Staff in 2022.

<b>Date</b>	<b>Location</b>	<b>Event</b>	<b>Audience</b>	<b>Collaborators</b>
2/10/2022	Hamilton, MT	Grizzly bear status and conflict prevention	Public	MTFWP
4/12/2022	Virtual	Status and Challenges of Recovery	Univ of Idaho Wildlife Program	
4/20/2022	Bonner's Ferry, ID	Kootenai Valley Resource Initiative	Public	
4/25/2022	Newport, WA	Grizzly bear biology in Selkirk Mtns	Newport HS	
5/20/2022	Eureka, MT	Wildlife Day	Eureka HS	USFS Kalispel Tribe, WDFW, Defenders of Wildlife (DOW)
5/21/2022	Calispell, WA	Human-Bear Safety	Public	Kalispel Tribe, WDFW, DOW
5/21/2022	Ione, WA	Human-Bear Safety	Public	
5/26/2022	Ronan, MT	Human-Bear Safety	Public	MTFWP, Univ of MT
6/10/2022	Missoula, MT	Grizzly Bear Recovery	Missoula City Club	
6/14/2022	Ronan, MT	Bear Trivia Takeover	Public	
6/22/2022	Virtual	Grizzly Bear Recovery Challenges	Univ of MT Forestry Program	
7/28/2022	Libby, MT	Human-Bear Safety	Public	MTFWP
8/30/2022	Helena, MT	Human-Bear Safety	FWS employees	
8/25/2022	Pinedale, WY	Bear Spray Give-a-way	Public	WGFD, Safari Club Intl (SCI)
8/26/2022	Jackson, WY	Bear Spray Give-a-way	Public	WGFD, SCI
9/14/2022	Charlo, MT	Grizzly Bear Recovery	Charlo HS	
9/10/2022	Lewistown, MT	Choke Cherry Festival	Public	MTFWP
9/20/2022	Mt. Vernon, WA	Bear Smart Workshop	Public, NGOs	DOW
9/28/2022	Lincoln, MT	Bear Awareness	Lincoln School District	Blackfoot Challenge
9/28/2022	Missoula, MT	Wildlife Careers Class	Univ of MT Wildlife Program	
10/1/2022	Libby, MT	Kootenai Forest Fair	Public	MTFWP
10/2/2022	Whitefish, MT	Flathead Trails Fair	Public	MTFWP
10/8/2022	Whitefish, MT	Whitefish Bear Fair	Public	MTFWP
10/11/2022	Wisdom, MT	SW MT DNA Project	Public	MTFWP
10/13/2023	Hamilton, MT	SW MT DNA Project	Public	MTFWP
10/21/2022	Ennis, MT	Hunters Feed	Public	USFWS
10/24/2022	Troy, MT	Yaak Valley Forest Council	Public	
12/29/2022	Missoula, MT	Bear Awareness	Rattlesnake Elementary	