2022 Wyoming Grizzly Bear Job Completion Report

Wyoming Game and Fish Department
Large Carnivore Section
October, 2023

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INTRODUCTION

This completion report summarizes grizzly bear work completed by the Wyoming Game and Fish Department's (Department) Large Carnivore Section (LCS) and regional personnel during 2022. In the past, this information was included in multiple reports that were not readily available to agency personnel, the legislature, or the public. This report allows the Department to present information pertaining to grizzly bears in Wyoming in one cohesive document available to all interested parties.

POPULATION MONITORING – CAPTURE SUMMARY

Annual captures of grizzly bears by the Department for population monitoring is similar to the annual monitoring programs for other species such as elk and deer. While the methods may differ, the goal is the same, to collect the data necessary to conserve and manage the populations. In addition, data collected during annual monitoring have been extremely useful in answering many important questions regarding the Greater Yellowstone Ecosystem (GYE) grizzly bear population. Data on grizzly bear survival and reproduction, biological samples, body condition, and collar locations are vital components of the overall population monitoring program. These data enable us to accurately monitor the grizzly bear population in relation to recovery goals in the GYE.

To maintain a representative sample of marked grizzly bears in the population, trapping crews systematically trap in occupied grizzly bear habitats. Trapping crews move to new areas as collars are deployed and trapping ceases by early fall to avoid conflicts with hunters during big game hunting seasons. The following summarizes trapping efforts for the 2022 season.

2022 WGFD Sunlight Basin/Crandall Area Grizzly Bear Capture Summary

Trapping began in the Sunlight/Crandall area on 17 May 2022. All traps, baits, scent lures, and other equipment were removed from sites by 9 June. Due to subsequent and extensive flooding events, trapping area warning and closure signs were removed on 29 June 2022. Seven individual grizzly bears were captured a total of 9 times and radio collars were placed on 4 of them. All bears received tags and samples are obtained to gain insight into the overall grizzly bear population (bears listed with a "G" were handled but not marked with a radio transmitter). One black bear was captured and was released without handling..

Table 1. Grizzly bears captured in the Sunlight Basin/Crandall areas of northwest Wyoming, May-June 2022.

Bear ID	Capture Date	Sex/Age Class	Location	Collar
1060	5/21/22	Adult male	Beem Gulch	GPS collar
1061	5/21/22	Adult male	Gravelbar Creek	GPS collar
1062	5/22/22	Adult female	Upper Sunlight Creek	VHF collar

516	5/24/22	Adult male	Beem Gulch	N/A
G 275	5/27/22	Subadult male	Ghost Creek	N/A
G 276	5/28/22	Adult Male	Upper Sunlight Creek	N/A
1061	5/29/22	Adult male	Gravelbar Creek	GPS collar
G 275	5/30/22	Subadult male	Ghost Creek	N/A
1065	6/9/22	Subadult Female	Deadman Bench	VHF collar

Moccasin Basin Capture Summary

Trapping began in the Moccasin Basin area on 8 July. Five culvert trap sites and one snare site were set. All traps, baits, scent lures, and other equipment were removed from sites by 24 July. Trapping area warning and closure signs were removed on 29 July. Six individual grizzly bears were captured a total of 6 times and radio collars were placed on all 6 bears. Two black bears were also captured and released.

Table 2. Grizzly bears captured in the Moccasin Basin area of northwest Wyoming, July, 2022.

Bear ID	Capture Date	Sex/Age Class	Location	Collar
1070	7/16/22	Adult female	North Fork Fish Creek	GPS collar
1071	7/16/22	Adult Female	Red Creek	VHF collar
1072	7/17/22	Adult Female	Beauty Park	VHF collar
1074	7/21/22	Adult male	Papoose Creek	GPS collar
1075	7/22/22	Adult male	North Fork Fish Creek	GPS collar
1076	7/24/22	Adult female	Cottonwood Creek	VHF collar

Grizzly Bear Use of Insect Aggregation Sites *(Justin A. Dellinger, Wyoming Game and Fish Department; and Mark A. Haroldson, Interagency Grizzly Bear Study Team, U.S. Geological Survey)*

Army cutworm moths (*Euxoa auxiliaris*; moths) were first recognized as an important food source for grizzly bears in the GYE during the mid-1980s (Mattson et al. 1991*b*, French et al. 1994). Because insects other than moths may be present and consumed by bears (e.g., ladybird beetles [Coccinellidae family]) as well, we generally refer to such areas as "insect aggregation sites." Within the GYE, observations indicate army cutworm moths are the primary food source at these sites. Since the discovery of bears feeding at insect aggregation sites, numerous bears have been observed at or near these sites. Observability is high because of lack of tree cover and number of bears using the sites. However, complete tabulation of grizzly presence at insect sites is extremely difficult. In addition, it is likely that the size and location of aggregation sites fluctuate from year to year with moth abundance and variation in environmental factors such as snow cover.

Our knowledge of these sites has increased over time, and techniques for monitoring grizzly bear use of these sites have changed. We developed a technique in 2000 that delineates sites by buffering only the locations of bears observed actively feeding at insect aggregation sites by 500 m; this distance was used to account for errors in aerial locations. The borders of the overlapping buffers at individual insect sites are dissolved to produce a single polygon for each site. These sites are identified as "confirmed" sites. Because these polygons are only created around feeding locations, the resulting site conforms to the topography of the mountain or ridge top where bears feed and does not include large areas of non-talus habitat that are not suitable for moths. Records from the grizzly bear location database from July 1 through September 30 of each year are then overlaid on these polygons and enumerated. Areas suspected as insect aggregation sites but dropped from the list of confirmed sites, and sites with only 1 observation of an actively feeding bear or multiple observations in a single year, are termed "possible" sites and will be monitored in subsequent years for additional observations of actively feeding bears. These sites may then be added to the confirmed sites list. When the status of a site is changed to confirmed, analysis is done on all data back to 1986 to determine the historical use of that site. Therefore, the number of bears using insect aggregation sites in past years may change as new sites are added, and data from this annual report may not match those of past reports. New observations of grizzly bears actively feeding in previously undocumented areas will be added as possible sites and monitored for future use. In addition, as new observations of actively feeding bears are added along the periphery of existing sites, the polygons defining these sites increase in size and, thus, more overlaid locations fall within the site. This retrospective analysis brings us closer each year to the "true" number of bears using insect aggregation sites in past years.

As with 2021, only 1 round of grizzly bear observation flights was flown in 2022. Thus, the number of hours flown over insect aggregation sites was again reduced compared to pre-2020 flight totals. However, unlike 2020, and similar to 2021, most observation flights (84%) were conducted with a secondary observer in addition to the pilot.

Analysis of grizzly bear use of insect aggregation sites in 2022 resulted in 225 observations of actively feeding grizzly bears on previously identified, confirmed sites. In addition, there was an observation of an actively feeding grizzly bear at a previously undocumented site. Thus, 1 new possible site was added in 2022, bringing the number of sites to 35 confirmed and 19 possible.

Overall, the number of locations with grizzly bears on insect aggregation sites in 2022 (n = 314) was a decrease from the record high in 2021 (Table 3). This number includes all grizzly bear locations from aerial observation flights, telemetry flights, and observations made during flights for other species. The number of grizzly bears documented on sites and the percentage of confirmed sites with documented use by grizzly bears varies from year to year, suggesting that moth numbers may be greater in some years than others (Figure. 1), which may be due to variable snow conditions or the number of moths migrating from the plains. In 1993, a year with unusually high snowpack, the percentage of confirmed sites used by bears (Figure. 1) and the number of observations recorded at insect aggregation sites were very low (Table 20). In all other years, the percentage of insect aggregation sites used by grizzly bears varied between 47 and 83% (Figure 1).

However, when we control for the amount of observation effort by including only bears observed during regularly conducted observation flights the number of bears observed using insect aggregation sites per hour of flights has shown an overall increasing trend since these flights began in 1997 (Figure 2). Whereas the number of bears observed in 2022 was near the average for the previous 10 years, the number of hours flown was 44% lower than years in which 2 rounds of flights were conducted. Thus, like in 2021, the number of observations per hour flown was higher in 2022 than in previous years when 2 flights were conducted (Figure 2).

Table 3. Summary statistics for grizzly bear use of confirmed insect aggregation sites, Greater Yellowstone Ecosystem, 1986–2022.

Year	Number of confirmed aggregation sites[a]	Number of sites used[b]	Number of aerial telemetry locations	Number of ground or aerial observations
1986	4	2	7	5
1987	5	3	3	17
1988	5	3	11	28
1989	9	7	9	41
1990	14	11	9	77
1991	16	13	13	169
1992	18	12	6	108
1993	19	3	1	2
1994	19	9	1	32
1995	21	12	7	40
1996	23	15	21	68
1997	24	16	17	84
1998	27	22	9	185
1999	27	14	26	156
2000	27	13	49	97
2001	28	18	23	128
2002	30	21	33	256
2003	30	20	9	163
2004	30	16	2	134
2005	32	19	16	198
2006	32	17	15	147
2007	32	19	19	162
2008	32	23	16	181
2009	34	23	12	170
2010	34	18	3	136
2011	35	22	10	165
2012	35	24	20	253
2013	35	23	27	297
2014	35	24	11	343
2015	35	21	13	211
2016	35	20	11	208
2017	35	21	20	279
2018	35	20	18	267
2019	35	29	20	335
2020	35	27	19	325
2021	35	23	30	327
2022	35	24	84	230
Total			620	6,024

[a] The year of discovery was considered the first year a telemetry location or aerial observation was documented at a site. Sites were considered confirmed after additional locations or observations in a subsequent year and every year thereafter regardless of whether or not additional locations were documented.

[b] An aggregation site was considered used if ≥1 location or grizzly bear observation was documented within the site during July–September of that year.

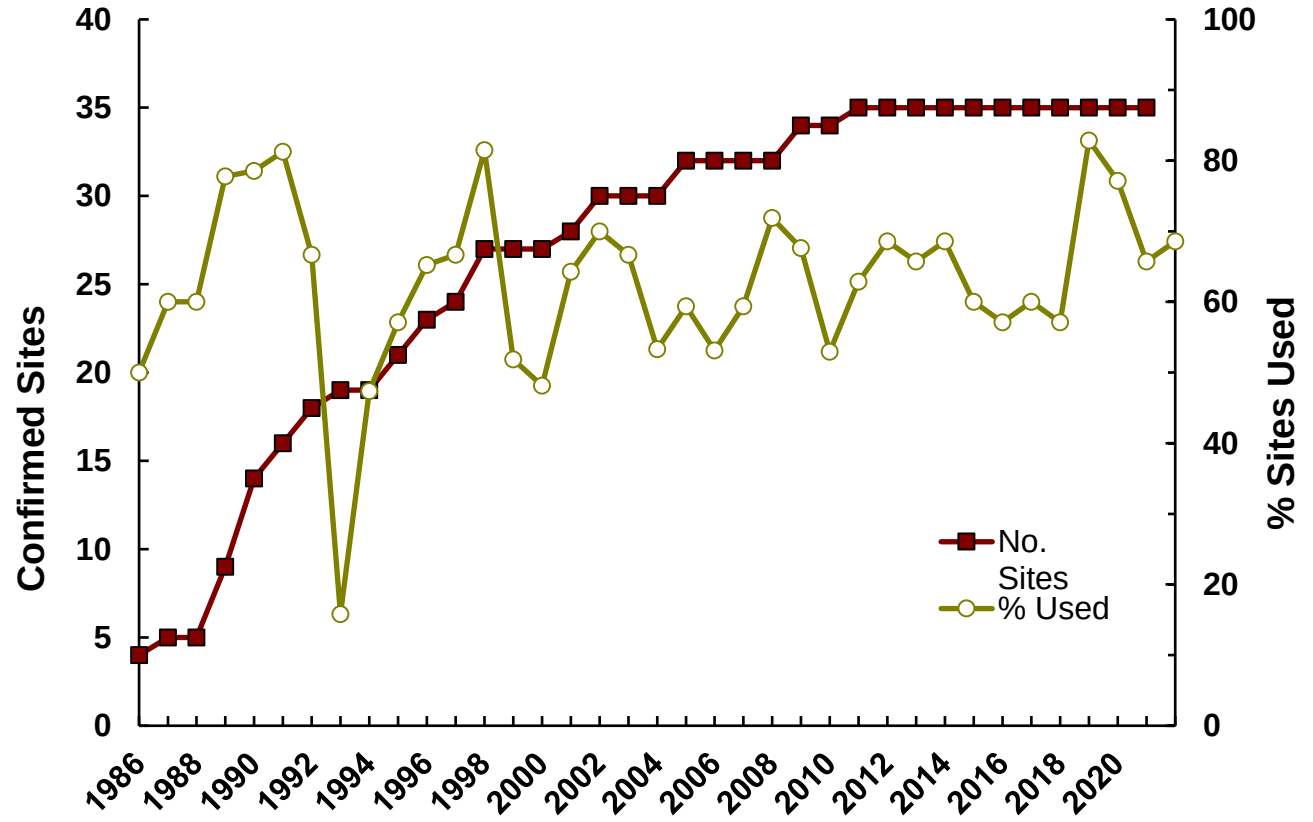

Figure 1. Annual number of confirmed insect aggregation sites and percent of those sites at which telemetry relocations of marked bears or visual observations of unmarked bears were recorded, Greater Yellowstone Ecosystem, 1986–2022.

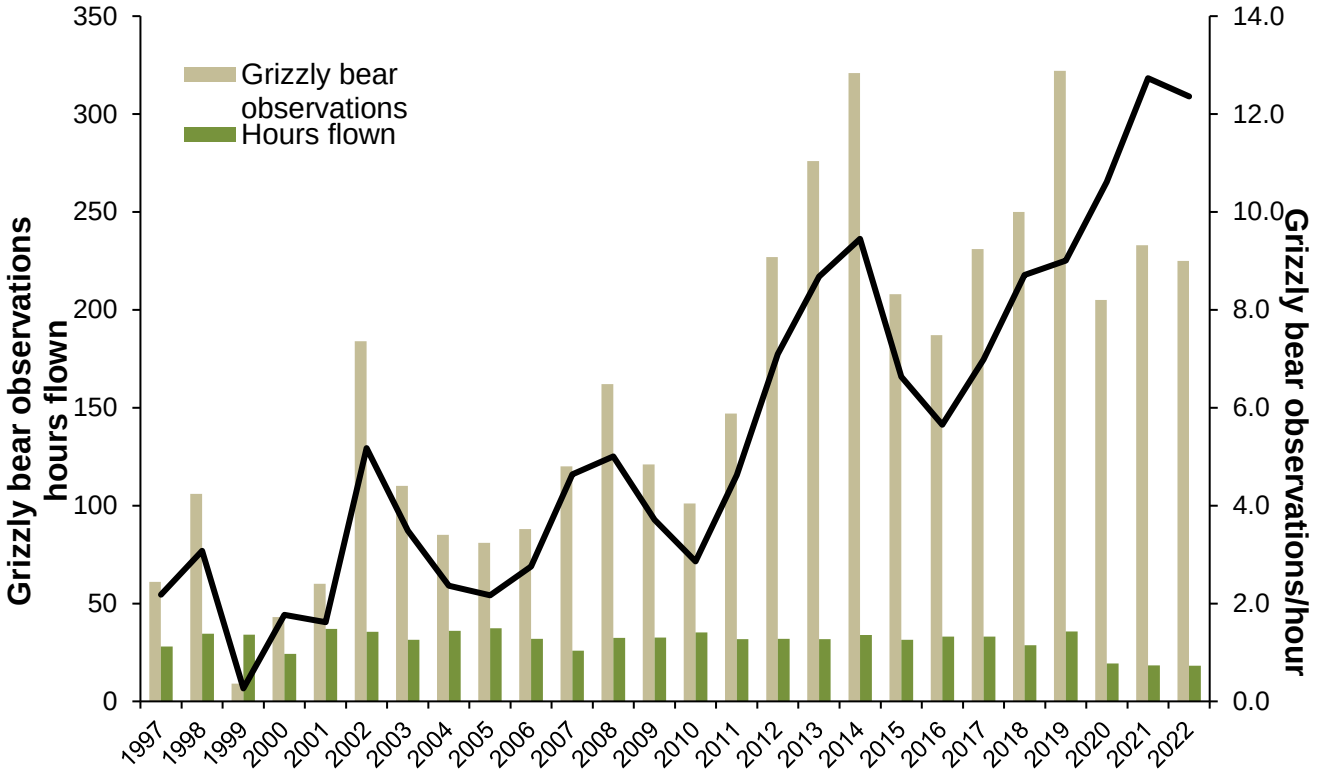

Figure 2. Number of grizzly bears observed (tan bars) on insect aggregation sites during observation flights only, survey hours (green bars) for these bear management units (BMU), and grizzly bear observations per survey hour (black line) during observation flights of BMUs containing all known insect aggregation sites, Greater Yellowstone Ecosystem, 1997–2022

Grizzly Bear Occupied Range in the Greater Yellowstone Ecosystem, 2008–2022 *(Justin A. Dellinger, Wyoming Game and Fish Department; and Mark A. Haroldson, Interagency Grizzly Bear Study Team, U.S. Geological Survey)*

The GYE grizzly bear population had been reduced to only a few hundred bears when it was first listed as threatened under the Endangered Species Act (ESA) in 1975. As the population increased in the intervening years, grizzly bears have reoccupied areas of their former range, including areas where their presence has not been known for over 100 years. Documenting range expansion has become an important part of grizzly bear population monitoring, providing researchers, managers, and the public with spatial data on grizzly bear presence necessary to inform conservation and management.

From its inception, the IGBST has recorded confirmed locations of grizzly bears throughout the GYE as part of routine population monitoring. These locations have been used to create periodic estimates of occupied grizzly bear range since the early 1980s (Basile 1982, Blanchard 1992, Schwartz et al. 2002, Schwartz et al. 2006). Bjornlie et al. (2014) developed a new technique that uses all confirmed grizzly bear locations. Those locations are first overlaid on a grid of 3-km cells to determine occupancy and the areas surrounding the centers of occupied cells are then interpolated to create a surface of occupied range (Bjornlie et al. 2014). Since the adoption of this method, biannual updates of grizzly bear occupied range have revealed steady range expansion. Additionally, reanalysis of location data dating back to the 1970s provides estimates of historical grizzly bear range for direct comparison with current results.

Because grizzly bears are a long-lived species and the collection of confirmed locations over the entire GYE is not feasible on an annual basis, Bjornlie et al. (2014) recommended that location data be pooled over a 15–20 year period to ensure the data provide an accurate representation of grizzly bear occupied range. Therefore, we used a 15-year period of location data in a moving window analysis to provide annual estimates of occupied range. Thus, an annual estimate contains location data from that year and the previous 14 years (e.g., 2008–2022 for the reported year 2022). This report is an update of the 2020 occupied range analysis presented in the 2020 IGBST annual report (Bjornlie and Haroldson 2021).

Using this technique, analysis of grizzly bear locations from 1976 through 1990 produced an estimate of GYE grizzly bear occupied range almost entirely contained within the Grizzly Bear Recovery Zone established in the 1993 Grizzly Bear Recovery Plan (USFWS 1993) (Figure 3). By 2000, occupied range had grown slightly to the south and east but was still mostly contained within the Recovery Zone (Figure 3). However, in the 2000s, range expansion gained momentum and larger increases were seen, especially in mountainous terrain to the northwest and southeast of the GYE Recovery Zone (Figure 3). The addition of 2021–2022 location data resulted in inclusion of more eastern portions of the Greybull River falling within grizzly bear occupied range. Overall, there appears to be a stabilizing of grizzly bear occupied range which could be due to the species filling out most of the suitable habitat within the Greater Yellowstone Ecosystem. To provide spatial perspective, the southeastern extent of 2022 occupied range at the tip of the Wind River Range is closer to the towns of Salt Lake City, Utah (294 km), and Fort Collins, Colorado (366 km), than it is to Bozeman, Montana (405 km), at the northern extent of GYE grizzly bear range.

From 1990 through 2022, the area of occupied range has increased steadily at a rate of 3.65% per year from just over 23,000 to a high of 70,468 km^2 in 2020 and an area of 70,101 km^2 in 2022 (Figs. 5 and 6). The stabilization in occupied range from 2020 to 2022 could be an indicator that grizzly bears are now occupying all the ecologically and socially suitable areas in the Greater Yellowstone Ecosystem (Figure 4). Grizzly bear occupied range now includes 97% of the DMA and has expanded 45 kilometers (km) beyond the DMA boundary to the east and west and by as much as 45 km in the Wyoming Range in the southwestern portion of the GYE. The 2022 data show that 31% of GYE grizzly bear range is now outside the DMA boundary (Figure 4). As grizzly bears advance into new areas, they are encountering more human-dominated landscapes, many of which are private lands dominated by agricultural uses. By 1990, just over 600 km^2 of private lands were encompassed within grizzly bear occupied range, an area half the size of Grand Teton National Park. By 2022, 11,402 km^2 of private lands occurred within occupied range, an area nearly 1,200 km^2 larger than Yellowstone and Grand Teton National Parks and the John D. Rockefeller Parkway combined (Figure 5). The expansion into private lands can result in an increased potential for human-bear conflicts.

There were only a few confirmed grizzly bear locations outside occupied range in 2021 and 2022. The location farthest beyond occupied range was a 2020 verified location in the Wyoming Range approximately 33 km north of the town of Kemmerer, Wyoming and over 100 km south of the DMA boundary. This site is the most southerly confirmed location of a grizzly bear in the GYE since well before recovery efforts began. This location adds to other wide-ranging locations of bears from 2018 when grizzly bear tracks were confirmed near Ocean Lake, approximately 25 km northwest of Riverton, Wyoming, and a family group that was captured near the town of Byron, approximately 50 km northeast of Cody, Wyoming.

Verified locations of grizzly bears in places novel in recent history have become relatively common in many areas of the GYE and beyond. Confirmed locations from 2018 and 2022 west of Interstate Highway 15 in the Pioneer Mountains and Big Hole Valley near Wisdom, Montana, and in the Bitterroot Recovery Zone in central Idaho, are located outside the Yellowstone Distinct Population Segment and could be bears originating from either the Greater Yellowstone population or the Northern Continental Divide population in northwestern Montana. These outlying locations do not necessarily constitute occupied range but reveal the leading edges of grizzly bear expansion within and between ecosystems. While the recovery of grizzly bears in the GYE is an important wildlife conservation success story, the recovery and subsequent expansion presents new challenges for wildlife managers and the people living, working, and recreating in these areas, this is particularly of concern in recently occupied areas where bear resistant infrastructure often does not exist.

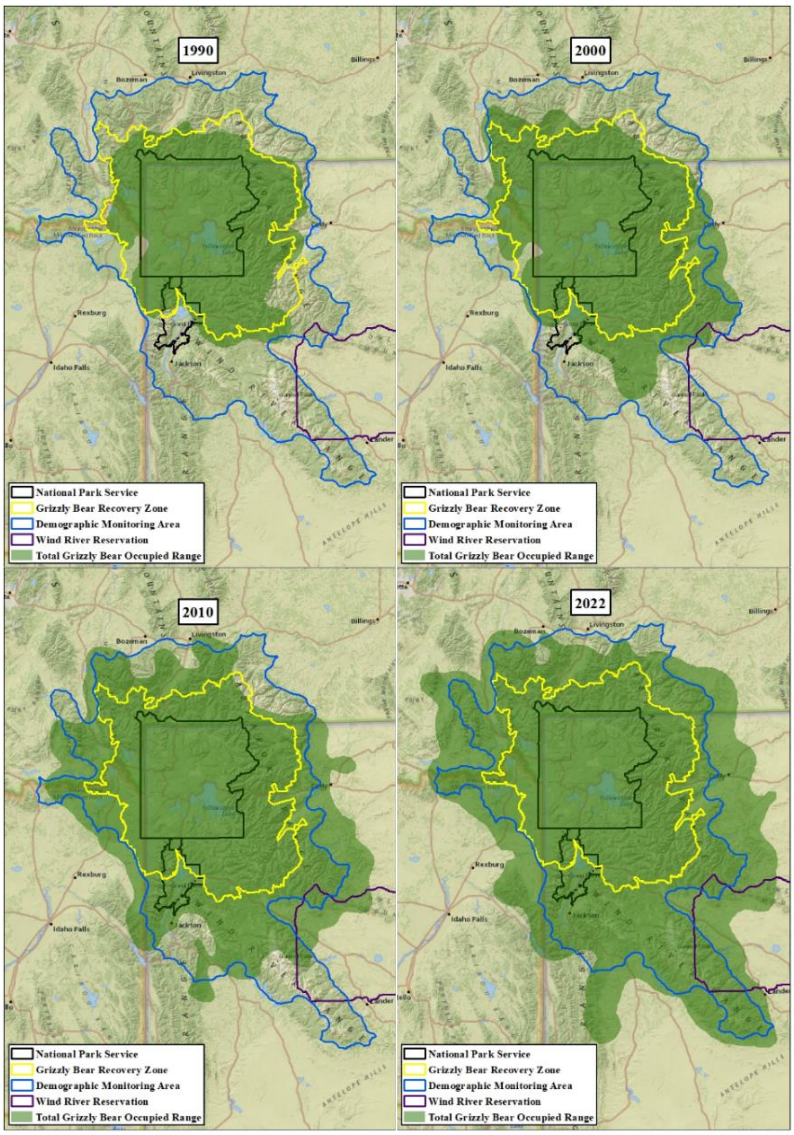

Figure 3. Grizzly bear occupied range (green shaded area) in the Greater Yellowstone Ecosystem based on 15-year data *windows ending in 1990, 2000, 2010, and 2022. Base Map Source: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.*

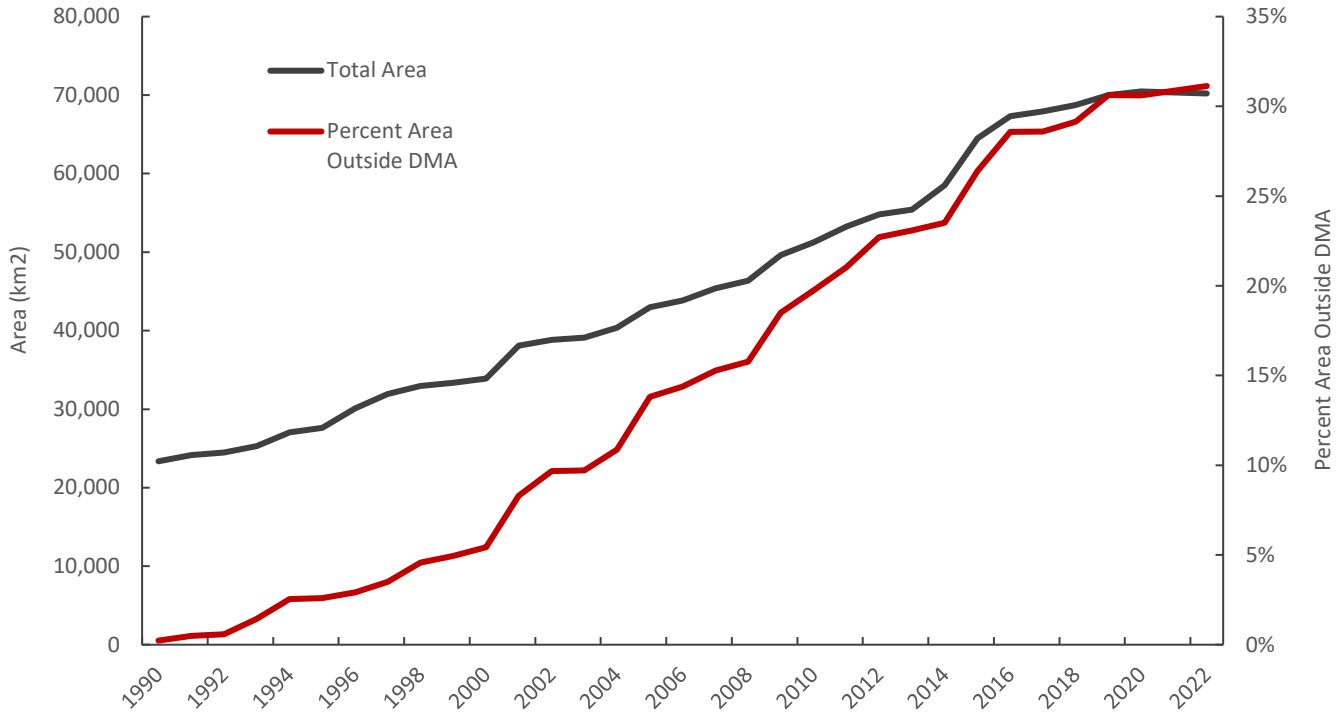

Figure 4. Total area of grizzly bear occupied range and percent of area of occupied range outside the Demographic Monitoring Area (DMA) in the Greater Yellowstone Ecosystem, 1990–2022.

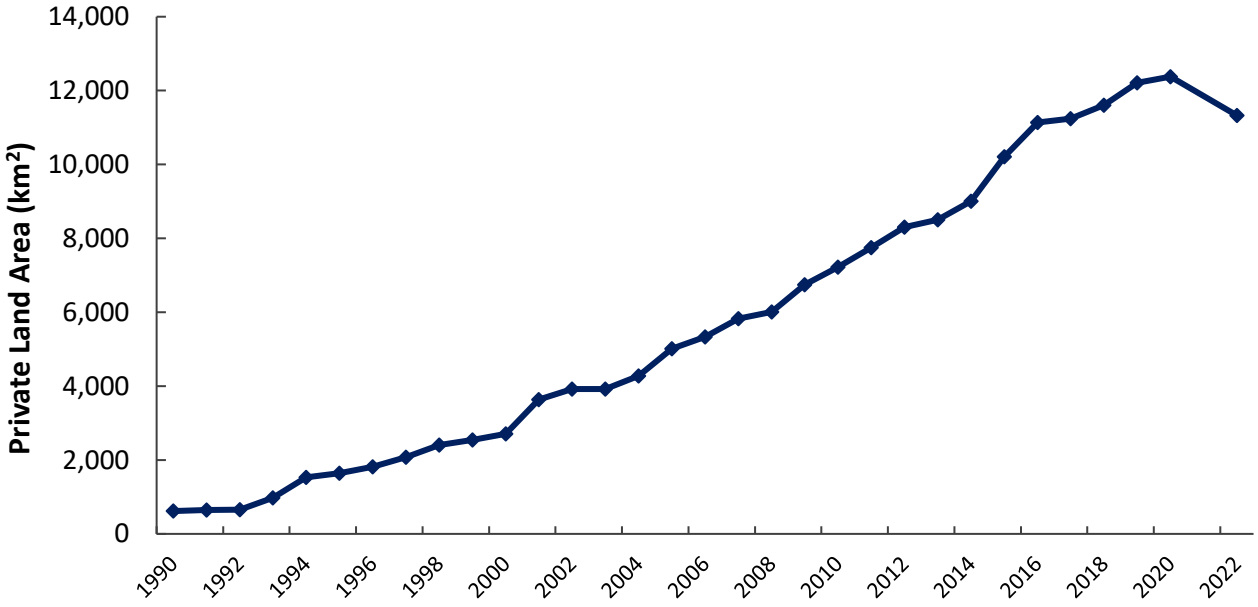

Figure 5. Area of private land within grizzly bear occupied range in the Greater Yellowstone Ecosystem, 1990–2022.

GRIZZLY BEAR CONFLICT MANAGEMENT

Human-grizzly bear interactions and conflicts in Wyoming are typically a result of grizzly bears seeking unnatural foods in association with people and property, close encounters with humans, or when grizzly bears kill livestock. The number and location of human-bear conflicts is influenced by unsecured unnatural attractants (e.g. human foods and garbage), natural food distribution and abundance, grizzly bear numbers and distribution, as well as human and livestock use patterns on the landscape.

The management technique of capturing grizzly bears in areas where they may come into conflict and relocating them to remote locations is a common practice throughout their range. Relocating bears achieves several social and conservation functions: (a) reduces the chance of property damage, livestock damage, or human interactions in areas where the potential for conflict is high; (b) reduces the potential for grizzly bears to become food conditioned and/or human habituated which often results in destructive and/or dangerous behaviors; (c) allows grizzly bears the opportunity to forage on natural foods and remain wary of people; and (d) could prevent removing grizzly bears from the population which may be beneficial in meeting population management objectives.

The Department relocates and removes black and grizzly bears as part of routine management operations. The decision to relocate or remove a bear is made after considering a number of variables including age and sex of the animal, behavioral traits, health status, physical injuries or abnormalities, type of conflict, severity of conflict, known history of the animal, human safety concerns, and population management objectives. Grizzly bears are relocated in accordance with state and federal law, regulation, and policy.

In 2005 the Wyoming Legislature created Wyoming Statute §23-1-1001 as follows:

> (a) Upon relocating a grizzly bear or upon receiving notification that a grizzly bear is being relocated, the department shall provide notification to the county sheriff of the county to which the grizzly bear is relocated within five (5) days of each grizzly bear relocation and shall issue a press release to the media and sheriff in the county where each grizzly bear is relocated;
>
> (b) The notice and press release shall provide the following information:
>
> (i) The date of the grizzly bear relocation;
> (ii) The number of grizzly bears relocated; and
> (iii) The location of the grizzly bear relocation, as provided by commission rule and regulation;
>
> (c) No later than January 15 of each year the department shall submit an annual report to the Joint Travel, Recreation, Wildlife, and Cultural Resources Interim committee. The annual report shall include the total number and relocation area of each grizzly bear relocated during the previous calendar year. The department shall also make available the annual report to the public.

Subsequently, the Commission promulgated Chapter 58 Notification of Grizzly Bear Relocation Regulation to further direct the implementation of W.S. §23-1-1001 as follows:

Section 1. Authority. This regulation is promulgated by authority of W.S. §23-1-1001.

Section 2. Definitions. Definitions shall be as set forth in Title 23, Wyoming Statutes, Commission regulations, and the Commission also adopts the following definitions:

(a) "County Sheriff" means the County Sheriff's Office in the county where a grizzly bear is relocated.

(b) "Location of the grizzly bear relocation" means the proper name of the drainage in which a grizzly bear is relocated and the estimated number of miles from the relocation site to the nearest municipality, topographical feature or geographic location.

(c) "Provide a press release" means the Department shall provide to the County Sheriff and the media in the county in which a grizzly bear is relocated, a press release including the location of the grizzly bear relocation, number of grizzly bears relocated, date of the relocation and the reason the grizzly bear was relocated.

Section 3. Notification of relocation. Upon relocating a grizzly bear or upon receiving notification that a grizzly bear is being relocated, the Department shall notify the County Sheriff of the date, number of grizzly bears relocated, the location of the grizzly bear relocation and the reason of the relocation via direct telephone conversation, written or electronic correspondence, or personal contact within five (5) days of the date of the relocation. The Department shall provide a press release to the County Sheriff and the media in the county where a grizzly bear is relocated of the date, number of grizzly bears relocated, the location of the grizzly bear relocation and the reason of the relocation within five (5) days of the date of relocation of any grizzly bear.

WYOMING GAME AND FISH COMMISSION

By:

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Mike Healy, President

Dated: January 22, 2014

CONFLICT MANAGEMENT – CAPTURE, RELOCATION AND REMOVAL

During 2022, the Department captured 21 individual grizzly bears in an attempt to prevent or resolve conflicts (Table 4, Figure 6). Of the 21 individual captures, 4 were female (3 adults and 1 two-year old) and 17 were male (9 adults, 6 sub-adult, and 2 cubs) grizzly bears.

Of the 21 capture events, 10 captures were a result of bears killing livestock (cattle, sheep, and chickens), and 10 were captures involving bears that obtained food rewards (pet, livestock food, garbage, fruit trees), or were frequenting developed sites or human populated areas unsuitable for grizzly bear occupancy. One bear was captured at a cattle depredation site that was not implicated in the specific conflict (we label these "non-target" captures). Some non-target bears are relocated in order to focus trapping efforts toward the "target" individual, or for human safety, and some are released on site. Of the 21 capture events, 10 (48%) were in Park County, 5 (23%) were in Hot Springs County, 4 (19%) were in Sublette County, and 1 (5%) each were in Fremont County and Teton County (Table 4).

Of the 21 capture events, there were 6 relocation events (Table 4, Figure 7). All relocated grizzly bears were released on U.S. Forest Service lands in or adjacent to the Primary Conservation Area/Recovery Zone. Of the 6 relocation events, 4 were conducted in Park County (66%), 1 (17%) in Teton County, and 1 (17%) in Sublette County (Table 4). The Sublette County relocation, bear 1086 was relocated a short distance from the capture site due to the lack of adequate relocation sites elsewhere.

Grizzly bears are removed from the population due to a history of previous conflicts, a known history of close association with humans, or if they are deemed unsuitable for release into the wild (e.g. orphaned cubs, poor physical condition, or human safety concern). Of the 21 grizzly bears captured, 15 bears were removed from the population. Of these 15, nine (60%) were outside of the Demographic Monitoring Area, which is the area considered suitable for the long term viability of grizzly bears in the GYE. Removal of grizzly bears in Wyoming is dependent upon authorization from the U.S. Fish and Wildlife Service after careful and thorough deliberation taking into account multiple factors unique to each conflict situation.

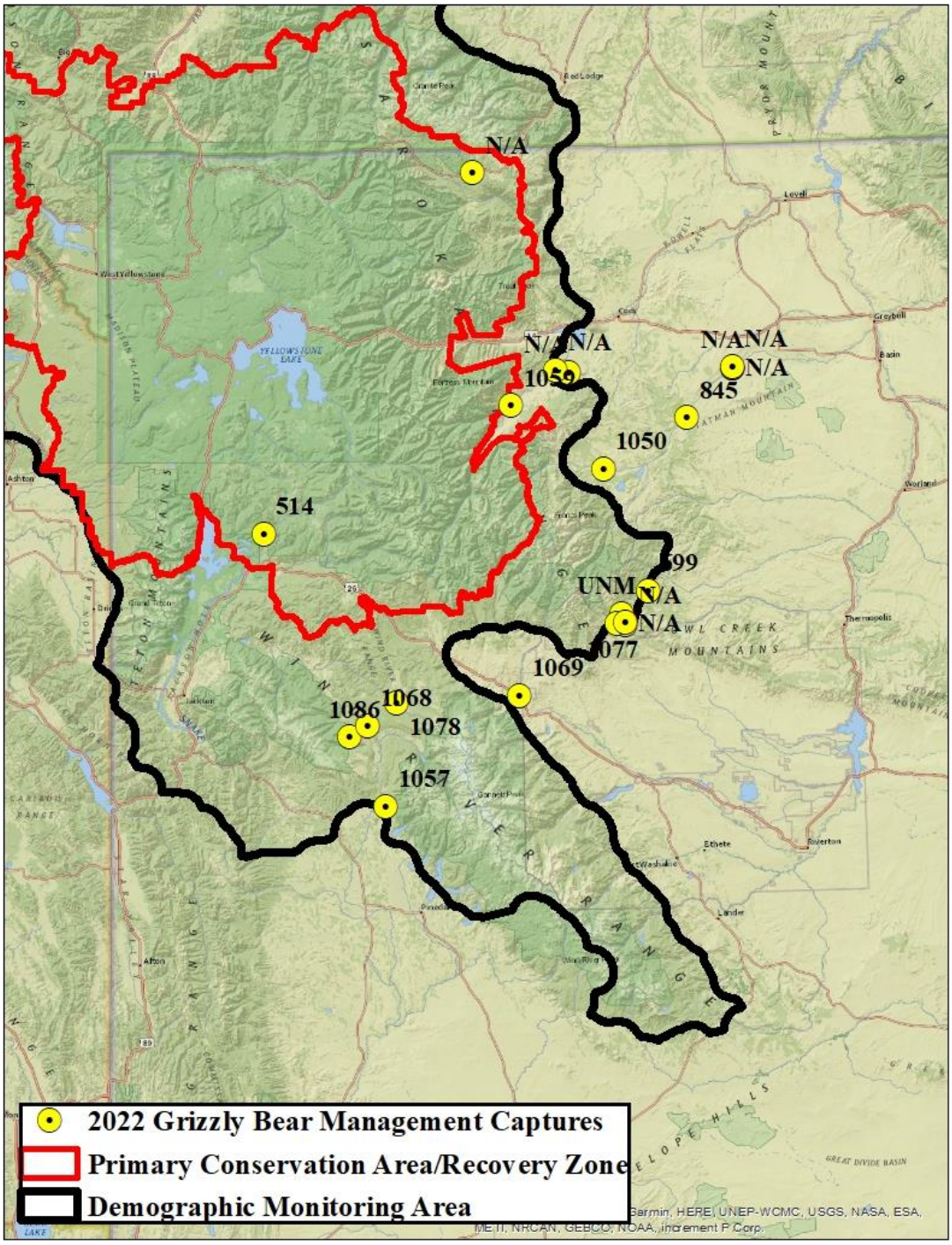


Figure 6. Locations (n = 21) for grizzly bears captured in conflict management efforts in Wyoming portion of the Greater Yellowstone Ecosystem, 2022. Because of the mapping scale, some locations are combined at one symbol. A complete list is provided in Table 4.

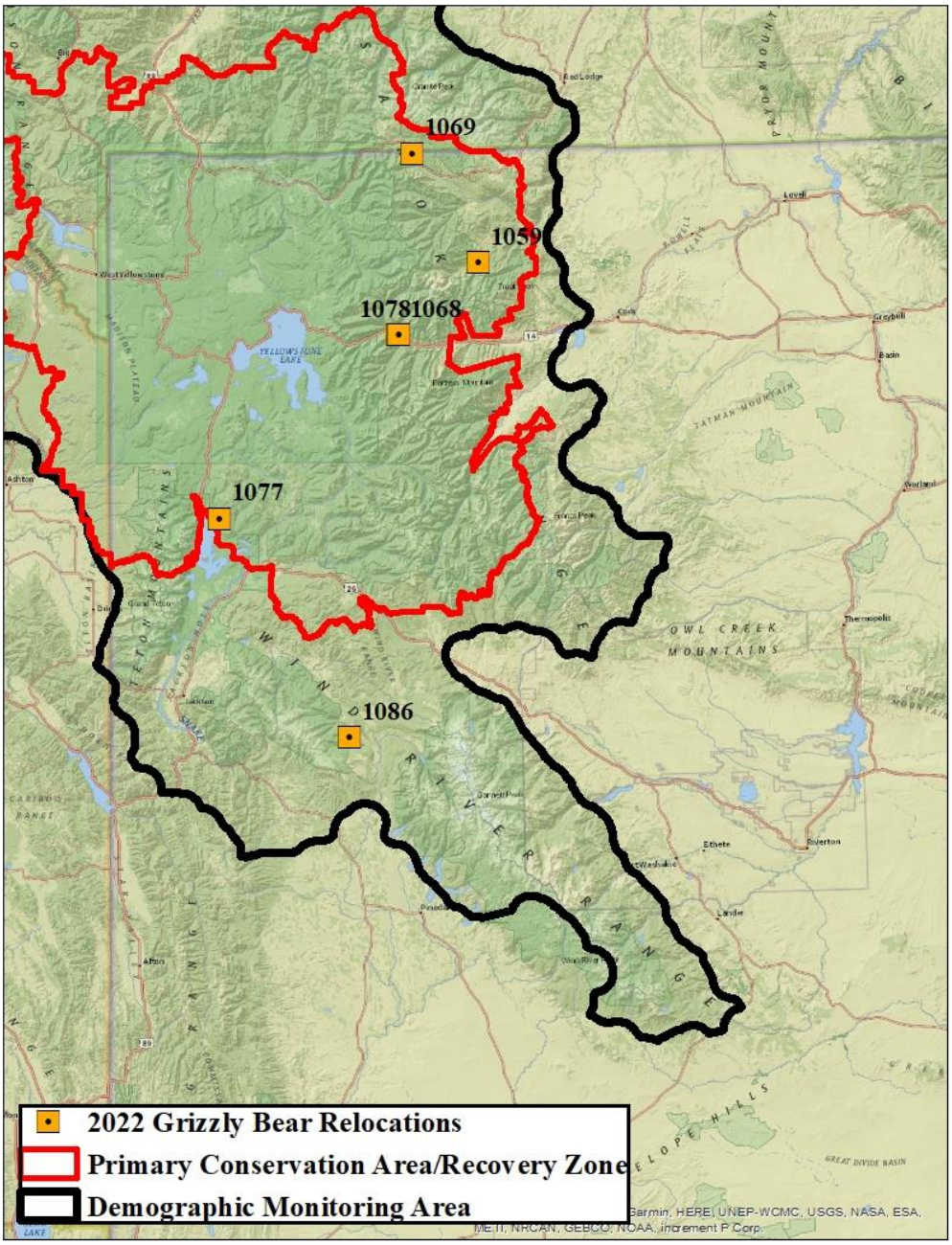


Figure 7. Release locations (n = 6) for grizzly bears captured, relocated, or released on site in conflict management efforts in Wyoming portion of the Greater Yellowstone Ecosystem, 2022. Because of the mapping scale, some locations are combined at one symbol. A complete list is provided in Table 4.

Table 4. Capture date, grizzly bear identification number (ID), capture county, relocation site, release county, and reason for capture for all 2022 grizzly bear conflict management captures (n = 21) in Wyoming. Grizzly bear ID labeled as "N/A" were grizzly bears removed from the population without being given a chronological capture number.

Date	ID	Capture County	Relocation Site	Release County	Reason For Capture
4/25/2022	1050	Park			Captured and removed for cattle depredation
5/4/2022	1059	Park	Gravel Bar Creek	Park	Captured and relocated for cattle depredation
6/21/2022	N/A	Park			Captured and removed for extreme habituation and food conditioned behavior
6/24/2022	N/A	Park			Captured and removed for cattle depredation
7/8/2022	1068	Sublette	Five Mile Creek	Park	Captured and relocated for cattle depredation
7/12/2022	1057	Sublette			Captured and removed for exhibiting very bold behavior, frequenting residential areas, actively gaining access too/seeking human foods, food conditioned behavior. These behaviors began in 2021 while still a dependent cub, removed due to human safety concerns
7/13/2022	N/A	Hot Springs			Captured and removed for sheep depredation
7/16/2022	1069	Fremont	Fox Creek	Park	Captured and relocated for obtaining unsecured garbage and pig slop
7/27/2022	N/A	Hot Springs			Captured and removed for sheep depredation
7/31/2022	1077	Hot Springs	Bailey Creek	Teton	Captured and relocated for sheep depredation

Date	ID	Capture County	Relocation Site	Release County	Reason For Capture
8/1/2022	1078	Sublette	Five Mile Creek	Park	Captured and relocated for cattle depredation
8/12/2022	N/A	Hot Springs			Captured and removed for sheep depredation
8/30/2022	699	Hot Springs			Captured and removed for cattle depredation
9/10/2022	514	Teton			Captured and removed for obtaining horse grain and dog food, failed prior relocation attempt from same location
9/2/2022	1086	Sublette	Teepee Creek	Sublette	Captured for cattle depredation, fit with GPS collar and released near site due to limited relocation options
9/27/2022	G190	Park			Captured and removed with two offspring for frequenting corn and bean field, human safety concerns
9/27/2022	N/A	Park			Captured and removed with maternal female and sibling for frequenting corn and bean field, human safety concerns
9/27/2022	N/A	Park			Captured and removed with maternal female and sibling for frequenting corn and bean field, human safety concerns
10/5/2022	N/A	Park			Captured and removed for breaking into multiple chicken coops and obtaining food rewards
10/8/2022	N/A	Park			Captured and removed for frequenting agricultural areas and crop damage
12/5/2022	845	Park			Captured and removed for repeated crop damage, beehive damage, frequenting agricultural areas and prior failed relocation attempt

CONFLICT MANAGEMENT – CONFLICT VERIFICATION AND REPORTING

WGFD personnel investigated and recorded 206 human-grizzly bear conflicts in 2022 (Table 5, Figure 8). As a result of vigilant education and conflict prevention efforts, the pattern of conflicts remained similar to the number of conflicts reported during previous years (Figure 8). However, as occupied grizzly bear range has expanded, conflicts are documented farther from the Recovery Zone, outside the DMA, and often on private lands. Grizzly bears are increasingly coming into conflict with people in areas where they have not been present in recent history.

Although the joint efforts of the WGFD, U.S. Forest Service, non-governmental organizations, and the public, have resulted in reducing conflicts through education and attractant storage, the distribution of grizzly bear conflicts in Wyoming continues to expand with the population. Bears frequent lower elevations and developed areas regularly during the non-denning period. Grizzly bear-cattle depredation was the most frequent type of conflict documented in 2022. The annual variation in livestock depredation incidents is not easily explained. Although most human-bear conflicts are correlated with natural food abundance, the numbers of cattle and sheep killed annually do not follow the same pattern. As grizzly bears expand farther into human-dominated landscapes outside the DMA, the potential for conflict between bears and humans increases, resulting in negative outcomes for both grizzly bears and people. The WGFD continues to explore and use a variety of options to reduce grizzly bear-livestock conflicts while expanding our education and outreach efforts (see Bear Wise Wyoming Report, page 30).

Nearly half of the grizzly bear conflicts in Wyoming occurred on private lands (Figure 9) and the majority were outside of Recovery Zone. The increasing distribution of grizzly bears is reflected in the annual documentation of conflicts farther from suitable habitat and continued expansion outside the DMA. As bears expand and occupy habitats commonly used by humans, there is a greater potential for conflicts to occur. Education and conflict-prevention efforts are used anywhere bears and people coexist, and management actions will be a function of human values and effects on the grizzly bear population in those areas.

Grizzly bears in human-dominated agricultural lands such as this cornfield are a result of increased distribution outside suitable habitats in the Greater Yellowstone Ecosystem

Table 5. Type and number of human-grizzly bear conflicts in Wyoming portion of the Greater Yellowstone Ecosystem, 2022.		
Conflict Type	**Number**	**Approx. Percent (%)**
Cattle	128	62
Other (Crop damage and habituated or aggressive behavior)	15	7
Garbage	12	6
Aggression toward humans	11	5
Pet-livestock-birdfeed	10	4
Sheep	8	4
Animal death	6	3
Property damage	4	2
Poultry	3	1.5
Human injury	2	1
Beehive	2	1
Properly stored game	1	<1
Fruit trees	1	<1
Unsecured attractant	1	<1
Animal injury	1	<1
Pet/guard animal	1	<1
Grand total	**206**	**100**

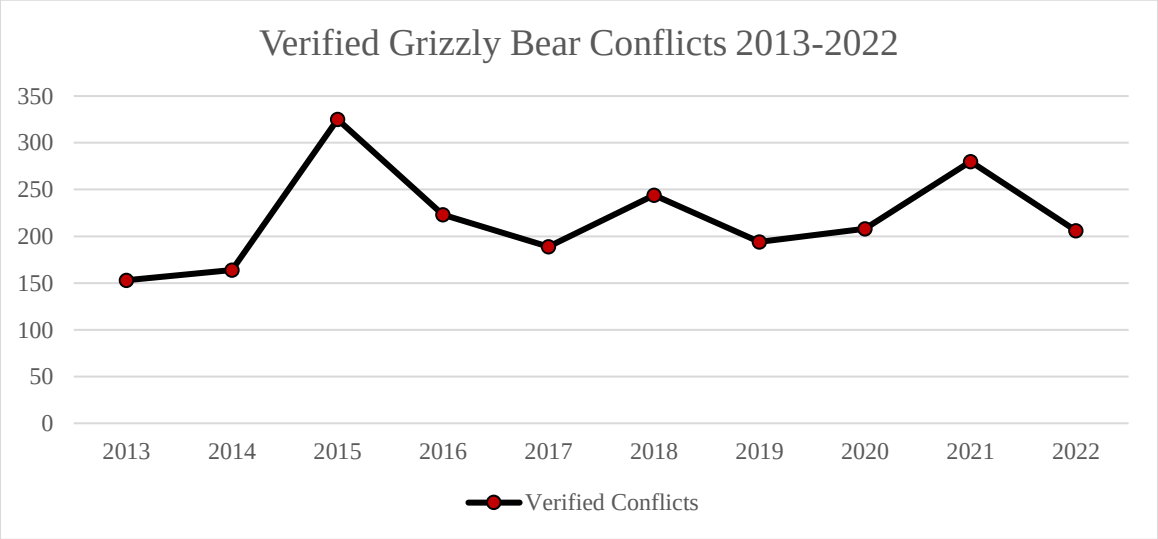


Figure 8. Number of human-grizzly bear conflicts and associated trendline in Wyoming portion of the Greater Yellowstone Ecosystem, 2013–2022.

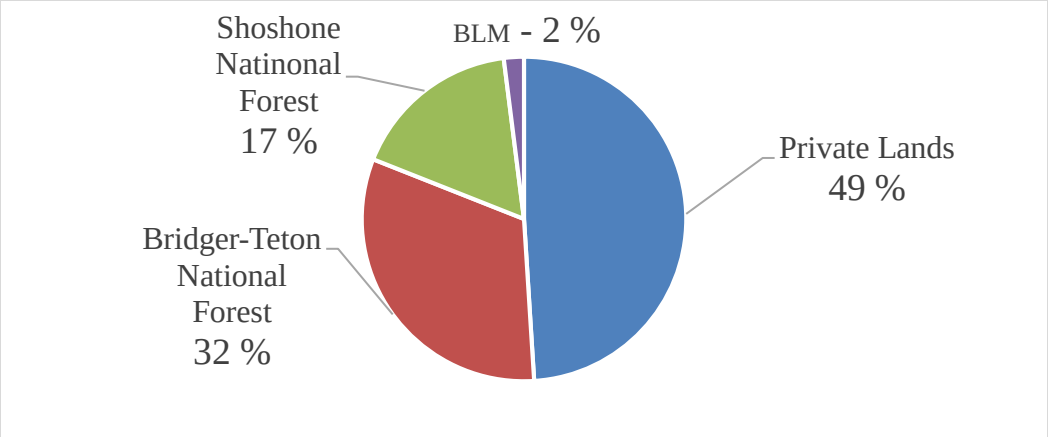


Figure 9. Percent of human-grizzly bear conflicts broken down by jurisdiction in the Wyoming portion of the Greater Yellowstone Ecosystem, 2022.

Long-term trends in the number of conflicts are likely a result of grizzly bears increasing in numbers and distribution and expanding into areas used by humans, including livestock production, on public and private lands. There is also growing potential for roadside bear problems. Some people engage in unethical wildlife viewing practices, often resulting in habituated or food-conditioned grizzly bears. These situations will continue to spark difficult challenges for bear managers in the future. As the GYE grizzly bear population has exceeded its biological carrying capacity, it continues to grow and expand into less suitable habitat. Therefore, bears are more likely to encounter food sources such as garbage, pet food, livestock and livestock feed, and myriad other attractants, resulting in increased property damage and threats to human safety. Conflict prevention measures such as attractant storage, deterrence, and education are a priority for WGFD. Nevertheless, conflict management is often reactive. Even with the most stringent food and attractant control, the increasing and expanding grizzly bear numbers will lead to conflicts between bears and people. In areas where females are teaching their young to subsist near humans and human activities, there will be young bears venturing out to find food in human-dominated landscapes. This fact emphasizes the recognition that habituated bears outside of suitable habitats do not contribute to the recovered population and may need relocated or euthanized. In general, there is less social tolerance and biological suitability for bear occupancy in areas farther from the Recovery Zone due to development, land use patterns, and various forms of recreation. Although prevention is the preferred option to reduce conflicts, each situation is managed on a case-by-case basis with education, securing of attractants, relocation or removal of individual bears, or a combination of methods to address conflict resolution and the conservation of grizzly bears.

2022 Bear Wise Wyoming Project Update

Introduction

The Bear Wise Community Program is a proactive initiative that seeks to minimize human-bear (black and grizzly) conflicts, minimize management-related bear mortalities associated with preventable conflicts, and to safeguard human communities in northwest Wyoming. The overall objective of Bear Wise is to promote individual and community ownership of ever-increasing human-bear conflict issues, moving toward creating a social conscience regarding responsible attractant management and behavior in bear habitat. This project seeks to raise awareness and proactively influence local waste management infrastructures with the specific intent of preventing conflicts from recurring. Strategies used to meet the campaign's objectives are: 1) minimize accessibility of unnatural attractants to bears in developed areas; 2) employ a public outreach and education campaign to reduce knowledge gaps about bears and the causes of conflicts; and 3) employ a bear resistant waste management system and promote bear-resistant waste management infrastructure.

This report provides a summary of program accomplishments in 2022. Past accomplishments are reported in the 2006 - 2021 annual reports of the Interagency Grizzly Bear Study Team (IGBST) and in the 2011-2021 Annual Job Completion Reports of the Wyoming Game and Fish Department (WGFD).

Background

In 2004, a subcommittee of the IGBST conducted an analysis of causes and spatial distribution of grizzly bear mortalities and conflicts in the Greater Yellowstone Area (GYA) for the period of 1994–2003. The analysis identified that the majority of known, human-caused grizzly bear mortalities occurred due to agency management actions in response to conflicts (34%), self-defense killings, primarily by big game hunters (20%), and vandal killings (11%). The report made 33 recommendations to reduce human-grizzly bear conflicts and mortalities with focus on 3 actions that could be positively influenced by agency resources and personnel: 1) reduce conflicts at developed sites; 2) reduce self-defense killings; and 3) reduce vandal killings (Servheen et al. 2004).

To address action number 1, the committee recommended that a demonstration area be established to focus proactive, innovative, and enhanced management strategies where developed site conflicts and agency management actions resulting in relocation or removal of grizzly bears had historically been high. Spatial examination of conflicts identified the Wapiti area in northwest Wyoming as having one of the highest concentrations of black bear and grizzly bear conflicts in the GYA. The North Fork of the Shoshone River west of Cody was then chosen as the first area composed primarily of private land to have a multi-agency/public approach to reducing conflicts at developed sites.

In 2005, the Department began implementation of the Bear Wise Community Program. Although the program's efforts were focused primarily in the Wapiti area, the Department initiated a smaller scale project in Teton County to address the increasing number of black and grizzly bear

conflicts in the Jackson, Wyoming area. For the last 16 years, the Bear Wise Community Programs in Northwest Wyoming have deployed a multi-faceted education and outreach campaign in an effort to minimize human-bear conflicts and promote proper attractant management. Although a wide array of challenges remain and vary between communities, many accomplishments have been made and progress is expected to continue as Bear Wise efforts gain momentum. In an effort to broaden the scope of the program, this work was rebranded as the Bear Wise Wyoming Program.

Cody Area Update

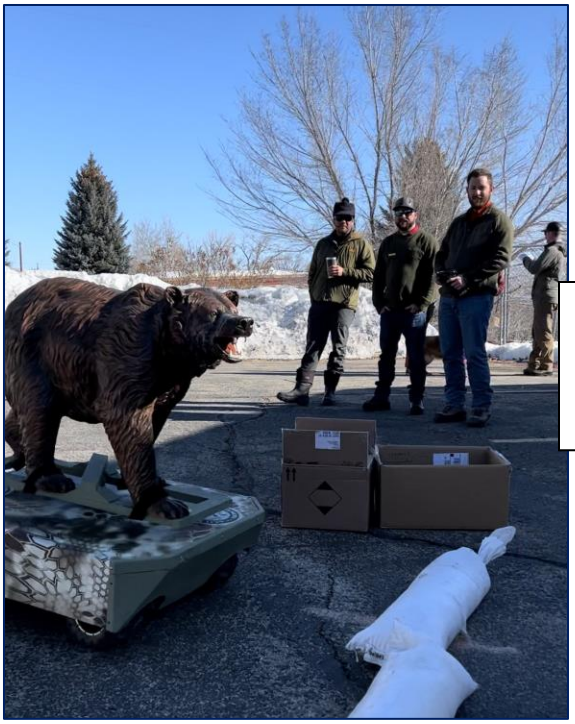
The Cody Bear Wise Community Program continues to utilize radio, television and print media, mass mailings, and the use of signing on private and public land to convey the educational messages surrounding human-bear conflict prevention. Conflict prevention information is also disseminated through public workshops and presentations and by contact with local community groups, governments, the public school system, and various youth organizations. To compliment educational initiatives, the program uses an extensive outreach campaign that assists the community in obtaining and utilizing bear-resistant products and implementing other practical methods of attractant management. Ongoing efforts and new accomplishments for 2022 are as follows:

- The Carcass Management Program continues to provide a domestic livestock carcass removal service for livestock producers located in occupied grizzly bear habitat within Park County, Wyoming. The program has been traditionally funded by the Park County Predator Management District and Wyoming Animal Damage Management Board. In addition to those donors, the program received contributions from Bureau of Land Management, National Fish and Wildlife Foundation. The program provides livestock producers and owners with an alternative to the use of on-site carcass dumps, which are a significant bear attractant and indirectly contribute to numerous human-bear conflicts. Since June 2008, 1,700 domestic livestock carcasses have been removed from private lands.

- Large Carnivore Section personnel maintained and built 15 permanent electric fences. The fences are around bee apiaries that have been in the same place long term. These projects were completed in cooperation with USDA wildlife service non-lethal specialist and funding to do livestock conflict prevention.

- Numerous informational presentations were given that focused on human-bear conflict prevention to students at the following schools: Powell High , Cody high, middle, and elementary, Basin Library, Worland elementary school, Meeteetse School District, Burlington Middle , and Northwest College in Powell, WY.

- 400 canisters of bear spray were purchased with funding from the Western Bear Foundation, and Safari Club International. The cans of bear spray were given free of charge to hunter and anglers in late August. Giveaways were held in Cody, Jackson, Lander and Pinedale.

. 

The new remote control charging bear was a big hit at bear spray giveaways and other educational events throughout Wyoming.

- A "Working in Large Carnivore Country" workshop was conducted for the Park County Weed and Pest District, Park County Search and Rescue, and Rocky Mountain Power.

- A permanent electric fence was erected in 2018 at the Park County Landfill. To ensure the fence is in good working order WGFD personnel spent several days repairing and maintaining the fence in 2022. The partnerships with Wyoming Outdoorsmen, BLM, Park County Commissioners, Western Bear Foundation, and Greater Yellowstone Coalition were vital in making this project a reality.

- Regional Hunter Education classes, and numerous other public outreach events were held in Cody, Powell, Meeteetse, Thermopolis, Wapiti, and Burgess Junction, Newton Lakes, Basin, and Sunlight.

Lander Area Update

- Participated in an annual Bear Spray Giveaway program, giving away 100 cans of bear spray and interacting with hunters, anglers, hikers, recreationists and people with general interest of grizzly bear ecology and management

- LCS personnel provided numerous educational workshops including the Lander school system, Lander Child Development Services, a Game and Fish sponsored open house at the Lander Regional office, and *Wildlife on Tap* at the Coalter Loft in downtown Lander, WY.

- Participated in Hunter Education classes that emphasize hunting safely in bear country.

- Conducted safety training for Fremont County Weed and Pest, National Audubon Society, Wyoming Catholic College and seasonal Wyoming Game and Fish Employees.

- Conducted multiple radio and television interviews regarding bear safety and being Bear Wise in Wyoming that was timed in accordance with den emergence, spring/summer human use activities and hunting seasons. Section personnel also developed an educational video for how to properly deploy electric fences to secure attractants.

- Provided comment and information for numerous news releases for local, statewide, national and international media outlets.

Pinedale Area Update

In 2011, a Bear Wise Community effort was initiated targeting residential areas north of Pinedale, Wyoming where the occurrence of human-bear conflict has increased in recent years. Accomplishments for the Pinedale area in 2022 are as follows:

- Hunting in Bear Country presentations were given to hunter safety classes throughout the region in an effort to educate future sportsmen and women and increase safety potential.

- LCS personnel provided range rider safety training to local cowboys and ranches that have a high potential of encounters with grizzly bears and livestock.

- Bear safety presentations were given to the U.S. Forest Service, and other groups throughout Sublette County.

- LCS personnel provided training for local Sublette County Conservation District employees.

- LCS personnel expanded the bear spray giveaway to Pinedale for the first year and gave out 100 cans of bear spray.

Objectives for 2023 include continued expansion of the program into the other areas of the state where human-bear conflicts continue to be a chronic issue and the continuation of current educational and outreach efforts in the Cody area with specific focus on areas that have not adopted proper attractant management methods.

The Wapiti and Pinedale area Bear Wise Community programs face the ongoing challenges of: 1) the absence of ordinances, regulations, or laws prohibiting the feeding of bears; 2) limited educational opportunities and contact with portions of the community due to a large number of summer-only residents and the lack of organized community groups and; 3) decreased public tolerance for grizzly bears due to record numbers of human-bear conflicts and continued federal legal protection. The future success of the Bear Wise program lies in continued community interest and individual participation in proper attractant management.

Jackson Area Update

The Bear Wise Jackson Hole program continues educational and outreach initiatives in an effort to minimize human-bear conflicts within the community of Jackson and surrounding areas. In 2022, the program's public outreach and educational efforts included the use of signage, public workshops and presentations, distribution of informational pamphlets, promoting awareness about bear spray, carcass and fruit tree management, and utilizing our bear education trailer.

- Public service announcements were broadcast on local radio stations in Jackson throughout the spring, summer, and fall of 2022. The announcements focused on bear safety,conflict avoidance and advertising for a Large Carnivore workshop conducted in Jackson.

- Numerous educational talks were presented to various groups including homeowner's associations, guest ranches, youth camps, Jackson residents, tourists, school groups, Heart Six Ranch, Jackson Gun Club and local Government employees.

- Educational workshops focusing on bear ecology and situational awareness were presented to the Fire in the Mountains music festival in the Buffalo Valley on private lands within Heart Six Ranch. Several hundred festival attendees participated and provided feedback as to stewardship and public ownership in wildlife conservation.

- A considerable amount of time was spent removing ungulate and livestock carcasses from residential areas and ranches in the Jackson Region.

- LCS personnel continued to work with a Jackson catering company, Roots Kitchen & Cannery. They have been involved in picking apples from trees that have been identified as a source of bear conflict by WGFD.

- LCS personnel assisted hunting outfitters and with the installation and maintenance of electric fence systems around their field camps located in the Bridger-Teton National Forest. Annually personnel meet with hunters and outfitters to reduce to conflict potential between humans and grizzly bears.

- LCS personnel worked extensively with the apiarists in Teton County to electrify bee yards and chicken coops to secure the potential attractants.

- Signage detailing information on hunting safely in bear country, bear identification, recent bear activity, and proper attractant storage were placed at USFS trailheads and in private residential areas throughout Teton County, including extensive work on Togwotee Pass to deal with habituated roadside grizzly bears.

Objectives for the Bear Wise Jackson Hole program in 2022 were focused on supporting Teton County and local waste management companies with projects that will help disseminate information and achieve compliance with the recently adopted Teton County Bear Conflict Mitigation and Prevention Land Development Regulations . In addition, more work will be done to identify areas within the city limits of Jackson and Star Valley communities where better attractant management and sanitation infrastructure is needed.

The recent implementation of the Teton County Bear Conflict Mitigation and Prevention LDR has greatly reduced the amount of available attractants on the landscape and is a tremendous step forward for the Bear Wise Jackson Hole program. The new challenges faced by the Department will be achieving full compliance with this regulation, even in years with low conflict when it may appear that the conflict issues are resolved. The Bear Wise Jackson Hole Program will convey the importance of compliance and strive to maintain public support for the LDR through public outreach and education projects. In order for the Jackson program to be successful, the program must continually identify information and education needs within the community while being adaptive to changing situations across different geographic areas. This will require the Department to coordinate with other government agencies and local non-government organizations working across multiple jurisdictions to develop a uniform and consistent message. If this level of coordination is achieved, the Department will be more effective in gaining support and building enthusiasm for Bear Wise Jackson Hole, directing resources to priority areas, and reaching all demographics.

An unfortunate recurring example of people selfishly crowding a roadside grizzly bear to obtain photos and/or video.

Information and Education

2022 Accomplishments

- Electronic and Print Media

    - As per Wyoming Statute, grizzly bear relocation from one county to another must be announced through local media and to the local sheriff of the county into which the bear was relocated (n = 6 for 2022). Each announcement is posted in a timely fashion to the web page.

    - Personnel issued multiple educational news releases throughout the season informing readers and listeners of bear safety, behavior, conflict avoidance, food storage and natural food availability.

- Grizzly Bear Management Web Page

    - The grizzly bear management web page continues to be maintained and updated on a regular basis in order to provide timely information to the public regarding grizzly bear management activities conducted by the department. The web page contents include various interagency annual reports and updates and links to other grizzly bear recovery web sites.

- Hunter Education

    - Every hunter education class in Wyoming is required to discuss how to hunt safely in bear country. To assist instructors, most have been provided inert bear spray canisters for demonstration purposes and DVD's entitled Staying Safe in Bear Country, A Behavioral Based Approach to Reducing Risk. A section on bear safety is included in the student manual. Approximately 5,000 students are certified each year.

- Bear Spray Giveaway

    - We expanded the effort into Pinedale and had a successful first year bear spray giveaway and training recipients on how to use it. Public participation continues in our community events where bear spray giveaways occur and also give our personnel an excellent opportunity to talk with the public about bear ecology and safety and other wildlife issues throughout Wyoming.

Publications

The primary link to other publications, annual reports, and peer reviewed literature for the Yellowstone population of grizzly bears is summarized on the United States Geological Service web site at http://www.nrmsc.usgs.gov/products/IGBST.

For information specific to the Wyoming Game and Fish Department's grizzly bear management program; including links to publications, reports, updates, and plan visit: https://wgfd.wyo.gov/web2011/wildlife-1000674.aspx

EXPENDITURES FOR GRIZZLY BEAR MANAGEMENT BY THE DEPARTMENT – FISCAL YEAR 2023

The Department's 2023 fiscal year (FY) occurred from July 1, 2022 – June 30, 2023. During the course of FY 22, the Department conducted annual population monitoring, responsive conflict management, Bear Wise Wyoming programs, and other statutory and regulatory obligations in regards to damage compensation and law enforcement for grizzly bears. During FY 23, the Department directed $1,885,293 of funds toward grizzly bear conservation and management. Program expenditures are reported by primary work activities conducted during FY 23. The figures reported below do not represent all Department expenses incurred during this FY:

- Conflict Prevention: $490,306.45*
- Annual Monitoring (Population and Habitat Evaluations): $599,182.82
- Additional Information and Education including Bear Wise Wyoming: $79,531.00*
- Season Setting and Regulations: $6,229.49
- Law Enforcement and Investigations: $104,952.13
- Management Planning and Reporting: $1,483.61
- Damage Compensation for Verified Loss: $533,453.27

**Proactive Bear Wise Wyoming activities are represented both in "conflict prevention" and "additional information and education" categories.*

In addition to the direct expenditures, a total of $2,595,293 was allocated to grizzly bear management during FY 23 through shared expenditures and overlapping activities including overhead that involve grizzly bears, other Wyoming wildlife, and Departmental responsibilities.

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