# *NORTHERN CONTINENTAL DIVIDE ECOSYSTEM*

# *GRIZZLY BEAR POPULATION MONITORING*

# *ANNUAL REPORT – 2017*

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**U.S. Fish and Wildlife Service**

**U.S. Forest Service**

**Blackfeet Tribe**

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**This annual report summarizes data collection efforts to date. It is not a peer-reviewed document, and data summaries and interpretations are subject to change.**

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**This Annual Report is available on the web at:**
http://fwp.mt.gov/fishAndWildlife/management/grizzlyBear/monitoring.html

***ABSTRACT***

A program to monitor the population trend of grizzly bears in the Northern Continental Divide Ecosystem (NCDE) of Montana was initiated in 2004. The goal of this program is to estimate population trend by monitoring the survival and reproductive rates of radio-marked female grizzly bears. During 2017, we captured 20 grizzly bears (10F, 10M) for trend monitoring. An additional 33 bears (12F, 21M) were captured for management or other purposes. Including bears captured in previous years, we monitored 76 bears (39F, 37M) with radio-telemetry. We documented the deaths of 6 radio-marked bears (0F, 6M) among the radio-monitored sample. Reproductive status was documented for 32 radio-marked adult females. Survival of accompanying dependent offspring (<2 years old) was monitored for 13 of these adult females. We documented 1 mortality among 9 cub litters. We documented 7 known or presumed mortalities among 4 yearling litters. Within the NCDE, 29 known or probable mortalities of grizzly bears were documented (including unmarked bears). This included 2 independent (≥2 years old) females and 17 independent males that died within the Demographic Monitoring Area (DMA). Based on data from these mortalities, we estimated total reported and unreported mortalities for independent grizzly bears within the DMA to be 39 bears (3F, 36M). During 2017, we verified presence of reproductive females within 18 of 23 BMUs inside the Primary Conservation Area (78%) and within 6 of 7 supplementary BMUs in Zone 1 (86%). During the 6-year period of 2012–2017, all BMUs within the DMA were occupied by females with offspring during at least one year.

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## *I. INTRODUCTION AND STATEMENT OF NEED*

The grizzly bear *(Ursus arctos horribilis*) occupies over 8 million wilderness and non-wilderness acres in the Northern Continental Divide Ecosystem (NCDE) of western Montana. Notable regions within this ecosystem include Glacier National Park and the Bob Marshall wilderness complex. Grizzlies were listed as Threatened under the Endangered Species Act in 1975 for lack of information on its population status and habitat requirements. The NCDE has the largest population of grizzly bears in the lower 48 states; population size during 2004 was estimated to be 765 bears (Kendall et al. 2009).

Managers and the public agree that information on both population size and trend is needed. Having these estimates will greatly improve our collective knowledge of grizzly bear ecology, and provide more measurable and precise information with which to judge the status of the grizzly population in the NCDE. Therefore, in 2004 Montana Fish, Wildlife & Parks (MTFWP), in cooperation with other state, federal, and tribal agencies, established a team to monitor the population trend of grizzly bears in the NCDE. The purpose of this long-term program is to monitor grizzly bear survival rates, reproductive rates, and population trend primarily by radio-monitoring female grizzly bears and their young.

## *II. PROGRAM OBJECTIVES*

The primary objective of this program is to monitor the population trend of grizzly bears in the NCDE using known-fate estimators of survival, and documentation of reproductive rates. This is accomplished by following the survival and reproductive rates of female grizzly bears throughout the ecosystem. Estimates of population vital rates will be required for recovery

programs in this area. The ultimate responsibility of the monitoring team is to collect life history data on grizzly bears in western Montana and summarize findings in a comprehensive annual report. Major population monitoring categories will initially include:

1. population trend,
2. grizzly bear survival rates,
3. grizzly bear reproductive rates,
4. grizzly bear movements and habitat selection,
5. grizzly bear distribution in western Montana,
6. mortality levels in the NCDE, and
7. levels of unreported mortality.

## *III. GEOGRAPHIC SCOPE OF THE MONITORING PROGRAM*

Our trend monitoring program is focused within the Demographic Monitoring Area (DMA), which encompasses the 23,119 $km^2$ Primary Conservation Area (PCA: equivalent to the Federal Recovery Zone) and the 19,460 $km^2$ Zone 1, which roughly correlates to a 10-mile buffer surrounding the PCA (USFWS 2013; Fig. 1). The DMA includes Glacier National Park, parts of five National Forests (Flathead, Helena, Kootenai, Lewis and Clark, and Lolo); parts of the Blackfeet and Confederated Salish and Kootenai Reservations; Bureau of Land Management lands; state lands, and private lands. The NCDE grizzly bear population is also contiguous with those in the Canadian provinces of British Columbia and Alberta, therefore some captures and monitoring occurred north of the United States in Canada. Within the DMA, we designated 9

subunits for localized analyses, based on distinct land ownerships and grizzly bear population management authorities.

Although our focus for trend monitoring is the DMA, we also document mortalities and other observations outside of the DMA. Notable areas include: Zone 2, an area of potential connectivity between the NCDE and the Greater Yellowstone Ecosystem (GYE), and Zone 3, an area sometimes occupied by grizzly bears but considered unsuitable habitat to support grizzly bear population growth (USFWS 2013).


**Fig. 1. The Demographic Monitoring Area (DMA; red line), where our grizzly bear population monitoring is conducted, consists of the Primary Conservation Area (PCA; blue) and Zone 1 (green). The DMA is divided into subunits (gray lines) for localized population analyses. Zone 2 (pink) is the area of potential genetic connectivity between the NCDE and the Greater Yellowstone Ecosystem. Zone 3 (orange) consists of largely unsuitable habitat that may be irregularly occupied by grizzly bears.**

## *V. METHODS & RESULTS*

### *Grizzly Bear Captures*

### *Methods*

Each year, we capture grizzly bears using leg-hold snares and culvert traps, by helicopter darting, and in some instances, ground darting. We follow the handling and immobilization procedures found in the Montana Animal Care and Use Committee protocols for grizzly bears and black bears (Montana Fish, Wildlife and Parks 2004). We tag all bears subcutaneously with passive transponder tags and pull a pre-molar tooth for age determination (Stoneberg and Jonkel 1966). Most females and a sample of males are radio-marked using a variety of transmitters, including: standard very high frequency (VHF) neck-mounted collars (Telonics, Inc., Mesa, AZ); VHF ear-tag transmitters (Advanced Telemetry Systems, Inc., Isanti, MN); standard global positioning system (GPS) collars (TGW-4500; Telonics, Inc.); GPS-Argos collars (Models TGW-3580 and TGW-3583; Telonics, Inc.); spread-spectrum collars (TGW-3690; Telonics, Inc.), and GPS-Iridium collars (TGW-4570-3; Telonics, Inc.). We capture research bears throughout the study area. We attempt to distribute our sample of research females in proportion to relative grizzly bear density, based on the distribution of female bears detected at DNA hair traps in 2004 (Kendall et al. 2009). Grizzly bears are also captured and radio-marked for management purposes. Individual bears are classified as either research bears or management bears using the terminology of Mace et al. (2012).

### *Results*

In 2017, we captured 53 individuals during 66 capture occasions (13 recaptures). The team captured 20 individuals for trend monitoring purposes (Table 1), including 10 females and

10 males. All 10 females and 2 of the males were fitted with radio-transmitters. In addition to research captures, bears were also captured in association with management actions, although some were non-target individuals. These captures included 12 females and 21 males. Eleven females and 12 males were fitted with radio-transmitters.

**Table 1. Number of individual grizzly bears captured and fitted with radio-transmitters in the NCDE, 2017.**

| | Captured | | | | Radio-marked | | |
|---|---|---|---|---|---|---|---|
| Type | Female | Male | Unknown | Total | Female | Male | Total |
| Research | 10 | 10 | 0 | 20 | 10 | 2 | 12 |
| Management | 12 | 21 | 0 | 33 | 11 | 12 | 23 |
| Total | 22 | 31 | 0 | 53 | 21 | 14 | 35 |

***Radio-monitoring, survival, and reproduction***

***Methods***

We monitor survival and reproduction using aerial telemetry flights conducted monthly and by remote downloads of telemetry data. We attempt to investigate potential mortalities (i.e., mortality signals from VHF monitoring or stationary locations persisting for ≥24 hrs from downloaded data) within 2 weeks, to ascertain whether the bear died. For dead bears, we conduct preliminary necropsies in the field and collect relevant samples for laboratory analyses.

For adult female bears, we conduct observation flights in early spring when grizzly bears are emerging from their dens to ascertain which females have dependent offspring and the number of offspring per litter. We continue to conduct monthly telemetry flights throughout the active season to check on the monthly survival of the dependent offspring.

***Results***

During 2017, we radio-monitored 50 independent female grizzly bears during all or part of the year: 32 females monitored solely for trend and 18 females monitored for conflict management and trend. We also monitored 4 yearling bears, 1 for research and 3 for management. We radio-monitored 26 males during 2017: 7 for trend research and 19 for conflict management and trend. We did not document the death of any radio-marked females during 2017. We documented the death of 6 radio-marked males during 2017: 3 agency removals (2 livestock and 1 site conflict), 1 illegal defense of property, 1 automobile collision, and 1 is under investigation. A summary of the fates of radio-marked bears during 2017 are presented in Appendix A.

We recorded the reproductive status of 32 adult females during 2017, including 15 with cubs, 7 with yearlings, 2 with 2-year-old offspring, and 8 with no offspring. First observations for reproductive status ranged from April 14 to October 18, therefore not all were representative of status from the start of the active season. We documented 1 litter with 1 cub, 9 litters with 2 cubs, and 5 litters with 3 cubs. First observations for these litters ranged from May 4 (flight observation) to October 18 (new capture). We monitored survival of 9 cub litters and 4 yearling litters through repeated observations during the year. We documented 1 cub mortality. We documented 3 known or presumed mortalities of yearlings. A summary of the reproductive observations of radio-marked females are presented in Appendix B.

### *Grizzly Bear Mortalities in the NCDE*

#### *Methods*

An interagency grizzly bear mortality database for the NCDE was established in 1967 by FWP and is currently maintained cooperatively through state, federal, and tribal wildlife

agencies. Here, we report all the mortalities documented throughout the NCDE during 2017. In addition, we also estimated the total number of independent (≥2 years old) female and male grizzly bear mortalities that occurred inside the DMA, using the method of Cherry et al. (2002) and modified by Costello et al. (2016), which inflates the documented count to an estimate summing reported and unreported mortalities.

***Results***

Twenty-nine known or probable grizzly bear mortalities were documented in the NCDE during 2017 (Table 2). Twenty occurred within the DMA: 11 inside the PCA and 9 within Zone 1 (Fig. 2). Nine mortalities occurred outside the DMA in Zone 3. Causes of death for independent bears were agency removal (8), defense of life kill (5), poaching/malicious kill (4), automobile collisions (2), illegal defense of property (1), illegal hunting due to mistaken identification (1), accidental drowning (1), train collision (1), and human-caused under investigation (2). Causes of death for dependent-aged bears were automobile collision (1), and orphaning following a defense of life kill (3). A summary of all documented mortalities in the NCDE during 2017 is reported in Appendix C.

**Table 2. Number of documented known or probable mortalities of grizzly bears in the NCDE, 2017.**

| | | Sex | | | |
|---|---|---|---|---|---|
| | Ageclass | Female | Male | Unknown | Total |
| Inside DMA | Dependent | 0 | 1 | 0 | 1 |
| | Independent | 2 | 17 | 0 | 19 |
| | Total | 2 | 18 | 0 | 20 |
| Outside DMA | Dependent | 0 | 0 | 3 | 3 |
| | Independent | 3 | 3 | 0 | 6 |
| | Total | 3 | 3 | 3 | 9 |

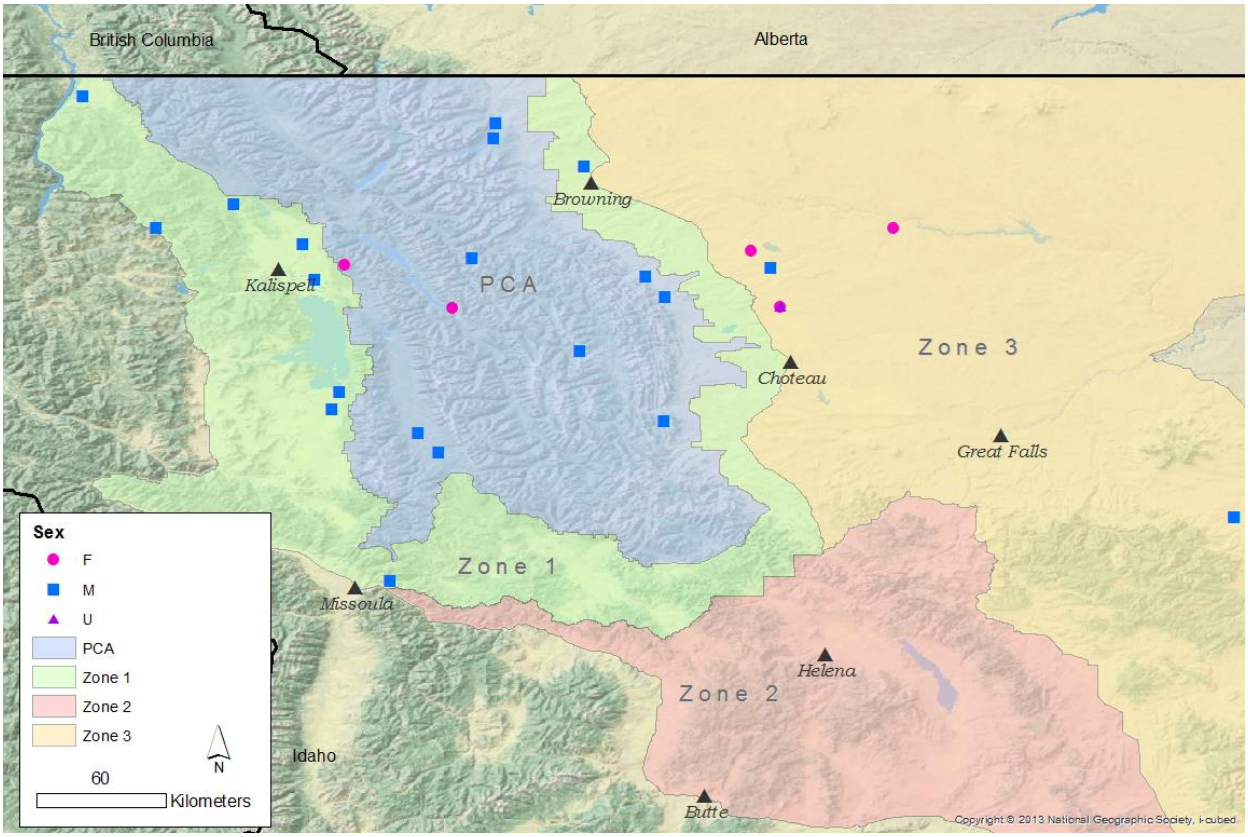


**Fig. 2. Location of known and probable grizzly bear mortalities in the NCDE, 2017. Zones as described in the draft Conservation Strategy (USFWS 2013).**

Within the DMA, there were 2 independent females and 17 independent males that died (the other death was a dependent young). Using the methods of Cherry et al. (2002) and Costello et al. (2016), we estimated a total of 39 reported and unreported mortalities of independent grizzly bears within the DMA (Table 3). Documented mortality was skewed toward males leading to a more extreme skew in the estimated mortality. Numbers of total mortalities were within the range observed during recent years (Fig. 3).

**Table 3. Summary of independent grizzly bear mortalities within the DMA, NCDE, 2017.**

| Sex | Documented mortalities by method of discovery: Agency removal[a] (A) | Telemetry[b] (B) | Reported[c] (high) | Reported[d] (low) | Estimated reported and unreported[e] (C) | Estimated total mortality (A + B + C) |
|---|---|---|---|---|---|---|
| Female | 0 | 0 | 2 | 0 | 3 | 3 |
| Male | 6 | 3 | 4 | 4 | 27 | 36 |
| Total | 6 | 3 | 6 | 4 | 30 | 39 |

[a] Count of agency-sanctioned removals, including those involving radio-marked bears

[b] Count of deaths for bears wearing functional radio-transmitters, except for agency removals

[c] Count of non-radioed bear deaths reported by the public or discovered by agency personnel with high reporting rates (illegal defense-of-property, defense-of-life, train collision, automobile collisions, illegal hunting-misidentification)

[d] Count of non-radioed bear deaths reported by the public or discovered by agency personnel with low reporting rates (poaching/malicious, natural, undetermined)

[e] Bayesian estimate of the total number of reported and unreported deaths of non-radioed bears, predicted from the number of reported deaths of non-radioed bears in the high- and low-reporting rate categories (as per Cherry et al. 2002 and Costello et al. 2016).

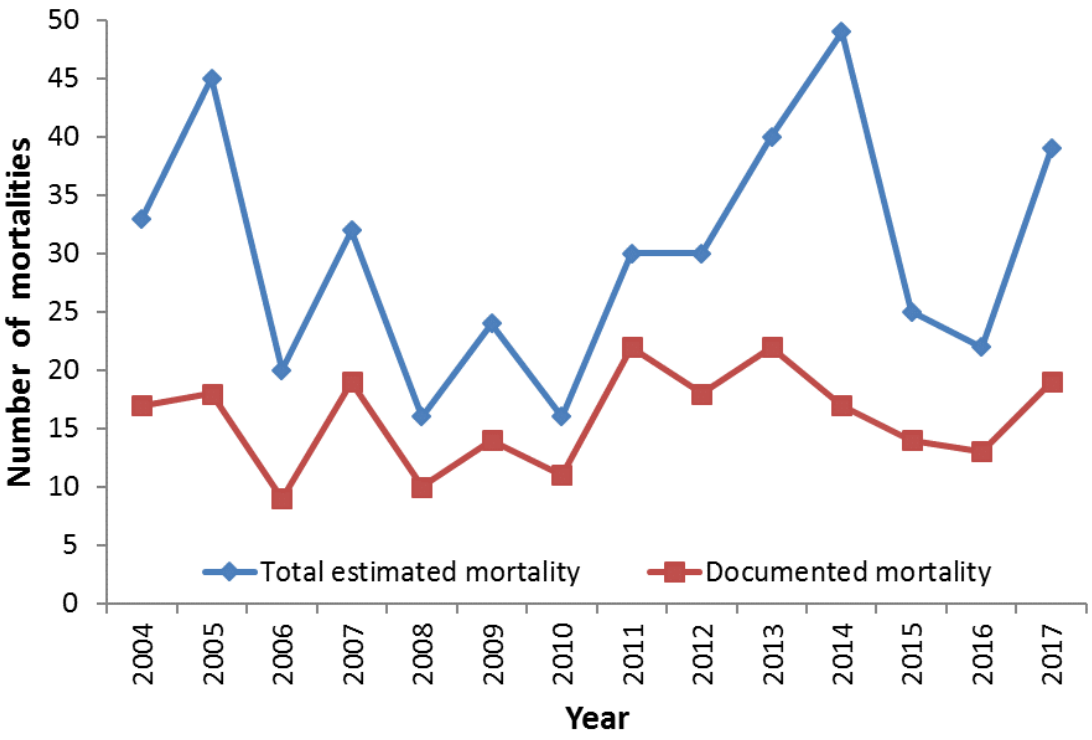


**Fig. 3. Documented and estimated total mortalities (i.e., reported and unreported) of independent grizzly bears (sexes combined) within the DMA, 2004–2017.**

### *Occupancy of Female Grizzly Bears with Offspring*

#### *Methods*

We document presence of reproductive females within Bear Management Units (BMUs; USFWS 1993, USFWS 2013) each year, based on visual observations obtained from radio-marked females; verified remote camera photos; other verified visual observations; and from known or probable mortalities of family units (death of the mother, dependent young, or both). Telemetry or GPS locations of radio-marked females known to have offspring were also used to document presence. Because the BMUs are confined to the PCA, we also document presence of reproductive females in Zone 1 to encompass the entire DMA. We established Occupancy Units (OUs) by dividing the area of Zone 1 based on the Demographic Connectivity Areas (USFWS 2013) and our DMA subunit boundaries outside of the PCA.

#### *Results*

During 2017, we verified presence of reproductive females within 18 of 23 BMUs (78%) and within 7 of 7 supplementary BMUs (100%; Fig. 4). For the 6-year period 2012-2017, all BMUS were occupied by females with offspring, thus exceeding the standard of 21 of 23 BMUs occupied (USFWS 1993, USFWS 2013). Similarly, all OUs were occupied during the last 6 years. Using the 6-year tally, full occupancy of the PCA has been documented each year since 2009 and full occupancy of Zone 1 has been documented each year since 2013 (Appendix C).

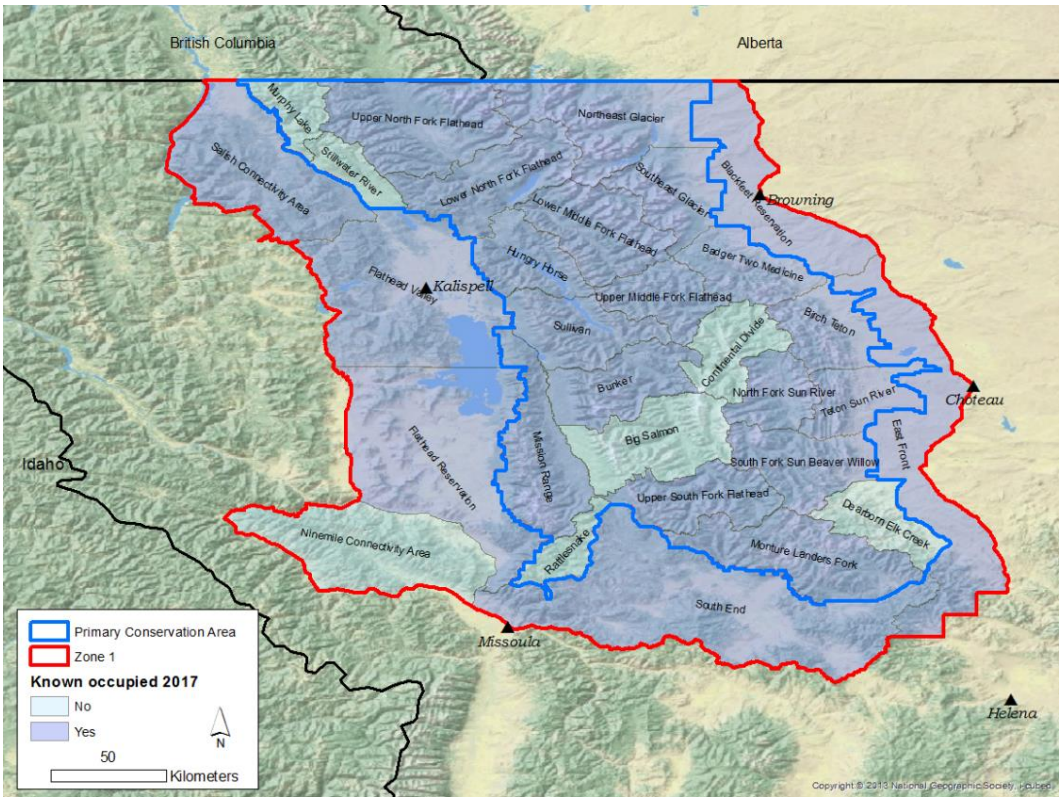


**Fig. 4. Documented occupancy by female grizzly bears with offspring of the 23 BMUs within the PCA and the 7 Occupancy Units within Zone 1 during 2017. All BMUs have been occupied during the last 6 years.**

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## Appendix A. Fate of radio-marked grizzly bears monitored in the NCDE, 2017.

| Sex | Capture type | DMA subunit | Bear ID | Fate |
|---|---|---|---|---|
| Female | Research | Blackfeet Reservation | 41851039 | Censored |
| Female | Research | Blackfeet Reservation | 79560108 | Censored |
| Female | Research | Blackfeet Reservation | 81278116 | Alive |
| Female | Research | Blackfeet Reservation | 81289535 | Alive |
| Female | Research | Blackfeet Reservation | 839821018 | Alive |
| Female | Research | Blackfeet Reservation | 839845540 | Alive |
| Female | Research | East Front | 39036349 | Alive |
| Female | Research | East Front | 39088856 | Alive |
| Female | Research | Flathead Reservation | 79558279 | Alive |
| Female | Research | Glacier National Park | 10888790 | Censored |
| Female | Research | Glacier National Park | 41078883 | Alive |
| Female | Research | Glacier National Park | 41515561 | Alive |
| Female | Research | Glacier National Park | 55599346 | Alive |
| Female | Research | Glacier National Park | 76361015 | Alive |
| Female | Research | Glacier National Park | 79597603 | Censored |
| Female | Research | Glacier National Park | 107565854 | Alive |
| Female | Research | Glacier National Park | 107587034 | Censored |
| Female | Research | Middle Fork Flathead River | 28288097 | Censored |
| Female | Research | Middle Fork Flathead River | 55601314 | Alive |
| Female | Research | Middle Fork Flathead River | 839828530 | Alive |
| Female | Research | North Fork Flathead River | 11027854 | Censored |
| Female | Research | North Fork Flathead River | 11052544 | Alive |
| Female | Research | North Fork Flathead River | 67006850 | Alive |
| Female | Research | North Fork Flathead River | 79570382 | Alive |
| Female | Research | Salish-Island Unit | 839822818 | Alive |
| Female | Research | South End | 55588533 | Alive |
| Female | Research | South Fork Flathead-Swan Valley | 11060268 | Censored |
| Female | Research | South Fork Flathead-Swan Valley | 11077801 | Alive |
| Female | Research | South Fork Flathead-Swan Valley | 41367061 | Unknown |
| Female | Research | South Fork Flathead-Swan Valley | 41580379 | Alive |
| Female | Research | South Fork Flathead-Swan Valley | 41638009 | Alive |
| Female | Research | South Fork Flathead-Swan Valley | 79050043 | Alive |
| Female | Research | South Fork Flathead-Swan Valley | 839828828 | Alive |
| Female | Management | Blackfeet Reservation | 11044088 | Alive |
| Female | Management | Blackfeet Reservation | 41090260 | Alive |
| Female | Management | Blackfeet Reservation | 55579532 | Censored |
| Female | Management | Blackfeet Reservation | 81279041 | Alive |
| Female | Management | East Front | 39068046 | Censored |
| Female | Management | East Front | 39081850 | Alive |
| Female | Management | East Front | 39086301 | Alive |
| Female | Management | East Front | 41554381 | Alive |

| Sex | Capture type | DMA subunit | Bear ID | Fate |
|---|---|---|---|---|
| Female | Management | Flathead Reservation | 18097536 | Alive |
| Female | Management | Flathead Reservation | 18122873 | Alive |
| Female | Management | Flathead Reservation | 79557845 | Unknown |
| Female | Management | Flathead Reservation | 839828530 | Alive |
| Female | Management | Glacier National Park | 81289829 | Unknown |
| Female | Management | North Fork Flathead River | 79562572 | Alive |
| Female | Management | Salish-Island Unit | 41379363 | Alive |
| Female | Management | Salish-Island Unit | 107794628 | Censored |
| Female | Management | Salish-Island Unit | 839822818 | Alive |
| Female | Management | Salish-Island Unit | 839845376 | Censored |
| Female | Management | South Fork Flathead-Swan Valley | 36336335 | Alive |
| Female | Management | South Fork Flathead-Swan Valley | 93619344 | Censored |
| Female | Management | South Fork Flathead-Swan Valley | 97771828 | Alive |
| Male | Research | Glacier National Park | 11022885 | Alive |
| Male | Research | Glacier National Park | 839846626 | Censored |
| Male | Research | Glacier National Park | 107588047 | Alive |
| Male | Research | South End | 41092633 | Censored |
| Male | Research | South End | 41636273 | Censored |
| Male | Research | South End | 79597006 | Censored |
| Male | Research | South Fork Flathead-Swan Valley | 41576818 | Unknown |
| Male | Management | Blackfeet Reservation | 41265302 | Unknown |
| Male | Management | Blackfeet Reservation | 39036887 | Alive |
| Male | Management | Blackfeet Reservation | 79565053 | Censored |
| Male | Management | Blackfeet Reservation | 839824321 | Alive |
| Male | Management | Blackfeet Reservation | 41365620 | Alive |
| Male | Management | East Front | 41512378 | Dead |
| Male | Management | East Front | 39036045 | Unknown |
| Male | Management | East Front | 39089622 | Censored |
| Male | Management | East Front | 39081555 | Alive |
| Male | Management | Flathead Reservation | 79583879 | Alive |
| Male | Management | Flathead Reservation | 79567082 | Dead |
| Male | Management | North Fork Flathead River | 41302333 | Dead |
| Male | Management | North Fork Flathead River | 41121283 | Censored |
| Male | Management | Salish-Island Unit | 41068627 | Dead |
| Male | Management | South End | 10882367 | Censored |
| Male | Management | South Fork Flathead-Swan Valley | 839813294 | Dead |
| Male | Management | South Fork Flathead-Swan Valley | 41300058 | Dead |
| Male | Management | South Fork Flathead-Swan Valley | 41374288 | Censored |
| Male | Management | South Fork Flathead-Swan Valley | 110048023 | Dead |

**Appendix B. Observed reproductive status and fate of offspring for adult female grizzly bears monitored with radio-telemetry in the NCDE, 2017.**

| Capture type | DMA subunit | Bear ID | Status | Litter size | Offspring mortality |
|---|---|---|---|---|---|
| Research | Blackfeet Reservation | 41851039 | Cubs | 2 | |
| Research | Blackfeet Reservation | 79560108 | Cubs | 3 | |
| Research | Blackfeet Reservation | 81278116 | Cubs | 2 | |
| Research | Blackfeet Reservation | 839821018 | None | | |
| Research | Blackfeet Reservation | 839845540 | Yearlings | 2 | |
| Research | East Front | 39036349 | Cubs | 3 | |
| Research | East Front | 39088856 | Cubs | 2 | |
| Research | Glacier National Park | 41078883 | Yearlings | 2 | 2 |
| Research | Glacier National Park | 41515561 | Two-year-olds | 1 | |
| Research | Glacier National Park | 55599346 | Cubs | 2 | |
| Research | Glacier National Park | 76361015 | Yearlings | 1 | |
| Research | Glacier National Park | 79597603 | Cubs | 2 | 1 |
| Research | Glacier National Park | 107565854 | None | | |
| Research | Middle Fork Flathead River | 55601314 | None | | |
| Research | North Fork Flathead | 11052544 | Cubs | 3 | |
| Research | North Fork Flathead | 67006850 | Cubs | 2 | |
| Research | North Fork Flathead | 79570382 | Cubs | 2 | |
| Research | South End | 55588533 | Cubs | 1 | |
| Research | South Fork Flathead-Swan Valley | 11060268 | Cubs | 3 | |
| Research | South Fork Flathead-Swan Valley | 11077801 | None | | |
| Research | South Fork Flathead-Swan Valley | 41580379 | Cubs | 2 | |
| Research | South Fork Flathead-Swan Valley | 41638009 | None | | |
| Research | South Fork Flathead-Swan Valley | 79050043 | Yearlings | 1 | 1 |
| Management | Blackfeet Reservation | 11044088 | None | | |
| Management | Blackfeet Reservation | 55579532 | Cubs | 2 | |
| Management | Blackfeet Reservation | 81279041 | None | | |
| Management | East Front | 39081850 | None | | |
| Management | East Front | 39086301 | Cubs | 3 | |
| Management | Flathead Reservation | 18097536 | Two-year-olds | 2 | |
| Management | Salish-Island Unit | 107794628 | Yearlings | 2 | |
| Management | South Fork Flathead-Swan Valley | 36336335 | Yearlings | 2 | |
| Management | South Fork Flathead-Swan Valley | 97771828 | Yearlings | 2 | |

## Appendix C. Summary of known and probable grizzly bear mortalities in the NCDE, 2017.

| Date | Date accuracy | Certainty of death | DMA | Sex | Ageclass | Bear ID | Collared | Cause |
|---|---|---|---|---|---|---|---|---|
| 5/2/2017 | Day | Known | Inside | Male | Adult | | No | Automobile |
| 5/11/2017 | Day | Known | Inside | Male | Subadult | 41068627 | Yes | Agency removal (livestock) |
| 5/11/2017 | Day | Known | Inside | Male | Yearling | | No | Automobile |
| 5/17/2017 | Day | Known | Inside | Male | Adult | | No | Mistaken ID |
| 5/19/2017 | Day | Known | Inside | Male | Subadult | 41311375 | No | Poached/Malicious |
| 5/25/2017 | Week | Known | Inside | Male | Subadult | | No | Poached/Malicious |
| 5/29/2017 | Day | Known | Outside | Female | Subadult | | No | Accidental |
| 6/17/2017 | Day | Known | Outside | Male | Subadult | | No | Poached/Malicious |
| 6/25/2017 | Day | Known | Outside | Male | Subadult | | No | Agency removal (livestock) |
| 6/25/2017 | Day | Known | Outside | Male | Subadult | | No | Agency removal (livestock) |
| 7/25/2017 | Day | Known | Inside | Male | Adult | 18094085 | No | Agency removal (livestock) |
| 8/4/2017 | Day | Known | Inside | Male | Subadult | | No | Agency removal (humane) |
| 8/19/2017 | Day | Known | Inside | Male | Subadult | 11048023 | Yes | Illegal defense of property |
| 8/24/2017 | Day | Known | Inside | Male | Subadult | 79567082 | Yes | Agency removal (site conflict) |
| 9/17/2017 | Week | Known | Inside | Male | Adult | | No | Under investigation |
| 9/24/2017 | Day | Known | Inside | Female | Subadult | | No | Defense of life |
| 9/26/2017 | Day | Known | Outside | Female | Subadult | | No | Train |
| 9/30/2017 | Day | Known | Inside | Male | Adult | | No | Agency removal (livestock) |
| 10/19/2017 | Day | Known | Inside | Male | Adult | | No | Defense of life |
| 10/22/2017 | Day | Known | Inside | Male | Subadult | 41302333 | No | Under investigation |
| 10/25/2017 | Day | Known | Inside | Male | Subadult | 41512378 | Yes | Agency removal (livestock) |
| 10/25/2017 | Day | Known | Inside | Male | Subadult | 41300058 | Yes | Automobile |
| 11/4/2017 | Day | Known | Outside | Female | Adult | 40001042 | No | Defense of life |
| 11/4/2017 | Day | Probable | Outside | Unknown | Cub | | No | Defense of life |
| 11/4/2017 | Day | Probable | Outside | Unknown | Cub | | No | Defense of life |
| 11/4/2017 | Day | Probable | Outside | Unknown | Cub | | No | Defense of life |
| 11/21/2017 | Day | Known | Inside | Male | Subadult | | No | Defense of life |
| 11/27/2017 | Day | Probable | Inside | Female | Adult | | No | Defense of life |
| 11/29/2017 | Day | Known | Inside | Male | Adult | 839813294 | Yes | Under investigation |

**Appendix D. Occupancy by female grizzly bears with offspring, within 23 Bear Management Units within the PCA and 7 Occupancy Units within Zone 1. Shading signifies years when occupation was verified within a 6-year period ending with the current year.**

| Bear Management Unit (PCA) | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Murphy Lake | N | N | Y | Y | N | Y | Y | N | Y | Y | N | N | N | N |
| Upper North Fork Flathead | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Northeast Glacier | Y | Y | N | Y | N | Y | N | Y | Y | Y | Y | Y | Y | Y |
| Stillwater River | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | N | N |
| Lower North Fork Flathead | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Hungry Horse | N | N | N | N | N | N | Y | N | N | N | N | Y | Y | Y |
| Lower Middle Fork Flathead | N | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y | Y |
| Southeast Glacier | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | N | Y | Y |
| Sullivan | Y | Y | Y | Y | Y | N | Y | Y | Y | N | Y | N | Y | Y |
| Upper Middle Fork Flathead | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Badger Two Medicine | N | N | Y | Y | N | Y | Y | N | Y | Y | Y | N | Y | Y |
| Mission Range | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Bunker | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Continental Divide | N | Y | N | N | N | N | Y | Y | Y | Y | Y | Y | N | N |
| Birch Teton | N | Y | N | N | N | N | N | Y | Y | N | N | N | Y | Y |
| Big Salmon | Y | N | N | Y | N | Y | N | Y | Y | N | N | N | N | N |
| North Fork Sun River | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | Y |
| Teton Sun River | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | Y |
| Rattlesnake | N | N | Y | Y | N | Y | Y | N | Y | Y | Y | N | Y | N |
| Upper South Fork Flathead | N | N | Y | Y | Y | Y | Y | Y | Y | Y | N | Y | N | Y |
| South Fork Sun Beaver Willow | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | Y |
| Monture Landers Fork | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Dearborn Elk Creek | N | N | N | N | N | Y | Y | N | Y | N | N | N | N | Y |
| Occupied during year | 12 | 14 | 17 | 19 | 12 | 19 | 20 | 17 | 21 | 18 | 17 | 15 | 14 | 18 |
| Occupied during last 6 years | 12 | 16 | 21 | 21 | 21 | 22 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| | | | | | | | | | | | | | | |
| Occupancy Unit (Zone 1) | | | | | | | | | | | | | | |
| Salish Connectivity Area | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y |
| Flathead Valley | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Flathead Reservation | N | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Ninemile Connectivity Area | N | N | N | N | N | N | N | N | N | Y | N | N | N | N |
| South End | N | Y | N | Y | N | N | Y | Y | Y | Y | Y | Y | Y | Y |
| East Front | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | N | Y | Y | Y |
| Blackfeet Reservation | Y | Y | Y | Y | Y | Y | Y | N | N | Y | Y | Y | Y | Y |
| Occupied during year | 4 | 4 | 5 | 6 | 4 | 5 | 6 | 5 | 5 | 6 | 5 | 5 | 6 | 6 |
| Occupied during last 6 years | 4 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 |