Grizzly Bear Demographics in the NCDE
2019 Update

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Fish & Wildlife tab

Annual report available online

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- Mt. Hot Springs
- Grizzly Bear
- Brown Bear
- Black Bear
- Eelpout
- Sockeye Salmon
- Winter Wildlife
- Special Projects

Current Research

- Grizzly Bear Population Monitoring

Northern Continental Divide Ecosystem

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 biological information on its population status and habitat requirements. The NCDE is believed to have the largest population in the lower 48 states. It is estimated from a 2001 DNA study that there are over 700 bears in the ecosystem.

Information on both population size and trend are needed. Having estimation of size and trend will greatly improve our collective knowledge of grizzly bear ecology and provide more measurable and precise information to judge the status of the grizzly population in the NCDE. Therefore, Montana Fish, Wildlife, and Parks, in cooperation with other state and federal agencies, initiated a program in 2004 to monitor the population trend of grizzly bears in NCDE. The purpose of this long-term program is to monitor the vital population parameters of grizzly bears by assessing the survival and reproductive rates, and trend. This will be accomplished by radio-monitoring female grizzly bears.

Cooperators

Objectives

Study Area

Methods

Reports

Program Oversight
Field results

- Capture
- Vital rate monitoring
- Mortalities
Field results

Captures and radio-collar deployments

[Bar chart showing the number of individuals captured and radio-marked by sex and research status.]

- Research Female: 13 captured, 11 radio-marked
- Non-research Female: 17 captured, 10 radio-marked
- Research Male: 15 captured, 2 radio-marked
- Non-research Male: 25 captured, 9 radio-marked
Independent bear survival monitoring

*Radio-marked individuals*

Field results

![Bar chart showing the number of monitored and died individuals by sex and research status.](chart.png)
Field results

Reproductive status monitoring

Radio-marked individuals

![Pie chart and line graph showing observed proportion over years for different age groups (None, Cubs, Yearlings, 2-year-olds).](image)
Field results

Cub litter size monitoring
*Radio-marked individuals*
Field results

Dependent young survival monitoring

*Radio-marked mothers*

![Bar chart showing survival of cub and yearling dependent young over monitored and died categories.](chart.png)
**Field results**

**Known and probable mortalities**

*All age classes/all locations*

<table>
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<tr>
<th>Ageclass</th>
<th>Female</th>
<th>Male</th>
<th>Unknown</th>
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<td><strong>Inside DMA</strong></td>
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<tr>
<td>Dependent</td>
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<td>Total</td>
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*2 in Canada
Field results

Known and probable mortalities
*All age classes/by zone*
Field results

Causes for known and probable mortalities
All ageclasses/all locations

[Bar chart showing causes of mortalities from 2004-2018 and 2019]
Conservation Strategy Objectives

- Female occupancy
- Independent female survival
- Independent female & male mortality
- Connectivity monitoring
### Conservation Strategy Objectives

#### Occupancy in Primary Conservation Area

**Threshold 21 of 23 Units**

<table>
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<th>Bear Management Unit</th>
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<th>2015</th>
<th>2016</th>
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charted data
# Conservation Strategy Objectives

## Occupancy in Zone 1

*Threshold 6 of 7*

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<th>Unit name</th>
<th>2014</th>
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<td>× ×</td>
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Conservation Strategy Objectives

Independent female survival

*Threshold 0.93 (6-year average)*
## Conservation Strategy Objectives

Estimated total reported and unreported mortalities 2019

*Independent bears inside the DMA*

<table>
<thead>
<tr>
<th>Sex</th>
<th>Agency removal (A)</th>
<th>Telemetry (B)</th>
<th>Reported</th>
<th>Estimated reported and unreported (C)</th>
<th>Estimated total mortality (A+B+C)</th>
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<tbody>
<tr>
<td>Female</td>
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<td>6*</td>
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*Documented mortalities of unknown sex were randomly assigned: 1 female and 2 males*
Conservation Strategy Objectives

Independent female & male mortality
6-year average
Conservation Strategy Objectives

Connectivity monitoring

- Distribution calculated in 2018, will repeat in 2020
- DNA samples analyzed through 2018, no detected immigration into the NCDE from other ecosystems.
Other Research

- Integrated population model
- Human attitudes survey
- Denning chronology and parturition
- Range expansion model
Acknowledgements

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Jessy Coltrane
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Trever Throop
Two Bear Air
Justine Vallieres
Scott Waller
Chad White

and many others…