IGBC Science Subcommittee

2024 IGBC SUMMER MEETING

Interagency GRIZZLY BEAR Committee

Photo: Jake Davis

Science Subcommittee members

- Hilary Cooley (USFWS)
- Cecily Costello (MTFWP-NCDE)
- Jennifer Fortin-Noreus (USFWS-BE)
- Scott Jackson (USFS)
- Wayne Kasworm (USFWS-SE/CYE)
- Katie Oelrich (IDFG-BE)
- Michael Proctor (Canada)
- Abby Sage (USFWS-NCE)
- Frank T. van Manen (USGS-GYE)

Subcommittee Science topics

1. Integrated population models (GYE; NCDE, C-YE/SE BC; ongoing).
2. Mortality risk assessment outside Recovery Zones (all ecosystems; future research).
3. Impacts of non-motorized recreation/trail use (all ecosystems; future research).
4. Prioritization of potential conservation areas/actions (areas in between; use Sells et al. 2023)
5. Natural recolonization of the Bitterroot Ecosystem (Sells et al. 2023 + ongoing work)

Standardization of data

Occupied range (formalized in Costello et al. 2023)

A Summary of Grizzly Bear Distribution in Montana: Application of Consistent Methods in 2022

Cecily M. Costello, Montana Fish, Wildlife and Parks
Justin Dellinger, Wyoming Game and Fish Department
Jennifer K. Fortin-Noreus, U.S. Fish and Wildlife Service
Mark A. Haroldson, U.S. Geological Survey, Interagency Grizzly Bear Study Team
Wayne F. Kasworm, U.S. Fish and Wildlife Service
Lori L. Roberts, Montana Fish, Wildlife and Parks
Justin E. Tiesberg, U.S. Fish and Wildlife Service
Frank T. van Manen, U.S. Geological Survey, Interagency Grizzly Bear Study Team

INTRODUCTION

Understanding and communicating knowledge about the distribution of grizzly bear populations in the lower-48 States, including Montana, is important for their conservation, management, and for public safety. Previously, our research teams working in grizzly bear ecosystems in the lower-48 States used varying methods to estimate distribution of grizzly bear populations. In the Greater Yellowstone Ecosystem (GYE) and Northern Continental Divide Ecosystem (NCDE), zonal analysis and ordinary kriging were applied to an array of grid cells with or without verified presence of grizzly bears, however the parameters of the methods varied between the two ecosystems. In the Cabinet-Yaak Ecosystem and the Selkirk Ecosystem (SE), population distribution was mapped as the Recovery Zone plus "bears outside of

Available from MT FWP website:
[Grizzly bear distribution report (mt.gov)]

Photo: Steve Ard

Ongoing and recent science

Demographics: Selkirk BC and US population estimate; detecting birth events using activity data (NCDE, GYE, Gates of the Arctic Park and Preserve); density estimation using cameras in YNP (GYE, with MSU); unmarked spatial capture-recapture (GYE, with USGS-ESC)

Habitat: connectivity modeling; habitat modeling and connectivity areas (SE+CYE, with UI); effectiveness of BMAs in YNP (GYE, with MSU); effects of forest management and wildfire disturbance on habitat selection and movements (NCDE, UM); huckleberry mapping for SE+CYE

Bear ecology: dispersal (NCDE); drivers of birth timing (NCDE, GYE, Gates of the Arctic Park and Preserve); post-den movements to identify females with cubs (NCDE, GYE; with FWS and USGS Polar Bear Programs)

Genetics: SE+CYE (with UI); grizzly bear genome project (with UCSC)

Ongoing and recent science (cont.)

Activity: activity rhythms (GYE + European populations, with Univ. Rome-La Sapienza); activity patterns (GYE, with Univ. Rome-La Sapienza); accelerometer data to predict bear behaviors (GYE + Alberta, with WSU, fRi)

Human-bear interactions and conflict: Proctor et al. 2023 (monograph); responses to residential human-bear conflicts (NCDE, southern BC); grizzly bear use of grain bins (NCDE); efficacy of guard dogs to reduce human-bear conflict (NCDE, with Utah State University); efficacy of scare devices to reduce human-bear conflict (NCDE); spatiotemporal patterns of livestock depredation (GYE, with UC-Berkeley)

Social science: comment analysis of 2018 DEIS and survey (NCE, with U-Mich); Montana human dimensions studies (with UM)

Recreation: responses to recreational activities in YNP (GYE, with MSU)

Climate change: YNP grizzly bear foods and demographics (GYE, with MSU)

Long-term monitoring

Photo: Jake Davis

GYE – long-term data collections

Population size and trend
- Research captures and radio collaring (monitoring ≥25 adult females)
- Aerial telemetry and observations
- Females with cubs-of-the-year observations (systematic and incidental)
- Observation flights
- Integrated Population Model

Distribution of reproductive females
- Aerial and ground observations

Mortality monitoring
- Mortality records

Genetic monitoring
- Hair, blood, tissue samples

Occupied range and maybe-present range
- Location data

Photo: Steve Ard

Selkirk & Cabinet Yaak

- Selkirk: 2012 – present
- Cabinet-Yaak: 1983 - present
- Population Trend
  - Research captures / radio collars – survival, cause-specific mortality, reproduction
- Genetic Monitoring
  - Rub trees, barbed wire hair corrals with cameras, incidental
  - Species, sex, individual genotype, parentage, gene flow/linkage
- Recovery Plan Targets
  - Females with cubs
  - Number of BMUs occupied by females with young
  - Human-caused mortality not to exceed 4% of population; Female mortality not to exceed 30% of total mortality
- Cabinet Mountain Augmentation
- Habitat and Food Monitoring
- Berry counts, stable isotope analysis, habitat mapping

Southwest Montana DNA

- 2021-2023 Pilot Project
- Purpose: Document range expansion and presence of grizzly bears between ecosystems
- Methods: Hair corrals and cameras
- Results: 2 detections in 2021, 1 detection in 2023.