

Overview of Ongoing Grizzly Bear Research Projects in Recovery Zones in the Lower 48 States

Date: 26 June 2018

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North Cascades

Study: Assessing potential climate impacts on grizzly bear carrying capacity in the North Cascades Ecosystem

Ecosystem: North Cascades Ecosystem

Investigators: Jason Ransom, Meade Krosby, Andrea Lyons

Collaborating agencies/Institutions: National Park Service, Univ. of Washington Climate Impacts Group, Washington Conservation Science Institute, Skagit Environmental Endowment Commission

Study objective: Assess potential climate impacts on grizzly bears in the NCE, and estimate future carrying capacities for different climate scenarios

Management need: Restoration and adaptive management of recovering population, habitat change

Primary stakeholders: Federal and State governments, tribes and First Nations, private citizens in the NCE

Planned products (decision support tools): one qualitative summary report on potential impacts and one journal paper with carrying capacity estimates

Study: Salmon poisoning disease in grizzly bears and implications for population recovery
Ecosystem: North Cascades Ecosystem (and Central Idaho)

Investigators: Charlie Robbins, Stephen Griemen, Susan Noh, Lynne Nelson

Collaborating agencies/Institutions: Washington State University-College of Veterinary Medicine and USDA Animal Disease Research and School of Global Animal Health, Skagit Environmental Endowment Commission

Study objectives: 1. Measure the distribution of the salmon poisoning bacteria in salmon and kokanee in the North Cascades; 2. Develop an antibody test for SF agent specific to bears in order to identify the immune capacity of bears being translocated into the ecosystem

Management need: Evaluate the impact of salmon poisoning disease on grizzly bear population recovery in the 2 ecosystems where the disease is endemic; restoration and adaptive management of recovering population, habitat change

Primary stakeholders: Federal and State governments, tribes and First Nations, private citizens in the NCE

Planned products (decision support tools): an antibody test for SF in bears, journal publication; tools necessary to understand if salmon poisoning disease will be an impediment to grizzly bear recovery in the North Cascades and Central Idaho

Selkirk and Cabinet-Yaak

Study: Connectivity mapping in the trans-border area

Ecosystem: Selkirks, Cabinet-Yaak, and BC

Investigators: Michael Proctor, Wayne Kasworm, Chris Servheen

Collaborating agencies/Institutions: Trans-border Grizzly Bear Project, USFWS, Federal Highway Administration, Great Northern LCC

Study objective: Identify specific linkage areas to apply connectivity management

Management need being addressed (stakeholder needs): Reverse regional population fragmentation

Primary stakeholders: Highway Depts. Private land conservation NGOs, County planning commissions, USFS

Planned products (decision support tools): Map of specific linkage areas across all major highway settlement corridors

Study: Inter-ecosystem connectivity monitoring

Ecosystem: Selkirks, Cabinet-Yaak Example of Selkirk graphic provided with Cabinet-Yaak in progress

Investigators: Wayne Kasworm, Michael Proctor

Collaborating agencies/Institutions: Trans-border Grizzly Bear Project, USFWS, USFS, Kalispel Tribe, Kootenai Tribe of Idaho, IDFG, WDFW, MFWP

Study objective: Assess the effectiveness of connectivity management activities

Management need being addressed (stakeholder needs): Reverse regional population fragmentation by providing and monitoring genetic linkage

Primary stakeholders: All entities affected by grizzly bear recovery

Planned products (decision support tools): Feedback on management actions, where we need more or better management

Study: Seasonal habitat use and foods mapping

Ecosystem: Selkirks, Cabinet-Yaak, and BC.

Investigators: Michael Proctor, Wayne Kasworm

Collaborating agencies/Institutions: Trans-border Grizzly Bear Project, USFWS, USFS

Study objective: Inform land use decisions, access management, and protect important foraging areas

Management need being addressed (stakeholder needs): Protect critical habitats and important foraging areas

Primary stakeholders: US Forest Service, BLM, State Forestry, BC Land use managers

Planned products (decision support tools): Maps of season- and sex-specific best habitat and most important berry fields

Northern Continental Divide Ecosystem

Study: Multi-species connectivity across US Highway 2 information assessment

Ecosystem: Northern Continental Divide Ecosystem

Investigators: John Waller, Tabitha Graves, Neil Anderson, Amy Jacobs, Dale Becker, Len Broberg, Jessy Coltrane, Brooke Kuhl, Whisper Means, Joe Weigand, Laura Conway, Cassie Waters, Cecily Costello, Dan Carney

Collaborating agencies/Institutions: GNP, USFS, MTFWP, USGS, Blackfeet Nation, University of Montana, CSKT, BNSF, MTDOT

Study objective: identify locations for wildlife crossing structures and potentially other mitigation options for maintaining/enhancing wildlife connectivity across Highway 2

Management need: Increasing traffic and development threaten connectivity of multiple species.

Primary stakeholders: see above

Planned products (decision support tools): Short term assessment of research needs and priorities. Long term: Maps/reports to assist agencies in prioritizing and identifying actions to preserve connectivity

Study: Optimizing demographic monitoring of grizzly bears in GNP

Ecosystem: Northern Continental Divide Ecosystem

Investigators: Tabitha Graves, John Waller, Mark Biel

Collaborating agencies/Institutions: USGS, NPS

Study objective: Evaluate level of sampling needed to estimate population size of grizzly bears in Glacier National Park

Management need: Balancing cost with need to monitor grizzly bears on NPS lands.

Primary stakeholder: NPS (Glacier NP)

Planned products (decision support tools): Report/manuscript with tradeoffs of precision, level of sampling effort, and spatial coverage

Study: Predicting distribution, productivity and phenology of huckleberries

Ecosystem: Northern Continental Divide Ecosystem

Investigators: Tabitha Graves, Janene Lichtenberg, Carolyn Shores, Nate Mickle, Connie Harrington

Collaborating agencies/Institutions: USGS, SKC, USFS, Swan Valley Connections

Study objective:

Management need:

Primary stakeholders: NPS, USFS, CSKT, multiple other tribes

Planned products (decision support tools): Predictive maps, research papers

Study: Development and evaluation of grizzly bear family tree for the transboundary area of the NCDE

Ecosystem: Northern Continental Divide Ecosystem

Investigators: Tabitha Graves, Cecily Costello, Nate Mikle, Lori Roberts, Andrea Morehouse, Garth Mowat, Gordon Stenhouse, Bruce McLellan, John Waller, Jennifer Fortin-Noreus, Tim Manley, Dan Carney, Mike Madel, Jamie Jonkel, Stacy Courville

Collaborating agencies/Institutions: USGS, MTFWP, USFS, NPS, Blackfoot Nation, CSKT, USFWS, Foothills Research Institute, Alberta Environment and Parks, BC Environment

Study objective: Evaluate 2 methods of assigning parentage

Management need: Required first methods step before assessing dispersal, transboundary movements, and landscape influence on dispersal, potentially interactions of fitness and habitat and many other questions.

Primary stakeholders: Public, USFWS, MTFWP, GNP, Alberta, British Columbia,

Planned products (decision support tools): Transboundary grizzly bear family tree made with existing data, research papers

Study: Trend estimates for grizzly bears based on rub tree data.

Ecosystem: Northern Continental Divide Ecosystem

Investigators: Tabitha Graves, Kate Kendall, Andy Royle, Amy MacLeod, Kevin McKelvey, John Boulanger

Collaborating agencies/Institutions: USGS, USFS, MTFWP

Study objective: Estimate trend across the NCDE using genetic information, evaluate broad-scale shifts in density across the system

Management need: Add a non-invasive sampling tool to the options available for evaluating change in population size and density shifts.

Primary stakeholder: USFS

Planned products (decision support tools): Manuscript

Greater Yellowstone Ecosystem

Study: Response of grizzly bears to elk hunting in Grand Teton NP

Ecosystem: Greater Yellowstone Ecosystem

Investigators: Frank van Manen, Mike Ebinger, Mark Haroldson, Dave Gustine

Collaborating agencies/Institutions: USGS, NPS

Study objective: Enhance understanding of grizzly bear responses to the Elk Reduction Program in Grand Teton National Park

Management need: Reduce elk hunter-grizzly bear conflicts

Primary stakeholders: NPS, state of Wyoming, general public

Planned products (decision support tools): journal publications

Study: Grizzly bear use of moth sites

Ecosystem: Greater Yellowstone Ecosystem

Investigators: Mark Haroldson, Dan Bjornlie

Collaborating agencies/Institutions: USGS, WGFD, USFS

Study objective: Movement and activity ecology associated with grizzly bear use of Army cutworm moth aggregation sites
Management need: Understanding potential for human disturbance and conflict associated with grizzly bear foraging on moth sites
Primary stakeholders: USFS, state of Wyoming, general public
Planned products (decision support tools): Guidelines for management, journal publication

Study: Human use patterns of Army cutworm moth sites
Ecosystem: Greater Yellowstone Ecosystem
Investigators: Dan Tyers, Andy Pils, Bok Sowell
Collaborating agencies/Institutions: USFS, MSU
Study objective: Assess potential for human-bear interactions at Army cutworm moth sites
Management need: Understanding potential for human disturbance and conflict associated with grizzly bear foraging on moth sites
Primary stakeholders: USFS, state of Wyoming, general public
Planned products (decision support tools): guidelines for management, journal publication

Study: Morphometrics and body condition
Ecosystem: Greater Yellowstone Ecosystem
Investigators: Dave Gustine, Mark Haroldson, Cecily Costello, Frank van Manen
Collaborating agencies/Institutions: USGS, NPS, WGFD, MTFWP
Study objective: Identify a body condition metric that is less variable and less sensitive to timing of capture than traditional methods
Management need: Cost-effective and reliable measures of body condition
Primary stakeholders: All IGBST partners, general public
Planned products (decision support tools): journal publications, indices for measuring body condition

Study: Measuring and understanding the energetics of grizzly bears
Ecosystem: Various, but includes Greater Yellowstone Ecosystem
Investigators: Tony Carnahan, Charlie Robbins, Tim Laske, Sean Farley, Gordon Stenhouse, Mark Haroldson, Frank van Manen
Collaborating agencies/Institutions: IGBST, IGBC, fRI Research (Alberta), Medtronic, Alaska Department of Fish and Game
Study objective: 1. Develop techniques and understanding to measure the energetics and energy balance of free-ranging grizzly bears
2. Measure and model thermal relationships between grizzly bears and their environment
3. Assess the use of implanted heart monitors to measure stress in grizzly bears
Management need: Develop a deeper understanding of habitat use by grizzly bears and their interactions in people-modified environments. The research has implications for understanding the impact of climate change, visitor impact on grizzly bear well-being, and habitat suitability.
Primary stakeholder(s): Federal, state, and tribal managers
Planned products (decision support tools): Journal articles; new hardware, software, and analytical tools

Study: Carnivore distemper virus and virus screening

Ecosystem: Greater Yellowstone Ecosystem

Investigators: Paul Cross, Frank van Manen, Mark Haroldson, Kurt Vandegrift

Collaborating agencies/Institutions: USGS, MTFWP, Univ. of Glasgow, Pennsylvania State Univ.

Study objective: Examine within and across host species dynamics of canine distemper virus in grizzly bears and wolves; identify which viruses are circulating among grizzly bears

Management need: role of grizzly bears in virus transmission

Primary stakeholders: all IGBST partners, general public

Planned products (decision support tools): journal publications; virus screening tools

Bitterroot Ecosystem

See North Cascades

Multi-Ecosystem

Study: Development of an integrated population model for grizzly bears

Ecosystem: Greater Yellowstone Ecosystem, Northern Continental Divide Ecosystem, Cabinet-Yaak Ecosystem

Investigators: Cecily Costello, Lori Roberts, Mark Haroldson, Frank van Manen, Dan Bjornlie, Mike Ebinger, Wayne Kasworm, Justin Teisberg, Hilary Cooley, Jennifer Fortin-Noreus, Paul Lukacs, Josh Nowak

Collaborating agencies/Institutions: FWS, MTFWP, IGBST, Univ. MT

Study objective: To develop an integrated population model, involving data on vital rates, numbers of mortalities, and other data to estimate population size and trajectory

Management need: The model will provide improved information to management agencies for evaluation of pre- and post-delisting demographic targets and permit management decisions to be made transparent and explicit.

Primary stakeholders: Agencies, public.

Planned products (decision support tools): Management tool, research papers, annual reporting of vital rates, status, and trend

Study: Human Attitudes of Montana Residents about Grizzly Bears

Ecosystem: Northern Continental Divide Ecosystem, Cabinet-Yaak Ecosystem, Greater Yellowstone Ecosystem

Investigators: Cecily Costello, Lori Roberts, Mike Lewis, Alex Metcalf, Libby Metcalf, Justin Gude

Collaborating agencies/Institutions: Montana Fish, Wildlife and Parks; University of Montana

Study objective: To assess attitudes about grizzly bear presence in occupied population centers, connectivity areas, other potential expansion areas; to assess support for use of proactive measure on public and private lands.

Management need: In 2002, the Governors' Roundtable recommended that grizzly bears be allowed to inhabit areas that are "biologically suitable and socially acceptable." Since then, the phrase "socially acceptable" has been incorporated into various management documents. This study is the first step in understanding what is socially acceptable.

Primary stakeholders: Federal, state, and tribal agencies; public.

Planned products (decision support tools): Research papers, public outreach

Study: Using accelerometer data to determine denning chronology and identify den parturition events in grizzly bears

Ecosystem: Northern Continental Divide Ecosystem, Cabinet-Yaak Ecosystem

Investigators: Lori Roberts, Cecily Costello, Justin Teisburg, Wayne Kasworm

Collaborating agencies/Institutions: Montana Fish, Wildlife and Parks; US Fish and Wildlife Service

Study objective: To update information on dates of den entry and exit; to evaluate the use of radio-transmitter activity data for detecting birth of cub litters and ascertain the timing of parturition

Management need: Reliable information in denning chronology is important for management of human activities on public lands (e.g., spring snowmobiling); electronic detection of birth events may be useful for estimating reproductive rates, especially if observations are lacking

Primary stakeholders: Agencies, public land users

Planned products (decision support tools): Research papers

Study: Grizzly bear diet monitoring by stable isotope analysis

Ecosystem: NCDE, Selkirks, Cabinet-Yaak, and BC.

Investigators: Justin Teisberg, Cecily Costello, Wayne Kasworm, Michael Proctor

Collaborating agencies/Institutions: Trans-border Grizzly Bear Project, MFWP, USFWS

Study objective: Monitor use of major food groups and relate to bear population productivity

Management need being addressed (stakeholder needs): Monitoring recovery action and post delisting monitoring under the Conservation Strategy

Primary stakeholders: MTFWP, USFWS, USFS, IDFG, WAFW, BC

Planned products (decision support tools): Periodic reports some of which tied to NCDE Conservation Strategy and post delisting monitoring