



Interagency Grizzly Bear Study Team

Background:

The Interagency Grizzly Bear Study Team (IGBST) is an interdisciplinary group of scientists and biologists responsible for long-term monitoring and research efforts on grizzly bears in the Greater Yellowstone Ecosystem (GYE). The team is composed of representatives from the U.S. Geological Survey, National Park Service, U.S. Fish and Wildlife Service, U.S. Forest Service, and the States of Idaho, Montana, and Wyoming. This interagency approach ensures consistency in data collection and allows for combining limited resources to address information needs throughout the GYE.

History:

The IGBST was formed by the Department of the Interior in 1973 as a direct result of controversy surrounding the closure of open pit garbage dumps within Yellowstone National Park during 1968-72. For decades, large numbers of grizzly bears fed at these dumps. The rate of grizzly bear deaths that followed dump closure and concerns for the population's future led to grizzlies being listed as threatened under the Endangered Species Act in 1975. Early research by the team indicated that following listing the population continued to decline into the 1980s. This information helped support the formation of the Interagency Grizzly Bear Committee (IGBC) in 1983.

The IGBC, represented by administrators from federal and state agencies, implemented several regulations on federal lands designed to reduce human-caused grizzly bear deaths. These actions, along with favorable environmental conditions, halted the grizzly bear population's decline. Grizzly bear distribution has expanded since the mid-1980s and today bears again occupy their historical range well beyond Yellowstone National Park.

Research and Monitoring:

IGBST annually monitors the grizzly bear population and habitat in the GYE. Examples include:

- Distinguishing unique females with cubs of the year.
- Radio-collaring a representative sample of bears to estimate rates of reproduction and survival, movement patterns, habitat use, and denning chronology.
- Documenting distribution of females with young throughout the ecosystem.
- Documenting where, when, and how many bears die (mortalities) annually in the GYE.
- Monitoring annual trends in key foods including winter-killed bison and elk, spawning cutthroat trout, whitebark pine cone production, and bear use of cutworm moth aggregation sites.

Population Studies:

Adult females are considered the most important segment of the grizzly population and consequently are a major focus of IGBST's monitoring program. Efforts to document the distribution and abundance of females with cubs within the GYE began in 1973. During the past 10 years (2000-2009), IGBST has counted an average of 43 unique females with cubs of the year in the GYE annually. When combined with other data, these counts serve as the basis for estimating total populations size and determining whether annual mortality is sustainable. Sustainable mortality establishes the upper limit on the number of grizzly deaths that can occur yet still maintain a healthy population.

Top: A large grizzly bear feeds on an elk carcass in the Greater Yellowstone Ecosystem. Image courtesy of Dan Stahler, NPS.
Right: A female grizzly bear with two cubs in Yellowstone National Park. Image courtesy of Kim Keating, USGS.



IGBST began radio-marking bears in 1975. Since then we have monitored over 650 individuals for varying periods. The goal of the trapping and monitoring program is to monitor a minimum of 25 adult females annually. Data collected from these marked bears provide the information necessary for tracking key population parameters. By observing collared individuals, IGBST documents age of the female's first pregnancy, average litter size, how often females produce litters, and causes of death. These data also allow the study team to estimate age specific survival rates. This information is used in conjunction with other estimates to assess population trend and help focus management activities toward issues that impact bears.

Identifying locations and causes of grizzly bear mortality is another key component in understanding the dynamics of this population. Over 80% of all documented bear mortality is human-caused. Tracking human-caused bear deaths helps define patterns and trends that can direct management programs to protect grizzly bears.

Food Monitoring:

IGBST monitors annual trends in several important grizzly bear foods including winter-killed ungulates such as bison and elk, spawning cutthroat trout, army cutworm moths, and whitebark pine seed production. When available, seeds of whitebark pine are an important fattening food available to grizzly bears during late summer and fall. IGBST annually monitor cone production throughout the GYE. Cone production is highly variable from year to year and the team's studies have demonstrated a relationship between cone counts and bear mortality.



In years of poor cone production, bear conflicts and deaths increase, particularly on the outer edges of the ecosystem where human development is more prevalent on the landscape. Understanding such relationships is useful in predicting and preventing future problems between grizzly bears and humans.

Additional IGBST Research:

- Use of Global Positioning System technology to identify grizzly bear movements and habitat use.
- Application of DNA technology to detect the possible migration of grizzly bears from northwest Montana.
- Application of DNA technology to estimate distances and patterns of dispersal for subadult grizzly bears
- Identification and mapping of grizzly bear denning habitat.
- Influence of climate change on denning chronology of grizzly bears in the GYE.
- Mapping current distribution of grizzly bears in the GYE.
- Incorporation of uncertainty into population estimates and sustainable human-caused mortality.
- Use of stable isotopes obtained from grizzly hair and blood to estimate diet composition.
- Interactions of large carnivores (bears, wolves, and lions) in the GYE.
- Habitat use and overlap between black and grizzly bears in Yellowstone and Grand Teton National Parks.

Ensuring the survival of the grizzly bear in the face of natural and human induced landscape change requires information upon which to base management decisions. The research and monitoring efforts of the IGBST provides this critical information necessary to formulate informed decisions and guide management that will ensure long-term conservation of grizzly bears in the GYE.

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USGS scientists take a visual survey of whitebark pine trees for cone production.