

## 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, Montana State University, 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 ecosystem.

### 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 high mortality that followed dump closure and concerns for the population's future led to its listing 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 was the foundation and impetus for the formation of the Interagency Grizzly Bear Committee (IGBC) in 1983. The IGBC, represented by high-level administrators from federal and state agencies, implemented several regulations on federal lands designed to reduce human-caused grizzly bear mortality.

These management policies, in concert with favorable environmental conditions, halted the population's decline. Grizzly bear distribution has expanded since the mid-1980s and today bears again occupy historical range well beyond Yellowstone National Park.

### Research and Monitoring

We annually monitor the grizzly bear population and ecological components of their habitats in the GYE. Examples include:

- Distinguishing unique females with cubs of the year.
- Radio-collaring bears to estimate reproduction, survival, movements, habitat use, and denning.
- Documenting distribution of females with young throughout the ecosystem.
- Documenting numbers and causes of bear mortality.
- 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.



**Adult grizzly bear anesthetized for research**

Adult females are considered the most important segment of the population and consequently are a major focus of our monitoring effort. Our efforts to document the distribution and abundance of females with cubs within the GYE began in 1973. During the past 8 years (2000-2007) we have counted an average of 43 unique females with cubs of the year in the GYE. When summed over 3 consecutive years (the average reproductive interval for adult females) these counts provide a minimum estimate of adult females in the population. These counts and the population estimates derived from them are also used to establish annual quotas mortality.



We began radio-marking bears in 1975. Since then we have monitored over 600 individuals for varying periods. Our trapping and monitoring program changed in 1986 based on directions from the IGBC Population Task Force. They recommended we maintain and monitor a minimum of 15 adult females annually; this target was increased to 25 in 1994. Data collected from these marked bears provide the information necessary for tracking key population parameters. By observing collared individuals, we document age of first reproduction, average litter size, how often females produce litters, and causes of mortality. These data also allow us to estimate survival rates. This information is used in conjunction with other estimates (i.e., unduplicated females) to assess population trend and help focus management activities toward issues that impact bears.

Identifying the 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.

### **Food Monitoring**

We monitor annual trends in several important grizzly bear foods including winter-killed ungulates,



spawning cutthroat trout, army cutworm moths, and whitebark pine cones. The seeds of whitebark pine

are arguably the most important fattening food available to grizzly bears during late summer and fall. We annually monitor cone production throughout the GYE. Cone production is highly variable from year to year. Our 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 edges of the ecosystem where development has had a more profound impact on the landscape. Understanding such relationships is useful in predicting and preventing future problems.

### **Additional Research**

We are also currently involved in the following research projects.

- Use of Global Positioning System technology to identify grizzly bear movements and habitat use.
- Application of DNA technology to determine the number of bears feeding on cutthroat trout.
- 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 to estimate percent diet items.
- 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.
- Ecology and genetics of the army cutworm moth.

Human impacts on many natural resources in the GYE are increasing. Land and resource development, an increasing human population and their recreational activities, and the effects of introduced exotic species all continue to impact bear habitat. Ensuring the survival of the grizzly bear in the face of these impacts requires current information upon which to base management decisions. The research and monitoring efforts of the IGBST provides the critical information necessary to formulate informed decisions and guide management that will ensure long-term conservation of grizzly bears in the GYE.

### **For more information contact:**

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The Northern Rocky Mountain Science Center is located in Bozeman, Montana and includes three field stations in Montana and one duty station in Wyoming. For more information on NOROCK's research, please visit <http://nrmsc.usgs.gov> or contact the Center Director: Jeff Kershner 406-994-5304 or [jkershner@usgs.gov](mailto:jkershner@usgs.gov)

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