



---

## Grizzly Bear Recovery in the Contiguous United States

Author(s): M. Dale Strickland

Source: *Bears: Their Biology and Management*, Vol. 8, A Selection of Papers from the Eighth International Conference on Bear Research and Management, Victoria, British Columbia, Canada, February 1989 (1990), pp. 5-9

Published by: International Association of Bear Research and Management

Stable URL: <http://www.jstor.org/stable/3872897>

Accessed: 02/01/2009 16:23

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=iba>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit organization founded in 1995 to build trusted digital archives for scholarship. We work with the scholarly community to preserve their work and the materials they rely upon, and to build a common research platform that promotes the discovery and use of these resources. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).



*International Association of Bear Research and Management* is collaborating with JSTOR to digitize, preserve and extend access to *Bears: Their Biology and Management*.

<http://www.jstor.org>

# GRIZZLY BEAR RECOVERY IN THE CONTIGUOUS UNITED STATES

M. DALE STRICKLAND, Wyoming Game and Fish Department, 5400 Bishop Boulevard, Cheyenne, WY 82002

*Abstract:* The agencies responsible for the management of the grizzly bear (*Ursus arctos horribilis*) have formed an interagency organization called the Interagency Grizzly Bear Committee (IGBC). The Committee has developed guidelines for management of bears and bear habitat that are being applied in 4 of the 5 ecosystems where populations of bears still exist in the contiguous 48 states. The Committee, through its members, has also endorsed and often funded research on habitat and grizzly bear populations. The Committee currently has a task force assisting the U.S. Forest Service in their development of a cumulative effects model (CEM) that will use existing data on habitat and bears to evaluate the additive as well as individual effects of various activities on bears. Research is needed to validate CEM components. Additional research is needed on social attitudes toward the grizzly bear, aversive conditioning, physiological effects of handling bears and population genetics. Some small populations may need periodic injection of new genetic material. A project evaluating population augmentation as a possible management tool to increase genetic diversity and population size is planned in the near future. The Northern Continental Divide and Yellowstone populations appear secure and the former appears to have reached a recovered level. It is important that the delisting process proceed in this population to confirm recovery, fulfill commitments to the public and assess our ability to manage grizzly bears without the protection of the Endangered Species Act. It is also important to focus more attention on areas where the bear is less secure. While past recovery efforts have concentrated on areas in the United States, it may be impossible to maintain a viable population in some border areas without including the bears and habitat provided by neighboring Canadian provinces. To aid in this cooperation, the IGBC recently was expanded to include British Columbia and Alberta.

*Int. Conf. Bear Res. and Manage. 8:5-9*

The recovery of the grizzly bear is a tremendous challenge. The grizzly is intelligent, sometimes ferocious, and at the apex of the food chain. At the same time, grizzlies are almost gone from their historical range in the contiguous United States (U.S.), a victim of the taming of the American west. Grizzlies exist only in the Yellowstone Ecosystem (YE) of northwestern Wyoming, eastern Idaho and southwestern Montana, the Northern Continental Divide Ecosystem (NCDE) in northcentral Montana, the Cabinet/Yaak Ecosystem (CYE) in northwestern Montana and northeastern Idaho, the Selkirk Ecosystem (SE) in northern Idaho and northeastern Washington, the North Cascades Ecosystem (NCE) in northern Washington and possibly the Bitterroot Ecosystem (BE) in central Idaho. Although the grizzly is still protected by the federal Endangered Species Act (ESA), competition with man persists. Agencies charged with the management of the grizzly and its habitat have developed a coordinated approach to management. The objective of this paper is to describe this process, present the most significant results of this effort, and to provide recommendations for future bear conservation. I wish to thank the many agencies and individuals that assisted in the preparation of this paper and, in particular, C. Servheen, J. Green and G. Contreras.

## INTERAGENCY COORDINATION

The Interagency effort began in 1974 with the development of an Interagency Grizzly Bear Steering Committee (IGBSC) for grizzly bear investigations in the YE. This Committee grew out of the controversy surrounding closing of dumps in Yellowstone National Park. The Committee was composed of representatives from the U.S. Fish and Wildlife Service (FWS), U.S. National

Park Service (NPS), U.S. Forest Service (FS), and the states of Idaho, Montana and Wyoming. A Study Team (IGBST) composed of representatives from the majority of the IGBSC members and funded by these same entities was begun in 1974 under the leadership of Dr. R. Knight.

The IGBSC functioned until 1983 when a memorandum of understanding was signed by the cooperating agencies and states creating the IGBC. The federal agencies were expanded to include the Bureau of Land Management (BLM) as a full member and the Bureau of Indian Affairs (BIA) as an ex-officio member. The state of Washington was also added. Committee members include top level administrators from each agency and state. In 1987, the Canadian provinces of British Columbia and Alberta were also invited to participate.

The IGBC is responsible for coordinating research and management of grizzly bears in the contiguous 48 states. The Committee's intent is to provide consistency in management within and among ecosystems, to avoid duplication of research, and to maximize the efficient use of resources and personnel. IGBC responsibilities include implementing the grizzly bear Recovery Plan, guiding and planning agency research direction, making joint recommendations to federal agencies and states regarding grizzly bear management and research, and approving or disapproving actions proposed by the various subcommittees.

Four subcommittees were initially formed including 1 for research and 3 for management issues. The Research Subcommittee consists of agency scientists who advise IGBC on research priorities and proposed research projects. The management subcommittees include 1 each for the YE and NCDE and 1 for the remaining 3 ecosystems. Management subcommittees consist of mid-level managers from member agencies who propose and imple-

ment management actions and identify research priorities. A Public Information Task Force was established in 1984 and elevated to subcommittee status in 1986. This subcommittee developed a much needed communications plan for the committee and produces an annual newsletter, *Grizzly Tracks*.

The IGBC has instituted an extensive public involvement/public participation program. For example, in the last 4 years we have held public meetings and listening sessions in communities in Wyoming, Idaho, Montana and Washington. We have also invited bear experts to make presentations and work on task forces.

Funding for our efforts has mainly come from the individual agencies, although we have received donations. An agreement was recently signed with the Fish and Wildlife Foundation (FWF), which will facilitate the acceptance of gifts, grants and donations to be used for grizzly bear recovery and conservation.

#### HABITAT MANAGEMENT AND RESEARCH

Mapping of grizzly habitat is necessary for establishing a successful management program and has received priority in habitat work. Mapping of grizzly habitat on FS lands has evolved from a habitat component process to a more ecological approach. Complete maps of vegetation, animal food sources, and human activities are nearing completion for the YE, NCDE, CYE, and SE. The mapping process has been started in the BE and NCE and should be completed by 1992. Vegetation is classified by cover type and successional stage (Despain 1986, Hadden et al. 1986). Animal resources being mapped include ungulate seasonal ranges and trout spawning streams. Mapping uses LANDSAT (satellite) imagery or aerial photos combined with extensive ground truthing.

A significant contribution to bear management in the habitat arena has been the development of the Yellowstone Ecosystem Management Guidelines (Mealey 1986), which have recently been expanded to the other ecosystems where grizzly bears occur (IGBC 1986). These guidelines are significant as they determine the approach managers should take with management decisions in grizzly bear habitat. The guidelines identify 5 management situations. The 2 most important for grizzly bear include management situation 1 (MS1) and management situation 2 (MS2). In MS1 areas, any conflict between grizzly bears and other resource users is resolved in favor of the grizzly bear. In MS2 areas, grizzlies are desirable but conflicts are usually resolved in favor of the other use. MS2 areas are subject to review and may be reclassified to MS1 if it is determined they are key to the survival of a population of bears. In any case, individual bears are

protected unless they are determined to have reached nuisance status and must be removed from the population. Although there remains some inconsistency in the application of these guidelines, their existence is extremely important for the conservation of the bear and its habitat.

Research projects, recently summarized by the Research Subcommittee, include 44 ongoing projects - 13 in the NCDE, 9 in the northwest ecosystems, 17 in the YE, and 5 nonspecific projects. In all, 22 projects addressed habitat quantity, 14 projects addressed habitat trend, and 28 projects addressed habitat quality. The Research Subcommittee identified an apparent overemphasis on habitat-related research and pointed out the need for "synthesis" research, examining the underlying relationships among various aspects of grizzly ecology. Such synthesis work began in the YE with the development of a cumulative effects model (CEM), a computerized process for utilizing bear distribution and habitat data to evaluate the effect of proposed activities. These models have the potential to improve management of bear habitat by evaluating additive as well as individual effects of various activities. For the models to work, some assumptions must be made about bear response to changes in the environment. The IGBC feels a priority should be given to synthesis research directed at validation of the cumulative effects models.

In an effort to consolidate habitat research, a habitat symposium was sponsored by the IGBC 30 April through 2 May 1985, on the University of Montana campus, Missoula. Thirty-five papers were presented, which represented the state-of-the-art in habitat management and research. Approximately 350 people participated in this conference.

#### POPULATION MANAGEMENT AND RESEARCH

As with habitat, bear population inventories are necessary for establishing a successful management program. Two basic approaches to population monitoring have been used. In the NCDE, inventories have concentrated on distinct study areas within the entire ecosystem. This approach has resulted in great detail on individual groups of bears. Slightly less than one-half of the NCDE has been intensively studied. In the YE, the IGBST has adopted an ecosystem-wide approach, which has provided considerable information about the grizzly bear over a broad area, but sample sizes have frequently been small.

One important deficiency in population monitoring has been the ability to measure population trend. This deficiency is not due to lack of effort. Harris (1986)

provided a comprehensive review of current techniques. Until a better method is developed, the approach proposed by the Montana Fish, Wildlife and Parks for the NCDE population using all available data (Dood et al. 1986) seems the best. Methods for estimating population size and trend include the following categories (National Wildlife Federation 1987):

1. Second-hand reports;
2. Harvest data indices;
3. Surveys using tracks and other sign;
4. Bait and scent stations;
5. Direct counts and general censuses;
6. Mark-recapture studies;
7. Population models.

Extremely accurate estimates of bear population size and trend may never be possible nor are they necessary for successful management. In recognition of this, the NCDE and YE Management Subcommittees have proposed additional parameters to be used to determine population viability in the current draft revision of the Recovery Plan. The subcommittees, in conjunction with the FWS, propose monitoring the number and distribution of females with cubs. The assumption is that a population should remain stable or increase if the number of known females with young in the population can support known mortality.

### ACTIONS TO REDUCE BEAR MORTALITY

Managers must deal with a variety of activities and issues in grizzly bear habitat. They include mineral extraction, oil and gas exploration and development, grazing, timbering, recreation and towns. All of these activities can potentially conflict with bears. In addition, bear research has, no doubt, created problems for some bears.

While grizzly bear reproductive rates may be affected by some or all of these activities, their overriding impact is on mortality rates. Much of the management activity to date has been designed to reduce mortality.

Craighead et al. (1988) recently compiled 537 grizzly bear mortalities in the YE from 1959-1987. Legal mortalities accounted for 178 deaths with most of these coming before 1972. Management control and illegal kills were the next 2 most common causes of bear mortality. Only 27 mortalities were confirmed from natural causes. Mortalities dropped off dramatically with the closures of hunting seasons in 1974 and 1975. Mortalities from most causes have remained fairly consistent since 1975 with the exception of illegal kills, which have declined. This has occurred during a period when human use has increased and bear numbers have apparently increased.

Much of the public information effort by IGBC has been designed to educate users of the various ecosystems on how to behave in bear country and on how bears behave. The Committee has developed the *Bear Us in Mind* brochure and is adopting an Alaskan *Be Bear Aware* brochure to help in this education effort.

There has been a major effort in a cooperative clean-up of the YE. The IGBC formally supported the Gallatin County/Hebgen Basin Refuse District's request for \$70,000 to assist in resolution of the bear attractant problem in Gallatin County, Montana and the town of West Yellowstone. This effort involved cooperation from the town, county, state and the National Audubon Society and, in particular, A. Eno. In other efforts to minimize bear/human conflicts, the FS has made metal storage boxes available at frequently used campsites and meat poles at other sites.

IGBC member agencies have adopted the use of area closures in specific instances. However, the Committee feels that survival and recovery of the grizzly bear in the lower 48 states does not depend on the elimination of all human activities from public lands or the closure of massive areas. Rather, we have recommended the use of small closures for a limited time.

Another significant event in the minimization of bear/human confrontations in the YE occurred in 1985 when the FS adopted a special order designed to regulate the handling and storage of foods and refuse in occupied grizzly bear habitat. In addition, since 1983, all agencies involved in the management of the YE have cooperated in a coordinated interagency law enforcement effort. The program is aimed at decreasing potential bear/human conflicts as well as illegal killing and other human-related grizzly mortalities.

We have also recommended many studies in related areas, including the effects of backcountry recreation, the effects of roads and vehicle use, and aversive conditioning. Currently, there are 7 research projects related to population mortalities in all ecosystems. The IGBC recognized a need for research into alternative management techniques for dealing with problem bears. Hunt (1984) suggested aversive conditioning offered managers an opportunity to condition bears to avoid humans and their facilities. In 1986, the Wyoming Game and Fish Department began a research project evaluating aversive conditioning as a method to minimize human/grizzly bear conflicts.

The IGBC evaluated whether supplemental feeding was required in the YE to increase reproductive potential and reduce mortality by augmenting natural foods and drawing bears away from potential conflicts with hu-

mans. To address this issue we appointed a Supplemental Feeding Task Force. The consensus of the Task Force was that supplemental feeding was not necessary to sustain the population at its present level. Grizzly bears in the ecosystem have an adequate natural food supply and have existed without supplemental feeding for more than 15 years. However, the Task Force recommended, and IGBC concurred, that there may be some value in using supplemental food on a temporary site-specific basis and directed an evaluation of the feasibility of using small temporary food baits to draw bears away from conflict sites. Limited field testing of this technique by IGBST did not show conclusive results.

Presently, there are 32 ongoing research projects endorsed by IGBC on bear populations or individuals. Research areas include population trend, mortality, census, physiology and behavior.

There is a considerable body of research information available as a result of other research efforts outside the auspices of IGBC. In 1986, IGBC contracted with the National Wildlife Federation for a compendium of grizzly bear research. The *Grizzly Bear Compendium* was published in 1987 and provides a bibliography and an abstract of all available information on the biology and management of the grizzly bear in North America. The Research Subcommittee is providing the IGBC with an annual update to this bibliography.

## A MEASURE OF PROGRESS

To assess how far we have come with grizzly bear management, I would like to refer to the proceedings of the IBA meeting held in Calgary, Alberta, Canada, November 1970. Cowan (1972) addressed management of bears in parks and protected areas and indicated the management exercise could be summarized in 6 areas:

1. Removal of all trash and garbage from access by bears;
2. Intensive public education and enforcement of regulations involving people - even to temporary exclusion of hikers from some areas;
3. Special concern for campgrounds such as patrols by night, drift fencing with electrical components and closing or relocating campgrounds that appear to be particularly prone to bear contact;
4. Research in developing means to deter bears from campsites in similar situations;
5. The provision of temporary food supplements in areas remote from human activity;
6. The removal of bears.

Significant progress has been made in the areas Cowan identified but much is left to be done. For example,

removal of all trash is impossible and public education is never completed. Closing or relocating campgrounds has been only partially successful. Removal of bears is perhaps the most controversial of Cowan's recommendations but, as he observed, necessary. To date, removal of bears from the Yellowstone population has been directed at offending animals. As populations increase, sport hunting will again be considered for population management so that removal of individual bears may prevent the need for some future management actions. Bears that are more aggressive and inquisitive are likely to be the ones that eventually get into trouble and are also most likely to be the animals removed from the population by sport hunting. Sport hunting remains a viable tool in the NCDE population.

## FUTURE NEEDS

In the area of research, the IGBC favors synthesis habitat research. Also, projects designed to measure society's reaction to bears are not emphasized. For example, surveys of public values and attitudes and studies of the effectiveness of public education efforts are needed. More baseline data in the CYE, SE, NCE and BE need to be collected. Additional research in aversive conditioning is needed with emphasis on developing alternative management techniques for dealing with problem bears. The genetic variability in bear populations should also be determined. It may be that with very small populations, animals may need to be added to maintain genetic viability; and, population augmentation may soon be evaluated as a management tool in the CYE. Finally, the effects of research on bears should be considered.

Future management needs are less clear. The FWS is currently revising the Recovery Plan, which will provide more clear-cut guidance for management activities. A task force in 1983 reported a minimum of 130 grizzlies in the YE. A similar task force in 1988 reported a minimum of 170-180 grizzlies, suggesting the population status in the YE is improving. Recently, increased reproductive success, lowered female mortality and an apparent range expansion suggest the YE population is approaching the recovery level. Population data in the NCDE suggest that population presently is at recovery level.

It is important we proceed with the delisting effort in the NCDE. This population is an excellent choice for testing our ability to manage the grizzly without the protection of the ESA. Population recovery targets are much higher than necessary for a minimum viable population and this population also extends into Canada, so there is some room for error in management. Managers

have made a commitment to the public to recover populations of grizzlies, and it is important to recognize success with delisting, and fulfill these commitments. It must be understood that without public support the grizzly bear will cease to exist in most of its historical range.

It is also important that viable populations be delisted so attention can be directed to those areas where the situation is much less stable - the SE, NCE, CYE and BE. Much tougher decisions must be faced in these areas. Some of these areas may not be capable of supporting a viable population. In other areas American and Canadian efforts need to be combined to achieve a viable population. In that regard, the Committee is presently working with British Columbia on a joint strategy plan for the NCE population. This document will be used as a template for other cooperative management documents.

It is also important to demonstrate that the remaining federal and state laws exclusive of the ESA are adequate to maintain a viable population of grizzly bears. If they are not, then they must be changed before other native species become candidates for the ESA protection.

Finally, the IGBC would like to thank the members of this Association for your outstanding contributions and request your support and guidance as we work together to conserve the grizzly.

#### LITERATURE CITED

- COWAN, I.M. 1972. The status and conservation of bears (Ursidae) of the world - 1970. *Int. Conf. Bear Res. and Manage.* 2:343-367.
- CRAIGHEAD, J.J., K.R. GREER, R.R. KNIGHT, AND H.I. PAC. 1988. Grizzly bear mortalities in the Yellowstone Ecosystem. *Mont. Dep. Fish, Wildl. and Parks, Craighead Wildl.-Wildlands Inst., Int. Grizzly Bear Study Team, Natl. Fish and Wildl. Found.* 12pp.
- DESPAIN, D.G. 1986. Habitat type and cover type as a base for grizzly bear habitat mapping and evaluation. Pages 230-233 in G.P. Contreras and K.E. Evans, eds. *Proceedings - grizzly bear habitat symposium.* U.S. Dep. Agric. For. Serv. Intermountain Res. Stn., Ogden, Utah. *Gen. Tech. Rep. INT-207.*
- DOOD, A.R., R.D. BRANNON, AND R.D. MACE. 1986. Final programmatic environmental impact statement: the grizzly bear in northwestern Montana. *Mont. Dep. Fish, Wildl. and Parks, Helena.* 287pp.
- HADDEN, D.A., W.J. HANN, AND C.J. JONKEL. 1986. An ecological taxonomy for evaluating grizzly bear habitat in the Whitefish Range of Montana. Pages 67-77 in G.P. Contreras and K.E. Evans, eds. *Proceedings - grizzly bear habitat symposium.* U.S. Dep. Agric. For. Serv. Intermountain Res. Stn., Ogden, Utah. *Gen. Tech. Rep. INT-207.*
- HARRIS, R.B. 1986. Grizzly bear population monitoring: current options and considerations. *Mont. For. Conserv. Exp. Stn., School of For., Univ. of Mont., Missoula. Misc. Publ. 45.* 84pp.
- HUNT, C.L. 1984. Behavioral responses of bears to tests of repellents, deterrents, and aversive conditioning. *M.S. Thesis, Univ. Mont., Missoula.* 274pp.
- INTERAGENCY GRIZZLY BEAR COMMITTEE. 1986. *Interagency grizzly bear guidelines.* U.S. For. Serv., Missoula, Mont. 100pp.
- MEALEY, S.P., ED. 1986. *Interagency grizzly bear guidelines.* U.S. Dep. Agric. For. Serv., Bur. of Land Manage., Id. Fish and Game, Mont. Dep. Fish, Wildl. and Parks, Wash. Game Dep., Wyo. Game and Fish Dep. 99 pp.
- NATIONAL WILDLIFE FEDERATION. 1987. *Grizzly bear compendium.* Interagency Grizzly Bear Comm. 540pp.