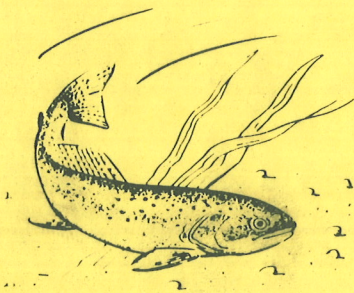


THE FUTURE OF FISH & WILDLIFE
RESOURCES IN MONTANA



JOINT MEETING:

Soil Conservation Society of America
American Fisheries Society
Society of American Foresters
The Wildlife Society

Red Lion Motor Inn, Missoula
January 31 - February 1, 1979

Welcome to the joint annual meeting of four professional natural resource societies in Montana. The program was designed to provide philosophical as well as factual information about a very timely theme "The Future of Fish and Wildlife Resources in Montana." General topics were chosen under the aquatic and terrestrial sessions and then specific speakers were invited to address each topic.

To aid you in session-attending decisions and in note-taking, abstracts or summaries of the presentations are printed herein. They appear in the same order as the program agenda. The proceedings of this meeting will not be published; speakers have been asked to provide copies of their presentations at their discretion.

Keynote Address:

How Do Montana's Hunting and Fishing Opportunities Compare?

Jack Atcheson
International Hunting and Fishing Consultant

AGENCY VIEWPOINT OF THE FUTURE OF FISH AND WILDLIFE IN MONTANA

On State Lands: Leo Barry, Commissioner of State Lands

On Public Lands: Tom Costen, Deputy Regional Forester, U. S. Forest Service -
Region 1

Montana, which is one-fourth public land, provides habitat for more than 800 species of birds, mammals, amphibians, reptiles, and fish. As the nation's population continues to expand, there will be increasing demand for wildlife oriented recreation; the public will look to the agencies which manage public lands to provide these opportunities. Wildlife management efforts in the past were concentrated on game species; however, today, wildlife biologists are witnessing a change in public desires as non-consumptive wildlife values such as photography, bird-watching and nature study increase in popularity. In the future, wildlife management on public lands will become more complex as a result of the public's diverse wildlife interests and the increasing demand for commodities such as timber, forage, minerals, oil, gas, and developed recreation sites. Success in the future will depend on integrated planning, and the management of wildlife and fish must be blended and harmonized with other resources.

By The Department of Fish and Game: Dr. Robert F. Wambach, Director

The short run future of wildlife in Montana is bright if you view it in relative terms. Encroachment on habitat will continue but at a slower pace than in most other states. Hunting and fishing pressure will continue to increase but huntable populations will be maintained at a level that will assure good hunter and fishermen success (relative to other states). Cooperative relations with both private and governmental landowners will continue to improve; assuring reasonable access to wildlife by both sportsmen and wildlife observers. The level of scientific management of wildlife resources will improve markedly due in large measure to the addition of substantial numbers of wildlife specialists to the staffs of public land management agencies. In this short run Montana can continue to boast of its abundant and diverse wildlife resource which is the envy of most other states. In the long run dramatic changes should be anticipated. The resource will decline in both quantity and diversity, the "quality" of hunting and fishing will diminish, and the institutional arrangements by which we control and manage the wildlife resource will be altered dramatically. Federal influence will become more pervasive, anti-hunting sentiment will become more dominant, private hunting preserves (and private ownership of game animals) will become the norm, and much of the "wild" character of Montana's wildlife resource will disappear. This future scenario is not inevitable, and from the perspective of this speaker it is not desirable; but it is the obvious outcome of current trends. Alternatives will be presented as part of this presentation.

RESOURCE USER AND DEVELOPER VIEWPOINTS ON THE FUTURE
OF FISH AND WILDLIFE IN MONTANA

Real Estate Development: George Ostrem, Editor, Kalispell Weekly News

Wilderness User: Bill Cunningham, Montana Representative, The Wilderness Society

Private Forest Lands: Don M. Nettleton, Director, Land Management, Burlington
Northern

The role of private forest landowners in fish and wildlife issues will be discussed from three perspectives: laws; sportsmen-landowner relations; and fish and wildlife versus timber. Also considered will be BN activities relating to fish and wildlife management via coordination of other landowners and resource agencies, habitat protection and regulation of human activities.

Agriculture: Siv J. Seidensticker, Past President, Montana Association of Conservation Districts

The prospect for fish and wildlife does not appear too good in Montana's future unless some very real problems are recognized, confronted and solved. The major problem categories include: public respect for private land, and monetary compensation. Solutions must include organizing hunters to police their own ranks and to educate the public.

Sportsmen: Al Jenkins, Past President, Billings Rod and Gun Club

Power Development: Joe McElwain, President, The Montana Power Company.

LAKE AND POND RIPARIAN HABITAT--
BENEFITS OR NEGAFITS OF MANAGEMENT

Dr. Robert L. Eng, Professor
Wildlife Management
Montana State University

Riparian habitat on stockponds in the eastern two-thirds of Montana is frequently well delineated, at least on the terrestrial boundary, and often quite predictable to a relatively low number of plant species. Often prominent species (*Eleocharis* sp.) on the lowland edge play a dual role, as an aquatic emergent species and/or as shoreline cover, depending upon water levels. Shrubs are not well represented. The security provided by good riparian habitat for aquatic bird species, particularly waterfowl, is well documented. Management of riparian habitat in semi-arid areas is difficult since even under moderate overall grazing intensities, water areas are often points of concentrated pressure. Some management alternatives and resulting benefits are discussed.

STREAMSIDE HABITAT--USED OR ABUSED

Dr. Robert Raleigh
U. S. Fish and Wildlife Service

(No Abstract)

RIPARIAN HABITAT--TO MANAGE OR NOT TO MANAGE

Dr. Carl L. Wambolt
Extension Range Specialist
Montana State University

Riparian habitats have often been used deleteriously by man. Livestock grazing of these habitats in Montana is perhaps the most common use with a potential to deteriorate ecological condition. Many range livestock operations are very dependent upon the high forage production of riparian areas to maintain economic units. Partially because of a relative void of quantitative information on the relationships between livestock use and the subsequent change in ecological condition of riparian habitats, fencing of these areas is often offered as a panacea. A need exists for applied research to determine if the integrity of riparian habitats can be maintained by other means, thus avoiding this extreme solution. More palatable solutions would more likely be adapted on lands for all ownership. Proper ecological management necessitates the need for continuous and open communications on the part of agencies and individuals in all natural resource disciplines as well as the public using riparian habitats.

ATTAINING RURAL CLEAN WATER

Joel A. Shouse, Executive Director
Blue Ribbons of the Big Sky Country
Areawide Planning Organization

Blue Ribbons APO is the 208 water quality management planning agency for the Madison and Gallatin River drainages in southwestern Montana. The principal program objective of Blue Ribbons is the preservation and protection of the Blue Ribbon streams of the planning area.

A \$475,000 comprehensive study program was initiated in December, 1975 and concluded with a draft final report of findings and management recommendations in February, 1978. The study program concentrated principally on non-point water quality impacts resulting from agriculture, silviculture, and urban land uses. Investigations included water quality monitoring, analysis of land capabilities and review of land use practices. Sediment was found to be the most significant pollutant in the study area except for several smaller streams which were seriously degraded by animal or human wastes and urban stormwater runoff.

A water quality management plan is currently being finalized and in some instances is already being implemented. The plan is for the most part non-regulatory and utilizes existing local agencies for implementation. The key management agency for agriculture non-point sources are conservation districts. They are also the key agency for silviculture non-point sources on private lands, whereas the U.S. Forest Service is for federal lands.

A key element in the management plan is the utilization of a set of guidelines which have been prepared to assist land users and land management agencies. These guidelines which are termed "Best Management Practices" (BMP's) have been developed for agriculture, silviculture and the other major elements of the management plan.

The management plan will undergo periodic review and evaluation. The plan will be modified where necessary and in some areas may require development of regulatory management approaches.

CONSERVATION DISTRICTS' PROSPECTIVE FOR ACHIEVING
STREAM CORRIDOR MANAGEMENT

Robert Biggerstaff
Executive Vice President
Montana Association of Conservation Districts

The Districts' responsibility (under The Natural Streambed and Land Preservation Act of 1975) is to maintain rivers, streams and the land immediately adjacent to them to be protected and preserved in their natural existing state and to keep soil erosion and sedimentation to a minimum. The districts' involvement and relationship to this law and section 404 of the federal law are discussed. With regard to the District Water Quality Management Plan (208), districts have signed memoranda of agreement with the state Department of Health and Environmental Sciences and with the state Department of Natural Resources and Conservation; the districts are incorporating water quality into their long range plans. A more sophisticated method of streambank inventory is discussed. Conservation districts, as responsible local entities to handle stream corridor management, should promote local control.

EPA'S GOALS AND OBJECTIVES FOR RURAL CLEAN WATER

Max Dodson
U. S. Environmental Protection Agency

In the Rocky Mountain west, particularly Montana, water quality problems are predominantly rural in origin. The impact of point sources originating from urban-industrial areas of the state, has nearly been alleviated through an active pollution control program. For nonpoint sources, such as problems resulting from agriculture, mining, urban development and silviculture, the control programs in some instances are not fully developed and operational.

For the agricultural-nonpoint category there has been a continuing recognition by USDA and EPA, that to have an effective control program, there needs to be a long term technical and financial assistance to owners and operators having control of rural lands. Under the Clean Water Act of 1977, Section 208 (j) provides this assistance. The purpose of the program is to install and maintain best management practices to control agricultural nonpoint source pollution for improved water quality. The program, unfortunately, has not been fully funded. Other opportunities exist within USDA such as the implementation of new themes established for the Agricultural Conservation Program (ACP).

EPA's goals and objectives for Rural Clean Water are to take advantage of current initiatives such as the Section 280 (j) and ACP programs. Herein lies a dichotomy: on one hand, rural areas can contribute significantly to water quality problems; on the other, they create a buffer, an alternative land use that negates many of the environmental problems associated with urban-industrial land uses. For this reason, the agency is concerned with not only developing water quality control programs for rural areas but also the establishment of a new consciousness towards rural areas as an important environmental protection resource.

THE FEDERAL ROLE IN COAL---AN OVERVIEW OF THE IMPACTS
OF ENERGY DEVELOPMENT ON AQUATIC RESOURCES

Dr. Lee Ischinger
Aquatic Ecologist
U. S. Fish and Wildlife Service

(No Abstract)

DO FISHERMEN HAVE RIGHTS?
A SPORTSMAN'S LOOK AT ENERGY DEVELOPMENT

Al Bishop
Attorney

Fishermen have the same, certain inalienable rights granted to all Montana citizens in Article II of the 1972 Montana Constitution. Among these are the right to seek happiness in all lawful ways and the right to a clean and healthful environment. Fishing is one lawful way that some people take to seek happiness. By definition, clean means "pure" and healthful means "wholesome" and their lawful implications pertaining to our environment seems obvious. However, fishermen cannot rest on their laurels, assuming that their rights will not be infringed upon or that other interpretations will not be proposed which will erode those rights. Because opponents may or choose not to understand their motives, fishermen must actively work together to guarantee and perpetuate their rights.

AN INDUSTRY LOOK AT FISHERIES

Henry Loble
Attorney
Intake Water Company

My views are my own and not those of Intake Water Company.

The contest for water in Montana is not between industry and fish and wildlife, but between agriculture and fish and wildlife. Industry provided funds for a study of the fisheries on the Lower Yellowstone and Powder Rivers. Proposed industrial use of water on the mainstem and tributaries of the Yellowstone River is minimal. In the recent reservations hearing, industry was only interested in the Powder River. Building of dams and reservoirs by industry need not result in adverse effects to fisheries on the Powder River. It could establish fisheries on the Powder where none now exist, and increase recreation where little exists. Such lakes as Yellowtail, Canyon Ferry, Hauser and Holter have provided much recreation and excellent trout fishing.

Industry often receives undeserved adverse publicity. However, no publicity, adverse or otherwise, accompanied the announcement of the Board of Natural Resources and Conservation's decision approving reservations for the building of three major agricultural dams and reservoirs by the Bureau of Reclamation on the mainstem of the Yellowstone River.

DO FISH HAVE RIGHTS?
A FISH-EYE LOOK AT ENERGY DEVELOPMENT

James A. Posewitz
Administrator, Ecological Services Division
Montana Department of Fish and Game

(No Abstract)

FISHING FOR THE FUTURE--MONTANA'S FUTURE

Arthur N. Whitney
Administrator, Fisheries Division
Montana Department of Fish and Game

One hundred years of Montana fishing regulations and ten years of changes in fishing license sales are summarized. These show regulations becoming more complex and license sales increasing at a substantially greater rate for nonresidents than for residents.

Assuming our habitat preservation efforts will continue to maintain a viable wild stream trout resource, two possible futures are described. The choice between them depends upon our nation's success in maintaining energy supplies adequate to sustain the fishermen's present level of personal mobility.

Energy supplies or costs may reduce tourism and restrict most anglers' mobility to walking and bicycling. If that happens, then I think we'll see intensive management of waters within 20 miles of population centers (or adjacent to certain stops on major bus and railroad routes) and more liberal regulations in response to reduced fishing pressures on other waters. On the other hand, alternative energy sources may continue to maintain or even increase the present personal mobility of anglers. In that event, I predict that increasingly restrictive stream trout regulations and intensified management of lakes and reservoirs will occur as slightly increasing numbers of Montana anglers share their fisheries resources with greater and greater numbers of nonresidents.

THE NATION'S FUTURE

Jack Larmoyeux
Chief, Hatcheries and Fisheries Resources
U. S. Fish and Wildlife Service

(No Abstract)

A FISHERMAN'S PERSPECTIVE ON THE FUTURE OF TROUT FISHING

Robert Foukal
Chairman
Montana Council Trout Unlimited

(No Abstract)

THE POLITICAL STRUGGLE BETWEEN AGRICULTURE AND WILDLIFE

Dr. Verne W. House, Associate Professor
Agricultural Economics
Montana State University

Will competition between agriculture and wildlife continue to be resolved by political struggle or by the "automatic" functioning of the economic system? The question is raised by current trends in our economy and demography--increasing per capita income and increasing population size--setting off a chain of events: more wildlife users in the field → increase the probability of friction with landowners → reduced access and increased incentive to try new ways to "market" hunting for profit. While Montanans search for ways to reduce conflicts, entrepreneurs are foreclosing the options.

This analysis attempts to pinpoint sources of conflict so that we might deal with causes rather than symptoms. Comparing agriculture and wildlife in terms of economic organization and social values highlights the following distinct differences in production, marketing, and decision-making:

Land: Wildlife competes with some of the uses of land, much of which is privately owned.

Management: Wildlife managers are unable to measure, confine or otherwise control their inventory.

Capital: Advantages from efficient management of capital push agriculturalists to seek a fast payoff from investments.

Technology: Opportunities to use and impact from technology are extremely different for agriculture than for wildlife.

Agri decision-making is mostly private and individual but wildlife decisions are shared by the public via many units and branches of government. Agricultural commodities are private property exchanged for money in private treaties whereas wildlife is public property that becomes private through licensed capture. While society still holds the value that people should have equal access to wildlife, this value is being challenged. More damaging to the wildlife advocate, however, is the fact that wildlife managers cannot estimate prices for their product in a dollar-oriented society.

Of three systems of resolving agriculture-wildlife conflict (economic, political and educational) it is generally strategic for agriculturalists to advocate resolution via the marketing system and for wildlife managers and users to advocate resolution of conflicts via the political system. The agriculturalists attention to capital and technology are juxtaposed against societal values for wildlife and the shared decision-making process which cultivates and focuses these values.

Society's task is not to choose between the economic and political systems but to find better ways of using the farmer, the legislator, and the educator. Examples are research on least-cost ways of including wildlife in agricultural management decisions, establishing better communications between advocates to identify common goals and increase mutual respect, and to set up institutional arrangements that will revise the incentive systems in socially acceptable ways.

TECHNICAL AND FINANCIAL ASSISTANCE FOR FISH AND WILDLIFE
HABITAT IMPROVEMENTS ON PRIVATE LANDS

Anthony F. Geis

U. S. Agricultural Stabilization and Conservation Service

The Department of Agriculture has, for many years, administered programs which share the cost of establishing or improving wildlife habitat and diverting land from crop production which at the time was considered surplus. Land diverted from crop production was established into permanent cover for relatively long periods of time and had an impact on wildlife.

Currently, the Agricultural Conservation Program provides cost-sharing for the establishment of permanent wildlife habitat and for the development of shallow water areas for wildlife with cost-sharing at 70% of the cost. Another program currently available in eight designated counties is the Water Bank Program. Its objective is to preserve and improve wetlands and uplands in important nesting and breeding areas of migratory waterfowl plus other benefits to be derived from the preservation of wetlands.

Technical services needed to install any practice under these programs are furnished to the landowner by SCS at no additional cost to him.

LANDOWNER/SPORTSMEN RELATIONS IN MONTANA--
THE PROBLEM AND SOME POSSIBLE SOLUTIONS

Kenneth Fitzpatrick
Chairman

Landowner Relations/Sportsmen Access Advisory Council

A citizens advisory council was appointed in January of 1978 to advise and assist the Montana Department of Fish and Game and the Montana Fish and Game Commission with efforts to improve landowner/sportsmen relations and private land access by sportsmen. Council concerns and recommendations are explained in addition to results of recommendations implemented so far by the department. Additional needs and considerations of the council are also discussed.

"COMPETITION" AND THE FUTURE OF WILD UNGULATES
ON MONTANA RANGELANDS

Dr. Richard J. Mackie, Professor
Wildlife/Habitat Management
Montana State University

Interspecific relationships among mule deer, elk and cattle are reviewed as an example of the manner and extent to which "competition" and other interactions or impacts may influence future trends in wild ungulate populations on Montana's rangelands. From this it is suggested (1) that interspecific relations between species which occur commonly on rangelands grazed by domestic livestock may be much more significant in the population ecology of wild ungulates than previously believed; and (2) that increasingly intensive livestock grazing and range management has had and will continue to have increasing negative impact on some wild ungulates, notably mule deer, while possibly favoring others such as elk.

MONTANA'S STATE WILDLIFE AREAS---
PAST, PRESENT AND FUTURE

Merle J. Rognrud

State wildlife areas contribute important habitats to Montana's big and small game, furbearers and nongame wildlife. The acreage is small but include key habitats in essential locations. They were purchased and are developed and maintained with sportsmen license dollars and Federal Aid in Wildlife Restoration funds.

The first wildlife area was acquired to provide elk winter range in the Judith River, 1943. The Sun River, Blackfoot-Clearwater and the Gallatin elk winter ranges followed. Small game areas at Fox Lake, Freezout and Ninepipe were acquired in the 1950's. A few projects like Freezout required considerable development to create marshes and enhance waterfowl habitat.

The department presently manages 270,000 acres on 47 wildlife areas. Eighty-five percent of the areas are big game winter ranges. Vegetation is 55% grassland and 30% coniferous timber. Most are maintained in a natural state, but small game areas have cultivated land and are share-cropped. The potential for rest-rotation grazing is being studied. Maintenance includes 500 miles of fences and 300 miles of roads and trails.

The state areas presently generate 50,000 to 70,000 days of hunting recreation and an equal amount of nonhunting recreation. The contribution of these wildlife areas to Montana's outdoor recreation is minimal. They are not the sole solution to the public demand for a place to hunt.

Each area has a limited capacity for wildlife and recreational use; further limitations may be imposed. There will be some increase in the acreage and number of areas in the future. Existing wildlife areas will be more intensively managed. They will receive increasing use by hunters and other outdoor recreationists.

More attention will be given to nongame species and nonconsumptive uses of the areas. As use of the areas is increased more custodial and management work will be required to protect the habitat, preserve and maintain the existing wildlife values.

CAN MONTANA'S RANGELANDS REALLY PRODUCE BOTH
LIVESTOCK AND WILDLIFE?

Dr. John E. Taylor, Professor
Animal and Range Sciences
Montana State University

The introduction of livestock into the rangeland ecosystems of western North America was one of the earliest and most profound consequences of settlement. Subsequently, wild and domestic animals have shared or competed for a variety of resources.

One intriguing question is the degree of ecological equivalence exhibited between large wild and domestic herbivores. Forage preference and grazing habit studies go only part way in clarifying this point since they ignore the extremely important differences in the level of practicable grazing control among the different animal groups. Domestic animals are significantly more subject to restrictions on times, durations, and intensities of range use and therefore are easier to use as agents of habitat manipulation. This has implications in both livestock and wildlife management, since both now exist in non-pristine contexts.

A precept of range management long has been that good management benefits all parts of the system. However, this idea was supported by a certain looseness in definitions. "Good" management usually was not very intensive, and different animal species often were occupying different parts of the range and so were not directly competitive. Further, "all" components generally meant those animal species of direct economic or sporting interest. The precept may be valid, but it is not well documented.

Recently, several things have happened to disturb the relative complacency of simpler times. Rangelands, historically regarded as wastelands by most Americans who regarded them at all, have become recognized as important national resources. At the same time, technology is being applied to improve the efficiency of range use through more intensive grazing management strategies. Rest rotation, deferred rotation, and many other kinds of grazing management systems are designed to make more uniform utilization of range through extended grazing distribution. Further, governmental mandates to increase red meat production and government programs for range improvement are encouraging intensive range management practices on private and public lands. Finally, the concern over rare, threatened and endangered species of animals and plants must be considered in any discussion of rangeland management.

The natural resource manager of today must recognize that some esoteric biological optimum seldom will serve either the resource or its users. So, can Montana's rangelands really produce both livestock and wildlife? The answer is yes, no, and maybe. The real question is; can Montana's natural resource managers really manage those resources? The answer is a clearer "yes", but it will take an ever higher degree of information, perception, judgment, training, experience, wisdom, and dedication.

RARE II -- A STATUS REPORT

James E. Reid, Director
Planning, Programming, Budgeting
U. S. Forest Service - Region One

In 1977, the U. S. Forest Service began preparing an inventory of roadless areas on National Forests and National Grasslands. Public input was provided by 17,000+ participants at 227 workshops and by comments from 30,000 additional people on 1,920 areas involving 65.7 million acres. This inventory included 237 areas and 9.3 million acres in the U. S. Forest Service's Northern Region. Additional study and public participation resulted in a final environmental statement recommendation for the following Region One areas: 15 new wilderness and 22 additions to existing wilderness, totaling 1.2 million acres.

NATIONAL FOREST INSECT CONDITIONS IN MONTANA

Jerald E. Dewey
Supervisory Entomologist
U. S. Forest Service - Region 1

Insects often become epidemic in localized and large forested areas in Montana. These outbreaks can result in drastic changes in fish and wildlife habitat by altering stand composition and/or structure, predisposing stands to fire, and limiting access to big game animals.

Currently outbreaks of the mountain pine beetle, western spruce budworm, and larch casebearer are causing management problems. Periodically the Douglas-fir tussock moth, pine butterfly, spruce beetle, and Douglas-fir beetle cause widespread damage.

PROPOSED BURLINGTON NORTHERN LAND EXCHANGES IN MONTANA

William J. Parson
Forest Land Manager
Burlington Northern

Highlights of this presentation will include:

1. BN's land ownership in Montana
2. The advantages and disadvantages of land exchanges
3. BN's land exchange history in Montana
4. Current BN land exchange proposals and plans
5. Land exchange opportunities

CITIZEN'S VIEW AND EVALUATION OF MONTANA'S NONGAME WILDLIFE PROGRAM

James Phelps
Chairman
Montana Citizens Nongame Advisory Council

The 43rd (1973) Montana State Legislature enacted The Nongame and Endangered Species Act. The Act follows model legislation endorsed by the International Association of Game, Fish and Conservation Commissioners and The Wildlife Society, except the provision for funding nongame work was omitted.

The Montana Department of Fish and Game is charged with responsibility for the nongame program in the state. The current program provides \$38,000 for this work; this is sufficient to employ one full-time biologist and a part-time assistant. It has included field studies of the distribution and status of selected nongame and endangered species.

Successful nongame programs in certain other states have a common theme: citizen involvement. Upon the recommendation of the department, Montana's Governor appointed a nine-member citizens advisory council to review and evaluate its program. During its first four meetings, the council recognized the program's inadequacy and established obtaining additional supportive funding as its first priority. Three funding sources are presently being pursued: (1) a state income tax refund checkoff whereby taxpayers may contribute \$1, \$5 or \$10 to an earmarked nongame fund (legislative); (2) a general fund appropriation of \$25,000 for each year of the 1980-81 Biennium (legislative); and (3) increased availability of the department's nongame decal (Fish and Game Commission). Plans have been and continue to be formulated for studies of certain species and ecosystems; they may be implemented upon receipt of the additional funds.

PROGRESS ON YELLOWSTONE GRIZZLY BEAR RESEARCH

Dr. Richard R. Knight
Leader, Interagency Grizzly Bear Study Team
U. S. Park Service, Bozeman

The Interagency Grizzly Bear Study Team was formed in 1973 to research the basic ecology of grizzly bears in an 8000 mi² area centered about Yellowstone National Park. Since 1975, radio-telemetry has been the basic technique used to gather information.

Distribution of grizzly bears within the area has been defined, including local concentration areas, areas of common occurrence and areas of occasional occurrence. In 1978, seven sightings outside of the area of occasional occurrence indicated that some dispersal may be taking place.

Habitat requirements investigated include cover, food and space. Den habitat does not appear to be critical, although some tree canopy is preferred. Extensive timber cover is preferred during portions of the year when the bears are active. Food habits vary from year to year but choice of feeding sites does not appear to have any correlation with number of foods available in a habitat.

Movement studies show that Yellowstone bears are very wide ranging and that they travel across an average of 4.29 political boundaries each year.

Estimation of total numbers of bears in the study area has not been accomplished. We now feel that an index of population trend would be a more practical goal.

THE NATURE AND EXTENT OF REPORTED WOLF ACTIVITY IN MONTANA

Dennis L. Flath
Nongame Biologist
Montana Department of Fish and Game

Reports of wolves or wolf-like canids from southwestern Montana are discussed for the period 1968-1978. Reports have become increasingly scattered in space and time, and group size has steadily declined since 1974. Several possibilities for the origin of these animals are discussed, including the occurrence of wolves and the occurrence of a hybrid wolf-like canid. The nature and extent of reports predict possible future extinction if the animals involved are actually wolves, while possible hybrids may persist. The nature of reports is compared to known behavioral criteria for wild wolves from other areas.

The extent of wolf reports from northwestern Montana is discussed. Most reports (90%) are of singles and pairs. Resident pack activity has never been detected. Sporadic immigration from Canada may partly account for the sustained occurrence of a few wolves in this area.

The occurrence of wolves in northeastern Montana is doubtful. There are no reports of howling or sightings which would suggest sustained occurrence. The wolf kill in 1978 probably represents an unusual sortie by a lone wolf from Canada.

