

#91-53A-B06

ALASKA BOARD OF GAME

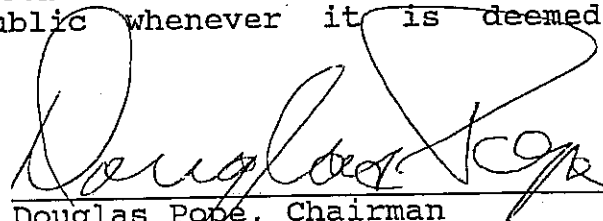
October 27, 1991

The draft Strategic Wolf Management Plan for Alaska is referred to a Committee of the Whole, to be chaired by the chairman of the Board, for the purposes of reviewing the plan in detail and proposing amendments to the Plan. The Committee shall rise and report to the Board by not later than 4:30 P.M. on October 28, 1991, unless given additional time by the Board. The Committee report shall include proposed amendments to the plan.

Certain individuals from the Department of Fish and Game, the U. S. Fish and Wildlife Service, and from the Public will be permitted to sit as nonvoting members of the Committee, and will be permitted to address specific issues under consideration by the Committee when recognized by the Chair for that purpose. ADFG and USFS may designate those individuals who may participate. The public members are as follows:

1. Larry Holmes, member of the Alaska Wolf Management Planning Team and the Anchorage Fish and Game Advisory Committee.
2. Valerie Brown, member of the Alaska Wolf Management Planning Team and the Alaska Wildlife Alliance.
3. Richard Bishop, board member of the Alaska Outdoor Council.
4. David van der Berg, member of the Northern Alaska Environmental Center.

The Chair may also recognize other members of various State and Federal agencies or the Public whenever it is deemed appropriate.


Douglas Pope, Chairman
Alaska Board of Game

STRATEGIC WOLF MANAGEMENT PLAN FOR ALASKA

ALASKA BOARD OF GAME

October 30, 1991

PURPOSES

The purposes of this plan are:

1. to help the Alaska Department of Fish and Game (ADF&G), while working with the public and other agencies, provide for the conservation of Alaska's wolves and their prey populations.
2. to establish a process to prepare and adopt measures to implement this plan consistent with Alaska's constitution and with due consideration to public review and comment.

INTRODUCTION

Findings

People place many different values on wolves because of their remarkable endurance, intelligence, sociability and keen hunting abilities. Wolves are an integral component of nature's food chains. They share a special social and cultural relationship with people in rural Alaska. Wolves provide consumptive and nonconsumptive use to Alaskans and others around the world. They are a worldwide symbol of wilderness.

Wolves are part of a complex ecological system. Throughout their worldwide range, wolves and their habitat are vulnerable to many pressures. A growing human population, disease, reduction in prey populations and excessive harvest can reduce wolf populations. Uncontrolled hunting and trapping and habitat loss due to fragmentation, development and agriculture threaten wolf survival. Wolf conservation depends on many factors including protecting, maintaining and enhancing habitat and prey animals. Alaska land ownership is complicated, and conservation and management must involve state, federal and private land owner/managers along with interested people and groups.

The wolf represents different things to different people. The wolf is a symbol of northern wilderness but it is also a powerful predator capable of controlling prey populations, such as moose, caribou, Dall sheep and deer, that people use. In some situations they can cause prey populations to decline, accelerate declines caused by other elements, or keep prey populations at low levels for long periods. Management activities can speed recovery of the prey population in some cases.

Wolves are thriving throughout nearly all of their historical range in Alaska. Wolf densities vary greatly, but the current conservative statewide population estimate is approximately 6,000-7,000. Wolves in Alaska are not endangered. Wolf populations can sustain harvest, and sustainable harvest levels vary. Wolf populations are dynamic and vary over time due to factors beyond human control, but the future of the wolf in Alaska is secure.

Wolves and their prey are extremely important to the economic and nutritional needs of people in many parts of Alaska. Our state is large enough that many different human uses of wolves and their prey can take place at the same time in different parts of Alaska.

Principles:

1. ADF&G will consider wolves and their prey as part of the total ecosystem rather than pursue single species management.
2. The genetic diversity of wolf populations in Alaska will be protected.
3. Research and monitoring of wolves and their prey will continue. ADF&G will pursue individual projects and work with land managers in cooperative efforts.
4. Short-term and long-term effects of wolf and prey habitat loss and fragmentation will be addressed.
5. Consumptive and nonconsumptive use of wolves and their prey will be provided for in management plans.
6. In areas managed for high consumptive use, certain prey populations will not be allowed to decline to a point where predation keeps them at low levels.
7. In areas managed for high consumptive use where predation is keeping prey at low levels, ADF&G may implement wolf population regulation or reduction to allow prey species to increase to population management objectives established in

the area-specific plans.

8. This management plan allows ADF&G and the Alaska Board of Game to respond promptly to unforeseen situations. ADF&G and the Board must abide by approved management policies, procedures and objectives.

9. ADF&G will recognize the management goals and objectives of state, federal and private land owner/managers.

10. Conflict between user groups must be reduced.

11. Information and education efforts are important and ADF&G will pursue a variety of programs to help people understand more about wolves and their management.

12. Regulations relating to wolf management will be presented in plain and understandable language.

13. ADF&G will work with enforcement agencies to identify enforcement priorities, and to assist with and encourage adequate enforcement activities.

14. This plan will be subject to additional review and revision as needed.

Alaska law and federal law provide for ADF&G's management of wolves and other resident species in Alaska. Federal laws, regulations and policies apply to management of national wildlife refuges, national parks, preserves and monuments, national forests and other federal public land. This plan is consistent with all legal mandates and restrictions.

Federal law prohibits hunting and trapping in Alaska's original national parks and prohibits intensive management of wildlife on park and preserve lands. On the other hand, federal law guarantees subsistence hunting and trapping on many federal lands. This means ADF&G can neither manage wildlife intensively nor close all hunting for other than compelling biological reasons in new national parks and preserves.

GOALS

The goals of this wolf management plan are:

1. to ensure the long-term conservation of wolves throughout their historic range in Alaska in relation to their prey and habitat.

2. to provide for the broadest possible range of human uses and values of wolves and their prey populations that meet wildlife conservation principles and which reflect the public's interests.
3. to increase public awareness and understanding of the uses, conservation and management of wolves, their prey and habitat in Alaska.

For the purposes of this plan, "conservation" means "the care, protection, management and wise use of wildlife and other natural resources."

HISTORY OF WOLF MANAGEMENT IN ALASKA

Wolves and people have coexisted in Alaska for thousands of years. Aboriginal Alaskans hunted and trapped wolves, and occasionally took young wolves from dens to reduce populations in some areas. However, aboriginal use had little effect on wolf populations. Wolf numbers were largely controlled by the availability of prey.

Early in this century there was a period of indiscriminate, but largely unsuccessful, wolf control conducted by both the government and private individuals. Bounties also were paid for wolves, but there is little evidence that this reduced wolf numbers. During the 1950s, the federal government conducted systematic wolf control using poison and aerial shooting to reduce wolf numbers in many parts of the state.

When Alaska became a state, the newly formed ADF&G moved quickly to classify wolves as both big game animals and furbearers. All wolf control programs were suspended in the belief that predation by wolves was relatively unimportant in regulating prey populations. Bounty payments were stopped in the late 1960s, and ADF&G supported the repeal of the bounty system by the legislature. Depressed wolf populations rapidly recovered because of these protective measures and the abundant prey populations that resulted, in part, from the federal control efforts of the 1950s.

In the late 1960s and early 1970s a series of severe winters coincided with high numbers of wolves and bears and, in some areas, excessive harvests of moose and caribou by people. Prey populations declined rapidly over much of Alaska. In response to these declines, ADF&G reduced or eliminated hunting of moose and caribou, embarked on a cooperative program of wildland fire management to improve habitat and conducted limited wolf control programs to restore prey abundance in several important hunting areas. In some areas these programs succeeded in bringing prey and wolves back to abundant levels and benefitted people by allowing them more use of the wildlife populations.

ADF&G's use of wolf control in the late 1970s and early 1980s resulted in major public controversy and lengthy legal challenges. These challenges later were extended to include both department conducted control programs and regulations which allowed hunters or trappers to use airplanes to locate wolves and then land to shoot them. ADF&G was confronted with the problem of trying to manage wolves to satisfy increasingly polarized user groups.

To change the decision-making process from one of periodic confrontation between different interests to one of constructive dialogue and resolution, ADF&G initiated a citizens participation process involving a broad range of public interests. ADF&G identified several ways in which the public could be constructively involved in the problem-solving and decision-making process.

One example of involving the public was the Alaska Wolf Management Planning Team. This 12-member citizens advisory group represented a broad range of interests and values. The team was created in late 1990 and met monthly over a six-month period and made numerous recommendations regarding wolf management. ADF&G considered the team's final report along with comments, suggestions and ideas from hundreds of individuals and many organizations when writing this strategic plan.

STRATEGY FOR PRODUCING A FAIR SYSTEM FOR WOLF MANAGEMENT IN ALASKA

Developing a Zone Management System

ADF&G may not be able to satisfy all legitimate demands for wolves in the same place at one time. As a result, this plan uses a zone system to manage different parts of the state in different ways to accommodate different public demands for protection and use of wolves, their prey and habitat.

This plan uses seven management zones. The goal of ensuring the long-term conservation of wolves, their prey and habitat applies to all zones. The zones provide a range of management systems from areas of complete protection for wolves and prey from human activities to areas of intensive management.

Applying a Zone Management System

ADF&G will work with the public and land owners/managers to develop options for zone boundaries. ADF&G will produce a map to illustrate the options of how and where wolves, their prey and habitat will be managed. The zones will be in place for up to ten (10) years to provide continuity to management. If it becomes necessary to modify management activities allowed within zones or zone boundaries because of unpredictable events, the public will be involved in the decision-making process.

Developing Area-Specific Management Plans

As preliminary zone options are identified, ADF&G will work with the public, local fish and game advisory committees and land managers to write area-specific management plans. (See the section on area-specific management plans for details.) These plans will contain specific population and human use objectives and determine the management activities that will be used to achieve those objectives.

The Alaska Board of Game, after due consideration to public review and comments, will establish zone boundaries and approve or amend the area-specific management plans.

A Proposed Zone Management System

Zone 1 - Full Protection

Human use goals in this zone are:

1. to provide areas where wolves and prey are fully protected from hunting and trapping.
2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves and prey in an unaltered environment.
3. to provide opportunities for scientific study of wolves where human influence is minimal.

Conditions of use and management:

Hunting or trapping of wolves or prey is not allowed. Human activities and developments are regulated to keep disturbance of wolves and prey to a minimum.

Zone 2 - Wolf Protection

Human use goals in this zone are:

1. to provide areas where wolves are fully protected from hunting and trapping.
2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves where they are not hunted or trapped.
3. to provide opportunities for scientific study of wolves where they are not hunted or trapped.

Conditions of use and management:

Hunting or trapping of wolves is not allowed. Hunting or trapping of other species may be allowed.

Zone 3 - Minimum use/Minimum management

Human use goals in this zone are:

1. to provide areas where wolves and prey are not significantly influenced by people and are affected primarily by natural environmental factors.

2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves and prey in nearly unaltered environments.

3. to provide opportunities for scientific study of wolves where human-caused mortality and manipulations are not significant factors.

4. to provide opportunities to harvest a small portion of the wolf and prey populations to meet special needs.

Conditions of use and management:

Hunting and trapping of wolves and prey is allowed, but harvests will be very low in most areas. Wolf population regulation and reduction are not allowed.

Zone 4 - Moderate use/Minimum management

Human use goals in this zone are:

1. to provide areas where wolves and prey are primarily affected by natural environmental factors, but some influence by people is permitted.

2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves and prey in an environment that may be slightly altered.

3. to provide for moderate harvests of wolves and prey by people.

Conditions of use and management:

Hunting and trapping of wolves and prey are allowed, but harvest rates will be kept low to moderate by hunting/trapping regulations or remote access. Wolf population regulation and reduction are not allowed.

Zone 5 - Moderate Use/Moderate management

Human use goals in this zone are:

1. to provide areas where wolves are influenced by both natural environmental factors and by people.

2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves and prey under

managed conditions.

3. To provide for moderate harvest of wolves and prey by people.

Conditions of use and management:

Hunting and trapping of wolves and prey are allowed. Moderate harvest rates will be maintained. Wolf population regulation and reduction may be considered at the request or concurrence of the land owner/manager.

Zone 6 - High use/Moderate management

Human use goals of this zone are:

1. to provide areas where wolves and prey are managed for high human use.
2. to provide opportunities to view, photograph, hear, enjoy and learn more about wolves and prey under managed conditions.
3. to provide for high harvests of wolves and prey by people.

Conditions of use and management

Hunting and trapping of wolves are allowed and may be encouraged. Wolves and prey will be managed to provide for moderate to high harvests. Land-and-shoot taking of wolves as a regulation or reduction measure may be allowed under permit. Wolf populations may be regulated at levels below those which would occur naturally. Wolf population reductions are not anticipated, but may be allowed.

Zone 7 - High use/Intensive management

Human use goals of this zone are:

1. to provide areas where wolves and prey are intensively managed for human use.
2. to provide for high harvests of wolves and prey by people.

Conditions of use and management:

Hunting and trapping of wolves are allowed and may be encouraged. Wolves and prey will be managed to provide for sustained high harvests. Land-and-shoot taking and aerial shooting of wolves as a regulation or reduction measure is allowed under permit. Wolf populations may be regulated at levels below those which would occur naturally. Wolf population reduction may be necessary.

Area-Specific Management Plans

ADF&G will work with fish and game advisory committees, land owner/managers, and the public to develop area-specific management plans to guide management activities. Draft area-specific management plans will be circulated for public review. Professional wildlife biologists from a pool designated by the Commissioner from outside ADF&G will be asked to review the area-specific plans and comment on whether the affected wolf population will remain viable over time. Institutions and agencies such as the University of Alaska, federal resource agencies, Canadian wildlife agencies, local land managers, and the public, will be asked to nominate biologists to review and comment on the plan. Written comments will be available for public review at ADF&G offices.

Public meetings will be held in conjunction with advisory committees and other organizations in at least one local community in the plan area and another meeting in a regional population center to discuss the draft. Area-specific management plans must be reviewed and adopted by the Board of Game, with due consideration to public review and comments, before being implemented.

ADF&G will consider all relevant information about the ecology of wolves and prey which may affect management and use when area-specific plans are developed. The plans will be based on the best available information and will include:

an area description (geographical area, vegetation, topography and land ownership);

a summary of historical patterns of wildlife abundance, distribution and human use;

current and projected patterns of wildlife abundance, distribution and human use;

options for coordinating management of wolves, other predators and prey;

population level and management objectives for selected wildlife species and the basis for those objectives;

human use objectives;

planned activities to maintain or achieve human use and population objectives.

Area-specific management plans will be drafted keeping the following concepts in mind:

Habitat conservation

Productive prey populations such as moose, caribou, deer and Dall sheep are necessary to support wolf populations. These species fare best where habitat is diverse and productive. Human activities which degrade or destroy habitat will harm prey populations and, ultimately, the wolves and other large predators or scavengers which depend on them for food. Throughout about 200 million acres of Alaska (55 percent of the state), periodic wildland fires maintain diverse and productive wildlife habitat. Nutrients are recycled in the ecosystem primarily through wildland fires. ADF&G will continue to work closely with land owner/managers and fire suppression agencies to let wildland fires burn in those areas where human lives and property are not at risk.

Techniques including such things as prescribed burning and mechanical disturbance to maintain or enhance habitat may be encouraged in those areas where naturally-occurring fires cannot be tolerated.

Development that harms habitat will be discouraged in areas critical to wildlife. Where development must occur, ADF&G will encourage the use of development practices that have the least effect on wildlife and wildlife users. The value of habitat for wildlife will carry more weight in future land development decisions if productive wildlife populations are present and are providing a variety of public uses.

Consumptive Uses of Wolves and Wolf Prey Species

ADF&G will provide for consumptive use of healthy wolf populations on a sustained yield basis. Harvest of wolves and prey species must not threaten long-term population survival. Management objectives must ensure prospering populations of all species in the long-term.

If the wolf population in an area is below the objective level due to excessive harvest or reasons other than a shortage of prey, wolf harvest will be reduced at the discretion of the Board of Game. Wolf hunting and trapping seasons may be shortened or closed, or methods and means of taking restricted.

If the wolf population in an area is below its objective level because of a shortage of prey in Zones 5, 6 and 7, efforts will be made to increase prey populations.

If a wolf population in an area exceeds its objective level and is preventing prey populations from meeting population and/or human-use objectives in zones 5, 6 and 7, efforts will be made to increase wolf harvests. If wolf harvest by the public is not possible or does not increase, ADF&G may take action to reduce wolf numbers under a Board approved implementation plan.

Existing regulations for hunting and trapping of wolves and prey species will be reviewed when area-specific management plans are being drafted and adopted.

Nonconsumptive Uses of Wolves and Wolf Prey Species

Nonconsumptive uses of wolves and prey species will be promoted. Even in the best of circumstances, wolves are one of the most difficult species to observe and photograph.

Locations that offer unique opportunities to see or hear wolves will be identified, but disturbance to wolves should be minimized near dens and rendezvous sites. Habituation of wolves to people will be discouraged. Such locations often change over time and developments to improve nonconsumptive use opportunities may alter wolf behavior.

Wolf Population Regulation and Reduction

This plan recognizes that "wolf control" includes different types of management activities. As a result, when referring to control measures, we have used two other terms that more clearly say what is being done.

"Wolf population regulation" means maintaining the number of wolves in an area at a level below what the prey could support without intervention, either through regular or temporary measures. "Wolf population regulation" may include liberalizing bag limits, lengthening seasons, or implementing land-and-shoot taking under conditions approved by the Board of Game.

"Wolf population reduction" means temporarily reducing the number of wolves to a lower level to allow a prey population to grow to objective levels. "Wolf population reduction" may include implementing land-and-shoot or aerial shooting under conditions approved by the Board of Game. Wolf population reduction is not intended to be a routine practice in Alaska.

Implementation Plans

If it is determined that regulation or reduction of wolf numbers in zones 5, 6 or 7 is needed to achieve management objectives, ADF&G will draft an implementation plan. Professional wildlife biologists from the pool designated by the Commissioner from outside ADF&G will be asked to review and comment on whether affected wolf populations will remain viable over time. Institutions and agencies such as the University of Alaska, federal resource agencies, Canadian wildlife agencies, local land managers, and the public will be asked to nominate biologists to review and comment on the plan. Written comments will be available for public review at ADF&G offices.

The Board of Game, with due consideration to public review and comment, must adopt the implementation plan as a regulation before wolf numbers may be regulated or reduced. That Implementation Plan must be reviewed within five years by the Board of Game, and may be reviewed in sooner if the Board sees fit.

Implementation plans are required by law to include:

- a statement of the proposed action;

- population and human use objectives to be met by the proposed action;

- a justification for the proposed action, including previous measures taken which failed to achieve wolf and prey objectives, and other alternatives considered;

an area description;

relevant information about wildlife populations and human use, including wolf and prey population status and trend, harvest information, habitat and estimates of the effects of wolf and bear predation on prey populations;

estimate of the time necessary to meet population and human use objectives;

schedule for update and re-evaluation.

Implementation plans will identify measures that could be used to regulate or reduce wolf numbers. Not all options will work in some areas. An implementation plan will include one or more of the following:

1. Trapper education or hiring professional trapper(s) to trap wolves.
2. Land-and-shoot permits issued and monitored by ADF&G under the conditions and guidelines described below.
3. Issuing aerial shooting permits under the guidelines listed below.
4. Wolf population regulation or reduction by department personnel using trapping and aerial shooting.

PUBLIC-LAND-AND SHOOT AND AERIAL SHOOTING CONDITIONS

Land-and-Shoot

Land-and-shoot permits will be issued by ADF&G. Only qualified individuals will be selected to obtain permits. ADF&G will consider whether the applicant has experience flying fixed wing aircraft in the control area. Minimum qualifications shall include:

1. Alaska residency.
2. Prior experience flying small fixed wing aircraft in Alaska.
3. Knowledge of the geography of the area.

4. No prior convictions for hunting violations (other than bailable offenses) within the last five years and no prior convictions for hunting violations related to taking of wolves or involving the use of an aircraft.
5. Demonstrated capability and commitment to respond to ADF&G's decision to implement land and shoot in a timely manner.

ADF&G will implement land-and-shoot in a particular area by order of the Commissioner. The order shall specify when land-and-shoot will be conducted. Land-and-shoot permits will be valid for 30 days. Permits may be reissued. ADF&G will make every attempt to achieve the desired objectives in the shortest time possible. Each program will be administered by ADF&G staff in the area office nearest to the control area. ADF&G may monitor land-and-shoot activities from the air.

Permittees must obtain a numbered permit from designated ADF&G offices. Land-and-shoot permits are subject to the following conditions:

1. Permittees may only use fixed-wing aircraft.
2. Permittees may not use the aircraft to help any person on the ground locate, track, pursue or take wolves. (Permittees may help someone on the ground locate and dispatch a wounded wolf.)
3. Permittees must report the number and location of wolves taken, and must have the hides sealed no more than five days after taking. Locations of wounded wolves must be reported to ADF&G as soon as possible.
4. Permittees may be required to carry a transmitter (provided by ADF&G) to allow ADF&G to locate the permittee during land-and-shoot efforts.
5. Any person riding with or helping the permittee during land-and-shoot must be an Alaska resident.
6. Permittees may not use shotguns to take wolves.

7. Permits are not transferable.

Aerial Shooting

ADF&G will implement aerial shooting in a particular area by order of the Commissioner. The order shall specify when aerial shooting will be conducted. Aerial shooting permits will be issued by ADF&G. Only qualified individuals will be selected to obtain permits. Minimum qualifications and conditions for aerial shooting permits are the same as those for land-and-shoot permits except that shotguns may be permitted for aerial shooting. Aerial shooting of wolves will be administered by ADF&G staff in the area office nearest to the control area. ADF&G may monitor aerial shooting from the air.

Emergency Situations: The Emergency Situation Plan

Despite the best efforts of ADF&G and the Alaska Board of Game to plan for the future, unforeseen developments will occur. The Commissioner may find that an emergency situation exists in zones providing for wolf population regulation or reduction. (An emergency is one that threatens a precipitous biologically unacceptable decline in prey populations, or biologically unacceptable conditions in a wolf population.) If so, ADF&G will draft an emergency situation plan. Notice of the Commissioner's finding will be published in the affected area and in regional population centers.

The emergency situation plan will contain all of the elements of an implementation plan. In most cases, if wolf population reduction is included in the plan, those measures will be limited to aerial shooting by ADF&G personnel. The goal of any population reduction effort would be to begin a temporary reduction of wolf numbers within 60 days of notice of the Commissioner's finding.

Preparing an emergency situation plan will include at least one public meeting in or near the affected area and another meeting in a regional population center. Copies of the draft plan will be made available to the public, local fish and game advisory committees, landowners in the affected area and the news media.

ADF&G then will submit the draft emergency situation plan to the Alaska Board of Game to review and adopt as soon as possible. Public notice of the Board of Game meeting will be given through newspapers and public service announcements in the affected area as well as in regional population centers

in the state. The Board of Game first will consider a finding that an emergency situation either threatens a precipitous biologically unacceptable decline in prey populations, or threatens a biologically unacceptable condition in a wolf population. If the Board adopts such a finding, the Board then will review and adopt or amend the plan. After the Board adopts an emergency situation plan, ADF&G could begin the proposed management actions as detailed in the plan.

An implementation plan for the affected area will be drafted by ADF&G and considered at the next scheduled board meeting with the same public review and comment processes provided for in this Strategic Wolf Management Plan.

Professional wildlife biologists from the pool outside ADF&G designated by the Commissioner for commenting on area-specific and implementation plans will be asked to review the emergency situation plan and the implementation plan and comment on whether the affected wolf population will remain viable over time. Written comments will be available for public review at ADF&G offices.

Research Program

ADF&G will continue research into wolf ecology, predator-prey and habitat relationships, and nonlethal methods for reducing predation. Where appropriate, ADF&G will cooperate in research efforts with other agencies. Research findings will be reported in a timely fashion and presented in a form that is easily understood by the public.

Information and Education Program

ADF&G recognizes that conservation and wise management of wolves depends on public awareness and appreciation of wolves. The public must also possess an accurate knowledge of wolves, their ecology, natural history and population status. ADF&G will expand efforts to provide information on these aspects of wolf ecology.

ADF&G will work with fish and game advisory committees, other organizations and interested people to identify information and education needs and to fulfill principles #11, 12 and 13 and goal #3 found in the introduction of this Strategic Wolf Management Plan.

Information and education materials must be presented in plain language understood by the diversity of cultures and interests in Alaska, as well as interested parties in the rest of the country and the world.

Subject to budget constraints ADF&G will make its best efforts to provide information and education to the public as follows:

Wolf and prey education materials will be prepared and included in the Alaska Wildlife Curriculum. "Hands on" training designed to show teachers how to use the materials effectively will be offered in teacher workshops around the state. Department staff will be encouraged to make appearances before student classes about wolf behavior, natural history and predator/prey relationships. Multimedia materials will be investigated, and traveling displays, static displays and exhibits will be researched. Hunter and trapper education programs will include information about predator/prey relationships.

Information efforts to be investigated and used when appropriate include (but aren't limited to): leaflets and flyers; the Wildlife Notebook Series, Alaska Wildlife Magazine; newspaper columns; news, local programs, public service announcements and advertising on public and commercial radio and television stations; contacts with the Legislature; programs presented to civic organizations and other groups by department staff and technical and scientific contacts between department staff and other wildlife management agencies and scientists around the world.

Terms used in the planning process

Aerial Shooting - The practice of taking or attempting to take wildlife by discharging a firearm from an airborne aircraft. Aerial shooting is not legal under general hunting regulations, but may be conducted under an administrative permit as authorized by the federal airborne hunting act.

Area-Specific Management Plan - a plan detailing how wildlife, habitat and human uses will be managed in a portion of the state. These plans will identify population and human use objectives and management actions needed to achieve objectives.

Land-and-Shoot Taking - Taking or attempting to take wildlife by landing a fixed-wing aircraft within shooting distance, exiting the aircraft, and immediately discharging a firearm at the wildlife. Such taking is not legal under general hunting regulations, but may be conducted under a permit as authorized by the federal airborne hunting act.

Conservation - The care, protection, management, and wise use of wildlife and other national resources.

Wolf Population Regulation - Maintaining the size of a wolf population at a pre-determined level below that which the prey could support to provide for higher human use of prey populations.

Wolf Population Reduction - The temporary lowering of wolf numbers to a level significantly below the pre-determined, long-term level, to prevent or stop undesirable declines in prey numbers or to stimulate increases in prey numbers.

Zone - An area where a specific strategy for wolf management is applied. Zone boundaries will not necessarily conform to Game Management Units or other boundaries in the state.

Non-consumptive use - The use of wildlife which does not involve killing animals.

APPENDIX A

Biology of Wolves in Alaska

Wolves have been present in Alaska for about 500,000 years and presently occur throughout most of mainland Alaska, on Unimak Island in the Aleutians and in most parts of southeastern Alaska. Before the end of the last ice age about 10,000 years ago, most of Alaska was covered with grasslands which supported a wide variety of animals including bison, horses, mammoths, caribou, muskoxen, Dall sheep, antelopes, yaks and elk. The wolf existed along with several other predators including the American lion, brown bear, short-faced bear and wolverine. As the glaciers receded, the climate became moderate and forests expanded. Many grazing animals and some predators became extinct. However, the wolf is adaptable and continues to thrive in the Alaskan environment. Wolves occupy nearly all of their historic range, and are common over about 85% of Alaska. They are well adapted to habitats ranging from rain forest to arctic tundra.

ADF&G annually estimates wolf numbers and in 1990-91 approximately 5,900 to 7,200 wolves in from 700 to 900 packs were believed to be in the state. Populations densities range from about 1 wolf per 25 to 75 square miles in southern and interior areas to 1 wolf per 150 square miles in the coastal portions of northern and western Alaska. Wolves are more scarce in some coastal areas for several reasons. They are vulnerable to man in open country, suitable prey populations exist at low numbers or are nonexistent, and rabies outbreaks in wolves are common. Wolf numbers are stable or increasing in all occupied habitat. In most areas wolf density is about as high as the food supply will allow. Wolf distribution and abundance in recent years have been about as great as at any time since the turn of the century. The wolf population is prospering and is connected to a large and similarly thriving population that extends across most of Canada.

Since 1975 several hundred wolves in about 150 packs have been radio-marked in various parts of Alaska and studied for periods of two to eight years. In addition to dramatically increasing our understanding of the movements, food habits and social behavior of wolf packs, these studies have shown that long-range dispersals of up to 500 miles by individual wolves occur regularly. Each year one or more wolves departs from most resident packs and travels to other regions in Alaska and Canada, sometimes joining or creating new packs. This probably explains why physical characteristics of wolves are similar over this vast area. It is also one reason why wolves quickly colonize suitable habitat.

Although most packs include 6-12 animals, packs as large as 20-30 wolves sometimes occur. In most areas packs remain within a home range used almost exclusively by pack members in winter. The home range of most Alaskan packs includes 200 to 800 square miles during the winter. The ranges of neighboring packs tend to overlap slightly in winter and substantially in summer. Wolves that depend primarily on migratory caribou may abandon their home range for a while and travel long distances.

Wolves normally breed in February and March and litters averaging about five pups are born in May or early June. Most female wolves first breed when 22 months old but usually have fewer pups than older females. Wolves have a high reproductive rate. Nearly all of Alaska's wolf packs raise at least one litter of four to seven pups successfully each year. Most mature females come into heat and breed each year and, in some cases, two or three females in a pack produce litters. Because they generally produce many pups, most populations can sustain harvests of 25-40% annually. With lower harvests most populations can increase, unless food is scarce. In Alaska most wolf populations sustain harvests of from 10% to 30%. In the past decade the annual harvest of wolves ranged from 675 to 1,097 and averaged 842, or about 11% to 14% of the estimated population. Because they produce many pups and commonly immigrate into new areas, Alaskan wolf populations can rebound quickly from relatively high harvest or other reductions in numbers.

In much of the state hunting and trapping are the major sources of wolf mortality. Death from natural causes, especially predation by other wolves, is also common and often accounts for more than 10% of the wolves in a given population each year. Disease does not appear to be a widespread cause of mortality except in some coastal areas where rabies acquired from foxes sometimes significantly reduces wolf numbers.

The diet of wolves varies according to season, location and prey species availability. Moose and caribou are their major prey over much of Alaska but Dall sheep are also taken. In southeast Alaska deer and mountain goats are important big game food sources. During winter big game species constitute almost the entire diet of wolves. Snowshoe hares can be an important food source in years of hare abundance. During summer, young ungulates are often an important part of the diet, but adult animals are also killed. Small animals such as beavers, snowshoe hares, voles, ground squirrels, and occasionally birds and fish can be important supplements.

Predator-Prey Relationships

Although wolves eat a wide variety of animals, they are dependent on large hoofed mammals, such as moose, caribou, deer, sheep and goats to sustain their populations in Alaska. The number of different prey species available to wolves in an area, the abundance of each prey species and other factors such as winter weather play an important role in determining how wolves affect prey populations. In addition, if other predators such as black or grizzly bears or human hunters are taking prey animals, the interactions of wolves and prey can be dramatically different.

Wildlife studies show that where wolves are the only predator, wolves do not keep prey numbers low. Likewise, if bears are the only predator, bears do not keep prey numbers low. In contrast, studies show that the combination of wolf and bear predation (which occurs throughout most of the state) often keeps moose, deer and sometimes caribou numbers low for long periods of time when wolves and bears are lightly harvested.

When predation succeeds in keeping moose numbers much lower than the habitat could support, the moose population is often said to be in a "predator pit". This occurs where wolves and bears are only lightly harvested. Wolves and bears keep moose in the predator pit by killing many moose that would otherwise live and reproduce, especially calves.

Caribou herds may also remain at very low numbers when preyed upon by both wolves and bears. Caribou differ from moose, because caribou can sometimes escape the effects of wolf and bear predation without predator reductions by migrating, by selecting calving areas with few predators, and by greatly outnumbering predators. Predation has less effect on large caribou herds than it does on small herds.

A certain portion of any prey population must survive to reproduce and maintain the herd. The rest can be killed by wolves, bears or people without causing declines in numbers. The size of this excess portion will vary over time in different areas and can be affected by wildlife management.

Naturally low prey numbers do not necessarily create a management problem. If people are satisfied with a small share of the prey, predator-prey relationships may not need to be altered to provide for desired harvests. On the other hand, if people want a larger portion of the prey, the level

of predation by wolves and/or bears may have to be reduced. Balancing the allocation of prey between wolves, bears and people must be done on an area-specific basis.