DENALI WOLF RESEARCH

PAST, PRESENT AND FUTURE

Denali wolves have been of interest to land managers since the early 1900's, before this area was established as a national park. Formal wolf studies started in the late 1930's and have continued periodically ever since. Essentially there have been three formal studies of wolves in Denali Park: one by Adolf Murie from 1939 through 1941, one by Gordon Haber from 1967 through 1974, and one by L. David Mech, Thomas J. Meier, John W. Burch, and Layne G. Adams from 1985 through the present. In between these projects there also were some efforts by Park staff and others to count wolves, keep track of dens, and record various sightings of wolves in the park.

Wolf research continues today, and although the techniques have changed dramatically since the 1930s, many of the questions remain basically the same: How many wolves are really out there? What is the relationship between wolves and their prey? How many packs utilize park lands? How far outside the park do these packs travel? What is the combined effect of predation and weather on the ungulate populations?

The management mandate of the National Park Service creates two other questions: What effect are humans having on the wolf population? How can park managers minimize this human impact while still allowing numerous people to visit and travel through the park every year? This is the dilemma park managers are faced with on a daily basis and they must rely on information given them by researchers to make informed decisions on how to manage the park and its visitation.

PAST

From 1939 to 1941 Adolph Murie conducted a study of wolf-Dall sheep relationships. His findings were published as "The Wolves of Mount McKinley". Murie watched wolves for long periods during spring and summer when they were denning but had few winter observations. He learned a great deal about wolf social organization, summer activities, and predation but little about the wolves away from the den. As a result there was not much information on their general movements, or their winter habits.

Murie did gather data on wolf prey, primarily sheep and caribou. He relied on direct observation of wolves hunting and killing prey, observations and counts of sheep and caribou while he traveled through the park, collection and analysis of wolf-kill remains, and the collection and analysis wolf scats.

From the early 1940's to the late 1960's Murie and others continued to record wolf observations and denning activity, but

no formal research was done. One of the first serious efforts to aerially survey wolves in Denali was by park employee Richard Prasil in 1967 and 1968.

From 1966 through 1974 Gordon Haber intensively studied two groups of wolves, the Savage and Toklat Packs. Haber used the same observational techniques as Murie, and added the use of light aircraft for snow-tracking wolves in the winters of 1969 through 1974. Snow-tracking involved finding wolf tracks in fresh snow and following them until the wolves were found. Once found, the wolves were counted and observed for varying periods depending on their activity. Wolf tracks themselves provide clues on where the wolves travelled, what kills they made, and group size. Haber also counted wolf prey in the two pack territories using some of Murie's ground-based techniques as well as aerial surveys of moose, caribou, and sheep. Since 1974 Haber has made intermittent summer observations and some winter observations.

From 1970 through 1985 park employees Steve Buskirk, and beginning in 1978, John Dalle-Molle and Joe Van Horn conducted various aerial wolf-track surveys and spring den observations. National Park Service biologists Will Troyer and Frank Singer also continued the aerial surveys of wolf prey during this period.

In 1980 Mount McKinley National Park was nearly tripled in size from just over 2 million acres to over 6 million acres, and renamed Denali National Park and Preserve. As a result, more wolf packs fell under the jurisdiction of the National Park Service. In the early 1980s some aerial poaching was found west of Wonder Lake and in the Dunkle area on the south side of the Alaska Range, both areas are in the park. The National Park Service became concerned about the lack of information on the wolves in the new additions, and the potential for human impacts on Denali's wolf population. As a result, in 1985, the National Park Service asked L. David Mech, then with the U.S. Fish and Wildlife Service and now with the National Biological Survey, to conduct a wolf research project.

The scale of this project was much different than past research. Its emphasis was on the entire park wolf population and how it interacts with the park's ungulate populations, as well as what effects humans are having on it. Up to 16 packs covering over 6400 square miles were studied.

The other major difference is that some of the wolves, usually two in each pack, were outfitted with radio collars. This process involves snow-tracking wolves and then darting with a tranquilizer from a helicopter. The unconscious wolf is then weighed, measured, blood sampled, and radio-collared. By the next day it has usually rejoined its pack. Once each pack has at least one member radioed, all the wolves traveling with that wolf can then be found quickly and efficiently. By radio-tracking

from light aircraft we can locate, count, map, and observe over 100 individual wolves in as many as sixteen packs in one day. There isn't any doubt of the radioed wolf's identity because each collar transmits on its own individual frequency.

Information on the age, sex, and condition of over 700 wolf-killed ungulates and over 5000 wolf scats were collected during the wolf study. These collections will help us learn the seasonal and annual proportion of each kind of prey wolves are killing.

Field work associated with the wolf study was concluded in 1993. The final report on the project is anticipated in late 1994.

PRESENT

Between 1993 and 1994, efforts were focused on genetic conditions of the park's wolf population. Scientists at the University of Minnesota and UCLA are cooperating to determine the relatedness of wolves within and between packs using DNA analyses.

Since 1983, the National Park Service has sponsored studies and population surveys on the park caribou population. In 1991, work began on the park's bear population. The investigators working on these two projects have now moved into the National Biological Survey. Despite this move, their work is continuing. In fact, greater integration between these two projects is now developing. Furthermore, certain elements of the wolf study, completed in 1993, have now been absorbed by the National Biological Survey as part of an "ecosystem based" project.

FUTURE

Denali is one of the only extensive areas in the world where wolves and their prey are protected from legal harvest, making this a unique research opportunity to further the understanding of predator prey relationships. Long term monitoring of various wildlife species is now underway, wolves are planned to be included. Plans are to continue long term research to further the understanding of predator-prey relationships which will involve wolves. Other forms of wolf research may be implemented, such as wolf - bear interactions, or investigating pollutants that can concentrate in high trophic level species such as wolves. When studying long-lived species, brief moments of time are not enough, only a glimpse of what is going on is seen. Populations of wildlife must be monitored over long periods if we are going to understand how they change relative to one another, to the weather, or to human impacts.

As human populations grow, and pressure on National Parks builds through increased visitation and competing land uses nearby, more and more wildlife information will be needed by park managers. Fortunately, Denali is preparing well for the future.

John Burch
Division of Research & Resource Preservation