Denali National Park and Preserve
Wolf Program Review
January 2013



Summary

This document presents the findings of a review of the wolf program at Denali National Park and Preserve (Denali). The review was held on January 23, 2013 at the Murie Science and Learning Center in Denali. Denali's park leaders convened a group of wildlife biologists to share information about the Denali wolf program in the context of wolf programs in Alaska and elsewhere, discuss the research focus and findings of the past and present, identify how wolves have been included in educational outreach, and offer responses to four questions posed, in order to recommend direction for the program into the future. The results presented here provide a synopsis of the one-day workshop—as broad programmatic brush strokes, not as specific recommendations.

Purpose of the Review

To convene a group of wildlife biologists, park managers, and educators to identify, discuss, and evaluate future directions for the Denali wolf research and monitoring program.

Objectives of the Review

To identify findings, develop future recommendations, and note challenges to the ongoing Denali wolf program.



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Contents

Summary 2

Purpose of the Review 2

Objectives of the Review 2

Contents 3

Background 4

Approach 5

Findings 7

Recommendations 9

Challenges 13

The Path Forward 13

Acknowledgements 13

For More Information 14

Appendix *Review Participants* 15







The population biology of wolves in Denali has been studied from 1986 to the present by a series of researchers including Dave Mech (top photo) and Tom Meier (bottom photo L) and John Burch (bottom photo R).



Background

Wolves are an important and influential component in Denali's intact ecosystems, and, as such, are part of predator-prey systems that are relatively unmanipulated.

Wolves have been a source of fascination and inspiration for Denali visitors for decades. In recent years, over 400,000 visitors come to Denali annually, many specifically to see wildlife. While viewing any wildlife species in the park is a treasured experience, observing wolves in the wild is a particularly uncommon and highly valued one.

Wolves are an important symbol of wildness in Denali, in Alaska, and worldwide.

Wolves have been the subject of scientific inquiry since the 1930s. While the opportunity to view wolves is a recent research topic, the majority of research questions that have been posed about Denali wolves have focused on their basic ecology and role as predators (e.g., Adolph Murie's work in the 1930s following a decline in the number of Dall's sheep), social dynamics (i.e., Gordon Haber's work in the 1980s and 1990s), and population biology (a series of researchers from 1986 to the present including John Dalle-Molle, Dave Mech, Layne Adams, John Burch, Bruce Dale, and Tom Meier).

This legacy of Denali wolf research continues and is woven into Denali's Resource Stewardship Strategy for research and resource priorities, and into the vital signs being monitored by the Central Alaska Network.

The primary objectives of the wolf program as it exists at present (2013) are to: (1) monitor and detect long-term trends in wolf demographics and wolf density, (2) quantify wolf survival, pack dynamics, and pack longevity, (3) determine the effects of management activities on lands adjacent to the park on the natural and healthy character of wolf populations in Denali, and (4) identify and quantify the biological and social characteristics of wolves that influence wolf viewing by visitors to Denali and thus determine the factors that may affect wolf viewing opportunities.

Periodic review of any ongoing research program is wise. Park leaders requested a programmatic review in 2013 for a variety of reasons. One of these reasons was the unexpected death in August 2012 of Tom Meier, Denali's lead wildlife biologist and wolf program manager from 2004 to 2012. The review also coincides with the arrival of a new park superintendent in spring of 2013 and a 25 percent turnover in all park staff. Finally, a review was warranted given concerns due to wolf harvest on adjacent lands, potentially diminished viewership opportunities, and the perpetual programmatic challenges of budgets and staffing.

Approach

The National Park Service (NPS) invited a group of professional biologists, researchers, educators, and managers to review the Denali wolf program during a one-day facilitated workshop at the Murie Science and Learning Center (MSLC) on January 23, 2013.

These participants (see Appendix A) included selected staff from Denali, and from other parks in the Alaska Region (Lake Clark and Yukon - Charley Rivers), the Alaska Regional Office, the NPS Inventory and Monitoring Networks, parks in other NPS regions (i.e., Yellowstone), the Alaska Department of Fish and Game's Division of Wildlife Conservation, the University of Alaska Fairbanks, and the United States Geological Survey.

Collectively, the group has more than a century of experience in wolf management and research in Denali, the state of Alaska, and throughout the range of the species in North America. Addition expertise in NPS management, park administration, state wildlife management, public education and outreach, biological data management, and environmental and research permitting were represented.

The review began with the following presentations and discussions:

- An overview of past and present wolf research and monitoring efforts in Denali (Bridget Borg, Denali; Layne Adams, USGS)
- Discussions of other NPS wolf programs (John Burch, Yukon-Charley Rivers; Buck Mangipane, Lake Clark; and Doug Smith, Yellowstone).
- An overview of wolf management and monitoring by the state of Alaska (Craig Gardner and Scott Brainerd, Alaska Department of Fish and Game).
- Outreach efforts by the interpretation division and the MSLC, messaging, and the public's perceived desire for information about wolves in Denali (Sierra McLane, Denali's Education Coordinator at the MSLC).



Photo credit: DENA 32289.202



Photo credit: Gordon Haber

Photographs of wolves are part of the scientific legacy provided by the researchers, such as Adolph Murie (credit for upper photo from1962) and Gordon Haber (credit for lower photo from 2000s), who studied and photographed wolves in Denali.



Following these presentations, there was a facilitated discussion of the following questions:

Key Questions

(1) What are the key near-term and long-term management issues and decisions facing the park and what data are needed to best meet these demands?

(2) How does the Denali wolf program provide benefit to, and benefit from, other wolf projects in other Alaska parks?

(3) What is the role of the Denali wolf program relative to broader statewide and global wolf biology and conservation?

(4) What are the educational opportunities/ obligations of the park/Denali wolf program?

The sections that follow consolidate the key findings and recommendations captured during group discussions and are meant to inform park managers and resource staff relative to ongoing and future wolf research and monitoring efforts as well as public education in Denali.







L to R: Wolf pups, ground-based radio tracking, wolf prints in soft mud along the Teklanika River.

Findings

The key findings are organized by some general themes that are outcomes of the four questions.

Park Management Issues

(1) Wolves are one of the premier natural resources the park was established to protect. In addition, visitor enjoyment and inspiration from observing wildlife in its natural habitat is one of Denali's fundamental resources and values, which are part of the foundation for all planning and management at the park.

(2) One management issue facing wolves in Denali is sport harvest and predator management on adjacent lands and the effect of those activities on wolf viewing opportunities and population dynamics.

(3) Other issues of importance include disease (especially dog lice), dens along the road corridor, and effects of climate change (e.g., likely shifts in prey due to short-term climatic variability).

(4) Active research and monitoring programs enhance NPS credibility relative to wolf management issues.

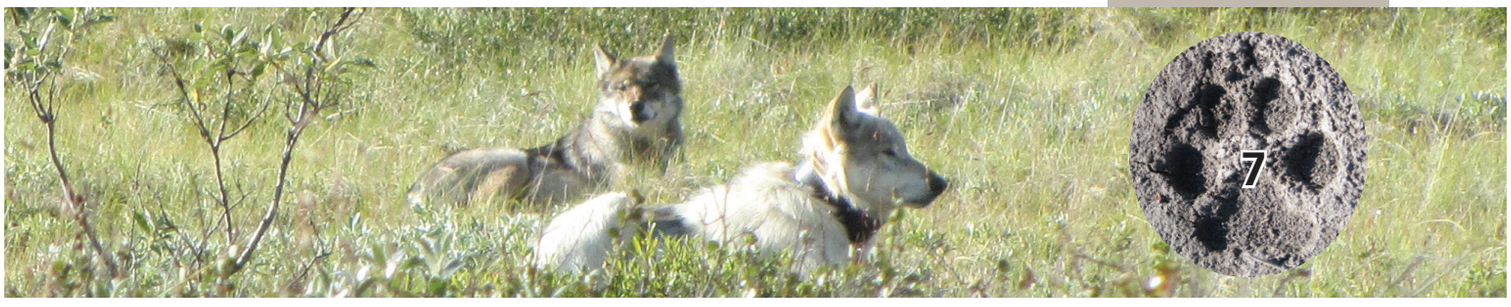
(5) Informed decisions tend to be better decisions and thus benefit from the wolf program.

(6) There is a cost to maintaining the current monitoring protocols (particularly collaring efforts) and the relevance of collaring efforts to direct management actions brings the cost of these actions into question.

(7) While there is significant value to wolf research and monitoring in Denali, not all forms of scientific inquiry require collaring of animals. Collaring presents numerous challenges including expense; risk to wolves and NPS staff; the administrative burden associated with such things as contracting, aviation, safety, and animal capture; and lack of support from some members of the viewing public.

***Finding*: Visitor enjoyment and inspiration from observing wildlife in its natural habitat is one of Denali's fundamental resources and values.**





Benefits and Value of the Denali Wolf Program in a Broader Context

(8) The Denali wolf program—and its associated data sets— are of significance to not only the park, but the broader community of wolf researchers and managers throughout the Service, the state, the continent, and the world.

(9) Past, present, and future work provides a reference dataset for park resource managers as well as to land and wildlife managers on adjacent lands.

Wolf Information and the Public

(10) Due to the number of park visitors and relatively high likelihood of seeing wolves in the park, Denali is uniquely positioned in Alaska to educate and inform the public on wolves.

(11) The general public served by the NPS highly values wolves, wolf research, and local/current information about wolves.

(12) Because the information collected about Denali wolves can be used to inform decisions made by Federal and State resource management agencies, the public recognizes the value of this information.



Methods and findings from wolf research are incorporated into wolf programs for visitors, such as this one at the Murie Science and Learning Center.



Recommendations

The following recommendations are not prioritized. They are, by design, somewhat general, providing considerable flexibility for Denali's new Biological Program Manager (also the wildlife team leader and manager of the wolf program) to evaluate the program and identify focus areas.

Wolf Program at Denali

(1) To maintain the scientific value and long-term integrity of the wolf program, targeted short-term research and long-term monitoring should continue.

(2) Research and monitoring should not singularly focus on wolves, but should also encompass the broader ecological role that wolves play within a complex system, e.g., their role as a predator and how they affect both prey species and other carnivores.



Research using strategically-placed cameras documents that not every moose-wolf interaction means a meal for a wolf. When a wolf (rump visible, photo at right) encountered a bull moose, the moose stood his ground and both animals parted ways.

As predators, wolves eat a variety of prey, including moose calves (see cinnamon-colored calf in large photo below), as well as (inset photos top to bottom, L to R) Dall's sheep lambs, caribou calves, snowshoe hares, arctic ground squirrels, beavers, and hoary marmots.



(3) Objectives should be periodically and critically reexamined to assess logistical, financial, and statistical feasibility. Costs, benefits, and probability of success need to be fully considered.

(4) Setting and achieving clear and feasible objectives are important to sustained confidence in and support for the wolf program.

(5) Known and expected changes in available staffing and budgets may necessitate changes in monitoring techniques, approaches, and scale of study.

(6) Collaring efforts are critical for population monitoring. One current management need that only would be met by collaring is to monitor trends in individual packs in areas affected by sport harvest.

(7) Collaring of wolves should be conducted only when necessary to meet specific research and monitoring objectives, keeping in mind the costs and negative aspects of collaring. Plans for removal of collars (e.g., timing, funding) should be part of any effort that collars wolves.

(8) It should not be assumed that collaring will continue indefinitely.

(9) Monitoring to meet such current wolf management plan objectives as locating den sites and disease outbreak may not require collaring efforts. However, the identification of new den sites and new pathogens/parasites may require live capture and collar deployment.

***Recommendation*: Collaring of wolves should be conducted only when necessary to meet specific research and monitoring objectives.**

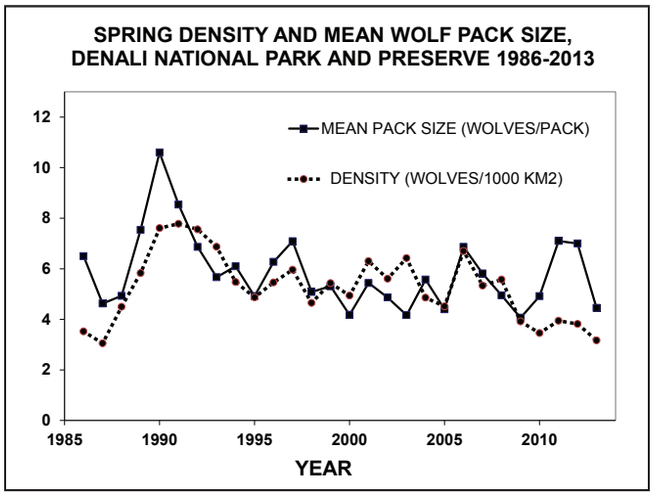






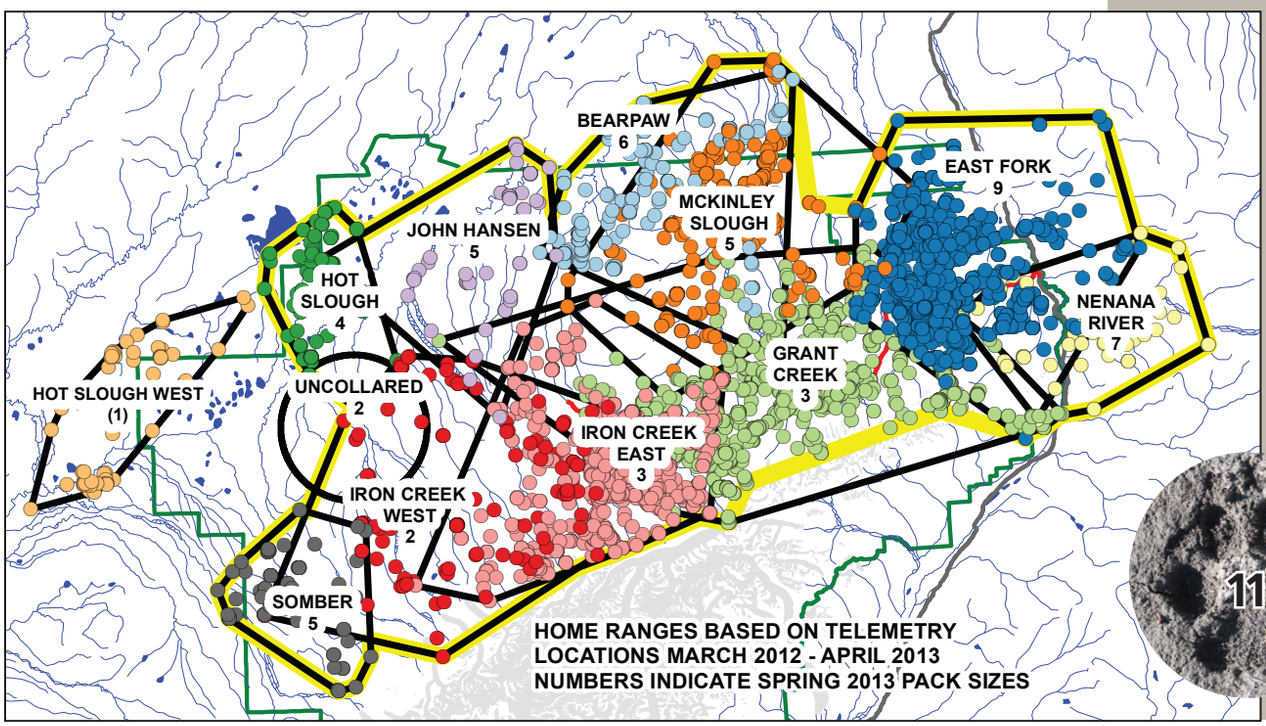
(10) NPS should ensure that data collection and analysis are conducted so comparisons over time can be made. In particular, NPS should collect appropriate meta-data and prevent small changes in methods (method creep) from confounding conclusions (e.g., annual density estimates should always be calculated in the same way).

(11) NPS must not let the trivial and the mundane compromise the NPS mission of resource protection. The importance of resource studies should prevail despite any government bureaucratic challenges.



Average wolf density per square kilometer (or mile) and average wolf pack size have been estimated for decades (see graph at left).

Collaring wolves enables biologists to count wolves in the packs with collared individuals, map wolf territories, calculate wolf densities, and determine average pack size. The maps showing wolf territories (map for 2013 below), which are generated in April or early May, are very popular for educational purposes.



Wolf Program and Collaboration

(12) NPS should maintain and expand collaborations that improve our knowledge of wolves and the greater ecosystem of which they are a part (e.g., NPS-collared wolves could be used to evaluate state survey strategies; NPS could collaborate with academic programs to maximize research results).

Sharing Wolf Program Information

(13) NPS must meet its resource management, scientific, and public trust obligations to share the wolf program research findings by publishing in peer-reviewed external journals (highly preferred) or producing NPS natural resource reports (at a minimum).

(14) NPS should continue to provide to the public current and accurate information and, when appropriate, request external review of these materials, particularly when the topics are controversial.



Challenges

(1) It is likely that Denali wolves—particularly the packs found in the northeastern portion of the park that utilize both park and adjacent lands, and that are visible along the park road—will be mired continually in politics.

(2) While ongoing wolf research and monitoring has value beyond the park, the financial and staff support costs of these studies currently are borne almost exclusively by the NPS, specifically Denali and the Central Alaska Inventory & Monitoring Network.

(3) Policy conflicts between the State and Federal governments are impeding desired beneficial and strategic collaborations.

The Path Forward

The legacy of wolf studies in Denali is a long and valuable one, dating back to the 1930s. It is the longest-running dataset on a natural population of wolves in the world. There will always be an interest in, and challenges facing, the management of wolves in and around Denali. The foundation provided by past work coupled with current and rigorously collected and analyzed biological information is crucial in support of the sound management of this resource. The Denali wolf program should continue—with a focus on immediate needs, long-term trends, appropriate methodologies, and clear and feasible objectives. In addition, opportunities for collaboration should be identified and maximized. Additional data and samples for morphometrics, disease screening, and genetic analysis should be collected opportunistically in conjunction with activities identified by objectives to be core ones. Results should be distributed widely to the public and the scientific community.

Acknowledgements

Denali National Park and Preserve would like to thank all of the participants in the 2013 Wolf Program Review. Special thanks are due to Grant Hilderbrand for organizing the review and compiling the report, Christie Anastasia for her artful facilitation, Amanda Wolfe for capturing the notes from a fast moving and spirited discussion, and Lucy Tyrrell for her skillful technical editing and document design.





Wolves are featured in art created by Denali's Artists-in-Residence:

Sculpture by Gina Holloman (2011).

Painting by Deborah Bouchette (2012).

***See back cover*: Painting by Gail Niebrugge (2009).**



For More Information

Mech, L.D., L.G. Adams, T.J. Meier, J.W. Burch, and B.W. Dale. 1998. The Wolves of Denali. University of Minnesota Press, Minneapolis. 227 pp.

Meier, T. J., Burch, J. W., Wilder, D., Cook, M. 2009. Wolf monitoring protocol for Denali National Park and Preserve, Yukon-Charley Rivers National Preserve and Wrangell-St. Elias National Park and Preserve, Alaska. Natural Resource Report NPS/CAMN / NRR—2009/168. National Park Service, Fort Collins, Colorado.

Murie, A. 1944. The Wolves of Mount McKinley. National Park Service Fauna. Series, No. 5. [out of print, republished by University of Washington Press]

Website (includes current wolf monitoring data and report) www.nps.gov/dena/naturescience/wolves.htm







On display at the Murie Science and Learning Center is a wolf skeleton that students from Cantwell reassembled from a legally-trapped wolf.



Appendix A. Annotated List of Wolf Review Participants

Layne Adams, Research Wildlife Biologist, Alaska Science Center, USGS

Guy Adema, Natural Resource Team Leader, Alaska Region, NPS

Bridget Borg, Wildlife Biologist, Denali National Park and Preserve, NPS

Scott Brainerd, Research Coordinator, Alaska Department of Fish and Game

John Burch, Wildlife Biologist, Yukon-Charley Rivers National Preserve, NPS

Deb Cooper, Associate Regional Director, Alaska Region, NPS

Greg Dudgeon, Superintendent, Gates of the Arctic National Park and Yukon-Charley Rivers National Preserve, NPS

Steve Fancy, National Inventory and Monitoring Program Coordinator, NPS

Craig Gardner, Research Wildlife Biologist, Alaska Department of Fish and Game

Grant Hilderbrand, Wildlife Biologist, Alaska Regional Office, NPS

Philip Hooge, Assistant Superintendent, Denali National Park and Preserve, NPS

Jim Lawler, Inventory and Monitoring Coordinator, Arctic Network, NPS

Maggie MacCluskie, Inventory and Monitoring Coordinator, Central Alaska Network, NPS

Buck Mangipane, Wildlife Biologist, Lake Clark National Park and Preserve, NPS

Carol McIntyre, Wildlife Biologist, Denali National Park and Preserve, NPS

Sierra McLane, Education Coordinator, Murie Science and Learning Center, Denali National Park and Preserve, NPS

Pat Owen, Wildlife Biologist, Denali National Park and Preserve, NPS

Laura Prugh, Assistant Professor, Biology and Wildlife Department, University of Alaska, Fairbanks

Dave Schirokauer, Physical Sciences Team Leader, Denali National Park and Preserve, NPS

Josh Schmidt, Quantitative Ecologist, Central Alaska Network, NPS

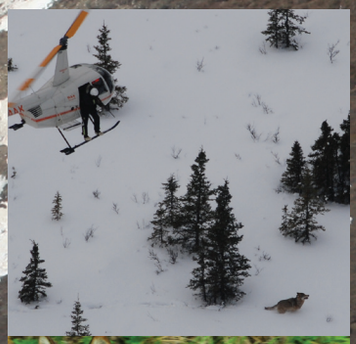
Doug Smith, Wildlife Biologist, Yellowstone National Park, NPS

Lucy Tyrrell, Research Administrator, Denali National Park and Preserve, NPS



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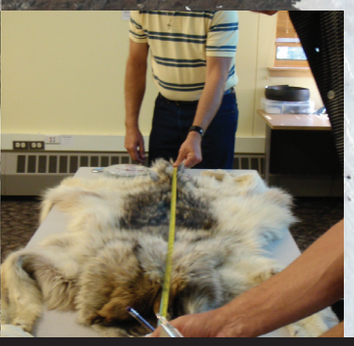


Photo Credit: Kes Woodward