



National Parks Conservation Association
Protecting Our National Parks for Future Generations®



Who's Counting?

**How insufficient support for science
is hindering National Park
wildlife management in Alaska**



Alpine bearberry © Jim Shives/NPS

Who’s Counting?

A report as detailed as this doesn’t happen by accident. It required the dedication and perseverance of many people who took the initial idea and evolved it into a printed document.

The original idea came from a discussion between NPCA’s Alaska Regional Director Jim Stratton and National Park Service Subsistence Specialist Sandy Rabinowitch, both of whom provided much help, guidance, and inspiration to the project. But this report would not have happened without the creative dedication of the report’s primary author, Andy Moderow. Working as an intern for NPCA, Andy dug into this issue with zeal, and the result has been useful both to NPCA and to the National Park Service.

Others that contributed to this report include Joan Frankevich, Claire LeClair, Nancy Sears, Theresa Pierno, Linda Rancourt, and numerous helpful employees of the National Park Service.

Special thanks go to Gregory Gusse of Arctic Exposure Photographic for donating his photographs for use in this report.

Julie and Miki Collins of Lake Minchumina and Johnny Johnson also donated photographs for use in this report. Alan Baldivieso of the Alaska Center for the Environment’s Conservation GIS Center produced the map found on page 4.

NCPA recognizes the generous support of an anonymous donor who made possible this report.

Our sincere hope is that this will help the National Park Service secure the support it needs to gather the data necessary to make sound wildlife management decisions in the national parks of Alaska.

August 2006

Cover photo: Caribou Herd © Gregory Gusse

National Parks Conservation Association
Alaska Regional Office
750 West Second Avenue, Suite 205
Anchorage, Alaska 99501
akro@npca.org
www.npca.org

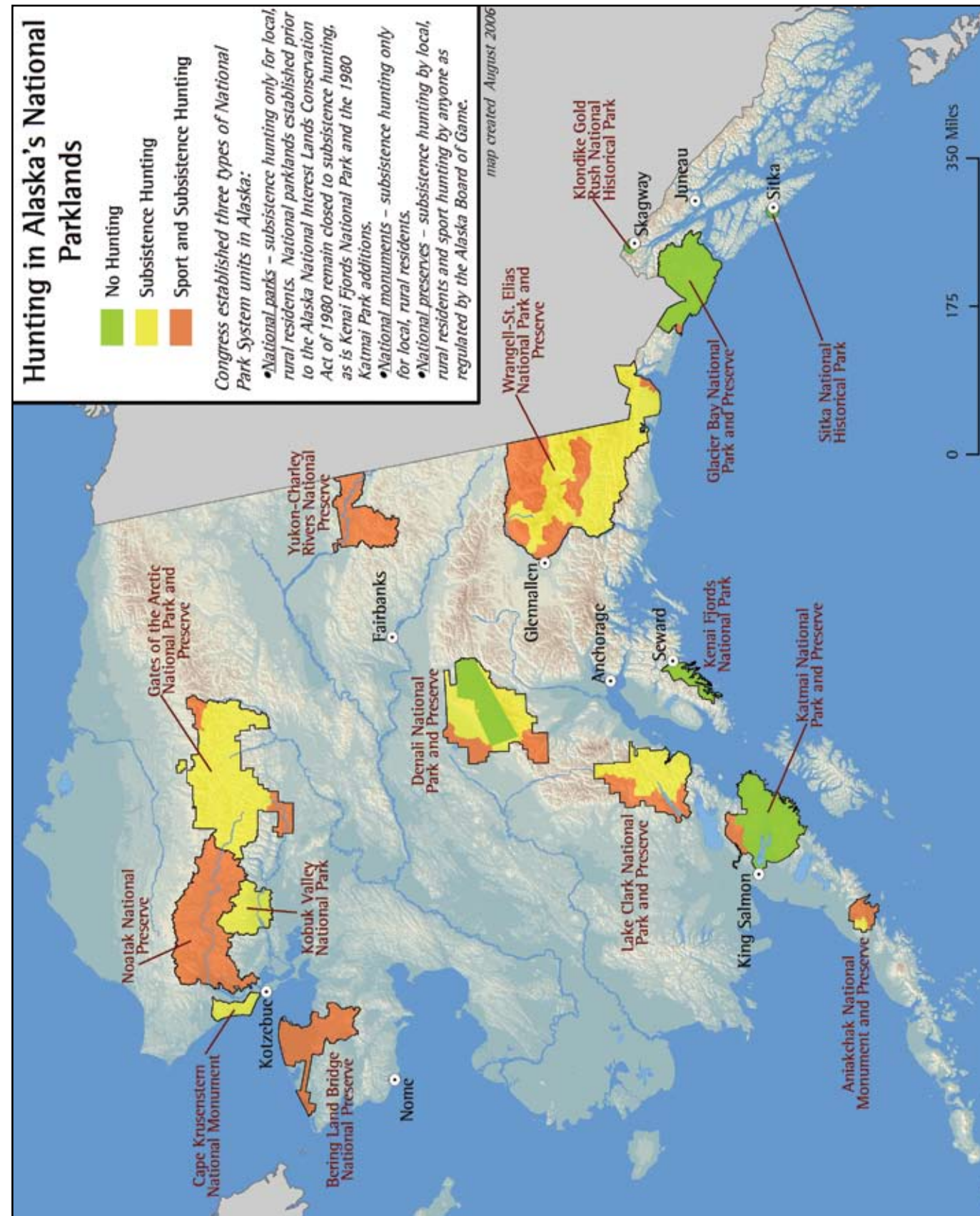


National Parks Conservation Association
Protecting Our National Parks for Future Generations®

Since 1919, the nonpartisan National Parks Conservation Association has been the leading voice of the American people in protecting and enhancing our national park system. NPCA, its members, and partners work together to protect the park system and preserve our nation’s natural, historical, and cultural heritage for generations to come.

CONTENTS

Map	4
Overview	5
Setting the Stage: An Introduction to Hunting in Alaska’s National Park Lands	6
Basic Tools for Sound Wildlife Management	8
Population (Pre-Harvest) Data	8
How to Count...Literally	8
How Much Pre-Harvest Science Exists?	8
Harvest Data: Two Sources	10
Reporting Database	10
Community Harvest Database	10
Comparing the Two Data Sources	10
Database Conclusions	13
Park Specific Summaries	
Aniakchak National Monument & Preserve	14
Bering Land Bridge National Preserve	16
Cape Krusenstern National Monument	18
Denali National Park & Preserve	20
Gates of the Arctic National Park & Preserve	22
Glacier Bay National Park & Preserve	24
Katmai National Park & Preserve	26
Kobuk Valley National Park	28
Lake Clark National Park & Preserve	30
Noatak National Preserve	32
Wrangell-St. Elias National Park & Preserve	34
Yukon Charley Rivers National Preserve	36
Final Conclusions and Recommendations	38
Appendix I: List of Species Harvested in Alaska’s National Parklands	40
Appendix II: Report References	42
Appendix III: Last Known Year of Community Harvest Surveys	44



Overview

Most everything in Alaska is different, even its national parks. At 54 million acres, Alaska encompasses nearly two-thirds of the entire National Park System, yet less than a third of these parks are accessible by car. More than half

One of the most striking differences between Alaska's national parks and those in the rest of the park system is that most of them are open to some form of hunting.

receive fewer than 10,000 visitors each year.

One of the most striking differences between Alaska's national parks and those in the rest of the park system is that most of them are open to some form of hunting. Each year, thousands of moose, bear, wolves, and caribou are legally harvested on parkland.

When Congress passed the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 it intended to provide both recreational and subsistence hunting opportunities on protected federal lands, including those managed by the National Park Service (NPS), in large part to preserve traditional ways of life that had evolved in rural Alaska. Congress emphasized this point by including subsistence in the purpose statements that established some national park units, and by

allowing sport hunting in Alaska's 19 million acres of national preserves.

Although hunting by itself is not a threat to park resources, reducing the number of predators and other wildlife can be a problem if the Park Service does not have the data to make sound management decisions. In addition to providing hunting opportunities, the Park Service must also maintain healthy and naturally occurring wildlife populations in accordance with the Organic Act and other management guidelines.

As this report will demonstrate, timely and scientifically sound data and the ability to analyze the information are not always available to park managers. The lack of data is not an indication of a lack of interest on the part of the National Park Service, but rather it underscores the funding shortfalls that affect the entire National Park System. Unfortunately, the Park Service does not have the funds to gather and analyze the data necessary to make wildlife management decisions that would ensure the animals' protection.

One example illustrates the urgency of this need. In Alaska's national preserves, land mammal harvest by sport hunters is managed by the Alaska Department of Fish and Game under the same regulations that apply to lands owned by the state of Alaska (state lands). The state regulates hunting to provide for "maximum sustained yield" while the Park Service is charged with

maintaining naturally occurring "healthy populations." This difference in management philosophy does not necessarily pose a threat to the wildlife populations living in Alaska's national preserves. Only through sound wildlife science and data gathering can we be absolutely certain that state wildlife harvest goals do not inadvertently affect the purposes for which Alaska's national preserves were established.

Ensuring naturally occurring and healthy wildlife populations in Alaska's national parks requires park managers to have sound, accurate data. Congress' intentions were clear when it comes to wildlife management in Alaska's parks: Provide opportunities for hunting, and ensure healthy wildlife populations. In this report, NPCA examines the challenges facing the Park Service and identifies where data are lacking and the reasons why. NPCA also makes several recommendations to improve the availability of sound science and harvest data. Without this data, the Park Service lacks the tools to adequately protect our parks for future generations.



Lake Clark cabin and moose skull © NPCA

Setting the Stage:

An Introduction to Hunting in Alaska's National Parklands



A hunter packs out a dall sheep near Cantwell © Richard Moran/AlaskaStock.com

Hunting in Alaska's National Parklands

Congress established three types of National Park System units in Alaska:

- ◆ **National parks** – subsistence hunting only for local, rural residents. National parklands established prior to the Alaska National Interest Lands Conservation Act of 1980 remain closed to subsistence hunting, as is Kenai Fjords National Park and the 1980 Katmai Park additions.
- ◆ **National monuments** – subsistence hunting only for local, rural residents.
- ◆ **National preserves** – subsistence hunting by local, rural residents and sport hunting by anyone as regulated by the Alaska Board of Game.

Few people realize the extent to which consumptive wildlife uses are allowed within Alaska national parks. A visitor from any country in the world can hunt bear in Katmai National Preserve, and residents of Cantwell, a small village just outside the southern boundary of Denali National Park, can hunt moose near Wonder Lake, in the heart of one of Alaska's most visited parks. Through ANILCA, Congress fully authorized hunting, an important part of Alaska's rich traditional rural culture.

Congress also clearly differentiated between the two types of allowable consumptive wildlife use: subsistence and sport hunting. As defined under ANILCA, subsistence is available only to local, rural residents. Barring few exceptions, Congress created a distinction in ANILCA that provides for a "rural" preference, as opposed to "native" or "needs-based" preferences, allowing only users within geographically designated rural communities to hunt on national park or monument lands. Urban users, no matter their heritage or background, do not qualify for subsistence. Sport hunting is allowed only in national preserves, a defining feature of these federal lands that allowed anyone to participate in this activity, which is regulated by the Alaska Board of Game.

Throughout ANILCA's legislative history, members of Congress assured each other that national preserves would be granted every protection that park or monument lands receive on issues of wildlife preservation, including the goal of sustaining healthy wildlife populations without population manipulation. Congress didn't believe that the traditional goals of the Park Service would be impeded by the continued existence of sport hunting. Nowhere is this better demonstrated than in the enabling language of Noatak National Preserve. This large unit was added to the park system to protect

a large, untouched Arctic watershed. The enabling legislation establishing the preserve stipulated that it be managed "in such a manner as to assure the continuation of... biological processes unimpaired by adverse human activities." Clearly, if Congress believed that such a goal was inconsistent with sport hunting, Noatak would have received a different land designation.

Although both sport and subsistence hunting are allowed in national preserves, Congress decided that when wildlife populations are scarce, these two consumptive uses are not equal. To sustain traditional ways of life in rural Alaska, ANILCA prescribed that subsistence users would receive priority should wildlife, such as moose or caribou, become scarce. Congress recognized that subsistence has been around for a long time, and rural residents had become part of the "natural" system, acting as a primary consumer in the food chain.

Initially subsistence use, as well as sport hunting, was managed by the state of Alaska. However, in a landmark court decision in 1989 (McDowell v. State of Alaska), the state court ruled that ANILCA's rural subsistence priority was inconsistent with the Alaska State Constitution, violating common use and equal access clauses. As a result, the federal government assumed implementation of the subsistence priority on its own lands and two separate management regimes were born: one for rural subsistence users that is managed by the Federal Subsistence Board and applicable only on federal lands, and one managed by the Alaska Board of Game on all other lands.

Urban and non-Alaska residents, when hunting in national preserves, hunt under the state regulations. Rural residents who live in resident zone communities hunt under the federal regulations within parks and monuments, and can choose between state and federal regulations when hunting in national preserves. Thus, both the state and federal governments oversee wildlife harvest in Alaska's federal conservation units, with two sets of regulations applying in national preserves. Although this is confusing for many park users, this dual system ensures that when wildlife resources are limited, the ANILCA defined subsistence priority is fulfilled on federal lands, including national parks, monuments, and preserves.

In addition to granting a broad subsistence priority for harvestable resources on all federal lands, Congress took additional steps to ensure this traditional way of life continued on national parklands. Two units of the National Park System in northwest Alaska were given the responsibility to "protect the viability of subsistence resources," and subsistence is specifically authorized in six other park system units. These provisions do not require the Park Service to abandon or disregard other important directives for protecting wildlife under the Organic Act and other sections of ANILCA. On the contrary, ANILCA charges that park resources be made available for subsistence uses by rural residents in a manner that does not threaten the overall integrity of the park's natural or healthy wildlife populations.

Consumptive wildlife uses, if properly managed, pose no threat to the integrity of Alaska's national parklands. Both common sense and science demonstrate that properly regulated hunting causes very little impact on natural ecological systems. To ensure continuation of naturally functioning ecosystems, Congress directed that the National Park Service, while allowing consumptive wildlife uses to occur, "maintain the natural abundance, behavior, diversity, and ecological integrity of native animals as part of their ecosystem."

The Park Service has the difficult challenge of providing for consumptive uses in a manner that doesn't adversely affect wildlife populations. Through sound science and accurate data gathering, park managers can balance consumptive and preservation interests. Unfortunately, even on the most basic levels, the Park Service lacks the data needed to fulfill congressional intentions.

Brief History of ANILCA

The Alaska National Interest Lands Conservation Act (ANILCA), signed into law on December 2, 1980, is one of the greatest conservation accomplishments that this nation has ever witnessed. It added more than 104 million acres to the federal conservation system, and more than doubled the total acreage of the National Park System in three classifications: national parks, national monuments, and national preserves. As part of this bold action, Congress also took steps to protect traditional activities within many of the new units, particularly on issues regarding consumptive wildlife uses. Unlike most other parks in the Lower 48 States, ANILCA provided that subsistence hunting by local, rural residents be allowed to continue in most of the newly established lands. In addition, sport hunting would continue on national preserve lands, allowing anyone to hunt on one-third of Alaska's new parklands.

Basic Tools for Sound Wildlife Management:

What’s needed to meet congressional intent for both consumption and protection.

Wildlife Management In A Nutshell

In elementary school, the concept of subtraction is introduced with simple examples: Johnny has 12 apples--if he eats two, how many does he have left? “Ten!” the class proudly announces to their teacher. Math can make things in the world appear incredibly simple, and wildlife science by no means transcends this general rule. Although wildlife management in practice is much more complex, a good starting point for managers is knowledge of baseline park wildlife populations and harvest levels.

Population (Pre-Harvest) Data

Sound wildlife management requires accurate and timely population data. Without estimates based on actual wildlife counts, managers must use a “gut feeling” to make harvest decisions. These “gut feelings” rely on incidental knowledge about an animal population. Do locals claim that caribou are harder to find? Did half the number of moose wander through the village this year compared with last? Although individual observations are undoubtedly useful, they fail to provide a holistic picture. Today’s managers can do better. Why make them guess when they can count?

How To Count... Literally

Counting is easy – it is one of the first things people learn. Yet counting wildlife within Alaska’s national parks is difficult, largely because all units in Alaska combined come close to the size of Minnesota. Rough terrain, dense forests, and unpredictable weather can also make the counting process even more complex. Estimating wildlife populations is no small undertaking, but techniques have been developed over the years and today scientists can provide accurate population estimates.

Different seasons are used to count different species in Alaska’s parks. Moose are usually counted in the fall just after the first snow, as the white backdrop makes it easier to spot the brown animals. Furbearer populations, such as lynx, wolf, wolverine, and fox, are best understood by the quantity of tracks spotted in the snow. These tracks are best spotted in the early spring, when the days are longer. Sheep, however, are best counted before winter arrives, because their white coats blend in with the snow. Brown and black bears can’t be counted in the winter because they hibernate. By counting the number of lodges spotted on lakes and streams, scientists



Biologist Gretchen Roffler weighs a day-old caribou calf in Denali National Park © Layne Adams/USGS



Layne Adams approaches an immobilized caribou cow from the Mentasta Caribou herd in Wrangell-St. Elias National Park and Preserve © Mason Reid/NPS

can estimate beaver populations. No one technique or one season works well for all species. Each survey requires trained scientists to spend time in the field.

Airplanes are often used in surveys as an effective way to cover lots of ground quickly, and roads aren’t an option in most park units. Flights are usually conducted in a predetermined pattern, allowing for a survey to be duplicated in the future. Although flying time is not cheap, an alternative technique, counting animals from the ground, requires much more time, making it expensive as well. Counting wildlife in Alaska parks isn’t easy, but it is doable. And it is essential to protect Alaska’s parks for future generations.

How Much Pre-Harvest Science Exists?

Insightful population data are missing for many parks in Alaska for a variety of reasons, although one of the primary factors is insufficient funds. Population data are most useful when the information sheds light on how populations have changed over time. Establishing these trends requires research over multiple years. When managers cannot count on a steady source of funds, they cannot be certain that multi-year efforts will continue. Long-term, consistent funding would provide the stability necessary for park biologists to understand population trends of park species. Other parks, fortunate enough to secure short-term funding, have managed to gather field data over the years but they often lack the funding needed to properly analyze the information. In some cases, 25 years of data are stored in boxes because biologists don’t have time to analyze or update the information.

Each park has different needs, as discussed in the park-by-park section, but throughout the system, a few more resources could yield significant results. Some units need a lot of help immediately, as they have been neglected over the years, and others seem to be functioning at an adequate, but not optimal, level. To fulfill congressional intentions, understanding current population and population trends of harvestable species must not be a second priority for parks.

Why We Need Baseline Data

Gates of the Arctic National Park and Preserve covers more than 8 million acres, and much can happen in a park like this one before wildlife managers know what is going on. This can be particularly problematic with a species like Dall sheep, which could be impacted greatly by harvest rates and diseases. Current population numbers are critical to understanding the depth of the potential impact.

Dall sheep, if exposed to domestic animals, can contract diseases capable of wiping out up to 70 percent of a population. Without the benefit of actual population numbers, wildlife biologists estimated that in the early 90s, populations fell just about that much across much of the Brooks Range, possibly attributable to a disease. Although biologists believe the population has rebounded to some degree, they don’t know for sure, which complicates how to react should there be another deadly outbreak. Should populations fall to a level where harvesting sheep threatens the species’ ability to rebound, an emergency hunting order would be enacted. The only way to ensure that the Park Service can shoulder the burden of proof on such a hunting closure is with adequate baseline population data.

Adequate baseline data is invaluable to park managers. If data do not exist, management actions are merely a “best guess.”

Harvest Data: Two Sources

Two sources of harvest data are readily available to help park managers understand park wildlife harvests in Alaska’s national parks: the Reporting Database and Community Harvest Surveys.

1. Reporting Database

The Reporting Database, developed by the Alaska Department of Fish and Game, contains harvest data submitted by hunters. Information about the hunter, such as where they reside, is attached to data about the specific animal, including date and location of kill. The reporting database is not a dependable tool for wildlife managers, because the information is not complete. Although harvest rates over time are provided, not all species of interest are included, and rural hunters, as a whole, don’t report a majority of their harvests, as explained later. It is much more accurate for urban and non-local users, however, and provides a somewhat clear picture of sport hunting trends.

2. Community Harvest Survey

The Community Harvest Survey program, also developed by the Alaska Department of Fish and Game, provides community harvest estimates for rural residents based on interviews. Survey teams go door-to-door within remote communities asking residents about their harvest activities during the preceding year. After sampling a statistically significant portion of a community, a total community harvest is estimated for individual species. Although community harvest data generally calculates total local harvest levels more accurately than the reporting database, it is limited because the location of each individual harvest isn’t given. Additionally, data rarely exist for more than one year, making it difficult to understand how harvest trends change over time.

Comparing the Two Data Sources

Each source of data has advantages and disadvantages. The reporting database provides a location of harvest and information about the specific animal, but relies on successful hunters to mail in harvest reports. The community harvest surveys include a more complete account of a community’s activities, because survey teams spend enough time in each community talking to hunters to get a more accurate sense of the actual harvest. However, without spatial information about the harvest, figuring out what portion occurred on Park Service land is often difficult. The reporting database includes harvests from each year, making it possible to track trends, but the data only portray non-local hunting accurately. The community harvest survey database accounts for rural harvests accurately, but rarely includes more than a few years of data per community. Many towns haven’t been surveyed since ANILCA passed in 1980. Neither source of data provides an accurate snapshot of harvest levels in Alaska’s national parks.

The community harvest survey system estimates, on average, higher harvest levels than the reporting database. Most likely this is because many rural residents don’t report their harvest through the mail-in state reporting system. Cultural traditions of not bragging about animal harvests lead many to opt out of the reporting system.



Preparing caribou meat © Chris Arend/AlaskaStock.com

Some users feel that the paperwork behind the reporting database takes too much effort on their part, and with little chance of repercussions they have little incentive to participate. In addition, it is difficult to enforce many regulations in rural Alaska, and often, regulations fail to line up with traditional ways of harvesting wildlife. Thus, if someone chooses to harvest a moose out-of-season because their family needs food, they cannot report it utilizing the established reporting apparatus without being cited. Although out-of-season harvests are not desirable on parklands, they do occur and quantifying how many is important for sound wildlife management.

Community harvest surveys, in addition to capturing some unreported data, are more personal in nature and require less initiative than the mail-in harvest reports. Conducted face to face under the condition of anonymity, cultural objections are lessened, and illegal harvest activities can be reported. Although not immune from inaccuracies (only a portion of each community is sampled – total community activities are calculated from the sample), many believe that this source of data provides a better estimate of rural harvest activities. The biggest drawback is the expense: It costs an estimated \$30,000 to \$40,000 to survey one village, which includes the cost to tabulate and analyze the results. For this reason, some communities have never been surveyed; for others, only old data exist. (A summary of survey status by community is in Appendix III.)

Non-locals, too, may not report all of their harvest activities, but non-compliance is difficult to measure. Generally, wildlife managers assume that sport-hunting records are nearly complete. Most non-local sport hunters are likely to report all their successful takes because transporting a moose or caribou along the road system or through rural airports exposes them to a higher level of law enforcement. Guided hunters are also likely to report nearly all harvest, in part, because the guide’s livelihood depends on their clients obeying the law. Undoubtedly some urban harvests have slipped through the cracks, but the greater problem is correcting harvest data for a lack of reporting by local, rural subsistence users.

By comparing both sources of data, it is possible to compensate for the limitations of harvest data available through the Reporting Database. Where there are timely sources of both data sets, managers can extrapolate an estimate of a rural community’s total harvest by comparing one to the other. By evaluating the differences between the two

Can park managers really make decisions based on science and solid data?

Is it realistic, given all the logistical hurdles, that wildlife managers can really base decisions on sound science? Although it may seem insurmountable, a recent sheep regulation crafted for Lake Clark National Park and Preserve proves that it can be done. Using harvest data, wildlife managers worked with local residents to extend the sheep season to better match how subsistence has traditionally been carried out. Based on current population data, the regulation also sets limits of how many sheep may be harvested in a given year with only a set percentage of the total population to be harvested. This new proposal will increase hunting opportunity for local residents, while at the same time protect the future population of Dall sheep, one of the species that the park was established to protect.

Project Discovered The Need

When NPCA first began gathering information for this report, the full extent of the problem was unknown. It soon became clear that no systematic research had been conducted evaluating the validity of the available harvest data. As a result, NPCA partnered with the Park Service to produce a 285-page report to evaluate the data. The report highlights the inadequacy of existing data, and since the report’s completion the Park Service has recognized additional data needs. Fierce competition for scarce research dollars contributes to the lack of information, and questions remain unanswered. As recommended in this report, support should be provided to not only gather more timely and accurate harvest data, but also to provide for a statewide harvest data analyst to ensure that wildlife harvest in Alaska’s national parklands is fully understood and does not violate each park’s purpose as set forth in ANILCA.



Lake Minchumina resident Julie Collins butchers a subsistence moose in Denali © Miki Collins

data sets, wildlife managers can arrive at a more accurate annual estimate of a rural community’s total harvest. When those differences are examined, the extent of the reporting problem and its potential effect on the ability of park managers to make sound decisions becomes painfully clear.

In some observed instances (discussed in the park-by-park section), only 3 percent of what a community harvest survey estimates shows up in the reporting database. Assuming, hypothetically, that the community harvest survey correctly estimates the actual harvest, this 3 percent would tell wildlife managers that for every three animals reported in the Reporting Database, an estimated 100 were harvested, with 97 not reported. Imagine, for instance, that a community reports 30 moose harvested over ten years. If the community reported only 3 percent of their total harvest, their actual moose harvest would be a whopping 1,000! Periodically establishing this percentage through Community Harvest Surveys could be useful to park managers by estimating actual annual harvest numbers extrapolated from the Reported Database.

A 3 percent reporting rate may sound unrealistic, yet if initial research is any indication, rates that low may be common in some areas of the state. A recent NPS draft report calculates that some rural communities fail to report any harvest on a given year. The community of Noatak, for example, didn’t report a single moose or sheep harvest in the 1999 reporting database, while a community survey estimates that 45 animals were harvested during that period.

A lack of accuracy in both databases makes it difficult to estimate accurate wildlife harvest in Alaska’s national parklands. The problem is compounded if wildlife population estimates are not accurate. Without that, the effect of both subsistence and sport hunting on wildlife populations in parks is unknown. Without accurate harvest levels or wildlife populations, park managers are left completely in the dark. And when uncertainty enters the equation, everyone, including hunters, loses out. If acceptable harvest levels are set too low because of a lack of data, some hunters may not be able to participate in ecologically sound hunts. If limits are calculated too high, populations won’t be able to sustain hunts in the future. Congress made its instructions clear about what it expected from park wildlife management: In all park units, healthy populations were to be maintained, not threatened or manipulated by human activities. Without sound science, management based on logic is impossible.

Database Conclusions

When making wildlife management decisions, all park managers agree that less uncertainty leaves all parties better off. Subsistence users can rest easier, knowing that rural population increases and the steady popularity of sport hunting in Alaska won’t limit their children’s option to live off the land. Sport hunters will know that in 20 years similar hunting experiences will exist. Future visitors to Alaska won’t have to shake their heads, thinking about what Alaska would be like if bears weren’t endangered. As intact ecosystems become scarcer around the world, the economic value of a preserved section of the Arctic will increase, providing jobs for Alaskans and inspiration to worldwide travelers. Alaskans and the world already realize the value of Alaska’s immense and untouched resources. Nothing has to change. Today, action is required to ensure that, in the future, Alaska will continue to provide opportunity and inspiration to all.

Each park unit in Alaska faces unique circumstances when it comes to understanding wildlife and harvests. The challenges faced by each park are considered individually in the remainder of this report. The bottom line is this: the problems are real. With support from National Park Service managers and additional funding, the problems can be solved ensuring that Alaska’s national parks will be protected and enjoyed by future generations.

Muskox in Bering Land Bridge National Preserve © Greg Gusse



Aniakchak National Monument and Preserve

Sport (preserve only) and subsistence hunting



Lower portion of Aniakchak River © NPCA

Description

Aniakchak National Monument and Preserve is a prime example of an Alaska Peninsula ecosystem, including examples of coastal, river valley, mountainous and volcanic terrain. The volcanic portion of the monument includes a 30-square-mile caldera, one of the largest in the world.

Direction Under ANILCA

ANILCA established Aniakchak National Monument and Preserve “to study, interpret, and assure continuation of the natural processes of biological succession.” ANILCA specifically provided that brown bear, moose, and caribou should have their habitat and populations protected.

Park Wildlife Users

Roughly 550 people lived within 50 miles of the park in 2000. Community harvest surveys indicate that nearly all local residents participate in subsistence activities. Subsistence hunters use boats, ATVs, and snowmachines as there are no roads to or within the monument or preserve. Sport hunters often use airplanes to get to the preserve, and are the main harvesters of moose and brown bear. Caribou, wolf, and wolverine are harvested more often by local users.

Population Data

Aniakchak National Monument and Preserve is far off the beaten path, making information expensive to gather. As a result, very little research has occurred within the park. Currently the Park Service is working with the U.S. Fish and Wildlife Service to determine moose density in the region. For species with large ranges, such

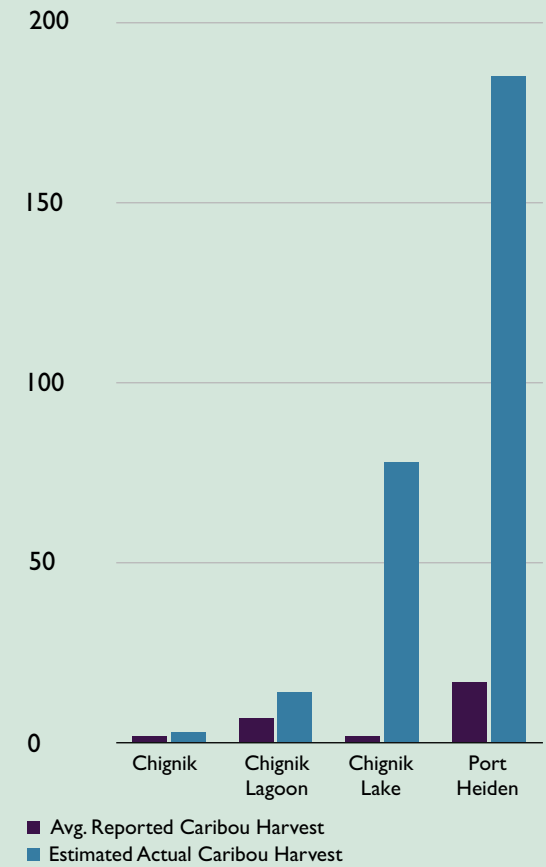
Local Communities: (Population in 2000)

- Chignik (79)
- Chignik Lagoon (103)
- Chignik Lake (145)
- Port Heiden (119)
- Ugashik (11)
- Pilot Point (100)

Did You Know?

Aniakchak is the least visited unit of the national park system seeing about 300 visitors in 2005.

Figure 2-1:
Report and Estimated Avg. Annual Caribou Harvest



Source data for all charts is Draft NPS Report (Moderow 2006) unless otherwise noted

as caribou, adequate data are being gathered in cooperation with state and federal agencies. To understand other species, the park needs specifically directed research dollars.

Harvest Data

Harvest data for the Aniakchak region is plentiful compared with other parks in Alaska, though it is outdated. Each community in the region completed a community harvest survey in the late 80s/early 90s, and interviews were conducted about specific resources of interest (i.e., caribou) in the mid-90s. Using both sources of harvest data, Figure 2-1 calculates the average annual caribou harvest in the area.

Data Needs/Conclusions

The reporting database in Figure 2-1 shows that local residents harvest 28 caribou annually. The most recent community harvest survey estimates that number to be closer to 279, ten times greater than reported. Timely community harvest surveys are needed to ensure the viability of this reporting database ratio.

The ratio would be more reliable if there was a better understanding of what portion of the reported harvest occurred within park boundaries. The Park Service currently lacks a staff person who could do this analysis, a situation that could be remedied by creating a Park Service data manager position in the Regional Office.

Bering Land Bridge National Preserve

Sport and subsistence hunting



Serpentine © Gregory Gusse

Local Communities: (Population in 2000)

- Brevig Mission (276)
- Buckland (406)
- Deering (136)
- Diomedede (146)
- Elim (313)
- Kotzebue (3,082)
- Port Clarence (21)
- Shishmaref (562)
- Teller (268)
- Wales (152)
- White Mountain (203)

Regional Population Growth:

- 1980 - 3,762
- 1990 - 4,921
- 2000 - 5,565

Description

Located on the northern coast of the Seward Peninsula, Bering Land Bridge National Preserve typifies the low coastal hills and soggy tundra found in much of western Alaska. Its most outstanding geologic features are several sites of recent volcanic activity and Serpentine Hot Springs, an important traditional healing site. The preserve’s primary purpose is to protect a unique documented history of the land bridge dating back more than 13,000 years ago, when animals and people are believed to have moved freely between Asia and Alaska.

Direction Under ANILCA

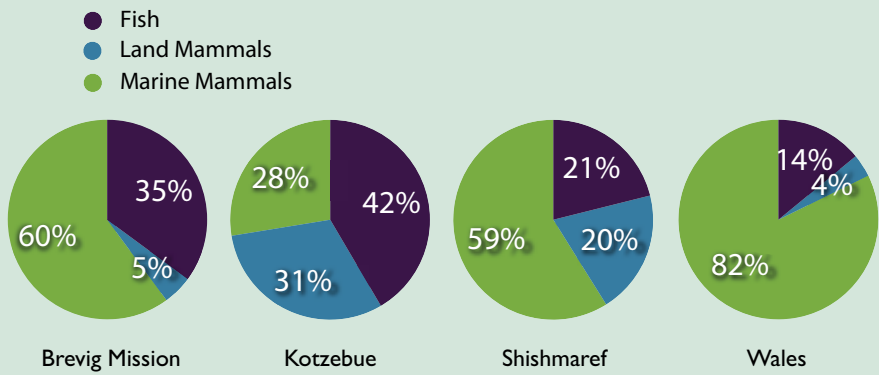
Recognizing the importance of subsistence in the region, Congress instructed the Park Service “to protect the viability of subsistence resources” within Bering Land Bridge National Preserve. Cape Krusenstern is the only other park established by ANILCA with similar language. ANILCA also charged the Park Service to “protect habitat for, and populations of, fish and wildlife, including, but not limited to, ... brown/grizzly bears, moose, and wolves...”

Park Wildlife Users

Reporting data estimates that only three of the 13 communities that are within 50 miles of the preserve use Bering Land Bridge for a large percent of their subsistence

Figure 2-2: Percentage of Subsistence Harvest, in pounds, by Resource Type

Source: Community Profile Database (ADF&G)



As shown, the types of resource relied on for subsistence uses vary greatly depending on the community. This variation can be attributed to differences in resource availability.

activities. These three, Deering, Shishmaref, and Wales, have annual per capita incomes of between \$10,000 and \$15,000, suggesting the importance of harvesting rather than buying food. Sport hunters report a higher harvest of brown bear and caribou in the region than local users, responsible for 79 percent and 85 percent of the total reported harvest respectively.

Population Data

Bering Land Bridge National Preserve shares a single park wildlife biologist with three other parks in the region, which explains in part why wildlife population data that has been collected over the years has not been sufficiently analyzed. Without assistance to analyze the present data, existing research isn’t used to the fullest extent possible.

Harvest Data

Of the three communities who regularly use the park, each had all-resource community harvest surveys completed in the past 13 years, making it one of the parks with the most recent data. These surveys provide the clearest snapshot of community harvest patterns (Figure 2-2). However, surveys for Deering and Wales need to be updated now. Shishmaref was completed in 1999 and should be updated in a several years. Unfortunately the Park Service hasn’t had the resources to do a complete harvest data analysis comparing the community harvest survey data to reported harvest. A quick review, however, reveals a large disparity between the two data sources. A community harvest survey for Shishmaref found that the average per capita use of land mammal meat in 1999 was 150 pounds. The average number of harvested animals reported for Shishmaref is about 18 per year, clearly not a large enough harvest to account for that identified in the community harvest survey.

Data Needs/Conclusions

Since most activity within the region appears to be by local residents, the reporting database is quite likely failing to capture a substantial portion of local activity. For managers to fully understand what is occurring in Bering Land Bridge, community survey data must be updated and analyzed in a timely fashion. The Park Service needs to support and expand existing wildlife population data collection and it must provide timely analysis of historical population data to understand changes in Bering Land Bridge wildlife populations over time.

Cape Krusenstern National Monument

Subsistence hunting only



Beach ridges along Chukchi Sea coast © Robert Belous/NPS

Resident Zone Communities: (Population in 2000)

Kivalina (377)
Kotzebue (3,082)
Noatak (428)

Per Capita Incomes:

Kivalina - \$8,360
Kotzebue - \$18,289
Noatak - \$9,659

% of total community harvest activity taken from Monument:

Kivalina - 40%
Kotzebue - 15%
Noatak - 12%

% of total Monument harvest:

Kivalina - 5%
Kotzebue - 83%
Noatak - 12%

Description

The uniqueness of Cape Krusenstern National Monument may be hidden to those who see only 114 ridges of earth, all approximately six to eight feet high, stretching parallel for eight miles along the coast of the Chukchi Sea. Yet these ridges aren't mere mounds of earth; each ridge represents the ocean level over time as the ocean receded. It may be best to think of them as 114 chapters in the 9,000 continuous years of human habitation.

Direction Under ANILCA

Cape Krusenstern was created in an effort to better understand human interactions with the land over time while simultaneously allowing for the traditional culture to evolve. Congress charged that "the viability of subsistence resources" must be preserved to help fulfill this end. Bering Land Bridge is the only other park with this strong subsistence authorization language.

Park Wildlife User

As a national monument, only those living in one of the three designated local resident zone communities (Kivalina, Kotzebue, and Noatak) may subsistence hunt within Cape Krusenstern. No sport hunting is allowed. Each community is roughly ten miles from the park, and all three have grown since the monument was established, from a total of 2,568 residents in 1980 to 3,887 in 2000. Kotzebue, with a population of 3,082 in 2000, has been the largest community in northwest Alaska for decades.

Figure 2-3: Kivalina Reporting Data compared against Community Survey Data

Species	Avg. Reported Annually (from reporting data)	1992 Harvest (from Community Survey)	% Reported if 1992 Survey is accurate
Brown Bear	.2	3	7%
Moose	.5	17	3%
Land Otter	.04	2	2%
Wolf	.5	9	6%
Wolverine	.4	23	2%

Population Data

Cape Krusenstern is one of four parks in Northwest Alaska sharing a single wildlife biologist. With only one person overseeing four large units, conducting research and analyzing the information is nearly impossible. Sheep and moose surveys have been conducted in different areas almost annually, but the information has not been thoroughly analyzed. As a result, the data have limited value and much of the value of collected data from numerous years is under-utilized.

Harvest Data

The best evidence of the discrepancy between the reporting database and community survey data is provided by comparing the estimated use of moose and brown bear meat by the residents of Kivalina (Figure 2-3). In 1992, the community harvest survey estimated that 294 pounds of moose and brown bear were harvested per person.

Averaging all years in the reporting database and using an average size for moose and brown bear, an annual harvest of 0.86 pounds per capita has been reported – a mere 0.3 percent of the total annual harvest indicated by the community survey.

Data Needs/Conclusions

Community harvest surveys need to be updated and analyzed to allow for a better understanding of harvest patterns in Cape Krusenstern's three resident zone communities. Taking cultural and economic data into account, it seems much more plausible that the community harvest survey of 294 pounds of annual land mammal harvest per capita in Kivalina is more accurate than what has been reported. In addition to understanding harvest levels, more personnel should be made available to analyze 25 years of population data, providing insight into wildlife trends over time.



Moose © Gregory Gusse

Denali National Park and Preserve

Sport (preserve only) and subsistence hunting in 1980 additions



Kettle Pond and Alaska Range
© Robert Valarcher/NPS

Resident Zone Communities: (Population in 2000)

Cantwell (222)
Lake Minchumina (32)
Nikolai (100)
Telida (not available)

Did You Know?
Cantwell has posted the fastest growth out of any local community with a population over 50 when ANILCA passed in 1980. It has gone from 89 residents in 1980 to 222 in 2000, more than doubling in size.

Description
Denali National Park and Preserve is home to the highest peak in North America, Mt. McKinley. Two million acres of the 5.7-million-acre park and preserve have been part of the National Park System since 1917, when Congress protected the region because of threats to its wildlife populations from commercial meat hunting. Denali was expanded by the ANILCA in 1980 and now nearly 400,000 people visit the park each year in search of wildlife, most getting into the park along its single road.

Direction Under ANILCA
Congress directed the National Park Service to protect populations of brown bears, moose, caribou, Dall sheep, and wolves and their habitat as well as other animals found in the park. One driving force behind Denali’s expansion by ANILCA was to protect the entire range of species that require a large amount of land, such as wolves, bear, and caribou. The “old” park, which had been closed to all hunting since it was established in 1917, remains closed. ANILCA granted subsistence rights “where such uses [were] traditional”.

Park Wildlife Users
Residents of any four of the Resident Zone Communities (Cantwell, Lake Minchumina, Nikolai, and Telida) may hunt in any portion of the park addition,

Figure 2-4: Denali Resident Zone Communities Compared

Community	Population (2000)	% Native	Income Per Capita
Cantwell	222	22.5%	\$22,615
Lake Minchumina	32	3.1%	\$26,781
Nikolai	100	81.0%	\$11,029
Telida	0	-	-

A lot of variation exists between each of Denali’s Resident Zone Communities. Community harvest survey-style research would help to understand how each community has come to use the park differently, given these differences.

Source: 2000 U.S. Census

including both preserve and park areas. Residents may even drive their highway vehicles down the closed-to-the-public park road, providing access to hunt in park additions. Of the four communities, Cantwell is the largest, at 222 people in 2000. The north and south preserve units added under ANILCA are open to sport hunting, and are used by hunters from around the world.

Population Data
Denali has very rich population data for wolves, moose, and caribou. Moose surveys are conducted every few years in different parts of the park, and most areas affected by hunting have been evaluated recently. Wolves have been studied for 20 years, and nearly every pack has one or more member radio collared. The park caribou herd has been studied for more than 20 years but isn’t hunted within its usual home range.

Data on sheep are needed, and no data exist about furbearer populations (excluding wolves). But available data suggest that very few sheep and furbearers are harvested within the park. While Denali could benefit from an expanded science program to learn more about sheep and furbearers, it appears that the main hunted populations are understood.

Harvest Data
Available harvest data for Denali is outdated and requires immediate action. Of the four resident zone communities, only two have had a community harvest survey since ANILCA became law: Cantwell in 1982 and Nikolai in 1984. These outdated surveys suggest that the reporting database fails to capture all local activity, but without accurate community harvest survey data, it is hard to be certain. Cantwell has more than doubled in size since the surveys were taken, and undoubtedly has witnessed some major harvest pattern changes.

Data Needs/Conclusions
The National Park Service needs to continue Denali’s tradition of gathering quality data on moose, caribou, and wolves, with some additional attention to furbearer and sheep populations. Since initial evidence suggests that park managers have data on harvested wildlife populations, Denali’s main need is improved harvest data. An updated Cantwell community harvest survey could show how 20 years of growth has affected subsistence activities. Community harvest surveys are also needed for the other three resident zones.

Gates of the Arctic National Park and Preserve

Sport (preserve only) and subsistence hunting



Brooks Range © Gregory Gusse

Resident Zone Communities: (Population in 2000)

- Alatna (35)
- Allakaket (97)
- Ambler (309)
- Anaktuvuk Pass (282)
- Bettles (43)
- Evansville (28)
- Hughes (78)
- Kobuk (109)
- Nuiqsut (433)
- Shungnak (256)
- Wiseman (21)

Gates of the Arctic Acreage:
National Park - 7.5 million acres
National Preserve - .9 million acres

Description

Gates of the Arctic National Park and Preserve (Gates) is defined by the craggy peaks of the Brooks Range, which is the northern-most extension of the Rocky Mountains. Rivers throughout the park provide travel corridors for both wildlife and humans. However, this remote park has no trails and very few visitors venture into the 8.4-million-acre park each year.

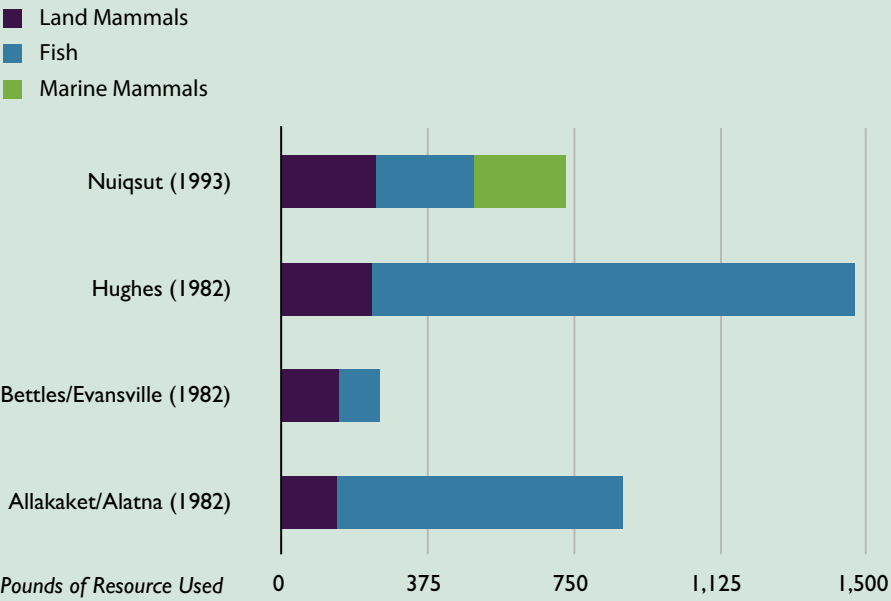
Direction Under ANILCA

In establishing Gates of the Arctic, Congress recognized this region as one of the last intact mountain ecosystems in the United States by classifying 7.2 million acres as wilderness, an even greater level of protection to the resources within the park. Enabling language specifically mentioned the importance of caribou, brown bear, Dall sheep, moose, and wolves to the park, and charges that the populations of and the habitat for each species should be protected.

Park Wildlife Users

Eleven communities have subsistence rights within Gates of the Arctic National Park, with a total population in 2000 of 1691. The reporting data shows that residents of Anaktuvuk Pass, Bettles, and Wiseman use the park area the most. Although research shows that fish provide the most sustenance for residents of the region, residents also hunt land mammals (Figure 2-5). However, based on existing data, Gates harvest seems to be mainly conducted by non-local users for bear, caribou, moose, and sheep. This may be because rural residents are underreporting their take. Although no direct

Figure 2-5: Percentage of Subsistence Harvest, in pounds, by Resource Type
Source: Community Profile Database (ADF&G)



While not the main resource utilized by local residents, land mammals make up an important part of the subsistence-based diet for communities in the region.

evaluation of reporting rates has been done for communities in the Gates region, evidence suggests that local reporting rates fall between 3 percent and 30 percent, the range commonly observed in non-road connected Arctic communities.

Population Data

Gates of the Arctic National Park and Preserve has many unmet data needs. Moose population surveys, for example, are simply not occurring with enough regularity to ensure the Park Service is making decisions with the best data. Adequate support must be provided to ensure that accurate and timely wildlife population data are collected over time, especially for species that are hunted like sheep, moose, and brown bear.

Harvest Data

The lack of up-to-date community harvest surveys makes an evaluation difficult, thus no harvest data comparison has been completed. An evaluation would give some sense of the actual harvest, although it is safe to assume that the reporting rates for Gates of the Arctic resident zone communities are no better than for the towns to the west, near Cape Krusenstern National Monument.

Data Needs/Conclusions

More population information is needed to understand the wildlife of Gates of the Arctic. In addition, community harvest surveys must be regularly completed and analyzed to evaluate the accuracy of the reporting database. The Park Service does not know how often local users report their harvest. This is essential to determine whether sport hunters or local subsistence residents are the main users of this unpopulated park's wildlife. Although some data exist to compare community harvest survey data to the reported database, updated information should be gathered and compared with the old data. When complete, a more holistic picture of how rural non-road connected residents use parklands will provide a glimpse of how traditional ways of life continue to evolve on Park Service lands.

Glacier Bay National Park and Preserve

Sport and subsistence hunting in preserve only



Alsek River flowing out of the Fairweather Range and into the Pacific Ocean © Kim Heacox / Accent Alaska.com

Description

Glacier Bay National Park and Preserve protects a dramatic and rapidly changing landscape, the result of glacial activities in the region. The park includes prime habitat for many of Alaska’s large land mammals, as well as a sanctuary for threatened humpback whales and Steller sea lions.

Direction Under ANILCA

The park portion of Glacier Bay was closed to all hunting under ANILCA. The 57,000-acre preserve on the park’s north side, however, remained open to all forms of hunting. A specified purpose of the park addition was to protect fish and wildlife migration routes along the Alsek River, which runs along a portion of the preserve border. The preserve was designated to allow sport hunters continued access to a region where they had historically hunted.

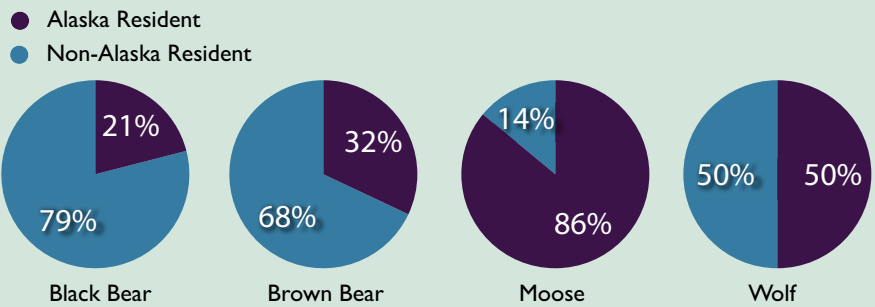
Park Wildlife Users

Sport hunting continues to be a popular activity in the preserve, with a recent reported average annual harvest of six brown bear, two black bear, and the occasional moose or wolf – quite a bit of activity for such a small area. Brown bear hunting has

Did You Know?

The preserve portion of Glacier Bay National Park and Preserve, while the smallest unit where hunting is allowed in Alaska’s national park system, is slightly bigger than the District of Columbia.

Figure 2-6: % of Species harvested in the Preserve by hunter residency



Alaskans and out-of-state hunters both utilize Glacier Bay National Preserve.
Source: Community Profile Database

increased above pre-ANILCA levels, while the level of black bear harvest has remained relatively constant. The nearest community is a distance away from the preserve, meaning that no community is local as defined by this report.

Population Data

The primary focus of Glacier Bay wildlife research is marine mammals, because whales, seals, and sea lions are a main park attraction and their continued viability in the park demands accurate and timely science. Population data for the preserve are best coordinated with the managers of adjacent lands.

Harvest Data

Since most users have to travel a long distance to reach the preserve, reporting rates are expected to be higher than in parks where people live nearby. Non-residents seem to be the main consumer of brown and black bears, and it is expected that they report nearly all of their activity (Figure 2-6). Non-local Alaska residents are the main harvesters of wolf and moose. Generally, because these people are from large urban areas, it is assumed that they report nearly all their harvests. More research could confirm this.

Data Needs/Conclusions

Because of its remoteness, lack of subsistence zone communities, and preponderance of non-resident hunters, the harvest data from Glacier Bay National Preserve is most likely valid. Glacier Bay could provide a good site to test the theory that non-locals report more often than local residents.

Black bear digging for clams in Glacier Bay National Park & Preserve
© QT Luong/terrageria.com



Katmai National Park and Preserve

Sport and subsistence hunting in preserve only



Brown bear near the mouth of the Brooks River. © NPCA

Nearby Communities: (Population in 2000)

Igiugig (53)
Iliamna (102)
King Salmon (442)
Kokhanok (174)
Levelock (122)
Naknek (678)
Newhalen (160)
South Naknek (137)

Regional Population Growth:

1980 - 1,297
1990 - 1,791
2000 - 1,708

Description

ANILCA expanded Katmai National Park and Preserve from the original 1918 monument to include a preserve on the north side of the park. The expanded unit protects a cross section of all landforms that can be found in southwest Alaska, including both coastal and tundra terrain. The park is known as one of America’s best brown bear sanctuaries.

Direction Under ANILCA

Different House and Senate reports detail a lively congressional debate about whether Katmai park additions (parkland that wasn’t included in the original monument) should be open to subsistence hunting. In the end, all of Katmai National Park was closed; however, Katmai National Preserve, on the park’s north side, is open to all consumptive wildlife uses, as regulated by the state game and federal subsistence boards. One of the chief reasons for establishing Katmai and its ANILCA additions was to preserve the “high concentration” of brown bear.

Park Wildlife Users

Sport hunting for brown (grizzly) bears is quite popular in Katmai National Preserve, which makes sense given the population density. Clearly, a sport hunter (who in most cases is leaving his or her own area to hunt) would choose to travel to an area that

maximizes chances for success. Subsistence users generally stay closer to home, because traveling large distances costs too much to justify the value of the meat harvested. Local residents near the preserve harvest bear, moose, wolf, caribou, and river otter.

Population Data

The biggest challenge facing science in Katmai National Park and Preserve is the inability to shift research funds from species to species easily, as problems arise. Most funding has been through the Project Management Information System, and with proposals due years before a project begins, it is difficult for park managers to fund emergency science needs. Data exists for species that travel in and out of the preserve, such as caribou, because other agencies have worked together to acquire current information. Katmai would benefit from flexible funding that can be directed to pressing science needs as they arise.

Harvest Data

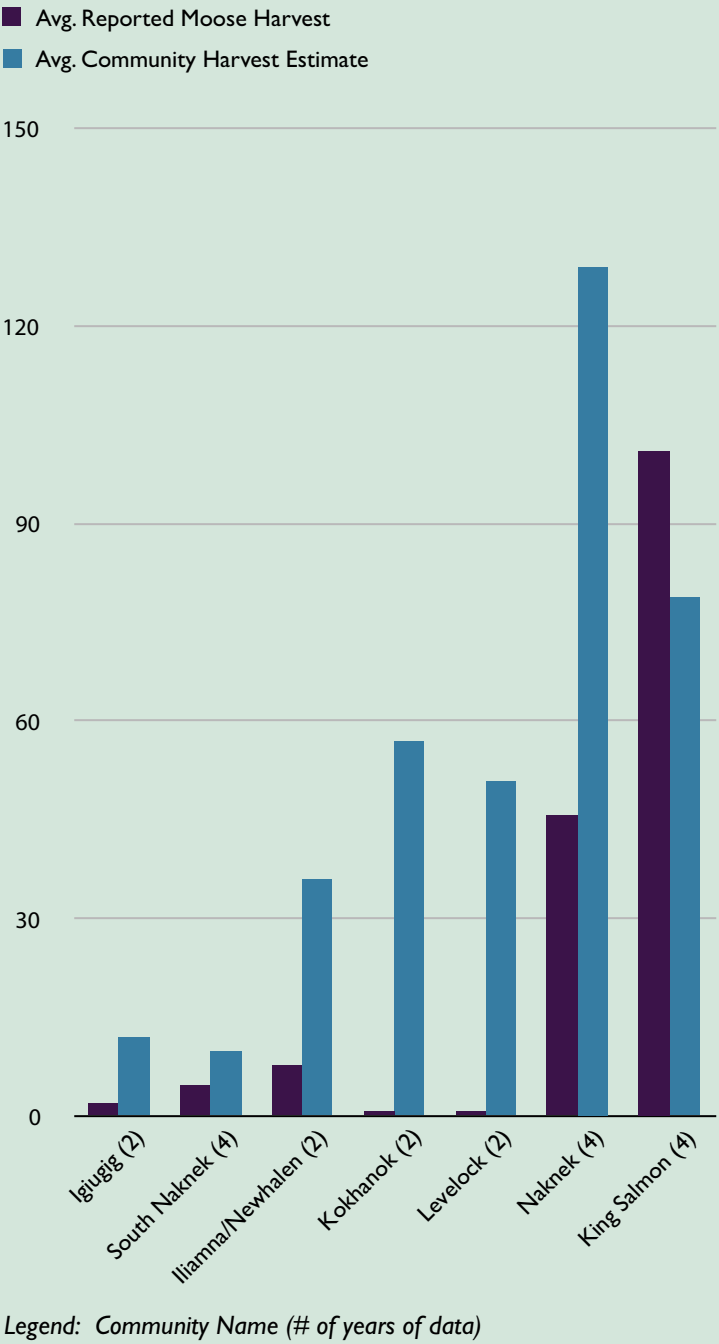
Since most brown bears in the park are taken by non-local sport hunters, reporting data paint a nearly complete picture of the bear harvest. Although all-inclusive community survey data have not been collected for the last decade, specific surveys focusing exclusively on moose harvest activities have been conducted in recent years, providing good data to compare against the reporting database. Figure 2-7 shows how the two sources of data check out. When summed up, 44 percent of the moose harvest estimated by the community surveys was reported in the Fish and Game reporting database.

Good data exist for brown bear populations and harvest within Katmai National Preserve. In the fall 2003/spring 2004 bear hunt, for example, data show that 42 brown bears were harvested in an area where biologists suggest a sustainable harvest level of 14 to 18 bears. This seemingly unsustainable harvest level is the sort of problem that quality data can work to avoid in other park units.

Data Needs/Conclusions

Katmai National Park and Preserve has the ANILCA goal of preserving high concentrations of brown bear. Accurate and timely data is crucial to make certain that high levels of hunting in the region don’t interfere with park goals. Katmai needs to update its Community Harvest Surveys to continue validating its reporting database ratio.

Figure 2-7: Reported and Estimated Avg. Annual Moose Harvest



Kobuk Valley National Park

Subsistence hunting only



Description

Kobuk Valley National Park, located north of the Arctic Circle, is bisected by the Kobuk River as it gently weaves through a wide valley, created by two mountain ranges to the North and South. Kobuk Valley is also home to large and unexpected sand dunes, which cover 25 square miles of the park.

Direction Under ANILCA

ANILCA charges the Park Service to “protect the viability of subsistence resources” in Kobuk Valley, making certain that a subsistence way of life is preserved. In addition, Congress specified a desire to “protect migration routes for the Arctic caribou herd,” as the region has been a historically important area for subsistence harvests. ANILCA also charged that the Park Service protect caribou, moose, bear, and wolves, among other species.

Park Wildlife Users

As a national park, only residents of local communities can hunt within park boundaries. Seven resident zone communities, with a combined population of 5,550 in 2000, received subsistence hunting privileges. According to the reporting database, residents of Kiana, Ambler, and Noorvik use parklands more often than residents from other nearby communities.

Population Data

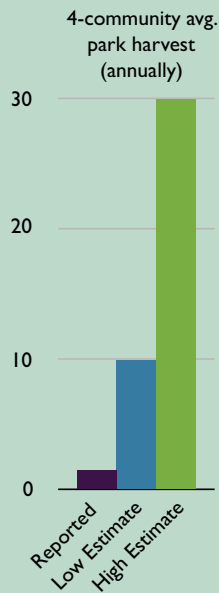
Funding for data collection made a complete moose survey possible in 2006 and now the park biologist can provide a statistically significant population estimate for the park. But Kobuk Valley is one of four units managed by a single wildlife biologist, and as a result, years of historical data continue to be underused. With additional help, this historical data could easily be compared with the new 2006 data and provide good information on population trends. Other species, such as brown bear and wolves, need baseline population levels identified. Caribou population estimates need to be coordinated with adjacent land managers in other agencies because of the animal’s migratory nature.

Harvest Data

Many of the communities near Kobuk Valley National Park have had community harvest surveys completed in the last 20 years. These are clearly outdated. Although

Figure 2-8: Community harvest estimate of the Kobuk Valley moose harvest by 4 different resident zone communities.

Community	Survey Year	Estimated Moose Harvest	% of Harvest inPark	Estimated Park Harvest
Kiana	1999	8	.292	2.3
Kotzebue	1991	235	.116	27.3
Kotzebue	1986	65	.116	7.5
Selawik	1999	64	0	0
Shungnak	1998	21	.011	.2
Estimated Annual Harvest (from Community Survey):				10 to 30/year
Reported Annual Harvest (from database):				1.5 / year



caribou are the most common species taken by subsistence hunters in the park, wildlife managers don’t have access to reported caribou harvests from 1986 to 1997. The records exist, but a lack of funding has prevented the state of Alaska from entering the information in the reporting database.

Moose harvest, however, is complete for the region and provides a chance to evaluate the ratio between the two sources of data. Reported moose harvest was compared against community survey estimates in Figure 2-8, revealing reporting rates for the communities of Kiana, Kotzebue, Selawik, and Shungnak. Note that Kotzebue has been surveyed twice, and its two estimated reporting rates are reflected in the variation in the range shown at the bottom of the table. This variation shows why updating the database with multiple community harvest surveys is important.

As the graph demonstrates, the estimated average annual local moose harvest ranges from the reported total of 1.5 a year to community harvest survey total of ten or 30 annually, depending on which year of Kotzebue community survey data is used. No survey data exists for Ambler, and as a result, their local activity isn’t included, though they have indicated park usage through the reporting database. Undoubtedly, if data existed for Ambler, the predicted harvest would be higher.

Data Needs/Conclusions

Kotzebue needs an updated Community Harvest Survey; the last one occurred 15 years ago. This is especially important because of the relatively large Kotzebue population. Other communities will need their survey updated in a few years to confirm the current data’s ratio of 10 moose harvested to every one reported. Similarly, more research must be done to understand caribou populations and harvest in the park, as Kobuk Valley was partially established to protect the Arctic herd. The Park Service needs to work with the state of Alaska to improve the reported database for caribou.

Although sound data already exist for many populations in the park, and harvest data are better for Kobuk Valley than for many parks in the system, funding is not adequate to maintain data collection efforts.

Resident Zone Communities: (Population in 2000)

- Ambler (309)
- Kiana (388)
- Kobuk (109)
- Kotzebue (3,082)
- Noorvik (634)
- Selawik (772)
- Shungnak (256)

Did You Know?

Onion Portage, a privately held parcel within Kobuk Valley National Park, is one of the most important archaeological sites in all of the Arctic. History of occupancy for this site has been documented back to 8000 B.C. Evidence indicates that the earliest occupants of Onion Portage were big game hunters, as demonstrated by the bone and tool remnants recovered from the site. Today, subsistence hunting is still an important activity within Kobuk Valley National Park.

Lake Clark National Park and Preserve

Sport (preserve only) and subsistence hunting



Twin Lakes © M. Woodbridge Williams/NPS

Resident Zone Communities: (Population in 2000)

Iliamna (102)
Lime Village (6)
Newhalen (160)
Nondalton (221)
Pedro Bay (50)
Port Alsworth (104)

Other Nearby Communities: (Population in 2000)

Kokhanok (174)
Pope-Vannoy Landing (8)

Lake Clark Acreage:

National Park - 2.6 million acres
National Preserve - 1.4 million acres

Description

Lake Clark National Park and Preserve includes glacier carved peaks, two active volcanoes, numerous ice fields, winding rivers and picturesque lakes and ponds. Home to the headwaters of three Wild and Scenic Rivers, Lake Clark offers unparalleled recreational opportunities, including hiking, rafting, and kayaking.

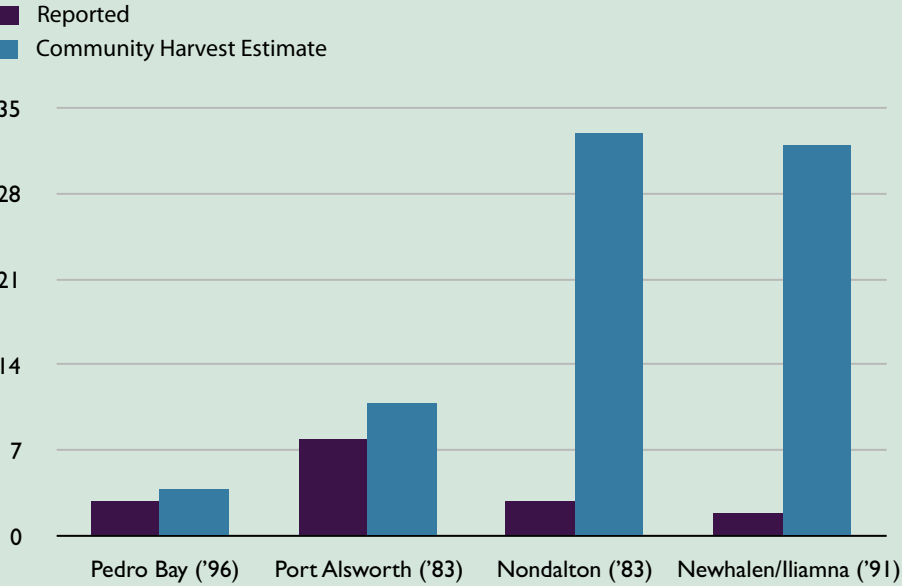
Direction Under ANILCA

Lake Clark National Park and Preserve, like all other lands established under ANILCA, was partially created to protect wildlife and wildlife habitat. In particular, Congress singled out caribou, Dall sheep, and brown bear as species to be protected, among others found in the region.

Park Wildlife Users

In 2000, 651 people lived in Resident Zone communities, allowing them to harvest wildlife within the parklands. In addition to these users, non-locals often sport hunt in or near Lake Clark Preserve. Although the reporting database calculates that 97 percent of all moose harvests in or near the park were by non-locals, extrapolation from community survey data estimates the true non-local harvest percentage to be

Figure 2-9: Community moose harvest, two data sources side-by-side



closer to 80 percent. Non-locals also accounted for a majority of brown bear and sheep harvests.

Population Data

The timing of NPCA's request for information on population data did not coincide with the publication of this report.

Harvest Data

Some community harvest data exists for towns near Lake Clark National Park and Preserve, but this data is rapidly becoming outdated. With a bulk of the surveys completed in the early '90s, villages need to be revisited in an effort to understand changes in harvest patterns. Port Alsworth needs new data more than other communities, as it was last surveyed in 1983. In total, the local population of 825 people consumes an estimated 33.5 tons of land mammal meat each year, with a large amount coming from inside or nearby the park.

Lake Clark provides an interesting opportunity for community survey research because of the diversity in the region. Unlike communities surrounding other National Park units in Alaska, each resident zone community for Lake Clark differs greatly both economically and ethnographically. Although no community is road-connected, the average per capita income varies from \$8,000 to \$22,000. Port Alsworth was 95 percent non-native in 2000, while Nondalton was 89 percent native. These differences may result in different reporting tendencies (Figure 2-9), and additional research may reveal how factors of income and cultural heritage affect harvest patterns and reporting rates.

Data Needs/Conclusions

The consumptive wildlife users of Lake Clark National Park and Preserve cross many economic and cultural borders. Regularly up-dated community harvest surveys would not only help park managers meet the goals set out by ANILCA, but also would provide important data relating to how different user groups use federally held resources in Alaska.

Noatak National Preserve

Sport and subsistence hunting



Noatak River © Gregory Gusse

Description

Noatak National Preserve provides protection to a vast untouched mountain-ringed river basin. The Noatak, a wild and scenic river, runs through the middle of the preserve, starting deep within the Brooks Range and emptying into the Chukchi Sea. Sharing borders with Gates of the Arctic and Kobuk Valley, this unit also includes a large portion of the Western Arctic Caribou Herd’s home range.

Direction Under ANILCA

Protecting populations of, and habitat for, wildlife was one reason given for establishing Noatak National Preserve. Because the region is relatively untouched by human development, Congress provided that scientists use the preserve as a benchmark to measure the future health of Arctic environments. To fulfill this aim, Congress stipulated that the Secretary “may establish a board consisting of scientists and other experts” to assist in conducting research.

Park Wildlife Users

Nine communities fall within 50 miles of Noatak National Preserve, with a combined population of 5,615 people in 2000. Residents of Kotzebue and Noatak, home to nearly two-thirds of the people who fall within 50 miles of the park, use the area for a greater percentage of their harvest activities than residents of the other communities.

Local Communities: (Population in 2000)

- Ambler (309)
- Kiana (388)
- Kivalina (377)
- Kobuk (109)
- Kotzebue (3,082)
- Noatak (428)
- Noorvik (634)
- Red Dog Mine (32)
- Shungnak (256)

Locals often use boats to access the region.

Non-locals are using the preserve for brown bear hunting. Many of them are guided, which increases their chance of success.

Population Data

Noatak Preserve is one of four parks that share a single wildlife biologist. In recent years, the park biologist has acquired funding to “catch up” on brown bear population data. As a result, data should soon be available to determine whether the harvest density in Figure 2-10 is greater than what populations can sustain. NPCA was unable to ascertain the status of other population data for Noatak.

Harvest Data

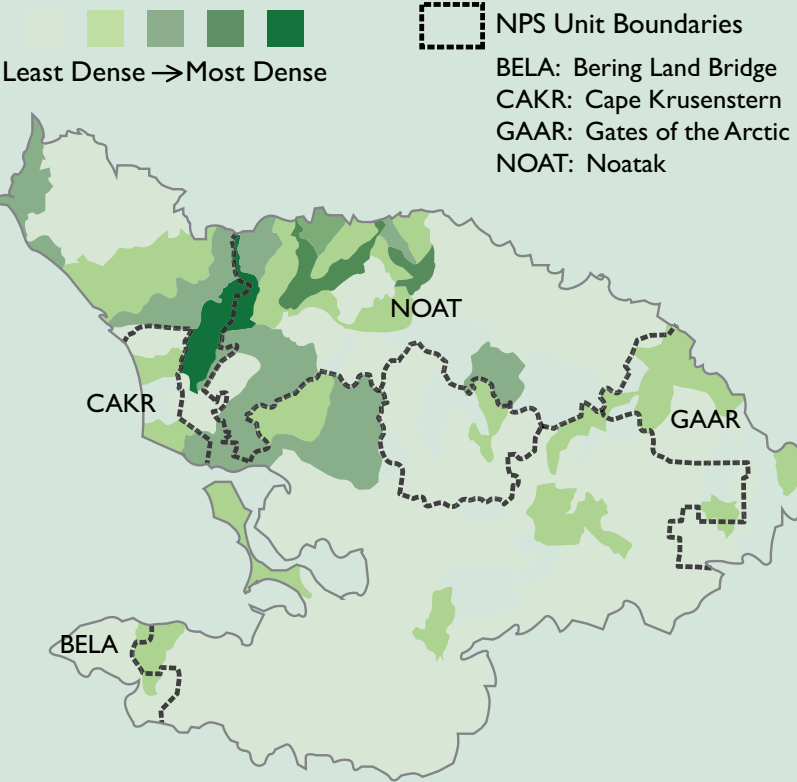
The reporting database shows, on a per-acre area, that Noatak National Preserve sees a higher brown bear harvest than any other area in the state’s Game Management Unit 23Z (Figure 2-10). The proximity of this area to Kotzebue with its jet-supported airport provides easy access for non-locals flying in to hunt in the region. This high harvest may also be due to the more than 3,500 people living within 15 miles of the edge of the preserve. But the reporting database consistently underestimates the level of local harvest, which would argue that the total brown bear harvest level is undoubtedly higher. Up-to-date community harvest surveys are needed to fully understand how many brown bears are being harvested.

The reporting database indicates that 80 percent of all moose harvests in the region are by non-local sport hunters. However, using community harvest survey data to adjust the local take to account for the lack of local reporting, the actual non-local percentage of moose harvest probably falls to between 18 percent and 65 percent of the total harvest, the large range resulting from a lack of quality data. Again, up-to-date community harvest surveys are needed.

Data Needs/Conclusions

Initial research suggests that Noatak National Preserve is one of the most heavily hunted regions in Northwest Alaska. To make certain that congressional intent for the preserve is fulfilled, additional population research should be conducted on hunted species within the park. As all data are collected, the Park Service must provide the necessary staff to analyze new and historic information. Initial Community Harvest Surveys are needed for four of the communities that hunt in Noatak and surveys for three of the five remaining communities need to be updated. Timely population data and current Community Harvest Surveys will help park managers make certain that the park hasn’t been, and won’t be, affected by current hunting levels.

Figure 2-10: Game Management Unit 23Z - Bear Harvest Density



Wrangell – St. Elias National Park and Preserve

Sport (preserve only) and subsistence hunting



Mt. Drum from Willow Lake © Thomas VandenBerg/NPS

Description

Three mountain ranges converge to what is often called “the mountain kingdom of North America.” Wrangell-St. Elias National Park and Preserve is the largest unit managed by the National Park Service, protecting an area as large as Vermont and New Hampshire combined (13.2 million acres). The park includes what many consider to be the continent’s most spectacular array of glaciers and mountains.

Direction Under ANILCA

Congress provided that the habitats and populations of caribou, brown bear, Dall sheep, moose, and wolves, among others, be protected under ANILCA. Subsistence was authorized to occur on “park” lands.

Park Wildlife Users

The 2000 U.S. census calculated that 5,733 people lived within 31 communities that are 50 miles from the park, most of which are on the highway system. This access distinguishes Wrangell-St. Elias from other Park Service units in the state, where roads don’t skirt or travel through the parks. Sport hunters use the preserve areas often, as road access throughout the region provides for a more affordable sport hunting experience (hunting in non-road accessible parks, as an example, require expensive air travel).

Resident Zone Communities: (Population in 2000)

- Chisana (0)
- Chistochina (93)
- Chitina (123)
- Copper Center (362)
- Gakona and Gakona Junction (215)
- Glennallen (554)
- Gulkana (88)
- Kenny Lake (410)
- Lower Tonsina (*)
- McCarthy (42)
- Mentasta Lake (142)
- Nabesna (*)
- Slana (124)
- Tazlina (149)
- Tok (1,393)
- Tonsina (92)
- Yakutat (680)

* population included with other communities

Regional Population Growth: (includes resident zone communities and others in the region):

- 1980 – 2,826
- 1990 – 4,272
- 2000 - 5,733

Wrangell-St.Elias Acreage:
National Park - 8.3 million acres
National Preserve - 4.8 million acres

Population Data

Wrangell St. Elias has the most urgent population data needs among national park units in Alaska. Furbearer surveys, which would include wolves, have never been conducted in the park. The park experiences a lot of sheep hunting and has 32 sheep survey units. With an annual sheep counting budget of approximately \$3,000 a year, only four units are counted annually. Moose data was gathered once in the late '90s, but surveys haven’t been repeated, providing no information about population increases or declines. Although the Park Service’s ‘Vital Signs’ program under the Natural Resource Challenge hopes to address the lack of population data on caribou, sheep, and moose, it is unknown whether adequate analysis can occur to fully understand those populations with the current funding structure.

Harvest Data

Unfortunately, community boundaries are defined differently within different sources of data, making it hard to evaluate harvest activity specific to each of the park’s resident zone communities. As an example, community survey boundaries don’t always line up with census boundaries or town lines. For this reason, the analysis in the unpublished NPS report combined all local communities together, to make certain that harvest rate comparisons weren’t compromised by differences in geographic boundaries.

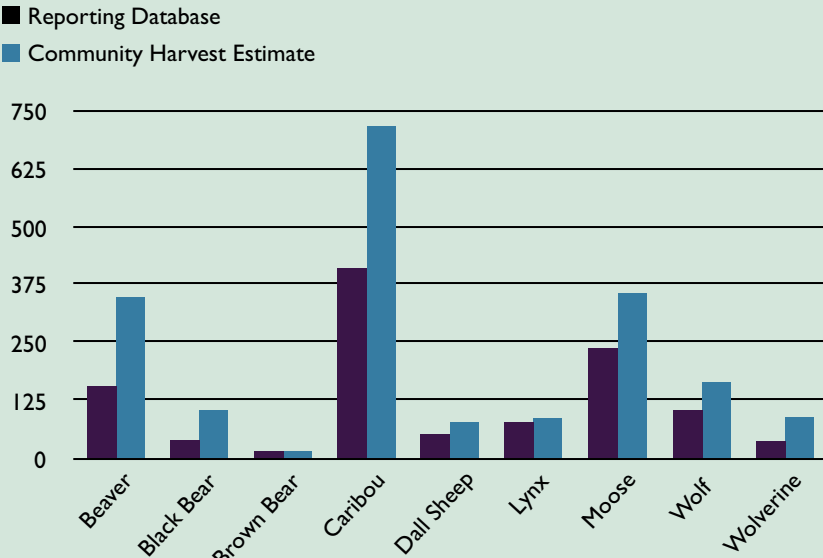
Although this is not ideal, the data comparisons revealed much more agreement between community survey data and reported harvests. The lowest level of agreement was observed in comparing estimated wolverine harvests: 39 percent of what the community survey estimated was reported in the database. For several species, such as brown bear and lynx, the sources agreed nearly perfectly. Figure 2-11 sums up the rates.

Data Needs/Conclusions

Initial evidence suggests that local residents of Wrangell-St. Elias report a much greater portion of their activities than many other local park communities. Understanding park harvest levels benefited greatly with the 1987 all-community survey, but this survey is nearly 20 years old. Updating Community Harvest Surveys should be considered in the near future so that change over time can be calculated.

Wildlife population science has many needs, and adequate support should be provided to ensure that studies are conducted in the future in a manner that allows researchers to compare the data sources.

Figure 2-11: Total 1987 Wrangell-St. Elias Harvest - Data Sources Compared



Yukon-Charley Rivers National Preserve

Sport and subsistence hunting



Caribou antler in the Ogilvie Mountains © NPS

Local Communities: (Population in 2000)

- Central (134)
- Chicken (17)
- Circle (100)
- Eagle (129)
- Eagle Village (68)

Did You Know?

Each year the 1000-mile Yukon Quest International Sled Dog Race travels through the National Preserve, retracing a historic mail route used at the turn of the 20th century.

Description

Yukon-Charley National Preserve protects 115 miles of the Yukon River and the entire Charley River basin. Historic sites in the preserve document the Yukon River’s importance during the 1898 gold rush, and archaeological sites in the region provide a window into centuries long passed. Peregrine falcons are frequently viewed in the park, among other animal species.

Direction Under ANILCA

Yukon-Charley National Preserve was partially established to protect habitat for and populations of wildlife, including caribou, moose, Dall sheep, grizzly bears and wolves. Congress implied that other species were to be protected as well.

Park Wildlife Users

Several communities are located near Yukon-Charley National Preserve. Reporting data shows that residents of Eagle and Circle use the park and surrounding area for a majority of their harvest needs. This is most likely due to the proximity of each community to the Yukon River, which provides an easy route to the preserve. The communities of Central and Chicken lie to the west of the park.



Alaskan timber wolf © Johnny Johnson

Because Yukon-Charley is a national preserve, anyone can hunt here. Non-locals sport hunt for sheep, moose, and brown bear more often than locals do, while local residents account for a majority of wolf, wolverine, and lynx harvests. Alaska residents harvest a majority of each species in the park.

Population Data

Yukon-Charley National Preserve needs adequate long-term support and qualified people to analyze population data. With small populations of major species such as sheep, small increases or decreases in harvests can have long-term implications. And while the state does a decent job monitoring caribou and moose populations, these populations are also hunted in the region and would benefit from additional research. The Park Service has good data on wolf populations, but that study was interrupted when state sanctioned predator control hunters killed several collared wolves when they strayed outside the preserve boundaries.

Harvest Data

No recent community harvest data exist for any of the local Yukon-Charley towns, so the validity of reporting rates cannot be established. However, initial observations suggest that reporting rates are no better than those observed for the road-connected Wrangell-St. Elias communities, and are likely worse. As an example, residents of Circle have reported 55 harvests in 21 years of moose records and 16 years of caribou records. For a community of 70-100 people, with a per capita income in 2000 of \$6,426, there is little doubt that more harvest activity has occurred.

Data Needs/Conclusions

Community harvest data should be gathered for each of the communities hunting in the park so that the validity of the reporting database can be checked. This would also provide a benchmark that would be of great benefit to researchers in the future. More attention needs to be given to baseline population studies and an agreement needs to be reached with the state of Alaska to secure the protection of collared wolves in ongoing population study programs when they stray beyond preserve boundaries.

Final Conclusions and Recommendations

Congressional intent requires more science and better harvest data.

To fully understand the effects of hunting on Alaska’s national parks, park managers must have accurate information on wildlife populations and wildlife harvest. Without a basic understanding of what a park has and what is being removed annually, it is difficult to ensure that park wildlife is protected for future generations.

Increased funding seems an obvious answer to better science and more data. For increased understanding of base population numbers for those species that are hunted – especially moose, bear, wolves, caribou, and sheep – more funding is critically needed. Some money can be made available through the Natural Resource Challenge (NRC), since the focus of that program is collecting natural resource data. But this program, whose funding was dramatically reduced this past year, does not provide a permanent solution for better baseline population data.

The state of Alaska may provide a viable opportunity for increased funds. Record high oil prices have made more funds available to the Alaska Department of Fish and Game, and NPCA strongly recommends renewed efforts to work with the state on basic wildlife census information.

Although the magnitude of the problem is extensive, fixing the problems revealed by this report is not an insurmountable feat. It is clear that to improve the quality and timeliness of the data necessary to make informed decisions additional staff is needed. The quickest way to add staff is through a budget increase. The need for additional funding may be supplemented by creative partnering with other land management agencies or the University of Alaska. In addition, the Park Service Core Operations Analysis currently under way in the Alaska Region may provide the opportunity to adjust existing budgets to address these concerns.



Blueberries © Jim Shives/NPS

Specific Recommendations:

1. The National Park Service should increase support for conducting and analyzing population science for hunted species.

Research is expensive, but not nearly as expensive as failing to maintain healthy wildlife populations in the national parks of Alaska. For ecologically important and/or heavily harvested species, park specific plans should be completed that identify what studies are currently provided for in park base operations budgets, the Natural Resource Challenge, other NPS funding sources, or are provided for by partner agencies such as the University of Alaska or the state. A gap analysis needs to occur between those wildlife populations that are regularly studied and those that are not, but need to be. And the Park Service needs to develop a plan for the unmet gaps in basic wildlife population research needs. This information would provide a road map to ensure that proper data exist for wildlife management decisions.

2. The National Park Service should support regularly scheduled Community Harvest Surveys.

The available data in the reporting database falls short of explaining rural harvest activities. The Park Service needs to make a commitment to providing additional funds and/or other measures to efficiently conduct Community Harvest Surveys in a timely and in a culturally sensitive manner. Any system that is used must be respectful of rural residents and their long running tradition with the land. While the reporting database, in many instances, fails to account for most rural harvests, it is collected every year. Testing the accuracy and validity of the reporting database requires that data must also be gathered using Community Harvest Survey, a proven and effective measure of rural hunting success. Providing funds and encouraging collaboration with other agencies could help the Park Service collect more of this valuable data and focus it on the resident zone communities most closely associated with parks.

Comprehensive Community Harvest Surveys should be conducted every seven to ten years as a baseline for wildlife being consumed in each of the 84 resident zone communities (parks, monuments) and communities close to preserves. Immediate targets should be those communities that have never had a survey or where survey data is at least 15 years old (see Appendix III). More frequent surveys could occur on species of concern (those primarily hunted) in the interim.

Collecting data is only part of the process. The Park Service also needs the expertise to incorporate the information into a statewide database and analyze it.

3. The National Park Service should support a new position for a statewide wildlife data manager.

A statewide wildlife data coordinator could provide valuable expertise for all parks in Alaska and provide a centralized place for harvest data analysis and data interpretation for each park unit. This will save the time of individual park biologists and allow them to focus on conducting their own park-specific projects. This data manager, in addition to analyzing harvest on a statewide basis, could also analyze Fish and Game reporting data for each unit and answer park specific questions. A single person to review and understand the statewide harvest data would provide significant assistance to parks in conducting research tasks by managing a clearinghouse of historical data and providing holistic analysis of park harvest science in Alaska over time.



Bear tracks in Kobuk Valley National Park © Robert Belous/NPS

Appendix I

Animals reported taken for sport and/or subsistence hunting in Alaska’s National Parklands

Park Unit	beaver	bison	black bear	brown bear	caribou	mountain goat	lynx	marten	moose	musk ox	river otter	sheep	wolf	wolverine
Aniakchak	●			●	●		●		●		●		●	●
Bering Land Bridge				●	●		●		●	●	●	●	●	●
Cape Krusenstern	●			●	●		●		●		●	●	●	●
Denali	●	●	●	●	●		●	●	●		●	●	●	●
Gates of the Arctic	●		●	●	●		●		●		●	●	●	●
Glacier Bay			●	●			●		●				●	●
Katmai	●			●	●		●		●		●		●	●
Kobuk Valley			●	●	●		●		●		●		●	●
Lake Clark	●		●	●	●		●		●		●	●	●	●
Noatak	●		●	●	●		●		●	●	●	●	●	●
Wrangell-St. Elias	●		●	●	●	●	●		●		●	●	●	●
Yukon Charley	●		●	●	●		●		●		●	●	●	●

Note: Park units do not always align exactly with game reporting units. Some harvest reported above may have occurred just outside of park boundaries.

Appendix II

Report References

Books/NPS Reports

Alaska Geographic, Alaska National Interest Lands, the D-2 Lands, (Alaska Geographic Society) February 1982

Anderson, Douglas, Ray Bane, Richard K. Nelson, Wanni Anderson, and Nita Sheldon, Kuuvangmiit; Traditional Subsistence Living in the Latter Twentieth Century, January 21, 1976

Moderow, Andy, Evaluation of NPS Land Mammal Harvest Estimation Resources: Comparing Data Sources, Unpublished Draft Report for the NPS, April 2006

Norris, Frank, Alaska Subsistence – A National Park Service Management History, (Alaska Support Office, NPS) September 2002

Williss, G. Frank, “Do Things Right the First Time”: The National Park Service and the Alaska National Interest Lands Conservation Act of 1980 (Denver, NPS), September 1985

Public Documents

Alaska Department of Fish and Game, Alaska Hunting Regulations; Booklets No. 45 (2004-2005) and No. 46 (2005-2006)

Federal Subsistence Management Program, Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska; 2004-2005 and 2005-2006

U.S. Congress, Public Law 96-487, Alaska National Interest Lands Conservation Act, 94 Stat. 2371-2551, December 2, 1980

U.S. Senate, Alaska National Interest Lands; Report of the Committee on Energy and Natural Resources, United States Senate, Together with Additional Views to Accompany H.R. 39 (Report No. 96-413), 96th Congress, 1st Session (Washington, D.C., GPO), 1979

U.S. House of Representatives, Alaska National Interest Lands Conservation Act of 1979; Report of the Committee on Interior and Insular Affairs, House Report No. 96-97, Part 1, (Washington D.C., GPO), 1979

Internet Resources

Alaska Department of Fish and Game, Community Profile Database
<http://www.subsistence.adfg.state.ak.us/geninfo/publctns/cpdb.cfm>

US Census Bureau
<http://www.census.gov/>

Text of ANILCA Online (U.S. Fish and Wildlife Service Site)
<http://www.r7.fws.gov/asm/nilca/toc.html>

Appendix III

Year of the Most Recent All-Resource Community Harvest Survey

Source: Community Profile Database, Alaska Department of Fish and Game

Community	Year
Allakaket/Alatna	1982
Ambler	*
Anaktuvuk Pass	*
Bettles/Evansville	1982
Brevig Mission	1989
Buckland	*
Cantwell	1982
Central	*
Chicken	*
Chignik Bay	1991
Chignik Lagoon	1989
Chignik Lake	1989
Chisana	1987
Chistochina	1987
Chitina	1987
Circle	*
Copper Center	1987
Deering	1994
Diomedede	*
Dot Lake	1987
Eagle	*
Eagle Village	*
East Glenn Highway	1987
Elim	*
Gakona	1987
Glennallen	1987
Gulkana	1987
Hughes	1982
Igiugig	1992
Iliamna	1991

Kenny Lake	1987
Kiana	*
King Salmon	1983
Kivalina	1992
Kobuk	*
Kokhanok	1992
Kotzebue	1991
Lake Louise	1987
Lake Minchumina	*
Levelock	1992
Lime Village	*
McCarthy Road	1987
Mentasta	1987
Mentasta Pass	1987
Nabesna Road/Nabesna	1987
Naknek	1983
Newhalen	1991
Nikolai	1984
Noatak	1994
Nondalton	1983
Noorvik	*
Northway	1987
Nuiqsut	1993
Paxson	1987
Pedro Bay	1996
Pilot Point	1987
Port Alsworth	1983
Port Clarence	*
Port Heiden	1987
Selawik	*
Shishmaref	1999
Shungnak	*
Slana	1987
Slana Homestead North	1987
Slana Homestead South	1987
Sourdough	1987
South Wrangell Mountains	1987
South Naknek	1992
Tanacross	1987
Tazlina	1987

Telida	*
Teller	*
Tetlin	1987
Tok	1987
Tonsina	1987
Ugashik	1987
Wales	1993
West Glenn Highway	1987
White Mountain	*
Wiseman	*
Yakutat	2000
* - Surveys never taken	



Lupine © NPCA

“In terms of wilderness preservation, Alaska is the last frontier. This time, given one great final chance, let us strive to do it right. Not in our generation, nor ever again, will we have a land and wildlife opportunity approaching the scope and importance of this one.”

- Morris Udall

Dall Sheep © Gregory Gusse



National Parks Conservation Association
Protecting our National Parks for Future Generations®

750 W 2nd Ave., Suite 205
Anchorage, Alaska 99501
Phone (907)277-6722
Fax (907)277-6723

1300 19th St., NW, Suite 300
Washington, D.C. 20036
Phone (202)223-6722
Fax (202)659-0650