

STATUS OF WOLVES IN SOUTHEAST ALASKA

Division of Wildlife Conservation

Alaska Department of Fish and Game

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Purpose

The purpose of this paper is to review the near-term history of wolves in Southeast Alaska. This paper builds upon the information presented in Person et al. (1996), which compiled a thorough conservation assessment through 1996. This paper provides updates on the current status of wolves in Southeast Alaska and includes new information, but it is not intended to be a complete reassessment.

Distribution

Wolves occur throughout Southeast Alaska, with the exception of Admiralty, Baranof, and Chichagof islands. They are present in the State of Alaska's Game Management Units (GMU) 1, 2, 3, and 5, which corresponds to Federal subsistence Units 1, 2, 3, and 5, and the Yakutat, Juneau, Petersburg, Wrangell, Craig, Thorne Bay, and Ketchikan ranger districts of the U. S. Forest Service (USFS)-managed TNF. Wolves occur on state, private, and federal lands.

Taxonomy and genetics

Goldman (1944) recognized a subspecies of wolf restricted to Southeast Alaska, the Alexander Archipelago wolf (*Canis lupus ligoni*). Numerous studies indicate that these wolves are a coastal population, distinct morphologically and genetically from other interior continental populations of wolves (Goldman 1944, Pedersen 1982, Friis 1985, Shields 1995, Weckworth et al. 2005, Weckworth et al. 2010, Von Holt et al. 2011). With the exception of Goldman (1944), none of those studies explicitly suggest wolves be regarded as a distinct subspecies unique to Southeast Alaska. In fact, wolves in Southeast Alaska may be closely related genetically to coastal British Columbian wolves, which are also distinct genetically from continental populations (Muñoz-Fuentes et al. 2009). Nonetheless, Weckworth et al. (2010) and Muñoz-Fuentes et al. (2009) argue that both the Southeast Alaskan and coastal British Columbian wolves are evolutionarily distinct units, possibly the same unit, within the North American population of wolves. In contrast, based on skull morphology, Nowak (1995) suggested wolves should be lumped with *Canis lupus nubilus*, a putative subspecies of wolf that once occupied the conterminous northwestern United States. Chambers et al. (2012) concluded that genetic data supported Nowak's view. Clearly, the taxonomic status of wolves in Southeast Alaska is in debate. Work is currently underway by the University of Alaska to assess the genetic variation and population genetic relationships among wolf subspecies and populations, including wolves in Southeast and Interior Alaska.

Population ecology

Although quantitative estimates of wolf abundance are not available for Southeast Alaska, anecdotal reports and observations suggest that abundance has historically varied and continues to vary from area to area. During the past 50 years or more, wolf numbers were thought to be highest on the islands in the central and southern half of Southeast Alaska, particularly on Mitkof, Kupreanof, Zarembo, Etolin, and Prince of Wales (POW) islands.

During the 1990s, wolf research conducted on POW resulted in a rigorous population estimate of 250-350 wolves in GMU 2 (Person et al. 1996). Results from the GMU 2 study were used in conjunction with modeled habitat capability for prey (i.e., Sitka black-tailed deer (*Odocoileus hemionus sitkensis*)) to produce a region-wide population estimate of 750 to 1,100 wolves during the 1990s. However, Person et al. (1996) derived the region-wide estimate based on a calibration of wolf density in GMU 2, which represents some of the more productive habitat in Southeast Alaska with respect to deer, a primary prey of wolves. Also, the wolf estimate was based on habitat capability for deer, not actual deer population numbers. Consequently, the region-wide estimate of the 1990s may have been biased high.

During the same time period as the 1990s research was being conducted, relatively high harvests of wolves were reported in GMU 2. These harvests, which reached 132 during 1996, contributed to the Alaska Board of Game (BOG) implementing an annual harvest cap in 1997 of 25% of the annual estimated fall wolf population, in GMU 2 only (Porter 2003). This percentage was later increased to 30% based on findings by Person (2001). The Federal Subsistence Board (FSB) subsequently implemented a combined Federal-State harvest cap of 30% of the annual estimated fall wolf population for the same area.

Though there is a paucity of quantitative data with which to assess actual population levels, the Alaska Department of Fish and Game (ADF&G) believes that, while there may be vulnerabilities for wolves in select parts of GMU 2 (Person et al. 1996, Person 2001, Person and Russell 2008, Person and Logan 2012), wolves are viable (i.e., not threatened with extinction) across their overall historic range in Southeast Alaska.

Past predator control

Prior to statehood and up through the early 1970s, substantial efforts were made to reduce wolf numbers throughout parts of Southeast Alaska, with much of the effort focused on the central islands (e.g., Mitkof, Kupreanof, Kuiu, Wrangell, Zarembo, and Etolin) of Southeast Alaska. Among the techniques used was deployment of poisoned baits and implementation of bounties. Reductions resulting from these actions appear to have been temporary, though there is no way of knowing whether genetic shifts may have occurred. The fact that wolves have persisted amidst aggressive efforts to greatly reduce their numbers suggests that they are quite resilient to perturbation in Southeast Alaska.

Tongass National Forest Land and Resource Land Management Plan

The TNF Land and Resource Management Plan (Forest Plan; USDA 2008) provides habitat and conservation measures for maintaining populations of wolves and other wildlife that are presumed to be viable as directed under the 1982 planning regulations at 36 CFR Part 219 and National Forest Management Act (NFMA) (16 USC § 1604(g)(3)(B)). The 2008 Forest Plan also directs the USFS to work with ADF&G to provide for long-term sustainable wildlife resources and the human use of these resources. Wolves were identified by a USFS-sponsored interagency committee as a species for which there were concerns about viability or distribution as a result of forest management on portions of the TNF (Suring et al. 1993).

A conservation assessment of the region's wolves was prepared by Person et al. (1996). Among the considerations identified in the assessment was the need to maintain adequate populations of deer, a principal prey for most of the region's wolf population, and sustainable hunter/trapper harvest rates of wolves, which are influenced by road access management and recreational and subsistence hunting and trapping regulations. Person et al. (1996) suggested that a series of Old Growth Reserves (OGRs) might provide reserve sources of wolves.

On POW, where land management has altered habitat and access, it is important to evaluate access changes and assess the impacts of the changes on wildlife. It is also important to adaptively implement established Standards and Guidelines (S&Gs) outlined in the TNF Forest Plan. These guidelines direct the USFS to implement a forest-wide program, in cooperation with ADF&G and the U. S. Fish and Wildlife Service (USFWS), to assist in maintaining long-term sustainable wolf populations. The program consists of three primary components: 1) Population monitoring and mortality management as related to hunting and trapping regulations and road access (road densities of < 0.7-1.0 mile per square mile within landscapes where road access has been determined, through interagency analysis, to be a significant factor in contributing to locally unsustainable mortality); 2) Provision of sufficient habitat capability to support sustainable wolf populations and human hunting and trapping demands (generally considered to be 18 deer per square mile in biogeographic provinces where deer are the primary prey of wolves); and 3) Design of management activities to avoid abandonment of wolf dens (generally accommodated through implementing 1,200 foot non-logging buffers around known den sites). In addition, OGRs and connectivity among neighboring habitats and adjacent OGRs are important elements. In combination, these components form the basis of the Forest Plan's current conservation strategy (USDA 2008). ADF&G continues to believe that strategic implementation of the S&Gs within the conservation strategy provide important safeguards towards ensuring the sustainability of wolves. However, as the Forest Plan is revisited and updated it will be important to apply adaptive management strategies that incorporate lessons learned from past use of the strategy and its elements.

Exceeding the above S&Gs in areas within GMUs is not in and of itself a concern for wolves since wolves are managed on a larger, broader-scaled landscape such as islands or groups of islands (i.e., biogeographic provinces). However, attention needs to be paid to such local areas

and risk assessments should be done to evaluate the cumulative implications of multiple areas falling below the S&Gs, especially if these areas abut one another. Given the high road density on parts of POW Island, just such an assessment was done for the central portion of the island (Person and Logan 2012). That assessment resulted in suggestions for how to address access implications, including the possibility of creating harvest regulations that focus on smaller, more vulnerable land bases within larger management areas (e.g., GMUs) to ensure wolves are managed sustainably on POW Island.

Petition to list under the Endangered Species Act (ESA)

In 1993, various groups filed a petition with the USFWS, requesting that wolves in Southeast Alaska be listed as threatened under the Endangered Species Act (ESA). Responding to the petition, the USFS adopted a series of forest-wide S&Gs for deer habitat and for road management, designed to maintain adequate prey for wolves and reduce mortality of wolves from trapping and hunting. In addition, the plan allocated OGRs and other lands deferred from logging that provided habitat for wolves and their prey. In the end, the USFWS ruled that a listing was not warranted at the time if the USFS implemented provisions for wolves in the Forest Plan.

In 2012 a petition was submitted by Greenpeace and the Center for Biological Diversity, again asking the USFWS to list the wolf as an endangered species in Southeast Alaska. Points raised in the petition were similar to those raised in 1993, with concerns expressed about forest management and their implications on wolves. ADF&G has submitted written comments to the USFWS articulating that it does not believe this petition is warranted in that the viability of wolves is not threatened with extinction within the foreseeable future in Southeast Alaska.

Intensive Management

Low deer abundance in GMU 1A (Porter 2011) and GMU 3 (Lowell 2011) recently prompted ADF&G to review intensive management (IM) directives for those units, as directed by the State's IM law (State statute AS 16.05.255). This law requires the BOG establish deer population and harvest objectives in areas where deer are to be managed for high levels of human consumption. Failure to meet objectives triggers possible actions, including habitat manipulation and/or predator management, if practicable. Currently, deer harvests are below established objectives in GMU 1A (population objective 15,000 deer; harvest objective 700 deer) and GMU 3 (population objective 15,000 deer; harvest objective 900 deer) but are above the objectives in GMU 2 (population objective 71,000 deer, harvest objective 2,700 deer). ADF&G is preparing IM feasibility assessments for GMUs 1A and 3 in accordance with the State's IM law and its IM protocols.

Regulatory Framework

ADF&G's constitutional mandate is to manage all species of wildlife at sustainable levels. State-authorized harvests are regulated by the BOG and FSB, with input from ADF&G and the public, and changes are made through adjustments to season dates, bag limits, and allowable methods and means. State regulations for Southeast Alaska's wildlife are reviewed and deliberated by the BOG every two years, although ADF&G may implement more immediate emergency actions, as needed, on a case by case basis (i.e., emergency closures if concerns exist for specific species or populations). In other cases, the BOG may authorize the department to open or close seasons when accompanied by a Board-adopted management plan or regulation. An emergency closure order (EO) was implemented for GMU 2 wolves in 1999, when the harvest reached 96 and exceeded the 90-wolf harvest cap (established as 30% of the estimated population at the time) (Porter 2003). A similar closure was adopted by the FSB. Subsequent to this EO closure, the reported wolf harvest for GMU 2 declined appreciably and subsequently has not come close to the harvest levels reported during the 1990s (Bethune 2009). This has raised questions about whether fewer wolves are being harvested or whether fewer harvested wolves are being reported. Based on work by Person and Russell (2008), actual harvests may be up to 50% higher than reported in GMU 2.

To ensure annual harvest does not exceed the 30% guideline harvest level, it is imperative that wolf abundance be regularly monitored. Obtaining estimates for wolf numbers in GMU 2 has not occurred subsequent to completion of the wolf research efforts during 1993-2004. Absent a more current and defensible wolf estimate for the unit, the annual harvest cap has continued to be based on 30% of the population estimate (250-350) derived in the 1990s (which resulted in a harvest cap of 90 wolves). However, after discussions at the BOG's November 2010 meeting, the cap was adjusted downward by the Area Management Biologist to 65 wolves from 90 based on an assumption that wolf numbers are lower than in the 1990s, but with uncertainty about just how much lower. Concurrent with anecdotal observations of fewer wolves was a decline in reported seasonal wolf harvests, from an average of 93 during 1990-2000 to 33 during 2001-2007 (Bethune 2009), to 23 during 2008-2011 (Bethune, pers. com.). In response, the department has initiated research to obtain an updated population estimate for GMU 2.

Under the Alaska National Interest Lands Conservation Act (ANILCA), the federal government has a responsibility to provide rural residents with a priority for subsistence uses on federal lands and waters. However, the first priority under ANILCA is the conservation of fish and wildlife. The Secretaries of the Interior and Agriculture delegated authority to manage the take of fish and wildlife resources for subsistence uses on federal lands in Alaska to the FSB. Title VIII of ANILCA required the establishment of Regional Advisory Councils (RACs) to provide recommendations and information to the FSB, to review policies and management plans, provide a public forum, and deal with other matters relating to subsistence uses. The FSB is the decision-making body that oversees the federal subsistence management program. Statewide regulations regarding the subsistence taking of wildlife on federal lands are considered by the

FSB every two years. The FSB has delegated the in-season management of wolves in GMU 2 to the USFS' Craig and Thorne Bay District Rangers.

Current Management Considerations

Southeast Alaska consists of diverse landscapes with varied geographic features. The region includes remote and hard-to-access areas as well as well-developed and easily accessible areas. POW Island, once remote, is now extensively roaded on its north and central portions. This access provides opportunities for hunters, trappers, fishers, wildlife viewers, and other local and visiting outdoor enthusiasts. While the access provides a number of public access opportunities, it also creates management challenges for ADF&G and the USFS because of the increased human use associated with increased access.

Wildlife mortality related to hunting and trapping is known to be influenced by access and thus requires diligent and timely management actions to ensure that mortality remains within sustainable levels. Ease of access to lands by hunters and trappers is known to have both positive and negative aspects with regard to wildlife and associated harvest management programs. Regulating mortality can be accommodated through BOG and FSB actions, but cannot account for all mortality since illegal harvesting of wolves is known to have occurred beyond legal harvests (Person and Russell 2008).

Based on field observations and harvest data, wolf numbers are believed to be lower, but still viable, in GMU 2 than they were in the 1990s. The question for GMU 2, as for other units in the region, is what level of sustainable wolf abundance should ADF&G manage for? Some members of the public have expressed satisfaction with current levels of wolves in GMU 2, where deer numbers appear to be somewhat elevated and the State's IM objectives are being met. At the same time, as illustrated by the two listing petitions, some members of the public believe wolf viability is threatened across Southeast Alaska. In other areas, such as GMU 3, some members of the public have expressed concerns about overly abundant wolf populations, associated with low deer numbers and poor chances of harvesting deer. From an IM standpoint, it may be deemed appropriate by the BOG to reduce wolf numbers in areas where they are linked to deer population and harvest objectives not being met and where the habitat can support higher deer abundances, without jeopardizing sustainability. Notably, providing high deer numbers and harvests is also dependent on providing sufficiently high levels of habitat important to deer survival.

To evaluate wolf abundance, appropriate management levels, and sustainability, ADF&G and the USFS have initiated a cooperative wolf research project in central POW Island (GMU 2). This project will seek to estimate wolf abundance by duplicating research that was undertaken during the 1990s, with the capture, radiocollaring, and monitoring of a sufficient sample of wolves from the central Wildlife Analysis Areas on POW Island. In addition to the radiocollaring effort, wolf hair will be "captured" using noninvasive techniques (e.g., hair snares). Scent posts will be established across the study area as a means to collect and analyze the hair for genetic

fingerprinting. Together with movement, pack size, and composition data, a population size will be estimated, as was done in the 1990s. This work will allow for an assessment of wolf vulnerability across the study area and can lead to appropriate remedial actions such as hunting/trapping regulatory changes and/or modifications to proposed land use activities, including access management. The project will also include a survey of knowledgeable wolf hunters and trappers on POW Island. Qualitative abundance estimates by these individuals will be analyzed together with data collected through the other methods to see whether a correlation between the data sets can be established. If so, future timely estimates of wolf abundance may be possible using public input in lieu of more costly and time-intensive field work.

Summary

Though there is a paucity of quantitative data with which to assess actual population levels, the ADF&G believes that, while there may be vulnerabilities for wolves in select parts of GMU 2 (Person et al. 1996, Person 2001, Person and Russell 2008, Person and Logan 2012), wolves are viable (i.e., not threatened with extinction) across their overall range in Southeast Alaska. Regulatory processes used by State and Federal agencies and their associated boards provide mechanisms for modifying seasons, bag limits, and hunting/trapping methods and means for purposes of maintaining sustainable populations. Also, the department has initiated research to assess populations in portions of Southeast Alaska and will work with the BOG, Southeast RAC, FSB, and the USFS to address any identified conservation concerns.

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