Our Wealth Maintained: A Strategy for Conserving Alaska's Diverse Wildlife and Fish Resources

Executive Summary

Introduction

The state of Alaska covers a vast area, 656,425 square miles. The name is derived from an Aleut word meaning "great land," and a land of superlatives it is: Alaska has over 3 million lakes and 44,000 miles of coastline, more coastline than the rest of the nation combined. A population of 630,000 is spread across the state, with 78% of those people living in metropolitan areas. The state's natural beauty and outstanding wildlife[1] populations are important factors in sustaining residents and attracting tourists. Residents of Alaska depend greatly on natural resources in their daily life.-

Article VIII of the Alaska Constitution directs that: "fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses." Alaska has been largely successful managing species and habitats under this mandate via an existing regulatory framework administered by a variety of boards and agencies. Only 17 of its 1,073 vertebrate species are federally listed as Threatened or Endangered (T&E), one of the lowest numbers of listed species among the states.

Designating protected areas is a common conservation strategy. Approximately 53% of Alaska has been designated in some form of conservation unit. These units effect differing levels of protection, ranging from national parks, sanctuaries, and refuges with a heavy emphasis on landscape and species conservation to recreation areas, marine parks, state forests, and other lands designated for multiple use. Alaska's high percentage of lands in conservation status has often been credited with helping ensure there is little need for T&E listings here.

Traditionally, federal and state funding for wildlife management in Alaska has been directed primarily at those species that are commercially or recreationally hunted, trapped, and fished—i.e., "game." Management practices and research on these species can benefit other species as well, particularly when focused on habitat protection and ecosystem conservation. In this regard, a beneficial partnership in conserving Alaska's species has been in place for many years. These successes aside, for many hundreds of Alaska's species, even the most basic information, such as distribution, remains largely unknown.

[1] In the Strategy, use of the word "wildlife" includes fish unless specified otherwise.

Purpose and Scope

Having recognized the benefits of conserving a broader array of species, Congress is poised to provide millions of dollars annually to states through a new federal program—State Wildlife Grants (SWG)—administered by the U.S. Fish and Wildlife Service (USFWS). To qualify for these funds, each state or territory must prepare an approved comprehensive wildlife conservation strategy (CWCS). As did its precursors in Congress, the national SWG legislation is meant to "provide funding for wildlife conservation activities that have not been adequately funded through traditional means (i.e. license revenues, Wildlife Restoration and Sport Fish Restoration Programs)."[2]

With initial annual receipt of nearly three million dollars[3] in federal SWG funding, Alaska can begin collecting and organizing information about species that are little known and poorly understood, underrepresented in the mix of species receiving traditional funding, or which experts believe have specific conservation needs that cannot be adequately met with existing funding sources. Congress specified eight elements that each CWCS must address (see Section I, page 3) and these have guided Alaska's planning effort.

The goal of Alaska's Comprehensive Wildlife Conservation Strategy (CWCS or "Strategy") is to conserve the diversity of Alaska's wildlife resources, focusing on those species with the greatest conservation need. A key intent of the Strategy is to coordinate and integrate new conservation actions and strategies with Alaska's existing wildlife management and research programs, building upon the demonstrated successes of these earlier efforts.

In this way, the Strategy is intended to be a blueprint for an overall conservation approach, one that sustains Alaska's overall diversity of wildlife—both game and nongame. Via this blueprint, Alaska can effect broad strategies that promote wildlife conservation while furthering responsible development and addressing other needs of a growing human population. It also helps Alaska prevent T&E species listings of its wildlife resources, thereby reducing the potential for federal oversight of listed species and their habitats.

The Strategy outlines the conservation needs of hundreds of species and many species assemblages, and highlights the need for initial cataloging and inventory efforts on poorly known species. For a subset of Alaska's species and habitats, the Strategy provides detailed natural history information and measurable conservation objectives to be achieved. The Strategy places an emphasis on the conservation needs of nongame species without excluding the needs of traditional game resources.

[2] Memo dated October 25, 2002 from Brent Manning, President, International Association of Fish and Wildlife Agencies (IAFWA), to State Fish and Wildlife Directors, titled "State Wildlife Grants."
[3] For 2005, the figure is almost $4 million once mandatory nonfederal matching funds are included.

Developing the Strategy

Planning participants recognized early on that little is known about many of Alaska's wildlife species. Past research and management have focused on developing sustainable management strategies for Alaska's game resources, and an effective regulatory framework, based on the sustained yield principle, exists with which to conserve these species. Given this, the department directed only limited planning activity to them and instead focused primarily on assessing the conservation status and needs of the state's nongame wildlife resources.

Alaska began its CWCS process by reaching out to partners and the public, including government agencies, conservation interests, resource users, and landowners for ideas on process and goals. That was followed by several months of work with scientific experts, peers, and others with Alaskan expertise on species in 14 taxonomic groups. The groups are: amphibians and reptiles, marine fish, marine invertebrates, seabirds, marine mammals, terrestrial mammals, landbirds, raptors, terrestrial invertebrates, waterbirds, shorebirds, freshwater fish, waterfowl, and freshwater invertebrates.

With time and resources for Strategy development limited, the department prepared a list of CWCS nominee species, i.e., Alaska's species of greatest conservation need. We then asked experts to apply specific criteria and select a subset of species to feature in the CWCS. Seventy-four featured species or species groups were chosen after applying criteria on vulnerability of a species, subspecies, or distinct population[4] and addressing such factors as abundance, incidence of deformity or disease, rarity, isolation, endemism, sensitivity to environmental disturbance, representation, international importance, and formal "at-risk" designation (e.g., T&E). The featured species and groups range from relative unknowns, such as a cave-dwelling invertebrate, to familiar groups, such as loons and whales.

Experts and peers provided information on the distribution and abundance of species; described key habitats and threats or concerns associated with those habitats; developed objectives with performance measures; and crafted specific conservation actions, including needed research, survey, and monitoring efforts. Additional specialists with species assemblage and/or habitat expertise reviewed the results of these expert and peer review processes. They evaluated the types and locations of key habitats at risk in Alaska and recommended how these habitats should be addressed in the CWCS. For some habitats, specific conservation actions were developed.

Alaska's planning process also highlighted the conservation challenges facing a small number of commercially or recreationally hunted species, such as the Tule White-fronted Goose. These are species for which management plans exist but do not

[4] In this document the term "species" is applied broadly and means "species, subspecies and distinct populations." This is standard terminology used in state, national, and international conservation planning efforts. We believe its use will help avoid having species be listed as Threatened and Endangered in Alaska, when in fact Alaska's distinct population of the species is in good health.

sufficiently address the species' long-term conservation needs; their inclusion in the CWCS is intended to raise awareness of their conservation needs and promote opportunities for effective collaboration across funding sources to meet those needs. As for many other species addressed in the Strategy, information gaps and habitat loss and fragmentation are key concerns in conserving and managing these species over the long term. Not surprisingly, many actions proposed in the CWCS are expected to benefit a broad array of species and species groups.

Value of Conserving All Wildlife—Nongame as Well as Game

The value of game species is well understood by most Alaskans. Commercial and sport fishing, sport hunting, guided hunting and fishing, wildlife viewing, and harvesting for traditional uses are central to the Alaskan economy and lifestyle. Historically, however, species not taken for sport or commercial uses were perceived as having little direct economic value. However, the contribution of nongame resources to Alaska's economy and reputation is substantial, though difficult to quantify. Nongame species are an integral part of every Alaskan ecosystem and many are also important for traditional subsistence purposes: Along with plants, nongame species form the foundation of the food chain that produces Alaska's wealth of harvestable resources. For example, most insect pollination in the Arctic is done by flies and bumblebees. Many of the plants that benefit from their activity, like the arctic willow, are critical for caribou, which in turn are prized by humans for their meat and hides. Other predator/prey relationships of note include the sand lance populations that feed beluga whales, seabirds, and young halibut; invertebrates that nourish trout and salmon; and voles that sustain owls and furbearers.

The state's nongame species, including its many endemics[5], provide opportunities for scientific study in such fields as habitat adaptation, the effects of climate change, and evolution. Some Alaska species enjoy wide acclaim by specialists. For example, the threespine stickleback is a model species internationally for discoveries in the fields of evolutionary biology, developmental genetics, animal behavior, ecology, environmental toxicology, and medicine.

The interrelationships between and high value of Alaska's wildlife species extend to viewing as well. In the past 20 years, fish and wildlife viewing has become increasingly valuable to the state's economy. Many Alaskans and most visitors travel to view wildlife in Alaska, resulting in significant in-state expenditures each year. Surveys show that wildlife viewing is second only to scenery as the most important reason tourists come to Alaska. Even some of the state's more remote communities are seeing economic benefits from wildlife tourism, especially birding.

Clearly, many state citizens depend on healthy fish and wildlife populations for their livelihoods. Alaskans involved in subsistence, commercial, and sport fishing and hunting, wildlife tourism, and the industries surrounding them recognize the need for

[5] An endemic species is one that occurs primarily in one region; because of their limited geographic range, endemics are often vulnerable to extinction.

healthy ecosystems upon which wildlife depend. As wildlife-related spending has continued to grow, policymakers, wildlife managers, and local community leaders are recognizing the importance of protecting and managing a broad diversity of wildlife resources.

Common Themes

Information Needs

A serious impediment to the goal of better conserving broad arrays of species, and a central theme that quickly emerged in the CWCS development process, is the lack of information on most Alaskan species and their habitats. We've barely scratched the surface in terms of recording the diversity, abundance, distribution, and habitat relationships of most wildlife species in the state. To date, much of that effort has focused on game species that are important for commercial, recreational, and subsistence users. Little attention has been directed at the state's other wildlife resources, including invertebrates, fish, amphibians, the smaller mammals, and birds. As basic inventory work takes place in the state, new species are being found. Recent advances in genetic techniques for identifying distinct subspecies and reproductively linked populations will further expand recognition and appreciation of the diversity of Alaska's wildlife.

For most species that have been well studied, populations and habitats are largely intact except in certain parts of the state. The exceptions generally include areas such as the Kenai Peninsula, Anchorage Bowl, and Matanuska-Susitna valleys, which are experiencing increased urbanization. Also, some areas have experienced significant industrial activity, including Southeast Alaska, where portions of the coastal forest are intensively managed for timber harvest, and the North Slope, where major oil and gas activity is occurring. For the hundreds of species about which little is known, we are unable to provide an accurate assessment of the health of populations or their habitats. A key need for Alaska is to complete a systematic statewide species ranking process in the next 18 months. This will help us prioritize efforts to fill information gaps and direct actions toward species of greatest conservation need.

Data Gaps and Strategy Limitations

As with any project, limitations of time, funding, and base data impacted the scope of Alaska's comprehensive planning effort. During CWCS development, the Alaska Department of Fish and Game (ADF&G) gathered information from many sources. At the same time, planning team members identified a number of management tools that were either partially or entirely unavailable. In this first CWCS, the ability to use area- or species-specific spatial data (e.g., mapped species ranges) was hampered because information is incomplete or simply unavailable for many Alaska species.

We were also unable to incorporate certain themes in as much depth as we would have liked, but these will be incorporated more fully in future versions of the Strategy. These themes include species migration patterns, a systematic analysis of

data gaps in species' distribution information, cultural and subsistence information, and traditional knowledge. Future iterations of the Strategy could also compile information from other states and countries that manage habitats used by wide-ranging and migratory Alaskan species.

Lack of Long-Term Monitoring

With its large, remote, and dynamic landscape, Alaska poses significant monitoring challenges. A growing but limited body of information is available on how habitats change naturally over time (e.g., in response to recurring wildfires, isostatic uplift, etc.). However, there is frequently no documented baseline against which to compare future population or habitat monitoring results. This makes it difficult to separate anthropogenic effects from natural effects, or even to gauge natural variability in loss, degradation, or gain of habitats. Enhanced geographic information system (GIS) capability in the state would help present what is known, but GIS capability must be based on first having scientific control areas and the best available information or data to manipulate and compare. As new funds become available for wildlife and fish conservation, it will take a concerted effort to draft project selection criteria that give appropriate weight to monitoring projects. Reliability of long-term funding and net cost will be a critical issue for developing monitoring strategies.

A key recommendation from our process is to promote and facilitate meaningful participation by communities in monitoring and sharing information about the species and ecosystems they use. Indeed, community monitoring programs may prove to be cost-effective tools for assessing species that are not commercially or recreationally harvested. Traditional and other local user knowledge[6] can be very helpful to conservation efforts, e.g., by describing climate-related changes in northern species and habitats. Use of other creative ideas, such as tapping university science students for a term's work on part of a long-term monitoring project, should also be explored.

Experts in our process noted possibilities for conducting basic species inventory in ways that contribute to future monitoring efforts. Monitoring to accomplish multiple purposes makes sense. For example, evaluating bycatch in marine and aquatic fisheries can help detect nonindigenous or invasive species. Similarly, monitoring of migratory birds can flag the arrival of wildlife diseases (e.g., avian influenza) that could potentially harm humans.

[6] Includes individuals who may have a long history of observation about species and habitats, such as hunters, trappers, commercial and recreational fishermen, guides and charter operators, long-time rural residents, and birders.

Primary Recommendations: Alaska's Greatest Wildlife Conservation Needs

During the course of the CWCS planning process, participants suggested dozens of conservation actions, many of them common across multiple taxa. We've highlighted here, in seven categories, what we consider some of the most significant and timely general recommendations for conserving Alaska's wildlife diversity.

Information and Data Gathering

- Implement studies to collect baseline inventory and life history information on select species and their habitats; develop and implement management strategies for wildlife species of greatest conservation need.
- Implement a systematic approach such as Florida's (Millsap et al. 1990) for evaluating and quantitatively analyzing the state's wildlife and fish conservation needs.
- Conduct regional GAP analyses across Alaska as part of the National Gap Analysis Program (GAP); to help states maintain biodiversity, this program develops overlay maps showing land cover, stewardship, and species distribution.
- Integrate local knowledge into species and habitat data/information systems.
- Ensure that scientific data and pertinent traditional knowledge are available to decision-makers.
- Synthesize and distribute scientific information about species distribution, abundance, and habitat use.

Data and Classification Systems

- Enhance mapping and GIS capability in resource management agencies.
- Develop and maintain coordinated data storage, retrieval, and management systems.
- Develop and implement uniform/complementary habitat classification systems.
- Develop procedures for contributing Alaska information to regional or national databases and conservation initiatives.

Monitoring

- Conduct long-term monitoring of selected species and their habitats, including in Alaska's existing conservation areas.
- Monitor the effects of climate change and invasive species on wildlife and their habitats.
- Evaluate the benefits and feasibility of establishing long-term ecological research (LTER) sites in additional biomes in Alaska, especially the marine environment.
- Increase monitoring of water quality and quantity to support healthy aquatic ecosystems.

Species and Habitat-related Planning

- Support long-term land management planning that balances the needs of wildlife conservation with the need for community growth and responsible economic development.
- Develop wildlife habitat maps, including connectivity corridors, for use in designing and planning growth.
- Develop and implement effective conservation incentives for landowners and land management agencies.
- Identify and protect important habitats to help achieve long-term habitat or species population goals.
- Identify statutory and regulatory gaps that require attention to clarify responsibilities for conserving and managing species and their habitats.
- Develop protocols between agencies to better coordinate wildlife actions.
- Evaluate and establish a network of scientific control areas in representative habitats distributed across Alaska.
- Improve and maintain water quality in Alaska's estuaries and fresh waters, and water quantity in lakes, streams, and rivers.
- Support national/international efforts to reduce dumping, or loss at sea, of materials harmful to wildlife (e.g., nets, plastics, petroleum products).
- Ensure that existing conservation areas, including state special areas, are managed to maintain the wildlife values and use opportunities for which they were designated.

Funding and Collaboration

- Expand involvement of agencies, communities, industries, and organizations, especially those that have species or habitat expertise or local knowledge, in conducting tasks related to CWCS conservation targets (e.g., research, inventory, and monitoring).
- Seek opportunities for funding source collaboration to meet the needs of species and habitats for which conservation concerns were noted in the CWCS planning process.
- Develop mechanisms for multiyear funding; this is especially important to long-term monitoring efforts.
- Identify opportunities to align proposal deadlines and selection criteria across funding sources to achieve shared wildlife and fish conservation goals and objectives.
- Consider establishing a dedicated funding source for the purchase of conservation easements important for restoring or maintaining at-risk wildlife populations.

Education and Outreach

- Foster public understanding of and support for maintaining and improving the diversity and health of Alaska's wildlife, fish, and habitat resources
- Use website development, citizen science programs, school programs, outreach through the media, and other techniques to reach and engage the public in actions that support wildlife goals outlined in the CWCS.

Enforcement

- Support law enforcement activities that help conserve wildlife and their habitats.

Investing Today for a Legacy of Diversity and Abundance

The state of Alaska is fortunate to have a rich diversity of wildlife resources. Many citizens recognize the value of these resources and our collective responsibility to conserve them. Alaska's Strategy can and should "serve as a blueprint for strategic investments and activities that [reflect] the public interest regarding conservation."[7] Its comprehensive approach recognizes the challenges and opportunities we face in maintaining the state's diversity of species over the long term, including investing in measures now that will prevent costly species or habitat recovery activities later. It also recognizes the benefits of building on Alaska's existing wildlife management programs.

By law, each state must review its CWCS at least once every 10 years and Alaska plans to meet this requirement. In cooperation with our partners and the public, ADF&G also plans to keep the Strategy dynamic and updated during interim periods, and to incorporate new information as it is being generated.

The department intends to continue working with a variety of partners to meet the conservation needs of all native wildlife and fish in Alaska. With updated information on species distribution and abundance, we can begin to evaluate trends and population changes, and work to keep species at healthy and sustainable levels. Now more than ever, Alaskans must look for every opportunity to unite in their conservation efforts. This will ensure that the state's full biological diversity can be enjoyed by future generations.

[7] Memo dated September 15, 2003 from Duane L. Shroufe, Chair, IAFWA Teaming With Wildlife Committee, to State Directors, titled "Recommendations Concerning Public Participation in Comprehensive Wildlife Conservation Strategies (Plans)."

Literature Cited

Millsap, B.A., J.A. Gore, D. E. Runde, and S.I. Cerulean. 1990. Setting Priorities for the Conservation of Fish and Wildlife Species in Florida. Wildlife Monographs. 111:1–57.