4 | Species of Greatest Conservation Need

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This chapter identifies how wildlife species[1] in Alaska were qualified as "species of greatest conservation need" (SGCN). State Wildlife Grant (SWG) funding received by the State of Alaska will be available only to projects that address SGCN and their habitats. While this chapter mentions some species to highlight our planning process, the complete list of SGCN and why each species was included is provided in Appendices A through C.

There are more than 1,200 named vertebrates in Alaska and its territorial waters, including 601 species of fishes (Mecklenberg et al. 2002), 545 species of birds (Gibson et al. 2025), 116 species of mammals (MacDonald and Cook 2009, UAF 2025), six native amphibians, and four marine reptiles (ADF&G 2025).

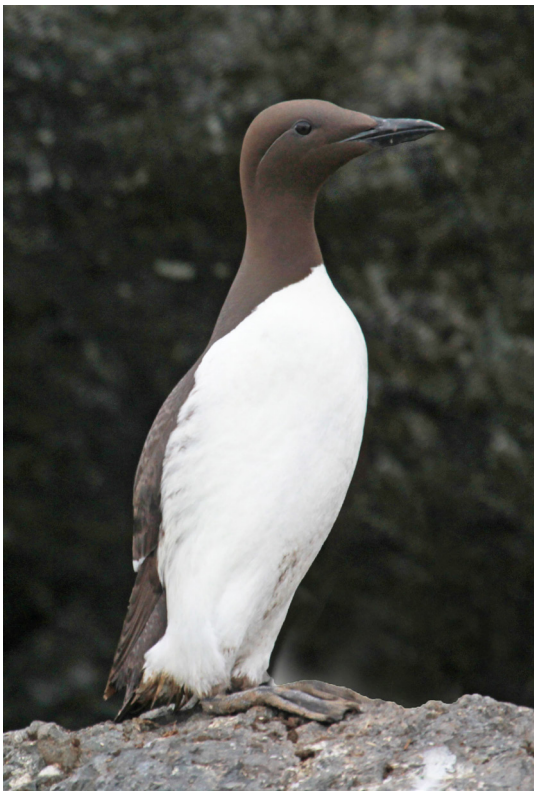
The number of species is not static. New species are still being discovered in Alaska, and as the climate changes, more species' ranges are expanding to the north (Parmesan and Yohe 2003). Between 1976 and 1991, 74 new avian taxa were documented in Alaska (Gibson and Kessel 1992). By 2007, there were 21 more avian taxa (Armstrong 2008), and another 127 have been added since then (Gibson et al. 2025). Although some of the increase may reflect a growing population of birders in Alaska with improved identification tools, there is a well-documented poleward shift of many

[1] The term *species* in this document encompasses subspecies, stocks, and distinct population segments (DPS) when referring to inclusion in the "species of greatest conservation need" (SGCN) list.

Snow crab. NOAA Fisheries, used with permission.

well-studied plant and animal species on all continents and in most major oceans (Perry et al. 2005, Parmesan 2006, Hitch and Leberg 2007, LaSorte and Thompson 2007). Subarctic seabirds, fishes, and marine mammals are shifting northward into Arctic regions in response to increased water temperatures, changes in water mass distributions, decreased extent and duration of ice cover, and altered prey communities (Stafford et al. 2022). Climate change in the Arctic exceeds the mean global rate (Sweeney et al. 2023, Zhou et al. 2024). It is expected to add conservation challenges to species and habitats (Moon et al. 2024).

In the decade since publication of the 2015 State Wildlife Action Plan (SWAP), marine heat waves (periods of unusually warm ocean temperatures) have occurred in the Gulf of Alaska and the Bering Sea. From 2014 through 2016, the Gulf of Alaska experienced harmful algal blooms, changes in phytoplankton and zooplankton communities, and decreased abundance and distribution of forage fish (Arimitsu et al. 2021, Van Hemert et al. 2020, McKinstry et al. 2022). Impacts at higher trophic levels included mass mortality, shifts in distribution, and colony-wide reproductive failures of Common Murres (Arimitsu et al. 2021, Piatt et al. 2020, Renner et al. 2024); mass mortality of fin and humpback whales (Savage 2017); and sharply reduced humpback whale reproductive success (Gabriele et al. 2022). In 2018 and 2019, a marine heat wave in the Bering Sea coincided with a record low extent of sea surface ice and collapse of the cold-pool barrier that had historically separated the northern and southern Bering Sea ecosystems (Siddon and Zador 2018). The changes precipitated a range of shifts in the zooplankton community (Kimmel et al. 2023, Overland et al. 2024); movement of predatory fish into the northern Bering Sea (Stevenson and Lauth 2019); and declines in juvenile snow crab, impacting the southeastern Bering Sea snow crab population (Fedewa et al. 2020, Szuwalski et al. 2023). In addition, die-offs of multiple species of seabirds (Kaler et al. 2022, Jones et al. 2024), an unusual mortality event of hundreds of ice seals (NOAA 2024), and harmful algal blooms have occurred, which will likely increase under future warming scenarios (Van Hemert et al. 2021). Ocean temperatures



Common Murre. ADF&G.

have since dropped in both the Gulf of Alaska and the Bering Sea following the heat wave events; however, the systems have been slow or unable to return to their pre-heat wave conditions. Overall trends point to continued warming and a possible transition of the rich and unique ecosystems to novel states rather than a return to past conditions (NOAA 2021, Overland et al. 2024, Renner et al. 2024).

The sections below describe the rules applied to exclude some taxa from the list of SGCN (e.g., plants, most invertebrate species, and many aquatic species). Additionally, the sections below define the criteria for inclusion of other taxa.

Excluded Species

Plants

Although some state wildlife action plans include rare or sensitive plant species, most focus on wildlife. Plant work can be incorporated into studies where wildlife species depend on vegetation as an important component of their habitat (e.g., eel-grass beds, old-growth forest, riparian willows, etc.) or where external factors, such as shifts in climate or disturbance, will cause significant changes in the composition, structure, and function of vegetation. In addition, if invasive plant species are determined to threaten SGCN, studies for monitoring or investigating control measures are appropriate.

Hunted and Trapped Species

Alaska is home to many iconic North American wildlife species, including caribou, moose, muskoxen, wolves, wolverines, brown bears, and polar bears. Many of these species are hunted or trapped and are of high cultural and economic importance to Alaskans. Most hunted and trapped species already receive funding for their management and conservation (e.g., through federal Pittman-Robertson funds and state sales of hunting licenses),[2] and the majority of Alaska Department of Fish and Game's (ADF&G's) funding is spent on managing harvested species for the beneficial use of all Alaskans. By contrast, conservation and management of SGCN using SWG and matching funds constitutes less than 2% of ADF&G's annual budget. Hunted and trapped species that typically do not receive sufficient funding from ADF&G, such as Alaska hare, are included in this plan, as are all species currently listed as endangered, threatened, or considered candidates for listing under the Endangered Species Act (ESA; e.g., bowhead whale, polar bear, Pacific walrus). Should significant conservation concerns be raised with other hunted species in the future, new work related to species not identified in this action plan can still be proposed and approved for SWG funding during the period covered by the plan. Adding an SGCN involves a brief letter to the U.S. Fish and Wildlife Service (USFWS) describing the emerging issue and conservation work needed on a particular species or habitat.

Marine Aquatic Species

Thousands of marine aquatic species could be included in this plan—diverse species of the intertidal zone, little-known life forms in the deep-sea trenches, and free-floating microzooplankton. By some estimates, at least 5,000 species of fishes are yet to be discovered in the world's oceans, more than all mammal species known today (Myers et al. 2000). Marine aquatic invertebrates pose a particular

[2] Pittman-Robertson funds are paid to each state from federal excise taxes to help manage and conserve game populations and their habitats. The fund is named for the chief sponsors of the 1937 Federal Aid in Wildlife Restoration Act that created the excise tax.

challenge. The Aleutian Islands alone harbor more echinoderm species than any place in the world, with more than 100 species named in 45 genera and another 25 species presently under description (Jaxshells 2025). The Aleutian Islands have among the highest diversity of coral species in the North Pacific Ocean (NOAA 2023), with up to 100 coral species found as deep as 5,000 feet beneath the surface (Carroll 2025). In state and federal waters along the Aleutian Islands, vast areas have been closed to bottom trawling, and several coral gardens have been closed to bottom contact by any commercial fishing gear to conserve the shallower coral species (Stone 2006, Stone and Rooper 2017).

We opted to include aquatic species for which at least some information on population sizes, trends, and importance is available. Most aquatic species included as SGCN are either used by Alaskans (culturally or economically important); have been recognized as having high ecological value (forage fish, some invertebrate orders) but have significant data deficiencies or are vulnerable to localized population declines; or are well-known species of concern (e.g., large whales, ice seals, polar bears, walrus). Because it was not feasible to consider individual marine invertebrate species for SGCN status, we added higher taxonomic at-risk groups to represent communities of interdependent species.

Rare, Casual, and Accidental Species

Identifying and excluding species that occur in Alaska in very small numbers can be challenging. The situation most often occurs when the edge of a species' normal range only touches or overlaps

Species of Conservation Need: Sunflower Sea Star *(Pycnopodia helianthoides)*

Sunflower sea star. J. Nichols, NOAA, used with permission.

The sunflower sea star is the only species of its genus and the second largest sea star in the world, with a maximum arm span of 3.3 feet. They occur in the northeastern Pacific Ocean, including Alaska. Adult sunflower sea stars usually have 16 to 24 limbs and range in color from bright orange to yellowish red, brown, and sometimes purple. Sunflower sea stars generally inhabit low subtidal and intertidal areas up to 435 meters deep, rich in seaweed, kelp, sand, mud, shells, gravel, or rocky bottoms. These sea stars are efficient hunters, moving at a speed of 1 meter per minute by using 15,000 tube feet that lie on their undersides. They feed mostly on sea urchins, clams, snails, and other small invertebrates. Sunflower sea stars can reproduce sexually through broadcast spawning. They breed from May through June and live for three to five years. Although the species was once widely distributed throughout the northeast Pacific, its population began rapidly declining in 2013 due to sea star wasting disease, which was associated with warming ocean temperatures. The sunflower sea star has nearly disappeared from coastal California and Oregon, and its population has been reduced by 99% in the waters off the coast of Washington. Alaska populations also experienced significant declines, although less severe compared to the southern portion of the species' range. Following the disease outbreak, increasing populations observed in some areas of Alaska demonstrate progress towards recovery. In March 2023, the National Marine Fisheries Service proposed listing the sunflower sea star as threatened under the Endangered Species Act throughout its range.

slightly with Alaska's geopolitical boundary. In other cases, such as migratory birds, an individual may be blown off course in a storm and appear temporarily in the state. In both situations, individuals are very uncommon, making it difficult to survey, monitor, or research in Alaska effectively. Further, no level of conservation effort can make such species persist continually or become more abundant.

Birds, in particular, have sufficient records in Alaska to be formally categorized as rare, casual, or accidental (Gibson et al. 2025). Rare species may be seen briefly each year, mostly as a few scarce residents at the perimeter of Alaska. Casual species are not detected annually and occur outside their normal range at irregular intervals. Accidental species occur as only one or two state records or no records in the last 30 years. Explicit definitions, combined with abundant bird knowledge in Alaska, enabled us to reliably exclude rare, casual, and accidental bird species unless it was already listed as a threatened, endangered, or candidate species under the ESA or met one or more criteria to qualify as an at-risk species (see the "Criteria for Inclusion" section below).

Black-legged Kittiwake nests, Shumagin Islands. S. Hillebrand, ADF&G.

Taxonomic Status

An important consideration in identifying SGCN was whether to recognize subspecies, stocks, and distinct population segments (DPSs) as valid taxonomic entities on our list. The best practice guidance for state wildlife action plans (AFWA 2012) encourages recognizing and planning for the conservation of any taxonomic entity that could be listed under the ESA, including valid subspecies, stocks, and DPSs. Subdivisions were treated as follows:

Subspecies—The inclusion of subspecies in the plan is complicated by disagreement among taxonomists over valid subspecies designations. To our knowledge, no universally accepted reference or source legally designates valid species or subspecies. For terrestrial vertebrates and marine mammals, the Alaska Species Ranking System (ASRS) was used to reflect taxonomic standing (Gotthardt et al. 2012). For birds and mammals, we also consulted taxonomic guidelines (Gibson and Withrow 2015, UAF 2025) and museum curatorial staff to ensure SGCN designations reflected currently accepted taxonomy. Aquatic and invertebrate species were included only at the species level and above. Information on genetic diversity and isolation varies greatly by species. Taxonomic

designation or recognition in the SWAP may be updated if warranted by new and compelling information.

Distinct population segment—*Distinct population segment* (DPS) is a term with specific legal meaning that is used for listing, delisting, and classification purposes under the federal ESA. Such designation involves not only distribution and level of genetic interchange, but also management and conservation regulation. These lines can follow political boundaries. Existing distinct population segments were included in this revised plan.

Stocks—The term *stock* is used by ADF&G and the National Marine Fisheries Service to manage separate populations of fishes, marine mammals, and some waterfowl. Although it has a similar meaning to DPS, it does not have a legal definition under the ESA. Instead, the term is legally recognized under other laws, such as the Marine Mammal Protection Act. Some distinct marine mammal stocks (e.g., western and eastern sea lion stocks) are recognized if the stock has legal DPS status. Different stocks of marine sea ducks that occur in the Pacific (western stock) versus the Atlantic (eastern stock) are also recognized as distinct.

Criteria for Inclusion as SGCN

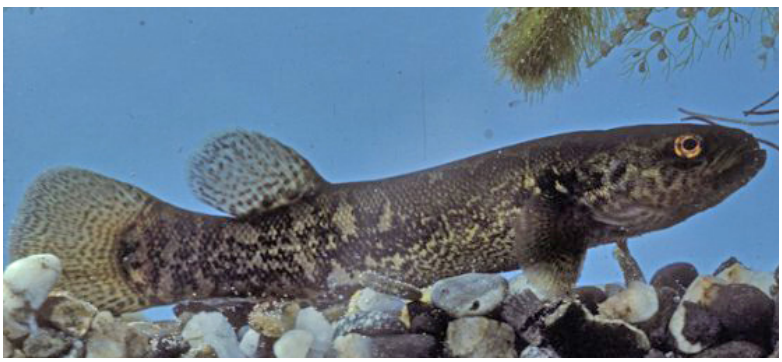
Species qualified as SGCN if one or more of the following criteria were met:

- At-risk status (see "Alaska Species Ranking System" below)
- Stewardship status
- Cultural importance
- Economic importance
- Ecological importance

At-Risk Species

Generally, much more is known about terrestrial vertebrates and marine mammals than most aquatic vertebrates or invertebrates, and the criteria described below for inclusion as an SGCN reflect this difference. Typically, at-risk species are identified based on declining populations that may rely on habitats that are threatened. Small populations exhibiting small ranges can also be relatively vulnerable to decline.

An additional consideration for at-risk status involves data deficiencies. Data-deficient species may lack information important to conservation and management (e.g., unknown population trend, distribution, habitat needs). Knowledge gaps are particularly relevant to fish and wildlife populations in Alaska, which are among the least studied in North America. For example, an unexpected decline in a "keystone species," such as a widespread prey item (e.g., forage fish) or species that acts as an ecosystem engineer (e.g., small mammal), could negatively impact multiple SGCN at once (e.g., Mills et al. 1993, Power et al. 1996, Shukla et al. 2023).



The Alaska blackfish is the only air-breathing fish in the Arctic. ADF&G.

With one of the smallest populations of any shorebird species, the Bristle-thighed Curlew is considered vulnerable to extinction. G. Smith, ADF&G.

Including species with data deficien-cies helps make the SGCN list more comprehensive, reducing the need for listing under the ESA in three impor-tant ways. First, a comprehensive list enables detection of unanticipated declines, facilitating flexible and timely responses that can increase the likelihood of successful conservation because issues are assessed proactively before a species becomes imperiled. Second, addressing data gaps, when needed, provides opportunities for the best available science to inform ESA listing petitions unnecessarily applied to populations of Alaska's wildlife, thereby avoiding inappropriate, expensive, or prescriptive regulatory burdens of the ESA (e.g., Chapter 9, Table 9.1). Third, the need for timely conservation actions may also arise from unexpected environmental perturbations (e.g., the marine heat wave of 2014–2016) that impact a species across all or part of its range. Efficient management and understanding of these time-sensitive or spatially explicit threats requires a comprehensive SGCN list so that funds can be allocated to emerging research, monitoring, or management needs. Finally, it is important to note that data deficient species, while a key component of the SGCN list, typically do not rank as highly as those with known declines or vulnerabilities (see "Alaska Species Ranking System" below). Funding decisions always consider conservation need as a top factor when determining how to best allocate limited SWG dollars (Chapter 11).

Endangered Species Act

Given the purposes of the SWG program, primary weight was given to species at risk of becoming listed under the ESA. Species are considered at risk if they are currently listed as threatened or

Dungeness crab. A. Underwood, ADF&G.

endangered, proposed for listing under the ESA, or currently undergoing a status review for listing. All of these categories indicate the species, subspecies, DPS, or stock may have an increased need for conservation. Any species (fish, game, or nongame) was eligible for inclusion on the SGCN list based on its ESA status. Note that some game species were eligible for SGCN status in the 2015 SWAP, but are not included on the 2025 SGCN list because they are no longer being considered for ESA listing (e.g., Alexander Archipelago wolf).

Terrestrial Vertebrates and Marine Mammals

Alaska Species Ranking System

For terrestrial vertebrates and marine mammals, our primary tool for evaluating at-risk species was the Alaska Species Ranking System (ASRS; Gotthardt et al. 2012). The ASRS is a new tool implemented in the 2025 State Wildlife Action Plan revision for identifying SGCN. It was developed in partnership between the ADF&G Threatened, Endangered, and Diversity (TED) Program and the University of Alaska Anchorage, Alaska Center for Conservation Science (ACCS) to assist in setting wildlife conservation priorities for Alaska. The system provides a transparent and repeatable process for evaluating and ranking the status of Alaska's wildlife.

The ASRS evaluation process combines in-depth literature review with information provided by specialists and requires clear documentation for rankings while allowing for specialist opinion when some information is lacking. Rankings are updated with new information that can impact changes in status. Between 2017 and 2023, many ASRS rankings for terrestrial vertebrates and marine mammals were peer-reviewed and updated to complete a total of 263 Alaska taxa. Currently the ASRS does not include invertebrates or fish.

To rank risk levels for terrestrial vertebrates and marine mammals, we used a combination of two ASRS categories: Status and Biological. The Status category assigns a score to each species that quantifies current trends in population size and distribution in Alaska. The Biological category assigns a score that assesses a species' vulnerability based on population size, range size, and population concentration in Alaska. It also assesses life history characteristics, including reproductive potential and ecological specialization. Different combinations of Status and Biological categories provide the basis for ranking species at risk, and both are fundamental to understanding the level of conservation need.

The six possible rankings (I through VI) in decreasing order of risk are provided below. Taxa were considered at risk and included as an SGCN if its ASRS ranking falls between I and IV, as shown in bold, below. Ranks I and II are the highest priority categories because of known, decreasing trends

or vulnerabilities. Ranks III and IV address data-deficient species. Some species with low biological vulnerability (Ranks II and IV) may serve an important function as widespread prey (e.g., small mammals), akin to the Ecologically Important criterion described below to identify terrestrial and aquatic and invertebrate SGCN.

I: Decreasing population size and/or distribution AND high biological vulnerability.

II: Decreasing population size and/or distribution AND low biological vulnerability.

III: Unknown trends in population size and distribution AND high biological vulnerability.

IV: Unknown trends in population size and distribution AND low biological vulnerability.[3]

V: Stable or increasing population size and distribution (neither is decreasing) AND high biological vulnerability.

VI: Stable or increasing population size and distribution (neither is decreasing) AND low biological vulnerability.

Sandhill Crane. A. Underwood, ADF&G.

Species ranked as IV showed unknown trends in population size and distribution but were also relatively secure (low biological vulnerability). We therefore applied an additional prioritization process for any IV-ranked species to qualify as an SGCN. To understand the process, it is important to note that the original ASRS evaluation developed in 2012 included an Action category that comprehensively assessed each species' current state of knowledge based on existing survey, monitoring, research and management needs, including whether factors that may limit population growth were known (Gotthardt et al. 2012). Action scores were not used as a primary focus of the six rankings above, which instead emphasize Status (population trends, distribution) and Biological scores (population size, range, reproductive potential) to assess at-risk status.

Only a subset of IV-ranked species qualified as SGCN. We selected those with both above-average vulnerabilities (Biological scores) and data deficiencies (Action scores) relative to all taxa in the ASRS database. We specifically applied the median Biological and Action scores as "cut-off" values in a two-step sorting process. The first sort selected only IV-ranked species with Biological (vulnerability) scores above the median. The second sort identified as SGCN those species that also had Action scores above the median.

[3] Only a portion of species with ASRS ranks of IV were included as SGCN, given this rank had low biological vulnerability. See text for details on an additional sorting process.

Steller's Eiders and Long-tailed Ducks. ADF&G.

The ASRS should be considered a "living database" because the process of updating it is ongoing and iterative. ACCS updates rankings for a subset of Alaska taxa annually. Hence, there may be occasions when a species' ASRS rank does not yet reflect new information. However, other criteria we used for selecting SGCN, such as a species' inclusion on Avian Conservation Lists, act as a "fine filter" to catch recent declines of vulnerable species. In a few cases when an ASRS score was near the cut-off but new or urgent data had emerged since a species' last update, we deferred to input from Alaska species specialists to make necessary adjustments.

Avian Conservation Lists

We compared and supplemented the list of at-risk species described above (ASRS ranks I through III and a subset of IV) with taxa highlighted as conservation concerns in a select number of existing avian conservation lists, plans, and products. Although every list has its limitations, the overriding principles of each aligned well with ASRS, focusing on population status and trend, biological vulnerability, and peer review. Some were used to create the 2015 SGCN list and have been updated since. All are familiar, in wide use, and align with the efforts of our partners.

We specifically compared and supplemented the ASRS at-risk species list with the following: USFWS Birds of Conservation Concern (BCC; USFWS 2021), Alaska Shorebird Conservation Plan (ASG 2019), Boreal Partners in Flight (BPIF) Alaska Landbird Conservation Plan (Handel et al. 2021), and Partners in Flight Avian Conservation Assessment Database (ACAD; Partners in Flight 2024).

The BCC identified species likely to become candidates for listing under the ESA should additional conservation actions not be taken. The BPIF Landbird Conservation Plan and Alaska Shorebird Conservation Plan assessed population size, trends, life histories, and conservation issues in Alaska's

five Bird Conservation Regions to identify species of conservation concern. The ACAD database scored species vulnerability based on six factors related to population size, distribution, threats, and population trends. In cases where the ASRS differed from avian conservation lists, we consulted with ADF&G and other in-state species specialists before deciding whether to expand the SGCN list.

Aquatic and Invertebrate Species

Information allowing rigorous and uniform at-risk assessment for aquatic and invertebrate species is lacking, because these groups are not yet part of the ASRS. Under the ASRS ranking process that we applied to terrestrial vertebrates and marine mammals, a species could be warranted for inclusion as an SGCN if it had unknown trends in population size and distribution (Rank IV; see "Alaska Species Ranking System" above). However, the ASRS Rank IV criterion alone would qualify unusually large numbers of aquatic and invertebrate species as SGCN. Other well-respected information sources on status, trend, and vulnerability, such as the IUCN Red List (IUCN 2024) and NatureServe (NatureServe 2023) ranking systems, did not adequately capture a majority of Alaska's aquatic and invertebrate taxa.

Thankfully, a great deal of information is available in population surveys, life history and habitat studies, harvest reports, and specialist knowledge of threats and ongoing environmental changes. ADF&G specialists conferred SGCN status to a range of species and higher-order taxa with known or suspected population declines, high vulnerability, or both, particularly as these relate to invasions of aquatic invasive species. We therefore included invertebrate and aquatic species as SGCN with known or anticipated local declines, or other key data deficiencies. The result collectively represents a broad range of guilds, habitats, and geographic locations. As such, research and management actions

Species of Conservation Need: Gray-headed Chickadee *(Poecile cinctus)*

The Gray-headed Chickadee, formerly known as the Siberian Tit, is a widespread resident breeder throughout subarctic Scandinavia and Northern Asia. They are also found in North America, where they are the rarest chickadee with a small, disjunct population occurring in Northern Alaska, northern Yukon, and the Northwest Territories. Gray-headed Chickadees were once considered widespread and common in parts of Alaska but are now rarely seen, with only a handful of observations over the past decade. They are likely vulnerable to increased icing events in the winter, and possibly vulnerable to range expansion by Boreal Chickadees. The small population, likely declining in population size and distribution, and lack of knowledge about its life history in Alaska or Canada, make it a species of conservation need.

Gray-headed Chickadee. T. Booms, ADF&G.

Chickadees are specially adapted to endure Alaska's rugged winters. They have much denser, better-insulating plumage than other songbirds their size, and a special ability to put on fat quickly. Chickadees also drop their body temperature at night to conserve their winter fuel and "shiver" to keep their body temperature stable. The Gray-headed Chickadee is one of the few cavity nesters that range to the tree line in subpolar habitats, and it is speculated to use snow burrows to conserve body heat during the cold Arctic nights.

Species of Conservation Need: Northern flying squirrel *(Glaucomys sabrinus yukonensis)*

Northern flying squirrel. J. Whitman, ADF&G.

The northern flying squirrel, a nocturnal gliding mammal, occurs in many of Alaska's forests. Unlike other squirrels in the state, flying squirrels have patagia (lateral skin folds between their front and hind legs) that enable them to glide short distances between trees at night. Their large eyes provide excellent night vision. These squirrels have a diverse omnivorous diet that includes nuts, berries, mushrooms, lichen, and spruce tips. They nest in tree cavities and witches' brooms (clusters of abnormal tree branches caused by tree rust diseases), using materials such as old foliage, lichen, and shredded bark. During Alaska's long and cold winters, flying squirrels enter torpor and hibernate in small groups within witches' brooms. Flying squirrel populations rely on dense, old, and closed-canopy forests with well-spaced corridors for gliding to evade predators such as owls and hawks. Flying squirrels, along with other small mammals, are key dispersers of fungal spores that form obligate associations with the roots of seedling trees, leading to successful regeneration and greater resilience of mature trees to environmental change. Squirrel inoculation of forest soils with fungal spores is an important consideration for reforestation and the functioning of forest ecosystems

directed towards these taxa will also be relevant to associated species not specifically identified as SGCN. The process of researching and modifying aquatic and invertebrate portions of Alaska's SGCN list is ongoing. In the coming decade, ADF&G aspires to add more taxa to the ASRS, such as fish, given existing knowledge of populations and trends.

Stewardship Species

A *stewardship* species is any taxon with a large percentage of its population or range in Alaska. This is particularly relevant to Alaska because 1) its large size makes it more likely to support a significant percentage of a taxon, 2) it has extensive island archipelagos (Aleutian Islands, Kodiak Archipelago, Alexander Archipelago, isolated Bering Sea islands) on which many endemic subspecies have evolved, and 3) many migratory bird species concentrate in Alaska to breed or stage before dispersing. More information is available on the population and range of vertebrates in Alaska, and stewardship designation reflects that pattern.

Stewardship can indicate continental responsibility (i.e., a substantial fraction of the North American population occurs in Alaska) or regional responsibility (i.e., species is endemic to Alaska). We adopted stewardship definitions present in both the shorebird and landbird conservation plans for SGCN status. For example, the Alaska Shorebird Conservation Plan defined an "Alaska Stewardship" species as one with equal to or greater than 50% of its North American population occurring in Alaska during any portion of its annual life cycle. We also applied

this definition to waterfowl and seabirds. The Alaska Landbird Conservation Plan defined a "Continental Stewardship" species as one in which equal to or greater than 10% of its global population occurs in North America and equal to or greater than 25% of its North American population occurs in Alaska. For mammals and fish, taxa that have relatively fewer population estimates than birds, we based stewardship on the proportion of the species' range occurring in Alaska (Baltensberger et al. 2024). Similar to the 2015 Alaska Wildlife Action Plan, stewardship status was warranted when more than 60% of a species' range occurred within Alaska.

Culturally Important Species

The best practices guide (AFWA 2012) recommends that action plans consider a species' cultural and economic importance when determining its status as an SGCN. A wide range of user groups were considered when determining cultural importance. Many culturally important species are hunted or trapped, but some of them are excluded from this plan because they receive adequate funding from other sources and are not listed under the ESA. All other culturally important species were considered eligible. Culturally important SGCN also include those that are economically important (defined below).

Information on important subsistence species from around the state was provided during development of the 2015 State Wildlife Action Plan by Dr. James Fall, program manager for the Division of Subsistence at ADF&G. These data include species harvested for subsistence, as well as selected species that provide subsistence harvest opportunities but do not receive substantial funding for management from other sources (e.g., some seabirds and sea ducks). Regional harvest reports of the Alaska Migratory Bird Co-Management Council (AMBCC 2025) were also used to identify culturally important species eligible for SGCN status. In 2025, additional information was provided by Dr. Lori Polasek, wildlife scientist for the Marine Mammals Program, Division of Wildlife Conservation at ADF&G.

Economically Important Species

Only aquatic species are categorized as economically important on the SGCN list. These include aquatic species harvested commercially, such as crabs and salmon. Among mammals, furbearers have commercial value but are excluded from the SGCN list because they are hunted or trapped and receive funding from other sources. Alaska's economically important SGCN are also considered to be culturally important.

Ecologically Important Species

For aquatic species and terrestrial invertebrates, ecological importance was considered for inclusion as SGCN. Most ecologically important species are important prey for some other species, whereas others may exert top-down control on community structure or provide key ecological functions (e.g., pollination). For example, under this category, select aquatic vertebrates species that are abundant and provide a critical source of food for species at upper trophic levels, such as forage fish (Cury et al. 2011), qualified as SGCN. For terrestrial vertebrates and marine mammals, any available information on this topic was part of the ASRS review and ranking process, so ecological importance was not considered as a separate criterion.

Results

Combined, our analysis resulted in qualifying 266 vertebrate species as SGCN in Alaska. The SGCN list also includes six orders of terrestrial arthropods, five classes of freshwater macroinvertebrates,

one species of freshwater mollusk, three orders and one subclass of marine zooplankton, two classes of deep-sea corals, and eight species of other marine invertebrates. Of the vertebrates, the SGCN list includes 12 fish species and one genus of rockfish, five amphibians, 183 birds, 42 terrestrial mammals, and 24 marine mammals. A complete list of all SGCN and the basis for their inclusion is shown in Appendices A through C.

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