SETTING CONSERVATION PRIORITIES FOR ALASKA'S WILDLIFE ACTION PLAN

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The Alaska Species Ranking System (ASRS)

On the cover
Alder Flycatcher (*Empidonax alnorum*), photo courtesy of Bill Thompson, U.S. Fish and Wildlife Service.

Setting Conservation Priorities for Alaska's Wildlife Action Plan

THE ALASKA SPECIES RANKING SYSTEM (ASRS)

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ABSTRACT

The Alaska Species Ranking System (ASRS) was developed as a tool to assist the Alaska Department of Fish and Game (ADF&G) Wildlife Diversity Program and their partners with setting priorities for wildlife conservation as they move forward to implement Alaska's Wildlife Action Plan and meet the conservation needs of Alaska's wildlife. The ASRS provides a procedure for evaluating the status of terrestrial vertebrate taxa in Alaska with ranking criteria that are transparent and repeatable and results in outputs that can be used in a variety of ways for determining specific species and groups of species to focus conservation efforts on.

We modified the Millsap et al. (1990) ranking system developed by the Florida Game and Fresh Water Fish Commission to design a ranking system specific to terrestrial vertebrate taxa in Alaska. The resulting ASRS has 16 variables grouped into four categories. The first three categories focus on aspects of a taxon's population status (Status), biological vulnerability (Biological), and extent of current knowledge (Action). The fourth category contains variables that are not scored but are used for sorting the ranking results (Supplemental). This system requires documentation when answering variables, but allows for scoring when information is lacking. The ASRS results in an overall status, biological, and action score for each taxon. Based on the combination of those 3 category scores, taxa are then placed into conservation priority groups to identify taxa that rank as high conservation need (Red), moderately high (Orange), moderate (Yellow), and low need (Blue).

We ranked a total of 492 taxa including 8 herps, 328 birds, and 156 mammals. Twenty percent of taxa were ranked at the subspecies or population level. Final categorical scores for 101 (20.3%) of the taxa were of high need (Red), 152 (30.8%) of moderately high (Orange), 168 (34.1%) of moderate (Yellow), and 71 (14.4%) were of low need (Blue). By taxonomic group, herps had the highest proportion of high need taxa (37.0%), followed by birds (22.0%), and then mammals (16.7%). We used a Kruskal-Wallis test to determine if the ranking system was biased towards a certain taxonomic group and found a significant difference in biological and action scores between herps, birds, and mammals. Specifically, a Wilcoxon rank sum test showed significantly higher median biological and action scores for mammals compared to birds, meaning they are more vulnerable and have greater information needs. To determine if the large portion of mammal subspecies ranked was driving the higher scores, we removed all subspecies and found no significant differences in median biological and action scores for mammals compared to birds.

The ASRS establishes a baseline from which future comparisons of status can be made and scores can be updated as new information becomes available. Deciding which species or groups of species to target for active conservation is a difficult task and the ASRS can serve as an initial mechanism for producing a list of potential taxa to focus efforts on. We realize the ASRS does not take into consideration all factors that are important in deciding how to allocate conservation resources, so we encourage users to employ the ASRS in combination with other resources to assess wildlife species needs and set priorities for wildlife conservation.

INTRODUCTION

About 500 species or subspecies of vertebrate taxa regularly occupy Alaska's terrestrial habitats (MacDonald and Cook 2010, Gibson et al. 2012, NatureServe 2012). Of these 500 species, approximately 400 were nominated in the state of Alaska's Comprehensive Wildlife Conservation Strategy (commonly referred to as Alaska's Wildlife Action Plan) as Species of Greatest Conservation Need (SGCN) (ADFG 2006). Although a number of evaluation criteria were considered to develop the nominee list, no set of criteria were used to objectively score species. With such a large array of taxa, the ability to objectively allocate limited resources to those species most in need of conservation is difficult. As such, the Alaska Department of Fish and Game (ADF&G) recognized the importance of implementing a systematic ranking process for evaluating conservation needs for effective and proactive management of wildlife populations.

Setting priorities for the allocation of limited resources to conservation actions is a basic function of conservation organizations, particularly government agencies which have direct responsibility for the conservation and management of biodiversity (Coates and Atkins 2001). Many prioritization ranking systems have focused on the identification of rare and endangered species (Master 1991, Gautier et al. 2010), but a few have included risk-ranking criteria intended to highlight species that are more abundant but also deserve attention for various reasons (Millsap et al. 1990, Lunney et al. 1996, Dunn et al. 1999, Baldi et al. 2001, Knapp et al. 2003). Such risk-ranking systems use quantitative evaluation protocols that combine indicators of extinction risk, including population size, number of populations, range size, rate of decline, or potential for population recovery (Millsap et al. 1990, Lunney et al. 1996, Dunn et al. 1999, Baldi et al. 2001, Knapp et al. 2003, Keith et al. 2004). Due to their transparency and repeatability, many such systems have achieved wide application among conservation organizations at regional, national and global scales (Millsap et al. 1990, IUCN 2001, Lunney et al. 1996, Gauthier et al. 2010).

We reviewed a variety of options for systematically evaluating the conservation status of species, including a number of basic approaches that utilized easily-measured variables (e.g., Freitag and Van Jaarsveld 1997, Cofre and Marquet 1999) to more sophisticated methods with more complex variables (e.g., Millsap et al. 1990, Lunney et al. 1996, Dunn et al. 1999, Baldi et al. 2001). We selected the approach used by the Florida Game and Fresh Water Fish Commission (FGFWFC), first described by Millsap et al. (1990), as a model for evaluating Alaska's species. Within the Millsap et al. (1990) system, vertebrate taxa are ranked based on biological vulnerability and the extent of knowledge regarding population status and management. Advantages of this approach include producing scores that are explicit and traceable, the ability to update ranks as new information becomes available, and the flexibility and option of using subscores and sorting mechanisms to view results in various ways.

Since the publication of the Millsap et al. (1990) Wildlife Monograph, the original ranking system has been adjusted and employed as a tool to guide conservation decision making in a number of states, other countries, and also within the U.S. National Park system. At the state level, a modified Millsap approach was used to set priorities for species ranking in Indiana (Knapp et al. 2003) and for identifying species of concern in Maine (Ritchie et al. 2005). Baldi et al. (2001) adapted the Millsap system to set priorities for the conservation of terrestrial vertebrates in Hungary and Lunney et al. (1996) customized the Millsap et al. (1990) system to identify and prioritize endangered fauna in New South Wales, Australia. At a finer scale, Garret and Wright (2000) used a modified Millsap

approach to prioritize research and monitoring needs for terrestrial mammals within the U.S. National Parks system.

The objective of this project was to evaluate all regularly occurring terrestrial vertebrate taxa in Alaska with respect to biological vulnerability and the current state of knowledge to prioritize conservation efforts across taxa and suggest knowledge gaps. Our goal was to produce a logical and transparent assessment that could be used to provide up-to-date information to assist with strategic decision making, to better-inform cooperators, to allow for better inter-divisional coordination, and to increase public support for wildlife conservation expenditures. Here, we describe the **Alaska Species Ranking System** (ASRS), including the modifications that were made to the Millsap et al. (1990) scoring system to improve its efficacy in Alaska. We also illustrate ways the results of the ranking system can be used to prioritize wildlife conservation decisions across taxa in Alaska.

METHODS

SELECTION OF TAXA AND NAMING CONVENTIONS

The initial list of nominee species was derived from Alaska's Wildlife Action Plan (ADFG 2006) species of greatest conservation need (SGCN) list, which included 400 taxa represented by five classes: birds, mammals, herps (amphibians and reptiles), fishes, and invertebrates. During the initial phase of development and pilot testing, we included representative species from all five classes to insure that the system performed well across all taxonomic groups. However, fish and invertebrate species were later excluded, and the project focus narrowed to only include terrestrial vertebrate species. Taxa considered accidental and casual in their occurrence also were excluded. The resultant SGCN list contained a total of 343 species, subspecies, or populations including: 213 birds, 122 mammals, 6 amphibians, and 2 reptiles. Ultimately, we elected to rank the remainder of the regularly occurring vertebrate taxa within the state (i.e., an additional 149 species) to remove any biases and obtain a more meaningful and even distribution of scores, while improving the utility of the system for comparing scores between species and species groups.

DESCRIPTION OF THE RANKING PROTOCOL

The system developed for Florida by Millsap et al. (1990) was modified to better address conservation needs specific to Alaska. The resultant ASRS includes 16 assessment questions, grouped into four categories: 1) status, 2) biological, 3) action, and 4) supplemental variables (Figure 1). Scores are additive within categories, but are not combined across categories. The supplemental variables are used for sorting and do not receive numerical scores. Each taxon is evaluated for all of the 16 variables. This system requires clear documentation for answers to each variable, but allows for species to be evaluated when some information is lacking.

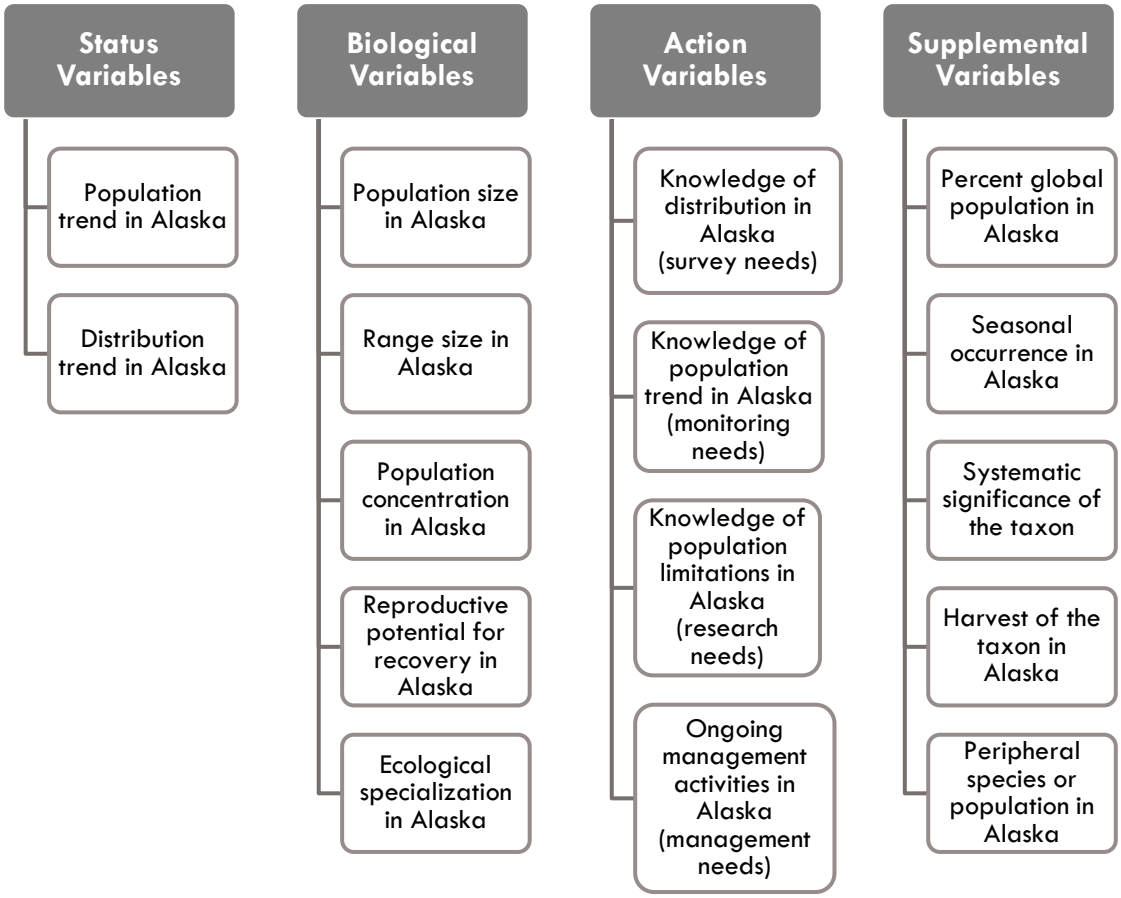

Figure 1. Overview of the variables within the Alaska Species Ranking System (ASRS) organized by category. The supplemental variables are used for sorting and do not receive numerical scores.

ASSESSMENT QUESTIONS

1. Status Variables

This category consists of two variables that measure the trend in a taxon's population status or distribution (Table 1). These status variables acknowledge that taxa with declining trends are of concern regardless of current population or range size, with higher status scores emphasizing species with known declining trends.

2. Biological Variables

This category consists of five variables that measure aspects of a taxon's distribution, abundance and life history (Table 1). Scores for the five biological variables are based on the geographic range of the taxa within Alaska. Biological scores are calculated from the sum of five variables, with higher biological scores suggesting greater vulnerability to extirpation.

In the Millsap et al. (1990) system, the status and biological variables were combined under a single grouping, and were referred to as biological variables. We felt that trend was a major driver in determining the current status of a taxon, and that it should be given more emphasis (weight) in

evaluating conservation need than if it were embedded and averaged with other biological factors. For that reason, we separated the two trend criteria and placed them in their own group and called them status variables.

3. Action Variables

This category consists of four variables that provide a relative measure of the current state of knowledge or extent of conservation efforts directed toward a given taxon within Alaska (Table 1). Higher action scores denote greater information needs due of lack of knowledge or conservation action.

4. Supplemental Variables

This category contains five variables that are not used directly in the ranking process, but are useful in separating/sorting taxa to answer specific biological or managerial questions. These variables indicate taxonomic significance, percent of the global population in Alaska, season of occurrence, harvest, and whether or not the taxon is peripheral in its range in Alaska (Table 1).

Table 1. Status, biological, action, and supplemental variables, categories within variables, and scores used to rank taxa.

Status Variables - *measure the trend in a taxon's population status or distribution.*	**Score**
1. Population trend: overall trend in Alaska over the last two decades.	
This variable acknowledges that taxa with declining population trends are a concern regardless of the current population size.	
a. Population trend known to be decreasing	10
b. Trend unknown, but population trend suspected to be decreasing	6
c. Population formerly experienced serious declines, but is presently stable or increasing	2
d. Population trend stable or suspected to be stable or increasing	-6
e. Population trend known to be increasing	-10
2. Distribution trend: percent historical change in distribution over the last 50 years in area occupied within Alaska.	
Distribution is the spatial extent occupied by the taxon with consideration of habitat suitability in Alaska. This variable presumes that taxa whose ranges have been fragmented or contracted are more vulnerable to extirpation than those with intact or expanding ranges.	
a. Area occupied known to be decreasing	10
b. Trend unknown, but area occupied suspected to be decreasing	6
c. Area occupied formerly experienced serious declines, but is presently stable or increasing	2
d. Area occupied is stable or suspected to be stable or increasing	-5
e. Area occupied is known to be increasing	-10
Biological Variables - *measure aspects of a taxon's distribution, abundance and life history.*	
3. Population size: known or suspected adult population size in Alaska.	
This variable assigns the highest score to taxa with the lowest number of adult individuals, recognizing that taxa with smaller population sizes are more vulnerable to extirpation. Since the exact population size can be difficult to estimate for some species, we included the following two choices: population size unknown but suspected to be small and population size unknown but suspected to be large.	
a. 0- 500	10
b. 501- 1,000, or population is unknown but suspected small	6
c. 1,001- 3,000	2
d. 3,001- 10,000	-2
e. 10,001- 25,000, or population is unknown but suspected to be large	-6
f. > 25,000	-10

Biological Variables continued…

4. Overall range size: size of the range within Alaska (total areal extent occupied with no consideration of habitat suitability) during the season when the range is most restricted. *This variable gives the highest weight to taxa with smaller ranges, under the assumption that they are more vulnerable to extirpation than taxa with larger ranges. For taxa with distinct separate breeding and non-breeding ranges in Alaska, the range size is calculated using the season when the range is most restricted.*	
a. < 100 km^2 (< 1 township, St. Paul Island)	10
b. 100- 1,000 km^2 (1-10 township, St. Paul Island to Etolin Island)	8
c. 1,001- 10,000 km^2 (~1/1500 to 1/150 size of Alaska, Etolin Island to Kodiak Island)	4
d. 10,001- 100,000 km^2 (~1/150 to 1/15 size of Alaska, Kodiak Island to Arctic National Wildlife Refuge)	-2
e. 100,001- 400,000 km^2 (~1/15 to 1/4 size of Alaska, Arctic National Wildlife Refuge to Brooks Range + North Slope)	-8
f. > 400,000 km^2 (> 1/4 size of Alaska, Brooks Range + North Slope)	-10
5. Population concentration: degree to which populations aggregate at sites seasonally in Alaska (within the season when they aggregate the most). *This variable implies a regular temporal compression of the distribution and gives more weight to taxa that concentrate, assuming that they are more susceptible to any single mortality factor than taxa that do not congregate.*	
a. Population concentrates or occurs at a single site	10
b. Population concentrates or occurs at 2- 25 sites	2
c. Population concentrates or occurs at > 25 sites	-6
d. Population concentrates or occurs at > 250 sites or does not concentrate	-10
6. Reproductive potential for recovery.	
A. Average number of eggs or live young produced per adult female per year. *This variable considers the average number of eggs or live young produced per adult female per year as an indication of a taxon's ability to recover after disturbance. Taxa with the lowest reproductive potential receive the highest scores.*	
a. < 1 offspring	5
b. 1- 2 offspring	3
c. 3- 9 offspring	1
d. 10- 100 offspring	-3
e. > 100 offspring	-5
B. Minimum age at which females typically first reproduce. *This variable gives the most weight to taxa that reproduce at a later age, assuming that they will take longer to recover from or respond to environmental changes.*	
a. > 8 years	5
b. 4-8 years	1
c. 2-3 years	-3
d. < 2 years	-5

Biological Variables continued…

7. Ecological adaptability: degree to which the taxon is dependent on environmental factors.	
A. Dietary specialization.	
'Specialization' implies narrow ecological tolerance, reduced adaptability, and hence reduced chance of survival in a changing environment. This variable considers dietary specialization and recognizes that taxa with specific dietary niches are more vulnerable to environmental changes.	
a. Not adaptable; dietary specialist with key requirements scarce	*5*
b. Moderately adaptable; dietary specialist with key requirements fairly common	1
c. Highly adaptable; opportunistic feeder	*-5*
B. Habitat adaptability: refers to the habitat used within the season that is most limiting in Alaska.	
This variable gives higher scores to habitat specialists, assuming they are less capable of adapting to environmental changes than generalists.	
a. Not adaptable; habitat specialist with key requirements scarce	*5*
b. Moderately adaptable; habitat specialist with key requirements fairly common	1
c. Highly adaptable; habitat generalist	*-5*
Action Variables - *measure the current state of knowledge or extent of conservation efforts directed toward a given taxon within Alaska.*	
8. Knowledge of distribution in Alaska (Survey needs).	
Knowledge of a taxon's distribution within the state is a prerequisite to effective conservation management. This variable gives the highest score to taxa whose distribution in Alaska is least well known.	
a. Distribution is extrapolated from few locations or knowledge limited to general range maps	10
b. Broad range limits or habitat associations somewhat known, but distribution is not well understood throughout range in Alaska	2
c. Distribution is well known throughout range in Alaska with knowledge of habitat associations	-10
9. Knowledge of population trend in Alaska (Monitoring needs).	
Knowledge of the abundance or population trend of a taxon is an important component to effective management. Taxa that are not currently monitored receive the highest score for this variable. Local monitoring or monitoring that is inadequate to detect a trend is weighed more heavily than statewide monitoring that provides statistically valid abundance or trend estimates.	
a. Not currently monitored	10
b. Monitored locally or statewide monitoring inadequate to detect trend	2
c. Statewide monitoring adequate to detect population trend	-2
d. Statewide monitoring based on population estimates, or nearly complete censuses	-10

Action Variables continued…

10. Knowledge of Alaska population limitations (Research needs).	
Effective conservation actions require knowledge of factors currently limiting populations. The highest scores for this variable are given to taxa whose major factors limiting population size and distribution are not well understood.	
a. Factors potentially affecting population size and distribution are speculative, with little awareness about which are limiting	10
b. Factors potentially affecting the population are known, with some agreement on which 2 or 3 are likely limiting	2
c. Factors limiting populations are known, and there is broad consensus about which are limiting	-10
11. Ongoing management activities (Management needs).	
Current regulations and management plans for taxa are a prerequisite to effective conservation planning. This variable gives the most weight to taxa that are not currently managed. An intermediate score is given to taxa whose management is reactive in the form of conservation laws and regulations, while taxa that are actively managed receive the lowest scores.	
a. None directed primarily at the taxon	10
b. Management mostly related to enforcement of conservation laws	2
c. Some direct management activities in place to benefit this taxon	-10

Supplemental Variables – *do not receive numerical scores. These variables are used to sort taxa in relation to taxonomic significance, season of occurrence, harvest and whether or not the taxon is peripheral in its range.*

12. Percent of global population in Alaska.

This variable reflects Alaska's stewardship responsibility to the conservation taxa and allows taxa to be sorted based on the percentage of the global population occurring within Alaska. This variable assumes that the higher the percentage of the global population within the state, the greater the impact status and management actions within the state will have on the persistence of the taxa at the global scale.

a. Taxa is endemic to Alaska

b. > 90% of global population occurs in Alaska

c. 75- 90% of global population occurs in Alaska

d. 50- 74% of global population occurs in Alaska

e. 25- 49% of global population occurs in Alaska

f. < 25% of global population occurs in Alaska

Supplemental Variables continued…

13. Seasonal occurrence in Alaska.

Effective conservation planning and management requires knowledge of the period of residence of the taxon within the state. For example, Alaska is home to a wide-variety of breeding birds during the summer, but many of these birds winter outside of the state; therefore, opportunities for management actions may be limited temporally for many taxa. This variable enables sorting of target taxa by season of occurrence or permanent residency.

a. Permanent year-round resident

b. Resident only during breeding season

c. Resident only during nonbreeding season

d. Transient

14. Systematic significance of the taxon.

This variable addresses the goal of promoting and sustaining wildlife biodiversity by recognizing that the more genetically distinct a taxon is, the greater its value is to overall species diversity. In this sorting variable, taxonomic categories are used as a gauge for genetic distinctiveness. Members of monotypic families (e.g., Pacific walrus, Odobenus rosmarus) are considered of greater systematic significance than subspecies (e.g., Turner's Rock Ptarmigan, Lagopus muta atkhensis).

a. Monotypic family

b. Monotypic genus

c. Monotypic species

d. Disjunct population below the species level

e. Intergrading subspecies

15. Harvest of the taxon in Alaska.

This variable identifies the extent of protection from harvest and take currently afforded under state and federal law and can be used to recognize highly vulnerable taxa that are not protected.

a. Harvest is substantial with no regulations in place

b. Harvest is substantial with regulations in place

c. Harvest is not substantial (minor subsistence take, accidental take, or harvest of nuisance animals)

d. Harvest is prohibited by regulation or the taxon is not harvested

16. Peripheral taxa: taxa at the edge of their range with less than 10% of their global range in Alaska.

Peripheral taxa are at the edge of their range (Fraser 2000). Due to Alaska's unique geography, many taxa that occur in the state are at the northernmost limits of their ranges or occur irregularly in the state for very short time periods. While it is important to consider peripheral taxa in conservation decision making, it is also important to recognize that a taxon may be considered rare in Alaska because it is at the periphery of its range, but the same taxon may be widespread and secure elsewhere. Here, we define peripheral as any taxon at the edge of its range with less than 10% of its global range known to occur in Alaska and a population size in Alaska of less than 10,000 individuals (Bunnell et al. 2004).

a. Yes

b. No

EVALUATION PROCESS

The core of the evaluation process involved data collection to quantify scores for each species for the 16 criteria. Information used to answer scoring criteria for individual species was obtained through exhaustive literature review as well as information supplied directly by specialists of certain species or species groups. Outcomes from the system should generally agree with present knowledge and understanding. Three assessors were responsible for evaluating and scoring all taxa to maintain consistency in the interpretation and scoring of variables throughout the ranking process. Experts were consulted to evaluate variables where documentation was lacking. Adequate justification and supportive data were required to make changes to scores. All raw data, scores, and documentation of data sources for each species were put into an electronic Microsoft Office Access database.

SCORING

The Millsap et al. (1990) system ranked biological and action variables on a scale of 0 to 10, with higher scores indicating greater vulnerability (biological) or lack of knowledge (action). When unable to answer a question using available data or information from the literature, Millsap et al. (1990) substituted expert opinion for missing data. When expert opinion still could not provide an answer, the lowest score was chosen (i.e. unknowns were assigned a value of 0). Consequently, taxa with less information known about them tended to be classified as less threatened (Regan et al. 2005).

To better address the problem of missing data that are typical for many Alaska species, and to avoid scoring poorly understood taxa as a lower conservation concern, we modified the Millsap et al. (1990) system so that ASRS scores for an individual variable ranged from -10 (lowest) to 10 (highest). In this negative to positive scoring system, missing data were assigned a value of 0, thereby receiving the middle score as opposed to the lowest score.

As noted previously, variables used to produce scores were divided into three categories: status, biological, and action variables. Supplemental variables were only used for sorting the data and did not receive numerical scores. Scores were additive within categories, but were not combined across categories. Individual scores for the two **status variables** ranged from -10 to 10, for a potential range of -20 to 20 points. **Biological scores** were calculated from the sum of five variables, whose individual scores ranged from -10 to 10, thus the potential range of total biological scores for each taxon was -50 to 50. **Action scores** were calculated from four variables, for a total range of -40 to 40 points.

Lastly, we allowed answers to individual variables to span more than one response (i.e., multiple choice answer). To incorporate the possibility of choosing more than one response per variable, we calculated a weighted average by assigning probabilities to each response when a range of possible outcomes existed. A weighted average was calculated from the product of the estimated probability associated with each response category and the score for the response category using the following formula:

$$\sum_{i=1}^{m}\sum_{j=1}^{n} X_{ij}P_{ij}$$

Where m = number of attributes, i = attribute, n = number of response categories, j = response category, X = point value for category, P = probability (Knapp et al. 2003). The use of weighted

averages also helped to account for uncertainty associated with subjective judgment and incomplete information when answering a variable.

CATEGORICAL GROUPING

To provide users of the ASRS with an alternative mechanism than just using straight scores to make determinations about what is considered a "high priority for conservation" vs. "low priority", we devised a categorical approach that uses status, biological, and action scores in combination to answer a variety of questions regarding the conservation need of Alaska's wildlife. Although the categorical approach uses combinations of scores to identify candidate taxa for conservation action, the scores for status, biological, and action remain independent and are not summed.

To create categorical groupings, **status scores** were assigned to one of three groups: 1) **high**, indicating the population and/or distribution trends were known to be decreasing; 2) **unknown**, if both population and distribution trend scores were unknown; and 3) **low**, if trends did not fit into the above two groups. **Biological scores** were placed in high and low groupings based on their relative score, with **high** including the top 2/3rds of the scores and **low** including the remaining 1/3rd. **Action scores** were also placed in high and low groups depending on if the score was above zero (high) or equal to or less than zero (low). The qualitative groupings for status, biological, and action were then joined in nine different combinations and assigned a numerical category on a scale of I to IV (Table 2).

The nine numerical categories were then further collapsed by a color coding scheme indicative of the level of conservation need (Table 2). Red (numerical categories I and II) signifies the highest level of conservation need – these are taxa with known declining trends and high biological vulnerability and/or high action need. Orange (III, IV, and V) denotes moderately high need – these are taxa with declining trends and low biological vulnerability and low action need or taxa with unknown trends and high biological and/or high action need. Yellow (VII and VIII) indicates moderate need. Taxa included in this grouping are considered "watchlist" species – these are taxa with stable or increasing trends and high biological vulnerability and/or high action need. Blue (VI and IV) suggests lower need and these taxa probably do not require as much attention as the other species. These are taxa with unknown, stable, or increasing trends and low biological vulnerability and low action need.

Table 2. Numerical and color categories that are produced based on the status and the biological and/or action qualitative scores.

Numerical Category	Color Category	Status Score	Biological Score		Action Score	Description
I	Red	High	High	and	High	High status, biological vulnerability, and action need.
II	Red	High	High	or	High	High status and either high biological vulnerability or high action need.
III	Orange	High	Low	and	Low	High status and low biological vulnerability and action need.
IV	Orange	Unknown	High	and	High	Unknown status and high biological vulnerability and action need.
V	Orange	Unknown	High	or	High	Unknown status and either high biological vulnerability or high action need.
VI	Blue	Unknown	Low	and	Low	Unknown status and low biological vulnerability and action need.
VII	Yellow	Low	High	and	High	Low status and high biological vulnerability and action need.
VIII	Yellow	Low	High	or	High	Low status and either high biological vulnerability or high action need.
IX	Blue	Low	Low	and	Low	Low status and low biological vulnerability and action need.

ANALYSES

For each taxon evaluated, we calculated the total status, biological, and action category score. Category scores were calculated separately and never summed to maintain independent measures of population status, biological vulnerability, and current state of knowledge. To compare status, biological, and action scores, we computed the median score for each category by taxonomic group. Because the point value scale for most variables was non-linear (i.e., successive intervals between the scores were not equal), the median was the most appropriate statistic for describing the central tendency of the results. The median is not affected by the actual values of the scores above or below it as long as the number of scores above and below remains the same (Lunney et al. 1996). To measure the strength of association between variables, we calculated Spearman's rank correlations among the five biological and four action variables using the median score.

All variables were answered through literature searches and expert opinion. However, it was apparent that certain questions were much easier to obtain existing and current information for (e.g., range size) than others (e.g., distribution trend). In an attempt to identify gaps in our knowledge base, and to determine if any variables were disproportionally answered as "unknown", we calculated the number of variables answered as unknown by variable and by taxonomic group.

We compared the results of the biological and status variables in the ASRS to the NatureServe conservation ranking system (Faber-Langendoen et al. 2009) to provide a coarse index of the ASRS' ability to appropriately rank taxa across a broad range of status designations. The NatureServe ranking system assigns the conservation rank based on a numerical scale ranging from 1 (critically imperiled) to 5 (demonstrably widespread, abundant and secure), at both global (G rank) and subnational (S rank) scales based on biological vulnerability and rarity. For a comparison to NatureServes' G and S ranks, we summed the scores for the biological and status criteria together as

these variables were most comparable to those used in the NatureServe scoring system. We then plotted the median score in comparison to the NatureServe G and S ranks for each taxon.

To determine if the ranking system was taxonomically biased we compared biological and action scores among the three groups of vertebrates represented in the ranking system: Herps (i.e., Amphibia and Reptilia), Aves, and Mammalia. We predicted that biological and action scores for mammals would be higher than scores for birds and herps due to the large number of subspecies of mammals on the nominee list. To test this hypothesis, we used a Kruskal-Wallis rank sum test to examine differences in scores between the three groups of vertebrates for all taxa and then repeated this analysis with all subspecies excluded. When the Kruskal-Wallis rank sum test indicated there were significant differences between groups, we used the Wilcoxon rank sum test to perform pair-wise comparisons to determine which groups were significantly different from each other.

RESULTS

We evaluated a total of 492 taxa including 6 amphibians, 2 reptiles, 328 birds, and 156 mammals. Individual taxa ranks for status, biological, and action variables are presented in Appendix A. Of the 492 ranked taxa, 94 were subspecies and 6 were ranked at the population level. Status scores ranged from -20.0 to 20.0 (out of a possible -20.0 to 20.0), biological scores ranged from -48.0 to 27.0 (out of a possible -50.0 to 50.0), and action scores ranged from -40.0 to 40.0 (out of a possible -40.0 to 40.0).

Scores for status, biological, and action variables were then used in combination to place taxa within appropriate color categories designed to answer a myriad of questions regarding conservation needs (Appendix B). Of the 492 taxa assessed, 101 (20.3%) were considered to have a high level of conservation need (Red), 152 (30.8%) were of moderately high need (Orange), 168 (34.1%) were of moderate need (Yellow), and 71 (14.4%) were low need (Blue) (Table 3). By taxonomic group, herps had the highest proportion of high priority taxa (37.0% were in the red category), followed by birds (22.0%), and then mammals (16.7%).

Table 3. The total number of taxa, by taxonomic group, included within each of the nine priority categories.

Priority category	Herps	Birds	Mammals	Total
I. Red	1	16	13	30
II. Red	2	56	13	71
III. Orange	0	17	6	23
IV. Orange	0	25	23	48
V. Orange	0	44	37	81
VI. Blue	0	4	1	5
VII. Yellow	2	25	17	44
VIII. Yellow	2	95	27	124
IX. Blue	1	46	19	66

ASSESSMENT OF THE SCORING SYSTEM

The accuracy of any prioritization scheme very much depends on the availability and quality of data (Baldi et al. 2001). While we conducted extensive literature searches and contacted many experts to obtain current information to answer each of the 16 ranking criteria, we were unable to answer some questions with any justification or certainty. In particular, the two status variables regarding trend were the most difficult to obtain information for. As a result, we scored 39.0% and 56.0% of answers for population trend and distribution trend, respectively, as unknowns (Table 4). We were able to find information from the literature and experts to answer most of the biological variables, with the exception of population size, for which 16.7% of answers were scored as unknown. Action variables were rarely scored as unknown.

Table 4. Ranking criteria and the number of questions that were scored as unknown, by class.

	Herps (n=8)	**Birds** (n=328)	**Mammals** (n=156)	**Total no. Unknowns** (n=492)
Status Variables				
Population trend	2	98	92	192
Distribution trend	2	196	78	276
Biological Variables				
Population size	2	26	54	82
Range size	0	3	2	5
Population concentration	0	15	5	20
Age of first reproduction	0	20	0	20
Number of offspring	0	0	0	0
Dietary adaptability	0	3	0	3
Habitat adaptability	0	1	0	1
Action Variables				
Knowledge of distribution	0	0	1	1
Knowledge of population trend	0	1	0	1
Knowledge of limitations	0	0	0	0
Ongoing management activities	0	0	1	1

VARIABLE INTERRELATIONSHIPS

To examine the degree of association among variables, we computed Spearman's rank correlations for both biological and action variables. Among the biological variables, range size and population concentration were the most highly correlated ($r = 0.55$) and there was also a moderately strong association between range size and population size ($r = 0.49$; Table 5), indicating potential for information redundancy. We found no strong correlations among the action variables ($r > 0.50$) and only a moderately strong association between survey and monitoring scores ($r = 0.40$; Table 6).

Table 5. Spearman's rank correlations between biological variables.

	Biological Variables				
	Population Size	Range Size	Population Concentration	Reproductive Potential	Ecological Specialization
Population Size	1.00	0.49**	0.27**	-0.09*	0.00
Range Size		1.00	0.55**	-0.22**	0.04
Population Concentration			1.00	0.02	0.14**
Reproductive Potential				1.00	0.18**
Ecological Specialization					1.00

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 6. Spearman's rank correlations between action variables.

	Action Variables			
	Survey	Monitoring	Research	Management
Survey	1.00	0.40**	0.31**	0.20**
Monitoring		1.00	0.29**	0.35**
Research			1.00	0.31**
Management				1.00

** Correlation is significant at the 0.01 level (2-tailed)

NATURESERVE RANK COMPARISON

A histogram comparison of the ASRS scores to NatureServe ranks revealed a decrease in median status and biological scores (when summed together) moving from global and state critically imperiled (G1, S1) and imperiled (G2, S2) taxa through taxa considered secure (G4, G5, S4, S5; Figure 2). This relationship suggests the ASRS follows a similar pattern observed in a well-known and accepted ranking system. Deviations within G and S rank categories and overlap between categories may indicate that some taxa warrant further investigation. This is particularly true for species ranked as GNR or SNR by Nature Serve.

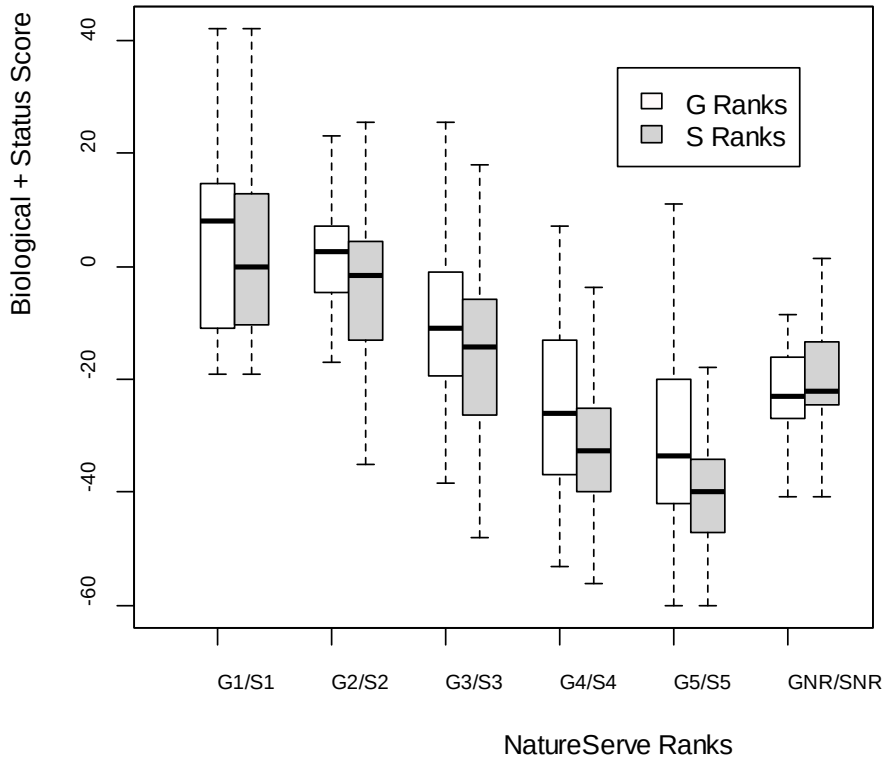

Figure 2. Histogram of median biological and status scores, combined, and corresponding NatureServe global and state ranks, from G1 to G5 and S1 to S5. Nature Serve Rank definitions follow: G1 = critically imperiled globally, S1 = critically imperiled in Alaska, G2 = imperiled globally, S2 = imperiled in Alaska, G3 = vulnerable globally, S3 = vulnerable in Alaska, G4 = apparently secure globally, S4 = apparently secure in Alaska, G5 = secure globally, S5 = secure in Alaska, GNR = not ranked globally, SNR = not ranked in Alaska.

TAXONOMIC BIAS

A Kruskal-Wallis test was conducted on the status, biological and action scores to evaluate differences between median scores among the three groups of vertebrates: herps, birds and mammals. For the biological variables, the scores were significantly different between the three groups, $X^2(2, N = 492) = 15.35$, $p < 0.00$. Follow-up pairwise Wilcoxon rank sum tests (equivalent to Mann-Whitney U) between each of the three groups resulted in significantly higher median biological scores for mammals (m_d = -20.2; range -48.0, 23.2; N = 156; W = 20056.5, p < 0.00) compared to birds (m_d = -28.0; range -44.0, 27.0; N = 328). Median biological scores were similar for herps (m_d = -19.8; range -45.2, -2.4; N = 8), yet there were no significant differences in median biological scores between herps and birds or herps and mammals.

Using the Kruskal-Wallis test, differences in median action scores among the three groups were also significant $X^2(2, N = 492) = 19.42$, $p < 0.00$. Similar to the results for biological scores, mammals had significantly higher (m_d = 20.0; range -40.0, 40.0; N = 156; W = 19532, $p < 0.00$) action scores than birds (m_d = 12.0; range -32.0, 36.0; N = 328). This is likely due to the abundance of information available on avian taxa and the legal protections afforded by the Migratory Bird Treaty Act (1918). Median action scores were not significantly different between herps (m_d = 18.0; range –

2.0, 32.0; $N = 8$) and mammals or herps and birds. The Kruskal-Wallis test between status scores resulted in no significant differences in median scores $X^2(2, N = 492) = 0.62$, $p = 0.73$ between herps, birds, and mammals.

We attributed the higher median biological and action scores for mammals to a high proportion of subspecies included in the ranking (38% of mammals compared to 10% of birds and 0% amphibians). Subspecies typically have smaller ranges, smaller populations sizes, and are generally more concentrated in their distribution, resulting in higher biological scores. Additionally, less is generally known about subspecies, which would result in higher action scores. Due to this disparity, we tested the assumption that differences in median scores for these two categories were influenced by the high number of mammalian subspecies included in the ranking. When all subspecies were removed from the analysis, no significant differences in median biological $X^2(2, N = 398) = 2.85$, $p = 0.24$ or action scores $X^2(2, N = 398) = 2.68$, $p = 0.26$ were observed among the three classes of vertebrates.

DISCUSSION

The ASRS was developed specifically as a tool to assist in setting priorities for the conservation of terrestrial vertebrate species in Alaska, and was designed to aid biologists in determining where research, inventory, and monitoring monies should be allocated. The approach presented here provides a procedure for evaluating the status of vertebrate taxa in Alaska that is designed to be objective and rely upon available information and expert opinion so that answers to ranking criteria are transparent and repeatable. This project reviewed 492 regularly occurring vertebrate taxa in Alaska using criteria comprised of 16 assessment questions that focused on aspects of a taxon's population status, biological vulnerability, and extent of current knowledge.

The ASRS was intended to be used as a coarse filter priority setting tool, designed as a first step in separating out important species, rather than a means of producing a single finalized score. While the overall status, biological, and action scores are instructive, we encourage users of the system to also consider the categorical ranks and additional outside sources of information to develop a plan of action. The categories provide the user with a list of species sharing similar traits or needs to consider for conservation action, and allow for greater flexibility in setting priorities than just straight numerical scores.

RANKING CRITERIA AND CATEGORICAL APPROACH

The ASRS enabled the identification of taxa with a full range of conservation needs. Of the 492 taxa ranked, 51% were considered to have high (red category) or moderately high (orange) conservation needs, suggesting an equal distribution of taxa between higher and perhaps more immediate needs as opposed to those with less immediate requirements. The two highest ranking categories (red), contain approximately 20% of the taxa scored, including a number with known declining trends (either population or distribution) that are either biologically vulnerable or have high information needs or limited conservation efforts currently directed towards them. Of the 101 taxa included in the red category, 46 had some type of conservation status designation already associated with them from various state and federal agencies and NGOs, indicating that our ranking system identified species that have been recognized by other researchers as being in need of conservation action. Examples include Black Scoter, North Pacific blue whale, Kittlitz's Murrelet, leatherback, and Pacific walrus. An additional 31% of taxa fell into the next highest category (orange). This category is the most complex. It includes taxa with known declining trends not yet considered highly vulnerable biologically and with low action needs, or their population or distribution trends are unknown and they

have high biological or action scores. Examples from this category include Rusty Blackbird, bearded seal, and the Alaska tiny shrew.

Taxa with moderate concerns (34%) (yellow category) have stable to increasing trends, yet they are biologically vulnerable or have high action needs and include species such as the Bristle-thighed Curlew, Hudsonian Godwit, insular vole, and long-toed salamander. While it seems reasonable that the majority of conservation actions would be directed toward taxa included in the high to moderately high concern categories, we advocate that taxa with moderate concern should also be watched. While the population status for these taxa is currently stable or increasing, this group includes species that are potentially vulnerable due to biological attributes or lack of direct conservation activity. Seventy-one percent of taxa included in this category were birds, which equates to 37% of all avian taxa included in the ranking.

Lastly, 14% of taxa were considered low priority (blue category). While species receiving low priority ranks probably do not require as much attention as the other categories, they should not be neglected and should still be integrated into general conservation strategies, as they are still important for the maintenance of biodiversity and biological function.

DATA GAPS

One of the primary objectives of this project was to identify gaps in our knowledge base. These become especially important when developing and implementing effective conservation practices. Identifying such gaps permits greater validation of the ranking system (Branco et al. 2008), and also can be instructive in highlighting taxa with immediate research, management, monitoring, or inventory needs.

The level of information available on which to base scores was lacking for many taxa, but it was generally restricted to the same two or three questions. For example, status scores indicated that 84 (17%) of Alaska's terrestrial vertebrate taxa are probably experiencing some level of population decline, and 56 (11%) have experienced a reduction in size from their former range. However, these numbers likely underestimate the number of taxa with declining trends, as these two variables had the highest percentage of unknown answers (39% and 56%, respectively). Information for all other biological and action variables was largely available.

It could be argued that this is reason enough to doubt the reliability of the rankings. But, management decisions must and will be made whether conclusive information is available or not (Millsap et al. 1999). When data were missing, we attempted to substitute expert opinion to answer the question(s). However, there are simply some large gaps in our knowledge base that even experts could not assist with. We built a mechanism for dealing with unknowns into the ASRS that still allowed the species to be ranked, by assigning missing data the middle score of zero. This allows for easy visual interpretation of unknown scores. Assigning unknowns a zero value also allows for a simple query of the ASRS to produce a list of all taxa, or all criteria, with missing data.

ASSESSMENT OF THE RANKING SYSTEM

Results from the variable analyses were not used to adjust the ranking system. Instead, they were included to alert users of the potential biases and limitations of the ASRS. The range and population size biological variables were highly correlated, as were range size and population concentration, which is to be expected. Animals with small ranges typically have small populations, which may be more tightly concentrated than animals with broad ranges and large populations. Taxa exhibiting these traits generally have higher biological scores than wide ranging species that are widely

dispersed. Accordingly, many geographically restricted subspecies received some of the highest biological scores, which is consistent with the findings of Millsap et al. (1990). The same trend was observed in the action scores.

A pilot test of the ranking system revealed the bias toward subspecies in the biological and action scores early in the process. Additionally, a Kruskal-Wallis test comparing median biological and action scores between taxonomic classes resulted in significant differences in median scores when all taxa (i.e., species, subspecies, and populations) were included; whereas, there was no significant difference in median scores when subspecies and populations were removed. We employed two strategies to compensate for this bias. First, we made sure that all subspecies included in the ranking were also ranked at the species level. For example, seven subspecies of Rock Ptarmigan were included in the SGCN list. We added Rock Ptarmigan at the species level, to provide broader context about the species across its range in Alaska. Secondly, we made use of the supplemental variable, systematic significance of the taxon, to allow for results to be sorted with all taxa included or with subspecies and populations excluded.

The systematic status of subspecies and populations has implications for assessing their management priority. Twenty percent (n = 100) of the 492 total taxa ranked were subspecies and populations. While we acknowledge that subspecies are an integral component of the overall diversity of the Alaska fauna, we believe the observed trends in biological and action scores are meaningful but should be interpreted with some caution. In many cases, subspecific designations were based on slight morphological differences from a small number of specimens, many of which have not been revisited for examination since first described. While recent molecular techniques have elucidated some of these taxonomic uncertainties for small mammals in Southeast Alaska (see Conroy and Cook 2000, Bidlack and Cook 2001, Cook and MacDonald 2001, Cook et al. 2001, MacDonald and Cook 1999, 2007), the majority of small mammal subspecific designations in the state remain questionable. This is true for many avian subspecies also. The systematic status of these populations has implications for assessing their management priority. The results of our analyses strongly highlight the need for more comprehensive systematic studies on the endemic/subspecific taxa of Alaska using modern molecular techniques.

There is no direct way to determine the accuracy of the ranking system, but ranking of taxa of known status provided some insight for comparison (Millsap et al. 1999). NatureServe and its member programs use a suite of factors to assess the conservation status of plant, animal, and fungal species, as well as ecological communities and systems. These assessments lead to the designation of a conservation status rank. Comparison with the NatureServe status ranks revealed a similar trend from global or state critically imperiled through taxa thought to be secure. This observed pattern indicates that our ranking system is accurate enough to portray the relative status of taxa across a broad range of status conditions.

CONCLUSION

Deciding which species or group of species needs to be targeted for active conservation is not easy. The ranking system does not take into consideration all factors that are important in deciding how to allocate conservation resources, and users may want to refine lists or priority groupings differently, depending on their interests and goals. We acknowledge that the ASRS is a complex ranking system that requires the user to have a fair amount of prior knowledge about the ranking criteria and the scoring system to be able to interpret results correctly and use them prescriptively for wildlife

conservation. We therefore encourage users of the system to familiarize themselves with the ranking criteria and develop queries that are specific to the question(s) being asked. It must be recognized that no scoring system will give the "right" answer for every species or every user of the system, no matter how many criteria are included or how they are weighted. Ultimately, it is important to keep in mind the final goal of influencing on the ground conservation action (Dunn et al. 1999).

The ASRS establishes a baseline from which future comparisons of status can be made and scores can be updated as new information becomes available. In addition to identifying priority candidates for research, monitoring, and management activities, the ASRS also could be used to set specific objectives and measure progress for a variety of programs and user groups. An example of such an objective would be to lower the number of unknown scores, signifying gaps in our knowledge, over a five year time period. Progress towards this kind of objective can be measured as more factors affecting population size and distribution trend become known.

The scope and uses of the ASRS exceed the results contained within this report. An Access database was developed to house all the species information gathered during this effort. The database produces status, biological, and action scores based on the best available knowledge. However, the ASRS database was designed to be dynamic, and periodic updates are planned as new information and funding becomes available. To insure consistency in any future updates to the database, we developed an instruction manual that describes the process involved in scoring each of the ranking variables. Lastly, we produced a data dictionary that accompanies the ASRS which describes each table and its associated fields, and provides a list of all queries, forms and reports with a brief narrative of their functions.

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APPENDIX A. Status, biological and action scores and numerical and color category designation for taxa, sorted by phylogenetic order.

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Amphibians					
Salamanders and Newts					
Northwestern salamander	*Ambystoma gracile*	-5	-6	32	VII. Yellow
Long-toed salamander	*Ambystoma macrodactylum*	-5	-2	28	VII. Yellow
Roughskin newt	*Taricha granulosa*	-11	-17	12	VIII. Yellow
Toads and Frogs					
Western toad	*Anaxyrus boreas*	-1	-35	-2	IX. Blue
Wood frog	*Lithobates sylvaticus*	-11	-45	8	VIII. Yellow
Columbia spotted frog	*Rana luteiventris*	1	-5	32	I. Red
Reptiles					
Turtles					
Green turtle	*Chelonia mydas*	6	-22	20	II. Red
Leatherback	*Dermochelys coriacea*	6	-23	16	II. Red
Mammals					
Rodents					
Northern flying squirrel	*Glaucomys sabrinus*	16	-20	24	II. Red
Northern flying squirrel, Prince of Wales	*Glaucomys sabrinus griseifrons*	16	1	-8	II. Red
Alaska marmot	*Marmota broweri*	-16	-19	32	VIII. Yellow
Hoary marmot	*Marmota caligata*	0	-32	32	V. Orange
Hoary marmot, Montague Island	*Marmota caligata sheldoni*	0	23	32	IV. Orange
Hoary marmot, Glacier Bay	*Marmota caligata vigilis*	0	8	40	IV. Orange
Woodchuck	*Marmota monax*	-5	-8	32	VII. Yellow
Arctic ground squirrel	*Spermophilus parryii*	-6	-44	8	VIII. Yellow
Arctic ground squirrel, Aleutian	*Spermophilus parryii ablusus*	-11	-30	28	VIII. Yellow
Arctic ground squirrel, Barrow	*Spermophilus parryii kennicottii*	-10	-40	20	VIII. Yellow
Arctic ground squirrel, Kodiak Island	*Spermophilus parryii kodiacensis*	-3	-22	36	VIII. Yellow
Arctic ground squirrel, St. Lawrence Island	*Spermophilus parryii lyratus*	0	-16	40	IV. Orange
Arctic ground squirrel, Osgood's	*Spermophilus parryii osgoodi*	0	-2	36	IV. Orange
Arctic ground squirrel, Shumagin Islands	*Spermophilus parryii nebulicola*	6	-12	36	I. Red
Red squirrel	*Tamiasciurus hudsonicus*	-6	-38	6	VIII. Yellow
Red squirrel, Kenai	*Tamiasciurus hudsonicus kenaiensis*	6	-20	24	II. Red
Red squirrel, Kupreanof	*Tamiasciurus hudsonicus picatus*	-10	-20	12	VIII. Yellow
American beaver	*Castor canadensis*	-16	-42	-8	IX. Blue
Beaver, Admiralty	*Castor canadensis phaeus*	-4	-19	12	VIII. Yellow
Meadow jumping mouse	*Zapus hudsonius*	0	-38	20	V. Orange
Nearctic collared lemming	*Dicrostonyx groenlandicus*	0	-32	28	V. Orange

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Collared lemming, St. Lawrence Island	*Dicrostonyx groenlandicus exsul*	0	4	36	IV. Orange
Collared lemming, peninsulae	*Dicrostonyx groenlandicus peninsulae*	0	-18	36	V. Orange
Collared lemming, Stevenson's	*Dicrostonyx groenlandicus stevensoni*	0	8	36	IV. Orange
Collared lemming, Unalaska	*Dicrostonyx groenlandicus unalascensis*	0	8	36	IV. Orange
Nearctic brown lemming	*Lemmus trimucronatus*	0	-35	24	V. Orange
Brown lemming, Nunivak Island	*Lemmus trimucronatus harroldi*	6	5	32	I. Red
Brown lemming, black-footed	*Lemmus trimucronatus nigripes*	-5	17	24	VII. Yellow
Insular vole	*Microtus abbreviatus*	-11	-8	40	VII. Yellow
Insular vole, Hall Island	*Microtus abbreviatus abbreviatus*	-5	6	40	VII. Yellow
Insular vole, St. Matthew Island	*Microtus abbreviatus fisheri*	-5	0	40	VII. Yellow
Long-tailed vole	*Microtus longicaudus*	0	-44	20	V. Orange
Long-tailed vole, Coronation Island	*Microtus longicaudus coronarius*	0	-2	32	IV. Orange
Long-tailed vole, littoralis	*Microtus longicaudus littoralis*	0	-36	26	V. Orange
Singing vole	*Microtus miurus*	-10	-43	12	VIII. Yellow
Root vole	*Microtus oeconomus*	-6	-48	20	VIII. Yellow
Root vole, Amak Island	*Microtus oeconomus amakensis*	-11	4	4	VII. Yellow
Root vole, Montague Island	*Microtus oeconomus elymocetes*	-5	0	20	VII. Yellow
Root vole, St. Lawrence Island	*Microtus oeconomus innuitus*	-5	-6	32	VII. Yellow
Root vole, Shumagin Island	*Microtus oeconomus popofensis*	0	-2	40	IV. Orange
Root vole, Punuk Island	*Microtus oeconomus punukensis*	16	-3	24	I. Red
Root vole, Sitka	*Microtus oeconomus sitkensis*	6	-6	40	I. Red
Root vole, Unalaska	*Microtus oeconomus unalascensis*	0	-24	40	V. Orange
Root vole, Yakutat	*Microtus oeconomus yakutatensis*	0	-8	32	IV. Orange
Meadow vole	*Microtus pennsulvanicus*	-10	-42	12	VIII. Yellow
Meadow vole, Admiralty	*Microtus pennsulvanicus admiraltiae*	-5	-8	32	VII. Yellow
Taiga vole (yellow-cheeked vole)	*Microtus xanthognathus*	-6	-30	12	VIII. Yellow
Southern red-backed vole	*Myodes gapperi*	0	-30	28	V. Orange
Southern red-backed vole, phaeus	*Myodes gapperi phaeus*	0	-25	36	V. Orange
Southern red-backed vole, Revillagigedo Island	*Myodes gapperi solus*	0	-4	36	IV. Orange

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Southern red-backed vole, Gapper's	*Myodes gapperi stikinensis*	0	-24	36	V. Orange
Southern red-backed vole, Wrangell Island	*Myodes gapperi wrangeli*	0	-12	36	IV. Orange
Northern red-backed vole	*Myodes rutilus*	-11	-48	4	VIII. Yellow
Northern red-backed vole, St. Lawrence Island	*Myodes rutilus albiventer*	0	-12	36	IV. Orange
Northern red-backed vole, Glacier Bay	*Myodes rutilus glacialis*	0	-20	28	V. Orange
Northern red-backed vole, Island	*Myodes rutilus insularis*	0	2	28	IV. Orange
Northern red-backed vole, Orca	*Myodes rutilus orca*	0	-16	36	IV. Orange
Bushy-tailed woodrat	*Neotoma cinerea*	0	-19	30	V. Orange
Muskrat	*Ondatra zibethicus*	0	-38	24	V. Orange
Northwestern deermouse	*Peromyscus keeni*	0	-43	10	V. Orange
Northwestern deermouse, algidus	*Peromyscus keeni algidus*	0	-25	22	V. Orange
Northwestern deermouse, hylaeus	*Peromyscus keeni hylaeus*	0	-31	22	V. Orange
Northwestern deermouse, macrorhinus	*Peromyscus keeni macrorhinus*	0	-31	30	V. Orange
Northwestern deermouse, oceanicus	*Peromyscus keeni oceanicus*	0	2	32	IV. Orange
Northwestern deermouse, sitkensis	*Peromyscus keeni sitkensis*	-5	-4	32	VII. Yellow
North American deermouse	*Peromyscus maniculatus*	0	-30	40	V. Orange
Northern bog lemming	*Synaptomys borealis*	0	-37	20	V. Orange
North American porcupine	*Erethizon dorsatum*	0	-32	24	V. Orange
Pikas and Hares					
Collared pika	*Ochotona collaris*	0	-29	24	V. Orange
Snowshoe hare	*Lepus americanus*	-10	-44	-8	IX. Blue
Alaskan hare	*Lepus othus*	6	-31	22	VIII. Yellow
Alaskan hare, othus	*Lepus othus othus*	6	-28	10	VIII. Yellow
Alaskan hare, poadromus	*Lepus othus poadromus*	4	-26	30	VIII. Yellow
Shrews					
Cinereus shrew	*Sorex cinereus*	0	-44	26	V. Orange
Pygmy shrew	*Sorex hoyi*	0	-36	32	V. Orange
St. Lawrence Island shrew	*Sorex jacksoni*	-11	-18	32	VIII. Yellow
Dusky shrew	*Sorex monticolus*	0	-38	12	V. Orange
Dusky shrew, Yakutat	*Sorex monticolus alascensis*	0	-24	24	V. Orange
Dusky shrew, Queen Charlotte Islands	*Sorex monticolus elassodon*	0	-24	12	V. Orange
Dusky shrew, Warren Island	*Sorex monticolus malitiosus*	-5	-2	28	VII. Yellow
American water shrew	*Sorex palustris*	-11	-22	32	VIII. Yellow
Glacier Bay water shrew	*Sorex alaskanus*	0	9	40	IV. Orange
Pribilof Island shrew	*Sorex pribilofensis*	0	2	12	I. Red
Tundra shrew	*Sorex tundrensis*	0	-38	40	V. Orange
Barren ground shrew	*Sorex ugyunak*	-6	-36	40	VIII. Yellow
Alaska tiny shrew	*Sorex yukonicus*	0	-33	32	V. Orange

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Bats					
Silver-haired bat	*Lasionycteris noctivagans*	6	-2	24	I. Red
California myotis	*Myotis californicus*	6	7	32	I. Red
Keen's myotis	*Myotis keenii*	0	0	32	IV. Orange
Little brown myotis	*Myotis lucifugus*	6	-21	16	II. Red
Long-legged myotis	*Myotis volans*	6	-2	28	I. Red
Carnivores					
Canadian lynx	*Lynx canadensis*	-6	-18	-16	IX. Blue
Coyote	*Canis latrans*	-10	-34	16	VIII. Yellow
Gray wolf	*Canis lupus*	-11	-30	-28	IX. Blue
Gray wolf, Alexander Archipelago	*Canis lupus ligoni*	-16	1	12	VII. Yellow
Arctic fox	*Vulpes lagopus*	-6	-38	0	IX. Blue
Arctic fox, Pribilof Island	*Vulpes lagopus pribilofensis*	-5	3	22	VII. Yellow
Red fox	*Vulpes vulpes*	0	-40	12	V. Orange
American black bear	*Ursus americanus*	-6	-35	-16	IX. Blue
Brown bear	*Ursus arctos*	-11	-34	-30	IX. Blue
Brown bear, Kenai population	*Ursus arctos kenai*	6	6	-26	II. Red
Polar bear	*Ursus maritimus*	16	10	-28	II. Red
Northern fur seal	*Callorhinus ursinus*	5	-6	-12	II. Red
Steller sea lion, Eastern U.S. stock	*Eumetopias jubatus*	-20	-10	-20	VIII. Yellow
Steller sea lion, Western U.S. stock	*Eumetopias jubatus*	10	-28	-28	III. Orange
California sea lion	*Zalophus californianus*	-11	-12	22	VII. Yellow
Pacific Walrus	*Odobenus rosmarus (divergens)*	10	-10	-16	II. Red
Bearded seal	*Erignathus barbatus*	0	-24	-4	III. Orange
Ribbon seal	*Histriophoca fasciata*	1	-17	20	II. Red
Northern elephant seal	*Mirounga angustirostris*	2	-26	32	VIII. Yellow
Spotted seal	*Phoca largha*	1	-24	4	II. Red
Harbor seal	*Phoca vitulina*	2	-32	-8	IX. Blue
Ringed seal	*Pusa hispida*	12	-26	-16	III. Orange
Northern sea otter, all 3 Alaska stocks	*Enhydra lutris (kenyoni)*	6	-37	-22	IX. Blue
Northern sea otter, SW Alaska population	*Enhydra lutris (kenyoni)*	0	-37	-28	III. Orange
Wolverine	*Gulo gulo*	0	-32	-2	VI. Blue
North American river otter	*Lontra canadensis*	-11	-37	-8	IX. Blue
North American river otter, Kodiak	*Lontra canadensis kodiacensis*	0	-13	16	IV. Orange
North American river otter, Prince of Wales	*Lontra canadensis mira*	-6	-6	14	VII. Yellow
American marten	*Martes americana*	-16	-33	-4	IX. Blue
American marten, Kenai	*Martes americana kenaiensis*	0	-19	28	V. Orange
Pacific marten	*Martes caurina*	9	-1	4	I. Red
Ermine	*Mustela erminea*	-5	-34	-16	IX. Blue

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Ermine, mainland southeast	*Mustela erminea alascensis*	0	-20	16	V. Orange
Ermine, Prince of Wales Island	*Mustela erminea celenda*	6	-2	8	I. Red
Ermine, Baranof Island	*Mustela erminea initis*	0	-2	16	IV. Orange
Ermine, Kodiak Island	*Mustela erminea kadiacensis*	-5	-10	8	VII. Yellow
Ermine, Admiralty Island	*Mustela erminea salva*	-5	8	24	VII. Yellow
Ermine, Suemez Island	*Mustela erminea seclusa*	6	10	16	I. Red
Least weasel	*Mustela nivalis*	-5	-23	32	VIII. Yellow
American mink	*Neovison vison*	-6	-34	-4	IX. Blue
Ungulates					
Moose	*Alces americanus*	-16	-34	-32	IX. Blue
Mule deer	*Odocoileus hemionus*	4	-26	-32	III. Orange
Caribou	*Rangifer tarandus*	16	-30	-32	III. Orange
Woodland caribou, Chisana herd	*Rangifer tarandus caribou*	5	2	-40	II. Red
Mountain goat	*Oreamnos americanus*	-16	-24	-32	IX. Blue
Muskox	*Ovibos moschatus*	-16	-26	-34	IX. Blue
Dall's sheep	*Ovis dalli*	-11	-32	-32	IX. Blue
Whales, Dolpins, and Porpoises					
Bowhead, Western Arctic	*Balaena mysticetus*	-3	-7	-28	VIII. Yellow
North Pacific right whale, Eastern North Pacific	*Eubalaena japonica*	10	5	0	II. Red
Common minke whale, Alaska	*Balaenoptera acutorostrata*	0	-25	8	V. Orange
Sei whale, North Pacific	*Balaenoptera borealis*	6	-11	12	I. Red
Blue whale, North Pacific	*Balaenoptera musculus*	10	-8	4	I. Red
Fin whale, Northeast Pacific	*Balaenoptera physalus*	3	-17	-4	VIII. Yellow
Humpback whale, Central and Western North Pacific	*Megaptera novaeangliae*	-4	-26	-22	IX. Blue
Gray whale, Eastern Pacific	*Eschrichtius robustus*	-20	-28	12	VIII. Yellow
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	0	-29	24	V. Orange
Killer whale	*Orcinus orca*	0	-8	-4	V. Orange
Beluga	*Delphinapterus leucas*	-6	-32	-30	IX. Blue
Beluga, Cook Inlet population	*Delphinapterus leucas*	20	22	-40	II. Red
Harbor porpoise	*Phocoena phocoena*	0	-37	8	V. Orange
Dall's porpoise	*Phocoenoides dalli*	0	-37	24	V. Orange
Sperm whale, North Pacific	*Physeter macrocephalus*	2	-15	-8	VIII. Yellow
Baird's beaked whale, Alaska	*Berardius bairdii*	0	-14	12	IV. Orange
Stejneger's beaked whale, Alaska	*Mesoplodon stejnegeri*	0	-1	32	IV. Orange
Cuvier's beaked whale, Alaska	*Ziphius cavirostris*	0	-10	32	IV. Orange
Birds					
Waterfowl					
Greater White-fronted Goose	*Anser albifrons*	2	-30	-8	IX. Blue

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White-fronted Goose, Tule	*Anser albifrons elgasi*	10	-2	2	I. Red
Emperor Goose	*Chen canagica*	12	-7	-22	II. Red
Snow Goose	*Chen caerulescens*	-10	0	-28	VIII. Yellow
Brant	*Branta bernicla*	10	-16	-8	II. Red
Cackling Goose	*Branta hutchinsii*	4	-38	-18	IX. Blue
Cackling Goose, Aleutian	*Branta hutchinsii leucopareia*	4	-12	-32	VIII. Yellow
Cackling Goose, Cackling	*Branta hutchinsii minima*	2	-10	-20	VIII. Yellow
Cackling Goose, Taverner's	*Branta hutchinsii taverneri*	-6	-26	16	VIII. Yellow
Canada Goose	*Branta canadensis*	-11	-34	-4	IX. Blue
Canada Goose, Vancouver	*Branta canadensis fulva*	-5	-24	27	VIII. Yellow
Canada Goose, Lesser	*Branta canadensis parvipes*	-11	-30	24	VIII. Yellow
Canada Goose, Dusky	*Branta canadensis occidentalis*	-5	-6	-32	VIII. Yellow
Trumpeter Swan	*Cygnus buccinator*	-20	-20	-28	IX. Blue
Tundra Swan	*Cygnus columbianus*	-10	-36	-8	IX. Blue
Whooper Swan	*Cygnus cygnus*	0	24	12	IV. Orange
Gadwall	*Anas strepera*	-11	-20	16	VIII. Yellow
Eurasian Wigeon	*Anas penelope*	-5	-17	19	VIII. Yellow
American Wigeon	*Anas americana*	-10	-36	-8	IX. Blue
Mallard	*Anas platyrhynchos*	-10	-44	-8	IX. Blue
Blue-winged Teal	*Anas discors*	-6	-28	24	VIII. Yellow
Northern Shoveler	*Anas clypeata*	-6	-42	0	IX. Blue
Northern Pintail	*Anas acuta*	-6	-30	-20	IX. Blue
Green-winged Teal	*Anas crecca*	-10	-30	12	VIII. Yellow
Green-winged Teal, Aleutian	*Anas crecca nimia*	-6	-30	24	VIII. Yellow
Canvasback	*Aythya valisineria*	-6	-40	-8	IX. Blue
Redhead	*Aythya americana*	-16	-28	14	VIII. Yellow
Ring-necked Duck	*Aythya collaris*	-6	-20	16	VIII. Yellow
Greater Scaup	*Aythya marila*	-11	-36	-8	IX. Blue
Tufted Duck	*Aythya fuligula*	-6	-21	28	VIII. Yellow
Lesser Scaup	*Aythya affinis*	0	-32	-8	VI. Blue
Steller's Eider	*Polysticta stelleri*	20	3	0	II. Red
Spectacled Eider	*Somateria fischeri*	12	-2	-20	II. Red
King Eider	*Somateria spectabilis*	8	-12	4	I. Red
Common Eider, Pacific	*Somateria mollissima (v-nigra)*	12	-34	-10	III. Orange
Harlequin Duck	*Histrionicus histrionicus*	-6	-34	-4	IX. Blue
Surf Scoter	*Melanitta perspicillata*	4	-28	8	VIII. Yellow
White-winged Scoter	*Melanitta fusca*	-3	-34	16	VIII. Yellow
Black Scoter	*Melanitta americana*	6	-16	2	I. Red
Bufflehead	*Bucephala albeola*	-6	-34	-8	IX. Blue
Long-tailed Duck	*Clangula hyemalis*	4	-30	0	IX. Blue
Common Goldeneye	*Bucephala clangula*	0	-34	8	V. Orange
Barrow's Goldeneye	*Bucephala islandica*	0	-34	8	V. Orange
Smew	*Mergellus albellus*	0	7	24	IV. Orange
Hooded Merganser	*Lophodytes cucullatus*	-5	-31	24	VIII. Yellow

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Common Merganser	*Mergus merganser*	0	-27	16	V. Orange
Red-breasted Merganser	*Mergus serrator*	-6	-35	16	VIII. Yellow
Grouse and Ptarmigan					
Ruffed Grouse	*Bonasa umbellus*	-16	-26	-20	IX. Blue
Spruce Grouse	*Falcipennis canadensis*	-6	-35	6	VIII. Yellow
Spruce Grouse, Prince of Wales	*Falcipennis canadensis isleibi*	12	-2	24	I. Red
Willow Ptarmigan	*Lagopus lagopus*	-11	-28	20	VIII. Yellow
Rock Ptarmigan	*Lagopus muta*	2	-28	0	IX. Blue
Rock Ptarmigan, Turner's	*Lagopus mutus atkhensis*	0	6	-20	V. Orange
Rock Ptarmigan, Chamberlain's	*Lagopus mutus chamberlaini*	0	8	-20	V. Orange
Rock Ptarmigan, Evermann's	*Lagopus mutus evermanni*	4	0	-20	VIII. Yellow
Rock Ptarmigan, Amchitka	*Lagopus mutus gabrielsoni*	0	6	-20	V. Orange
Rock Ptarmigan, Sanford's	*Lagopus mutus sanfordi*	0	6	-20	V. Orange
Rock Ptarmigan, Townsend's	*Lagopus mutus townsendi*	0	2	-20	V. Orange
Rock Ptarmigan, Yunaska	*Lagopus mutus yunaskensis*	2	16	-20	VIII. Yellow
White-tailed Ptarmigan	*Lagopus leucura*	-5	-32	20	VIII. Yellow
Sooty Grouse	*Dendragapus fuliginosus*	1	-39	8	II. Red
Sharp-tailed Grouse	*Tympanuchus phasianellus*	0	-26	20	V. Orange
Loons and Grebes					
Red-throated Loon	*Gavia stellata*	-3	-28	-4	IX. Blue
Arctic Loon	*Gavia arctica*	6	-6	24	I. Red
Pacific Loon	*Gavia pacifica*	-6	-32	-4	IX. Blue
Common Loon	*Gavia immer*	0	-22	4	II. Red
Yellow-billed Loon	*Gavia adamsii*	-11	-24	-4	IX. Blue
Pied-billed Grebe	*Podilymbus podiceps*	-6	-18	30	VIII. Yellow
Horned Grebe	*Podiceps auritus*	12	-34	6	II. Red
Red-necked Grebe	*Podiceps grisegena*	6	-37	-4	III. Orange
Western Grebe	*Aechmophorus occidentalis*	6	-33	8	II. Red
Albatross, Fulmars, Petrels, Storm-Petrels, and Shearwaters					
Laysan Albatross	*Phoebastria immutabilis*	-11	-15	4	VII. Yellow
Black-footed Albatross	*Phoebastria nigripes*	2	-18	-20	IX. Blue
Short-tailed Albatross	*Phoebastria albatrus*	-3	-16	-14	VIII. Yellow
Northern Fulmar	*Fulmarus glacialis*	-6	-14	2	VII. Yellow
Mottled Petrel	*Pterodroma inexpectata*	0	-27	24	V. Orange
Pink-footed Shearwater	*Puffinus creatopus*	0	-11	-8	V. Orange
Buller's Shearwater	*Puffinus bulleri*	0	-13	32	IV. Orange
Sooty Shearwater	*Puffinus griseus*	6	-26	4	II. Red
Short-tailed Shearwater	*Puffinus tenuirostris*	6	-30	24	II. Red
Fork-tailed Storm-Petrel	*Oceanodroma furcata*	4	-30	-16	IX. Blue
Fork-tailed Storm-Petrel, furcata	*Oceanodroma furcata furcata*	4	-30	-28	IX. Blue
Fork-tailed Storm-Petrel, plumbea	*Oceanodroma furcata plumbea*	0	-28	4	V. Orange
Leach's Storm-Petrel	*Oceanodroma leucorhoa (leucorhoa)*	0	-36	-16	III. Orange
Cormorants					
Brandt's Cormorant	*Phalacrocorax penicillatus*	10	22	-16	II. Red

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Red-faced Cormorant	*Phalacrocorax urile*	12	-25	2	II. Red
Pelagic Cormorant	*Phalacrocorax pelagicus*	-3	-42	-2	IX. Blue
Bitterns and Herons					
American Bittern	*Botaurus lentiginosus*	-5	-12	24	VII. Yellow
Great Blue Heron, Pacific	*Ardea herodias (fannini)*	-6	-16	12	VII. Yellow
Raptors					
Osprey	*Pandion haliaetus (carolinensis)*	-3	-25	8	VIII. Yellow
Bald Eagle	*Haliaeetus leucocephalus*	4	-23	-28	IX. Blue
Northern Harrier	*Circus cyaneus*	-5	-20	16	VIII. Yellow
Sharp-shinned Hawk	*Accipiter striatus*	6	-42	18	II. Red
Goshawk, Northern	*Accipiter gentilis (atricapillus)*	-6	-37	16	VIII. Yellow
Goshawk, Queen Charlotte	*Accipiter gentilis laingi*	12	-9	-16	II. Red
Swainson's Hawk	*Buteo swainsoni*	-6	-19	28	VIII. Yellow
Red-tailed Hawk	*Buteo jamaicensis*	-11	-20	12	VIII. Yellow
Rough-legged Hawk	*Buteo lagopus*	0	-25	16	V. Orange
Golden Eagle	*Aquila chrysaetos*	-11	-10	-16	VIII. Yellow
American Kestrel	*Falco sparverius*	6	-28	24	II. Red
Merlin	*Falco columbarius*	-11	-37	2	VIII. Yellow
Merlin, Black	*Falco columbarius suckleyi*	-5	-6	16	VII. Yellow
Gyrfalcon	*Falco rusticolus*	-6	-22	8	VIII. Yellow
Peregrine Falcon	*Falco peregrinus*	-8	-32	-28	IX. Blue
Peregrine Falcon, American	*Falco peregrinus anatum*	-3	-32	-16	IX. Blue
Peregrine Falcon, Peale's	*Falco peregrinus pealei*	-3	-14	-4	VIII. Yellow
Peregrine Falcon, Arctic	*Falco peregrinus tundrius*	-8	-24	-28	IX. Blue
Rails, Coots, and Cranes					
Sora	*Porzana carolina*	-6	-17	32	VIII. Yellow
American Coot	*Fulica americana*	-1	3	32	VII. Yellow
Sandhill Crane	*Grus canadensis*	-6	-30	-14	IX. Blue
Shorebirds					
Black-bellied Plover	*Pluvialis squatarola (squatarola)*	1	-40	0	III. Orange
American Golden-Plover	*Pluvialis dominica*	4	-42	12	VIII. Yellow
Pacific Golden-Plover	*Pluvialis fulva*	1	-44	4	II. Red
Lesser Sand-Plover	*Charadrius mongolus*	0	-11	32	IV. Orange
Common Ringed Plover	*Charadrius hiaticula*	-6	4	24	VII. Yellow
Semipalmated Plover	*Charadrius semipalmatus*	-6	-36	24	VIII. Yellow
Killdeer	*Charadrius vociferus*	6	-14	20	I. Red
Eurasian Dotterel	*Charadrius morinellus*	0	-14	32	IV. Orange
Black Oystercatcher	*Haematopus bachmani*	-11	-1	-5	VIII. Yellow
Terek Sandpiper	*Xenus cinereus*	-20	4	24	VII. Yellow
Common Sandpiper	*Actitis hypoleucos*	0	-10	24	IV. Orange
Spotted Sandpiper	*Actitis macularius*	1	-37	8	II. Red
Solitary Sandpiper	*Tringa solitaria (cinnamonea)*	0	-36	16	II. Red
Gray-tailed Tattler	*Tringa brevipes*	0	-5	32	IV. Orange
Wandering Tattler	*Tringa incana*	-6	-26	24	VIII. Yellow
Greater Yellowlegs	*Tringa melanoleuca*	0	-36	16	V. Orange

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Common Greenshank	*Tringa nebularia*	0	7	24	IV. Orange
Lesser Yellowlegs	*Tringa flavipes*	6	-38	15	II. Red
Wood Sandpiper	*Tringa glareola*	0	-4	24	IV. Orange
Upland Sandpiper	*Bartramia longicauda*	1	-18	32	II. Red
Eskimo Curlew	*Numenius borealis*	10	27	18	I. Red
Whimbrel	*Numenius phaeopus*	-11	-26	16	VIII. Yellow
Bristle-thighed Curlew	*Numenius tahitiensis*	-5	-8	4	VII. Yellow
Hudsonian Godwit	*Limosa haemastica*	-6	-8	16	VII. Yellow
Bar-tailed Godwit	*Limosa lapponica (baueri)*	1	-6	0	II. Red
Ruddy Turnstone	*Arenaria interpres*	6	-34	12	II. Red
Marbled Godwit	*Limosa fedoa (beringiae)*	-6	8	12	VII. Yellow
Black Turnstone	*Arenaria melanocephala*	-6	-28	4	VIII. Yellow
Surfbird	*Aphriza virgata*	6	-18	16	II. Red
Red Knot	*Calidris canutus (roselaari)*	6	-12	12	I. Red
Sanderling	*Calidris alba*	6	-8	32	I. Red
Semipalmated Sandpiper	*Calidris pusilla*	-6	-32	8	VIII. Yellow
Western Sandpiper	*Calidris mauri*	6	-24	4	II. Red
Red-necked Stint	*Calidris ruficollis*	0	2	24	IV. Orange
Long-toed Stint	*Calidris subminuta*	0	-14	24	IV. Orange
Least Sandpiper	*Calidris minutilla*	0	-38	16	V. Orange
White-rumped Sandpiper	*Calidris fuscicollis*	6	-31	16	II. Red
Baird's Sandpiper	*Calidris bairdii*	-6	-36	24	VIII. Yellow
Pectoral Sandpiper	*Calidris melanotos*	0	-42	16	V. Orange
Sharp-tailed Sandpiper	*Calidris acuminata*	-11	-32	32	VIII. Yellow
Rock Sandpiper	*Calidris ptilocnemis*	0	-24	4	V. Orange
Rock Sandpiper, Aleutian	*Calidris ptilocnemis couesi*	0	-18	24	II. Red
Rock Sandpiper, Pribilof	*Calidris ptilocnemis ptilocnemis*	5	10	8	I. Red
Rock Sandpiper, Bering Sea	*Calidris ptilocnemis tschuktschorum*	0	-24	24	II. Red
Dunlin	*Calidris alpina*	5	-26	-4	III. Orange
Dunlin, Arctic	*Calidris alpina arcticola*	1	-24	-4	III. Orange
Dunlin, Pacific	*Calidris alpina pacifica*	1	-24	18	II. Red
Stilt Sandpiper	*Calidris himantopus*	0	-28	22	V. Orange
Buff-breasted Sandpiper	*Tryngites subruficollis*	1	-34	4	II. Red
Ruff	*Philomachus pugnax*	0	-7	24	IV. Orange
Short-billed Dowitcher	*Limnodromus griseus (caurinus)*	-5	-35	24	VIII. Yellow
Long-billed Dowitcher	*Limnodromus scolopaceus*	-6	-31	12	VIII. Yellow
Wilson's Snipe	*Gallinago delicata*	-6	-42	16	VIII. Yellow
Common Snipe	*Gallinago gallinago*	-6	4	24	VII. Yellow
Red-necked Phalarope	*Phalaropus lobatus*	0	-44	4	V. Orange
Red Phalarope	*Phalaropus fulicarius*	0	-36	12	II. Red
Seabirds					
Black-legged Kittiwake	*Rissa tridactyla (pollicarus)*	-6	-23	-16	IX. Blue
Red-legged Kittiwake	*Rissa brevirostris*	-3	-4	5	VII. Yellow
Ivory Gull	*Pagophila eburnea*	6	-11	34	I. Red
Sabine's Gull	*Xema sabini*	-10	-33	14	VIII. Yellow

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Bonaparte's Gull	*Chroicocephalus philadelphia*	-6	-42	24	VIII. Yellow
Black-headed Gull	*Chroicocephalus ridibundus*	0	-18	24	V. Orange
Ross's Gull	*Rhodostethia rosea*	0	-38	32	V. Orange
Mew Gull	*Larus canus*	0	-34	24	V. Orange
Ring-billed Gull	*Larus delawarensis*	2	-5	32	VII. Yellow
California Gull	*Larus californicus*	2	-9	32	VII. Yellow
Herring Gull	*Larus argentatus*	0	-20	20	V. Orange
Iceland Gull (includes Thayer's)	*Larus glaucoides*	0	-17	24	V. Orange
Slaty-backed Gull	*Larus schistisagus*	0	19	32	IV. Orange
Glaucous-winged Gull	*Larus glaucescens*	-6	-37	4	VIII. Yellow
Glaucous Gull	*Larus hyperboreus*	-11	-32	16	VIII. Yellow
Aleutian Tern	*Onychoprion aleuticus*	8	-27	-10	III. Orange
Caspian Tern	*Hydroprogne caspia*	-16	6	-8	VIII. Yellow
Common Tern	*Sterna hirundo*	6	-5	24	I. Red
Arctic Tern	*Sterna paradisaea*	14	-41	0	III. Orange
Pomarine Jaeger	*Stercorarius pomarinus*	0	-12	20	IV. Orange
Parasitic Jaeger	*Stercorarius parasiticus*	0	-27	24	V. Orange
Long-tailed Jaeger	*Stercorarius longicaudus*	0	-24	24	V. Orange
Dovekie	*Alle alle*	-11	22	24	VII. Yellow
Common Murre	*Uria aalge*	-11	-28	-4	IX. Blue
Thick-billed Murre	*Uria lomvia*	-11	-26	-6	IX. Blue
Black Guillemot	*Cepphus grylle*	-8	12	18	VII. Yellow
Pigeon Guillemot	*Cepphus columba*	10	-34	-4	III. Orange
Marbled Murrelet	*Brachyramphus marmoratus*	20	-32	12	II. Red
Kittlitz's Murrelet	*Brachyramphus brevirostris*	16	-24	6	II. Red
Ancient Murrelet	*Synthliboramphus antiquus*	4	-30	-22	IX. Blue
Cassin's Auklet	*Ptychoramphus aleuticus*	14	-33	4	II. Red
Parakeet Auklet	*Aethia psittacula*	-5	-28	4	VIII. Yellow
Least Auklet	*Aethia pusilla*	10	-12	-18	II. Red
Whiskered Auklet	*Aethia pygmaea*	-8	-22	-16	IX. Blue
Crested Auklet	*Aethia cristatella*	4	-12	-16	II. Red
Rhinoceros Auklet	*Cerorhinca monocerata*	-4	-16	-10	VIII. Yellow
Horned Puffin	*Fratercula corniculata*	-5	-24	0	IX. Blue
Tufted Puffin	*Fratercula cirrhata*	0	-30	0	VI. Blue
Doves and Pigeons					
Band-tailed Pigeon	*Patagioenas fasciata*	-4	-8	24	I. Red
Mourning Dove	*Zenaida macroura*	-6	-9	32	VII. Yellow
Owls					
Western Screech-Owl	*Megascops kennicotti*	12	-23	8	II. Red
Great Horned Owl	*Bubo virginianus*	-6	-42	12	VIII. Yellow
Snowy Owl	*Bubo scandiacus*	0	-30	12	V. Orange
Northern Hawk-Owl	*Surnia ulula*	0	-35	8	V. Orange
Northern Pygmy-Owl	*Glaucidium gnoma*	6	-22	16	II. Red
Barred Owl	*Strix varia*	-20	-9	14	VII. Yellow
Great Gray Owl	*Strix nebulosa*	-5	-30	-4	IX. Blue

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Short-eared Owl	*Asio flammeus*	0	-38	14	II. Red
Boreal Owl	*Aegolius funereus*	-5	-32	8	VIII. Yellow
Northern Saw-whet Owl	*Aegolius acadicus*	0	-22	8	V. Orange
Swifts and Hummingbirds					
Black Swift	*Cypseloides niger (borealis)*	1	-2	24	I. Red
Vaux's Swift	*Chaetura vauxi*	-6	-8	16	VII. Yellow
Anna's Hummingbird	*Calypte anna*	-16	-19	24	VIII. Yellow
Rufous Hummingbird	*Selasphorus rufus*	6	-35	-4	III. Orange
Kingfishers					
Belted Kingfisher	*Megaceryle alcyon*	6	-36	16	II. Red
Woodpeckers					
Yellow-bellied Sapsucker	*Sphyrapicus varius*	4	-14	32	VII. Yellow
Red-breasted Sapsucker	*Sphyrapicus ruber*	-6	-34	-8	IX. Blue
Downy Woodpecker	*Picoides pubescens*	6	-42	8	II. Red
Hairy Woodpecker	*Picoides villosus*	4	-44	-10	III. Orange
American Three-toed Woodpecker	*Picoides dorsalis*	-6	-32	-4	IX. Blue
Black-backed Woodpecker	*Picoides arcticus*	1	-18	16	II. Red
Northern Flicker	*Colaptes auratus*	0	-32	8	II. Red
Passerines					
Olive-sided Flycatcher	*Contopus cooperi*	6	-38	8	II. Red
Western Wood-pewee	*Contopus sordidulus*	-6	-41	4	VIII. Yellow
Yellow-bellied Flycatcher	*Empidonax flaviventris*	-16	-14	24	VII. Yellow
Alder Flycatcher	*Empidonax alnorum*	-6	-38	12	VIII. Yellow
Hammond's Flycatcher	*Empidonax hammondii*	-16	-34	8	VIII. Yellow
Pacific-slope Flycatcher	*Empidonax difficilis*	-6	-36	8	VIII. Yellow
Say's Phoebe	*Sayornis saya*	-16	-38	14	VIII. Yellow
Eastern Kingbird	*Tyrannus tyrannus*	6	-20	32	II. Red
Northern Shrike	*Lanius excubitor*	0	-38	28	V. Orange
Warbling Vireo	*Vireo gilvus*	-6	-20	24	VIII. Yellow
Red-eyed Vireo	*Vireo olivaceus*	-6	-10	28	VII. Yellow
Gray Jay	*Perisoreus canadensis*	-6	-44	2	VIII. Yellow
Steller's Jay	*Cyanocitta stelleri*	-6	-44	16	VIII. Yellow
Black-billed Magpie	*Pica hudsonia*	-6	-44	8	VIII. Yellow
American Crow	*Corvus brachyrhynchos*	-11	-8	28	VII. Yellow
Northwestern Crow	*Corvus caurinus*	-11	-42	12	VIII. Yellow
Common Raven	*Corvus corax*	-16	-42	-8	IX. Blue
Sky Lark	*Alauda arvensis*	0	3	28	IV. Orange
Horned Lark	*Eremophila alpestris*	6	-41	16	II. Red
Tree Swallow	*Tachycineta bicolor*	0	-44	6	V. Orange
Violet-green Swallow	*Tachycineta thalassina*	0	-44	16	V. Orange
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	-16	-18	28	VIII. Yellow
Bank Swallow	*Riparia riparia*	6	-38	4	II. Red
Cliff Swallow	*Petrochelidon pyrrhonota*	-11	-44	8	VIII. Yellow
Barn Swallow	*Hirundo rustica*	16	-44	16	II. Red
Black-capped Chickadee	*Poecile atricapillus*	-6	-44	8	VIII. Yellow

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Chestnut-backed Chickadee	*Poecile rufescens*	-6	-36	-4	IX. Blue
Boreal Chickadee	*Poecile hudsonicus*	-6	-44	8	VIII. Yellow
Gray-headed Chickadee	*Poecile cinctus*	0	-26	36	V. Orange
Red-breasted Nuthatch	*Sitta canadensis*	-16	-30	8	VIII. Yellow
Brown Creeper	*Certhia americana*	0	-36	-10	III. Orange
Pacific Wren	*Troglodytes pacificus*	-6	-42	-16	IX. Blue
Pacific Wren, Pribilof	*Troglodytes pacificus alascensis*	0	2	10	IV. Orange
Pacific Wren, Kodiak	*Troglodytes pacificus helleri*	0	-28	18	V. Orange
Pacific Wren, Kiska	*Troglodytes pacificus kiskensis*	0	-24	9	V. Orange
Pacific Wren, Attu	*Troglodytes pacificus meligerus*	0	-14	9	IV. Orange
Pacific Wren, Semidi	*Troglodytes pacificus semidiensis*	0	4	9	IV. Orange
American Dipper	*Cinclus mexicanus*	-6	-38	2	VIII. Yellow
Golden-crowned Kinglet	*Regulus satrapa*	6	-42	-10	III. Orange
Ruby-crowned Kinglet	*Regulus calendula*	-6	-44	4	VIII. Yellow
Arctic Warbler	*Phylloscopus borealis*	0	-38	12	V. Orange
Siberian Rubythroat	*Luscinia calliope*	0	1	24	IV. Orange
Bluethroat	*Luscinia svecica*	0	-42	32	V. Orange
Northern Wheatear	*Oenanthe oenanthe*	-5	-38	16	VIII. Yellow
Mountain Bluebird	*Sialia currucoides*	-6	-42	18	VIII. Yellow
Townsend's Solitaire	*Myadestes townsendi*	-6	-36	16	VIII. Yellow
Gray-cheeked Thrush	*Catharus minimus*	6	-44	-4	III. Orange
Swainson's Thrush	*Catharus ustulatus*	-6	-44	-4	IX. Blue
Hermit Thrush	*Catharus guttatus*	-11	-44	4	VIII. Yellow
Eye-browed Thrush	*Turdus obscurus*	0	-9	24	IV. Orange
American Robin	*Turdus migratorius*	-11	-42	-8	IX. Blue
Varied Thrush	*Ixoreus naevius*	-6	-36	0	IX. Blue
Eastern Yellow Wagtail	*Motacilla tschutschensis*	-5	-42	12	VIII. Yellow
White Wagtail	*Motacilla alba*	-5	-22	32	VIII. Yellow
Red-throated Pipit	*Anthus cervinus*	0	1	24	IV. Orange
American Pipit	*Anthus rubescens*	0	-39	16	V. Orange
Bohemian Waxwing	*Bombycilla garrulus*	0	-44	4	V. Orange
Cedar Waxwing	*Bombycilla cedrorum*	6	-20	20	II. Red
Lapland Longspur	*Calcarius lapponicus*	0	-44	-16	VI. Blue
Smith's Longspur	*Calcarius pictus*	0	-26	24	V. Orange
Snow Bunting	*Plectrophenax nivalis*	0	-32	24	V. Orange
McKay's Bunting	*Plectrophenax hyperboreus*	0	-8	4	IV. Orange
Northern Waterthrush	*Parkesia noveboracensis*	-15	-41	4	VIII. Yellow
Tennessee Warbler	*Oreothlypis peregrina*	6	-18	14	II. Red
Orange-crowned Warbler	*Oreothlypis celata*	-6	-39	-8	IX. Blue
MacGillivray's Warbler	*Oporornis tolmiei*	1	-36	20	II. Red
Common Yellowthroat	*Geothlypis trichas*	6	-23	30	II. Red
American Redstart	*Setophaga ruticilla*	6	-36	16	II. Red
Magnolia Warbler	*Dendroica magnolia*	-6	-14	32	VII. Yellow
Yellow Warbler	*Dendroica petechia*	-6	-38	16	VIII. Yellow

Common Name	Scientific Name	Status	Biological	Action	Priority Category
Blackpoll Warbler	*Dendroica striata*	10	-44	3	II. Red
Yellow-rumped Warbler	*Dendroica coronata*	0	-39	16	V. Orange
Townsend's Warbler	*Dendroica townsendi*	-6	-36	8	VIII. Yellow
Wilson's Warbler	*Wilsonia pusilla*	-6	-44	12	VIII. Yellow
American Tree Sparrow	*Spizella arborea*	0	-44	12	V. Orange
Chipping Sparrow	*Spizella passerina*	-11	-32	16	VIII. Yellow
Brewer's Sparrow	*Spizella breweri*	6	0	28	I. Red
Savannah Sparrow	*Passerculus sandwichensis*	6	-44	-4	III. Orange
Fox Sparrow	*Passerella iliaca*	-6	-38	16	VIII. Yellow
Song Sparrow	*Melospiza melodia*	0	-36	-16	VI. Blue
Song Sparrow, Giant	*Melospiza melodia maxima*	0	-4	4	IV. Orange
Lincoln's Sparrow	*Melospiza lincolnii*	-6	-38	12	VIII. Yellow
White-throated Sparrow	*Zonotrichia albicollis*	6	-14	32	I. Red
White-crowned Sparrow	*Zonotrichia leucophrys*	-6	-44	16	VIII. Yellow
Golden-crowned Sparrow	*Zonotrichia atricapilla*	-5	-38	24	VIII. Yellow
Dark-eyed Junco	*Junco hyemalis*	-11	-42	16	VIII. Yellow
Rustic Bunting	*Emberiza rustica*	0	-14	32	IV. Orange
Western Tanager	*Piranga ludoviciana*	-6	-32	32	VIII. Yellow
Red-winged Blackbird	*Agelaius phoeniceus*	6	-24	16	II. Red
Rusty Blackbird	*Euphagus carolinus*	6	-38	0	III. Orange
Brown-headed Cowbird	*Molothrus ater*	6	-24	24	II. Red
Brambling	*Fringilla montifringilla*	0	-8	24	IV. Orange
Gray-crowned Rosy-finch	*Leucosticte tephrocotis*	-6	-20	16	VIII. Yellow
Pine Grosbeak	*Pinicola enucleator*	-16	-44	16	VIII. Yellow
Red Crossbill	*Loxia curvirostra*	6	-30	8	II. Red
White-winged Crossbill	*Loxia leucoptera*	-6	-32	-4	IX. Blue
Common Redpoll	*Acanthis flammea*	-5	-42	8	VIII. Yellow
Hoary Redpoll	*Acanthis hornemanni*	0	-36	32	V. Orange
Pine Siskin	*Spinus pinus*	-6	-36	-4	IX. Blue

APPENDIX B. List of taxa sorted by numerical and color category.

Common name	Greater than 25% global population in Alaska
Category (Red) I: high status, biological vulnerability, and action need	
Arctic ground squirrel, Shumagin Islands	Yes
Arctic Loon	No
Band-tailed Pigeon	No
Black Scoter	No
Black Swift	No
Blue whale, North Pacific	No
Brewer's Sparrow	No
Brown lemming, Nunivak Island	Yes
California myotis	No
Columbia spotted frog	No
Common Tern	No
Ermine, Prince of Wales Island	Yes
Ermine, Suemez Island	Yes
Eskimo Curlew	No
Ivory Gull	No
Killdeer	No
King Eider	No
Long-legged myotis	No
Pacific marten	Yes
Pribilof Island shrew	Yes
Red Knot	No
Root vole, Punuk Island	Yes
Root vole, Sitka	Yes
Sanderling	No
Sei whale, North Pacific	Yes
Silver-haired bat	No
Spruce Grouse, Prince of Wales	Yes
White-fronted Goose, Tule	Yes
White-throated Sparrow	No
Category (Red) II: high status and either high biological vulnerability or high action need	
American Kestrel	No
American Redstart	No
Bank Swallow	No
Barn Swallow	No
Bar-tailed Godwit	No
Belted Kingfisher	No
Beluga, Cook Inlet population	Yes
Black-backed Woodpecker	No
Blackpoll Warbler	Yes
Brandt's Cormorant	No
Brant	No
Brown bear, Kenai population	Yes
Brown-headed Cowbird	No

Common name	Greater than 25% global population in Alaska
Buff-breasted Sandpiper	Yes
Cassin's Auklet	No
Cedar Waxwing	No
Common Loon	No
Common Yellowthroat	No
Crested Auklet	Yes
Downy Woodpecker	No
Dunlin, Pacific	Yes
Eastern Kingbird	No
Emperor Goose	Yes
Goshawk, Queen Charlotte	Yes
Green turtle	No
Horned Grebe	Yes
Horned Lark	No
Kittlitz's Murrelet	Yes
Least Auklet	Yes
Leatherback	No
Lesser Yellowlegs	Yes
Little brown myotis	No
MacGillivray's Warbler	No
Marbled Murrelet	Yes
North Pacific right whale, Eastern North Pacific	Yes
Northern Flicker	No
Northern flying squirrel	No
Northern flying squirrel, Prince of Wales	Yes
Northern fur seal	Yes
Northern Pygmy-Owl	No
Olive-sided Flycatcher	No
Pacific Golden-Plover	No
Pacific Walrus	Yes
Polar bear	No
Red Crossbill	No
Red Phalarope	No
Red squirrel, Kenai	Yes
Red-faced Cormorant	No
Red-winged Blackbird	No
Ribbon seal	Yes
Rock Sandpiper, Aleutian	Yes
Rock Sandpiper, Bering Sea	Yes
Ruddy Turnstone	Yes
Sharp-shinned Hawk	No
Short-eared Owl	No
Short-tailed Shearwater	Yes
Solitary Sandpiper	No
Sooty Grouse	No
Sooty Shearwater	No
Spectacled Eider	No
Spotted Sandpiper	No

Common name	Greater than 25% global population in Alaska
Spotted seal	Yes
Steller's Eider	Yes
Surfbird	Yes
Tennessee Warbler	No
Upland Sandpiper	No
Western Grebe	No
Western Sandpiper	Yes
Western Screech-Owl	No
White-rumped Sandpiper	No
Woodland caribou, Chisana herd	Yes
Category (Orange) III: high status and low biological vulnerability and action need	
Aleutian Tern	Yes
Arctic Tern	Yes
Bearded seal	Yes
Black-bellied Plover	Yes
Brown Creeper	No
Caribou	No
Common Eider, Pacific	Yes
Double-crested Cormorant	No
Dunlin	Yes
Dunlin, Arctic	Yes
Golden-crowned Kinglet	No
Gray-cheeked Thrush	Yes
Hairy Woodpecker	No
Leach's Storm-Petrel	Yes
Mule deer	No
Northern sea otter, SW Alaska population	Yes
Pigeon Guillemot	Yes
Red-necked Grebe	No
Ringed seal	No
Rufous Hummingbird	No
Rusty Blackbird	Yes
Savannah Sparrow	No
Steller sea lion, Western U.S. stock	Yes
Category (Orange) IV: unknown status and high biological vulnerability and action need	
Arctic ground squirrel, Osgood's	Yes
Arctic ground squirrel, St. Lawrence Island	Yes
Baird's beaked whale, Alaska	Yes
Brambling	No
Buller's Shearwater	No
Collared lemming, St. Lawrence Island	Yes
Collared lemming, Stevenson's	Yes
Collared lemming, Unalaska	Yes
Common Greenshank	No
Common Sandpiper	No
Cuvier's beaked whale, Alaska	No

Common name	Greater than 25% global population in Alaska
Ermine, Baranof Island	Yes
Eurasian Dotterel	No
Eye-browed Thrush	No
Glacier Bay water shrew	Yes
Gray-tailed Tattler	No
Hoary marmot, Glacier Bay	Yes
Hoary marmot, Montague Island	Yes
Keen's myotis	Yes
Lesser Sand-Plover	No
Long-tailed vole, Coronation Island	Yes
Long-toed Stint	No
McKay's Bunting	Yes
North American river otter, Kodiak	Yes
Northern red-backed vole, Island	Yes
Northern red-backed vole, Orca	Yes
Northern red-backed vole, St. Lawrence Island	Yes
Northwestern deermouse, oceanicus	Yes
Pacific Wren, Attu	Yes
Pacific Wren, Pribilof	Yes
Pacific Wren, Semidi	Yes
Pomarine Jaeger	Yes
Red-necked Stint	No
Red-throated Pipit	No
Root vole, Shumagin Island	Yes
Root vole, Yakutat	Yes
Ruff	No
Rustic Bunting	No
Siberian Rubythroat	No
Sky Lark	No
Slaty-backed Gull	No
Smew	No
Song Sparrow, Giant	Yes
Southern red-backed vole, Revillagigedo Island	Yes
Southern red-backed vole, Wrangell Island	Yes
Stejneger's beaked whale, Alaska	Yes
Whooper Swan	No
Wood Sandpiper	No
Category (Orange) V: unknown status and either high biological vulnerability or high action need	
Alaska tiny shrew	Yes
American marten, Kenai	Yes
American Pipit	No
American Tree Sparrow	No
Arctic Warbler	No
Barrow's Goldeneye	No
Black-headed Gull	No
Bluethroat	No
Bohemian Waxwing	No

Common name	Greater than 25% global population in Alaska
Bushy-tailed woodrat	Yes
Cinereus shrew	Yes
Collared lemming, peninsulae	Yes
Collared pika	Yes
Common Goldeneye	No
Common Merganser	No
Common minke whale, Alaska	No
Dall's porpoise	No
Dusky shrew	Yes
Dusky shrew, Queen Charlotte Islands	Yes
Dusky shrew, Yakutat	Yes
Ermine, mainland southeast	Yes
Fork-tailed Storm-Petrel, plumbea	No
Gray-headed Chickadee	No
Greater Yellowlegs	Yes
Harbor porpoise	No
Herring Gull	No
Hoary marmot	Yes
Hoary Redpoll	No
Iceland Gull (includes Thayer's)	Yes
Killer whale	No
Least Sandpiper	Yes
Long-tailed Jaeger	No
Long-tailed vole	No
Long-tailed vole, littoralis	Yes
Meadow jumping mouse	No
Mew Gull	No
Mottled Petrel	No
Muskrat	No
Nearctic brown lemming	No
Nearctic collared lemming	No
North American deermouse	No
North American porcupine	Yes
Northern bog lemming	No
Northern Hawk-Owl	Yes
Northern red-backed vole, Glacier Bay	Yes
Northern Saw-whet Owl	No
Northern Shrike	No
Northwestern deermouse	Yes
Northwestern deermouse, algidus	Yes
Northwestern deermouse, hylaeus	Yes
Northwestern deermouse, macrorhinus	Yes
Pacific white-sided dolphin	No
Pacific Wren, Kiska	Yes
Pacific Wren, Kodiak	Yes
Parasitic Jaeger	Yes
Pectoral Sandpiper	No
Pink-footed Shearwater	No

Common name	Greater than 25% global population in Alaska
Pygmy shrew	No
Red fox	No
Red-necked Phalarope	No
Rock Ptarmigan, Amchitka	Yes
Rock Ptarmigan, Chamberlain's	Yes
Rock Ptarmigan, Sanford's	Yes
Rock Ptarmigan, Townsend's	Yes
Rock Ptarmigan, Turner's	Yes
Rock Sandpiper	Yes
Root vole, Unalaska	Yes
Ross's Gull	Yes
Rough-legged Hawk	No
Sharp-tailed Grouse	Yes
Smith's Longspur	No
Snow Bunting	No
Snowy Owl	No
Southern red-backed vole	No
Southern red-backed vole, Gapper's	Yes
Southern red-backed vole, phaeus	No
Stilt Sandpiper	No
Tree Swallow	No
Tundra shrew	Yes
Violet-green Swallow	No
Yellow-rumped Warbler	No
Category (Blue) VI: unknown status and low biological vulnerability and action need	
Lapland Longspur	No
Lesser Scaup	Yes
Song Sparrow	No
Tufted Puffin	Yes
Wolverine	No
Category (Yellow) VII: low status and high biological vulnerability and action need	
American Bittern	No
American Coot	No
American Crow	No
Arctic fox, Pribilof Island	Yes
Barred Owl	No
Black Guillemot	No
Bristle-thighed Curlew	Yes
Brown lemming, black-footed	Yes
California Gull	No
California sea lion	No
Common Ringed Plover	No
Common Snipe	No
Dovekie	No
Dusky shrew, Warren Island	Yes
Ermine, Admiralty Island	Yes

Common name	Greater than 25% global population in Alaska
Ermine, Kodiak Island	Yes
Gray wolf, Alexander Archipelago	Yes
Great Blue Heron, Pacific	Yes
Hudsonian Godwit	No
Insular vole	Yes
Insular vole, Hall Island	Yes
Insular vole, St. Matthew Island	Yes
Laysan Albatross	No
Long-toed salamander	No
Magnolia Warbler	No
Marbled Godwit	No
Meadow vole, Admiralty	Yes
Merlin, Black	Yes
Mourning Dove	No
North American river otter, Prince of Wales	Yes
Northern Fulmar	No
Northwestern deermouse, sitkensis	Yes
Northwestern salamander	No
Red-eyed Vireo	No
Red-legged Kittiwake	Yes
Ring-billed Gull	No
Root vole, Amak Island	Yes
Root vole, Montague Island	Yes
Root vole, St. Lawrence Island	Yes
Terek Sandpiper	No
Vaux's Swift	No
Woodchuck	No
Yellow-bellied Flycatcher	No
Yellow-bellied Sapsucker	No
Category (Yellow) VIII: low status and either high biological vulnerability or high action need	
Alaska marmot	Yes
Alaskan hare	Yes
Alaskan hare, othus	Yes
Alaskan hare, poadromus	Yes
Alder Flycatcher	Yes
American Dipper	No
American Golden-Plover	Yes
American water shrew	No
Anna's Hummingbird	No
Arctic ground squirrel	Yes
Arctic ground squirrel, Aleutian	Yes
Arctic ground squirrel, Barrow	Yes
Arctic ground squirrel, Kodiak Island	Yes
Baird's Sandpiper	No
Barren ground shrew	Yes
Beaver, Admiralty	Yes
Black Oystercatcher	Yes

Common name	Greater than 25% global population in Alaska
Black Turnstone	Yes
Black-billed Magpie	No
Black-capped Chickadee	No
Blue-winged Teal	No
Bonaparte's Gull	Yes
Boreal Chickadee	No
Boreal Owl	No
Bowhead, Western Arctic	Yes
Cackling Goose, Aleutian	Yes
Cackling Goose, Cackling	Yes
Cackling Goose, Taverner's	Yes
Canada Goose, Dusky	Yes
Canada Goose, Lesser	Yes
Canada Goose, Vancouver	Yes
Caspian Tern	No
Chipping Sparrow	No
Cliff Swallow	No
Common Redpoll	No
Coyote	No
Dark-eyed Junco	No
Eastern Yellow Wagtail	No
Eurasian Wigeon	No
Fin whale, Northeast Pacific	No
Fox Sparrow	Yes
Gadwall	No
Glaucous Gull	Yes
Glaucous-winged Gull	Yes
Golden Eagle	No
Golden-crowned Sparrow	Yes
Goshawk, Northern	No
Gray Jay	No
Gray whale, Eastern Pacific	Yes
Gray-crowned Rosy-finch	No
Great Horned Owl	No
Green-winged Teal	No
Green-winged Teal, Aleutian	Yes
Gyrfalcon	No
Hammond's Flycatcher	No
Hermit Thrush	No
Hooded Merganser	No
Least weasel	No
Lincoln's Sparrow	No
Long-billed Dowitcher	Yes
Meadow vole	No
Merlin	No
Mountain Bluebird	No
Northern elephant seal	Yes
Northern Harrier	No

Common name	Greater than 25% global population in Alaska
Northern red-backed vole	No
Northern Rough-winged Swallow	No
Northern Waterthrush	Yes
Northern Wheatear	No
Northwestern Crow	Yes
Osprey	No
Pacific-slope Flycatcher	No
Parakeet Auklet	Yes
Peregrine Falcon, Peale's	Yes
Pied-billed Grebe	No
Pine Grosbeak	No
Red squirrel	No
Red squirrel, Kupreanof	Yes
Red-breasted Merganser	No
Red-breasted Nuthatch	No
Redhead	No
Red-tailed Hawk	No
Rhinoceros Auklet	No
Ring-necked Duck	No
Rock Ptarmigan, Evermann's	Yes
Rock Ptarmigan, Yunaska	Yes
Root vole	No
Roughskin newt	No
Ruby-crowned Kinglet	No
Sabine's Gull	No
Say's Phoebe	No
Semipalmated Plover	Yes
Semipalmated Sandpiper	Yes
Sharp-tailed Sandpiper	No
Short-billed Dowitcher	Yes
Short-tailed Albatross	Yes
Singing vole	Yes
Snow Goose	No
Sora	No
Sperm whale, North Pacific	No
Spruce Grouse	No
St. Lawrence Island shrew	Yes
Steller sea lion, Eastern U.S. stock	No
Steller's Jay	No
Surf Scoter	Yes
Swainson's Hawk	No
Taiga vole (yellow-cheeked vole)	No
Townsend's Solitaire	No
Townsend's Warbler	Yes
Tufted Duck	No
Wandering Tattler	Yes
Warbling Vireo	No
Western Tanager	No

Common name	Greater than 25% global population in Alaska
Western Wood-pewee	No
Whimbrel	No
White Wagtail	No
White-crowned Sparrow	Yes
White-tailed Ptarmigan	Yes
White-winged Scoter	No
Willow Ptarmigan	No
Wilson's Snipe	No
Wilson's Warbler	Yes
Wood frog	No
Yellow Warbler	No
Category (Blue) IX: low status and low biological vulnerability and action need	
American beaver	No
American black bear	No
American marten	Yes
American mink	No
American Robin	No
American Three-toed Woodpecker	Yes
American Wigeon	Yes
Ancient Murrelet	No
Arctic fox	No
Bald Eagle	Yes
Beluga	Yes
Black-footed Albatross	No
Black-legged Kittiwake	No
Brown bear	No
Bufflehead	No
Cackling Goose	Yes
Canada Goose	No
Canadian lynx	Yes
Canvasback	Yes
Chestnut-backed Chickadee	Yes
Common Murre	No
Common Raven	No
Dall's sheep	Yes
Ermine	No
Fork-tailed Storm-Petrel	Yes
Fork-tailed Storm-Petrel, furcata	Yes
Gray wolf	No
Great Gray Owl	No
Greater Scaup	Yes
Greater White-fronted Goose	No
Harbor seal	Yes
Harlequin Duck	Yes
Horned Puffin	Yes
Humpback whale, Central and Western North Pacific	No
Long-tailed Duck	Yes

Common name	Greater than 25% global population in Alaska
Mallard	No
Moose	No
Mountain goat	Yes
Muskox	No
North American river otter	Yes
Northern Pintail	No
Northern sea otter, all 3 Alaska stocks	Yes
Northern Shoveler	No
Orange-crowned Warbler	Yes
Pacific Loon	No
Pacific Wren	No
Pelagic Cormorant	Yes
Peregrine Falcon	No
Peregrine Falcon, American	Yes
Peregrine Falcon, Arctic	No
Pine Siskin	No
Red-breasted Sapsucker	Yes
Red-throated Loon	No
Rock Ptarmigan	Yes
Ruffed Grouse	Yes
Sandhill Crane	No
Snowshoe hare	Yes
Swainson's Thrush	No
Thick-billed Murre	No
Trumpeter Swan	Yes
Tundra Swan	Yes
Varied Thrush	Yes
Western toad	No
Whiskered Auklet	Yes
White-winged Crossbill	No
Yellow-billed Loon	Yes