

CONSERVATION SUMMARY

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Southeast Alaska, including the 17-million-acre Tongass National Forest, is a region of great complexity in its physical, ecological, and human dimensions. Often, management agencies do not have the dedicated staff or funding to pull together a resource like the *Ecological Atlas of Southeast Alaska*, or the jurisdiction to engage in planning outside their administrative boundaries. Yet, looking at landscapes holistically is vital to understanding the larger context of decisions and to assessing cumulative effects. Through publication of this comprehensive Ecological Atlas, we aim to examine ecological patterns, share interdisciplinary knowledge, inform sustainable management, and inspire an appreciation for this spectacular place.

The *Ecological Atlas of Southeast Alaska* brings together a cross-section of topics such as forest management, commercial fishing, special status wildlife, climate change, and endemism, and interprets that information spatially. As we pieced together information from a wide variety of sources into a single framework, patterns and relationships appeared, presenting opportunities for better-informed decisions. Several themes emerged from this collection of data and ecological knowledge.

KEY CONSERVATION THEMES GATHERED FROM THE ECOLOGICAL ATLAS

1. The physical geography of the Alexander Archipelago and Coast Mountains has determined the dispersal and distribution of the region's biological components. Southeast Alaska's naturally fragmented, heterogeneous landscape requires nuanced management; its diversity is fundamental to its ecological integrity. As such, the 22 distinct biogeographic provinces of the region require special management to recognize, maintain, and/or restore populations of native flora and fauna.
2. Climate change is expected to alter the dynamics of the region through an increase in temperature of about 2°F (1.1°C) in the next 35 years, which may increase precipitation, reduce snow pack, fluctuate hydrology, shift vegetation communities, and lower fish productivity.
3. Productive old-growth forest supports a myriad of species, many of which are of conservation concern due to logging effects on habitat and populations. Karst and riparian large-tree, old-growth forests are the most rare and threatened aspects of the Tongass ecosystem.
4. Estuaries are a key ecosystem component that unites the marine and terrestrial environments and supports a variety of wildlife including shorebirds, Pacific salmon, and bears.
5. Anadromous fish are an essential part of the ecology of Southeast Alaska. Salmon are keystone species that exchange nutrients among freshwater, salt water, and terrestrial areas. Management of the Tongass must recognize and support this vital relationship to maintain long-term sustainability.
6. The diversity of habitat types in Southeast Alaska supports a great richness of bird species. Including casual and accidental occurrences, 70% of Alaska's bird species can be found in Southeast. The greatest concentrations of birds occur in estuaries and nearshore marine areas; the greatest richness of species is found in the ecotone where forest meets water.
7. In Southeast Alaska's archipelago of islands and mountains, about 20% of the known mammal taxa are endemic. Management of mammal populations should incorporate values that maintain genetically distinct species and geographically well-distributed populations.
8. The primary infrastructure impact in the region is from 9,000 mi (14,000 km) of roads. The majority of roads were developed for logging; this dense road network has detrimental effects on fish and mammal populations.
9. Cruise ships, by far, are the mode of transportation that brings the largest number of people to Southeast Alaska each year: around one million passengers annually. This sector provides the largest number of resource-based jobs.¹ Primary environmental issues are air pollution, waste and discharge, and marine mammal disturbance through noise and vessel strikes.
10. While logging falls far below other sectors as far as contributions to regional employment, old-growth clearcut logging poses the largest environmental concerns for the region. Impacts include habitat loss, fragmentation, roads, and second-growth "succession debt". Logging significantly affects the biological base necessary for the operation of other, far more lucrative industries (e.g. fishing).
11. Small-scale mines represent acute but localized risk; transboundary mines can have impacts that reach across international borders to present environmental risk on a broader scale. A number of proposed mines in British Columbia may pose threats to Southeast Alaska's most productive rivers and estuaries.
12. Fishing-related industry is the largest resource-based earnings sector in Southeast Alaska (second only to government employment when compared to all earning sectors)¹. Because salmon are vital to the functioning of both the Southeast Alaska ecosystem and economy, it is critical for the region to manage fishing-related industry sustainably.
13. The rich rainforest landscape is the primary reason why communities and industries have thrived on the Tongass for so long. With the exception of mining, the resource-based industries of commercial fishing, cruise ship tourism, and timber depend on intact, healthy forest. This is also true for subsistence hunting, sport fishing, bird watching, and many other human use aspects of Southeast Alaska.

¹ Southeast Conference. 2014. Southeast Alaska by the Numbers 2014. Southeast Conference, Juneau, AK.

Over the past four decades, Audubon Alaska has promoted the sustainability of bird, mammal, and fish populations for present and future generations. In the *Ecological Atlas of Southeast Alaska*, we continue our practice of gathering and applying science to generate conservation recommendations.

As a result of our long history of working in Southeast Alaska, the compilation of best available science in this Ecological Atlas, and the key themes described above, Audubon Alaska offers the following observations and recommendations for managing the forests of Southeast Alaska, with an emphasis on the Tongass National Forest:

RECOMMENDATIONS FOR SUSTAINABLE MANAGEMENT OF SOUTHEAST ALASKA FORESTS

1. Ending commercial scale, old-growth clearcut logging is the single most effective decision for ecological and economic sustainability in Southeast Alaska. The Tongass is the only national forest in the US where the Forest Service still practices old-growth clearcutting. Audubon concurs with the scientific consensus that old-growth clearcutting should end immediately².
2. Fishing and tourism industries already far surpass the timber industry in economic importance for the region. If managed sustainably, these economic sectors stand to set a powerful example to the nation and world on how to harness a region's natural capital for the benefit of long-term, local economic prosperity. Ultimately, Southeast Alaska's future must involve proper management of the multitude of human uses, in conjunction with anticipating changes such as climate shifts and second-growth succession that will compound today's concerns.
3. Roads offer legitimate access to hunting, recreation, and fishing resources, but high road densities degrade habitat and increase harmful impacts such as poaching. As the region moves away from large-scale, old-growth clearcut logging, the US Forest Service should seize opportunities to reduce road density for wildlife while retaining reasonable access.
4. A watershed approach to forest management is a smart, holistic ecosystem approach to managing forest resources including salmon, large carnivores, and forest diversity

(including large-tree old growth)³. "Conservation Priority" and "Restoration Priority" watersheds across the Tongass should receive special attention within land management plans. The "T77 watersheds", identified for their conservation and salmon values, should receive permanent and comprehensive protection.

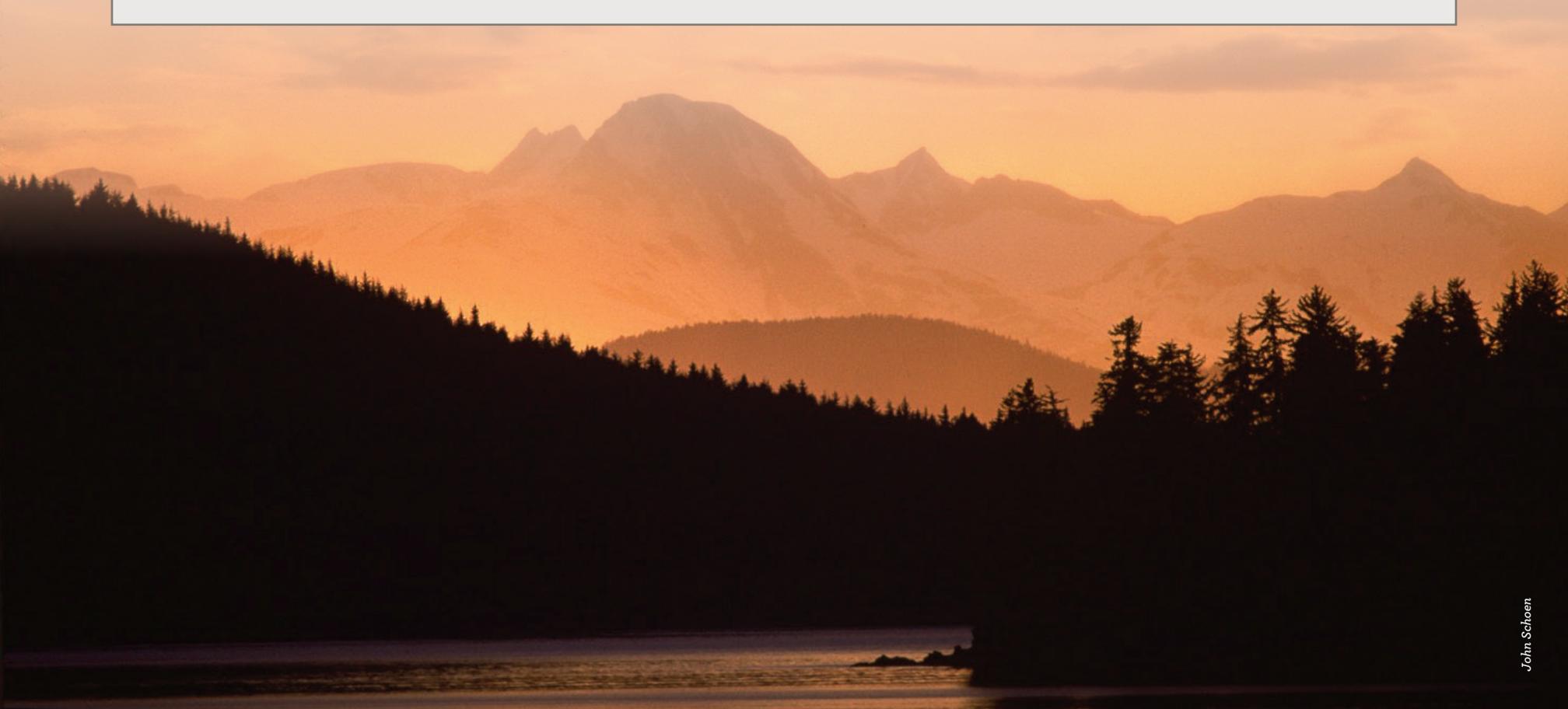
5. Finally, Audubon strongly recommends continued and complete protections for old-growth reserves, beach fringe buffers, and riparian management areas. These critical habitats were set aside in the 1997 and 2008 Tongass Land Management Plan Conservation Strategy specifically to maintain the abundance and diversity of fish and wildlife species dependent on old-growth forest habitats⁴. These areas include valuable old-growth habitat as well as second-growth forest that was intended to return, as closely as possible, to old-growth characteristics.

The list of key themes and recommendations provided here is only a start to what we have to learn from this Ecological Atlas. We will continue to use the information embodied in this publication to better understand and plan for management of Southeast Alaska and the Tongass. We hope that others will use this information as a jumping-off point for further research and inquiry that promote the sustainability of Southeast Alaska's rich and productive landscape.

² See http://ak.audubon.org/sites/g/files/amh551/f/national_old_growth_policy_6-25-14.pdf and <http://ak.audubon.org/sites/g/files/amh551/f/tongassocietyletter1-20-2015.pdf>.

³ Lertzman, K. and A. MacKinnon. 2013. Why watersheds: evaluating the protection of undeveloped watersheds as a conservation strategy in northwestern North America, In *North Pacific Temperate Rainforests: Ecology and Conservation*. G. H. Orians and J. W. Schoen eds., pp. 189-226. University of Washington Press, Seattle, WA.

⁴ http://ak.audubon.org/sites/g/files/amh551/f/scientists_review_of_tac_recommendations.pdf.









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ECOLOGICAL ATLAS OF SOUTHEAST ALASKA