

## Old-growth Forests of Southeast Alaska

Just the mention of Southeast Alaska's "old-growth" brings to mind bald eagles perched atop towering spruce trees, salmon streams winding through giant ancient groves, murrelets nesting on sturdy mossy branches, and a thriving multitude of plants and wildlife. But the term "old-growth" actually encompasses a wide range of sizes, including forests of small-diameter trees that do not necessarily support the same diversity of wildlife. Referring to old-growth so broadly may be misleading when it comes to concerns specific to the big old trees that are so important for wildlife. The more precise term, "large-tree old-growth," helps identify how little of this prime habitat is left in Southeast Alaska. Decades of commercial-scale clearcutting systematically reduced this forest type by half. Today, only 3% of the region is comprised of large-tree old-growth forest and remains vulnerable to clearcutting.

### BIG OLD TREES SUPPORT SALMON & WILDLIFE

Forests gain old-growth character after centuries of natural growing conditions, which create uneven ages and sizes. Such diversity provides vital habitat for wildlife:

- Large-tree old-growth forest is a nursery for birds and wildlife, providing nesting trees for Northern



The trees in large-tree old-growth forest provide habitat for wildlife, such as this nesting Queen Charlotte Goshawk. Photo: Bob Armstrong.

Goshawks and Marbled Murrelets, and dens for black bears and wolves,

- Large trees shade salmon streams and keep them cool. Big branches and trunks that fall into the streams also slow waters and provide salmon with hiding cover.
- During periods of deep snow, the canopy structure of large-tree old-growth holds back snow accumulation, allowing deer and other wildlife to continue foraging during winter in the understory below.

### THE RARITY OF BIG OLD TREES

Dominant trees in Southeast forests typically exceed 300 years of age while a few venerable old trees may exceed 1,000 years. The largest trees reach heights of 130 to 175 feet and 5 to 11 foot width. But large-tree old-growth forests are surprisingly rare in Southeast Alaska:

- Only half of the land area in Southeast Alaska supports any forest vegetation at all. A quarter of Southeast Alaska is comprised of "productive old-growth" (a forestry term for potentially profitable timber volume). Historically, only about 7% of Southeast Alaska was made up of the large-tree old-growth forest that is so critical for wildlife.
- Today, only 3% of Southeast Alaska is comprised of large-tree old-growth; meaning over half of the original 7% has been felled for clearcutting. Across the Southeast Alaska landscape, the truly giant trees have almost entirely disappeared.
- Prince of Wales Island once boasted huge swaths of giant trees, connected seamlessly across the landscape. But an estimated 94% of these contiguous high-volume forests were cut from 1954 to 2004.



# Land Cover



Southeast Alaska is widely recognized as the last remaining, largely intact, old-growth rainforest in North America. That simple description belies the complex landcover of the region. One-third of the region is not vegetated at all, but is barren rock, water, and ice. And surprisingly for a rainforest, only about half of the land area supports forest vegetation. As well-known as it is for its towering forest, Southeast is also known for its majestic mountains, steep rocky fjords, tidewater glaciers, and extensive coastlines. Land cover can be generally described in broad categories of forest (48%), nonforest vegetation (17%), and unvegetated areas (34%) primarily of rock and ice. About half of the forest, or 27% of Southeast Alaska, is classified as productive old growth (POG), which can include small trees. Today, about 3% of all of Southeast Alaska is made up of large-tree POG, while another 4% of the region (previously in the large-tree or medium-tree POG category) has been harvested.

### Land Cover Classification<sup>1,2</sup>

- Coniferous Forest: Productive Old Growth
- Coniferous Forest: Other
- Harvested
- Deciduous Forest
- Shrubland
- Herbaceous
- Non-forested, Other
- Ice<sup>3,4</sup>
- Unvegetated

1. Audubon Alaska et al. 2012, based on:
  - BC Ministry of Forests: Lands and Natural Resource Operations 2011.
  - BCGOV FOR Forest Analysis and Inventory Branch 2011.
  - Glacier Bay National Park and Preserve 2008.
  - The Nature Conservancy of Alaska 2006.
2. US Forest Service 2016.
3. Arendt 2002.
4. BCGOV FLNRO GeoBC 2008.





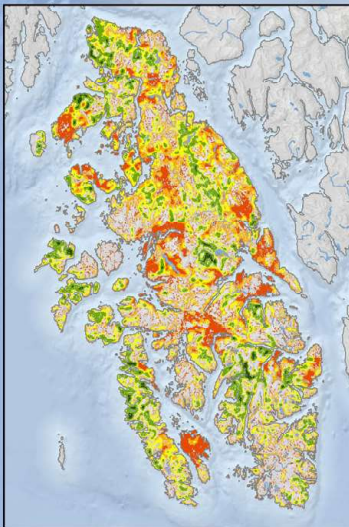
# Second-growth Forest

## Percent cut, 1954 to 2007 by biogeographic province<sup>1</sup>

LT = large-tree old growth  
POG = productive old growth

LT	POG
0%	0%
1-9%	1-4%
10-19%	5-9%
20-29%	10-14%
30-67%	15-32%

## Landscape-scale forest, 2004



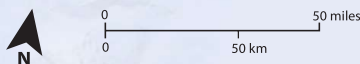
## Second-growth Forest, By Harvest Date<sup>2,3</sup>

- Unknown
- After 1990
- 1970 - 1989
- Before 1970

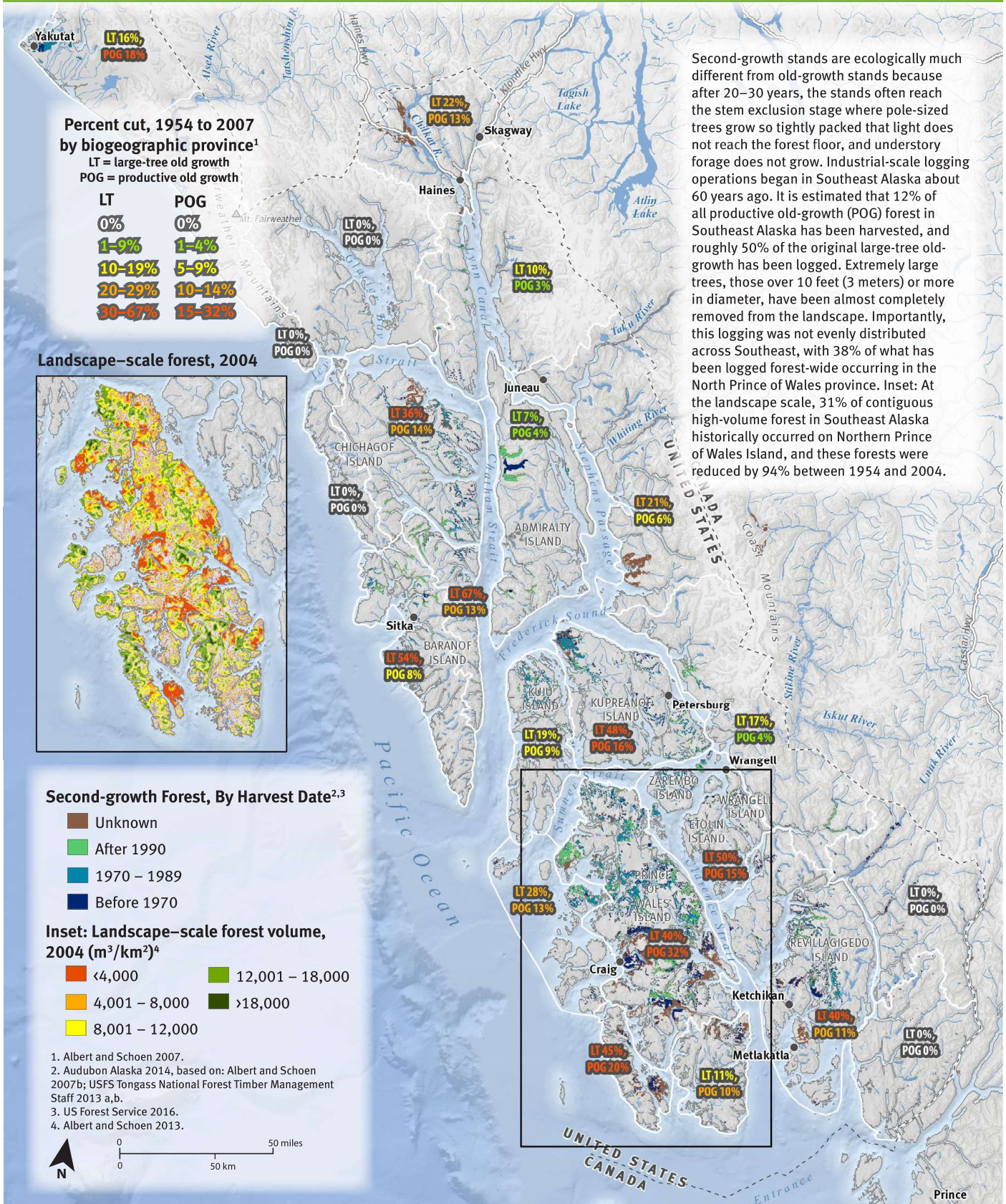
## Inset: Landscape-scale forest volume, 2004 (m<sup>3</sup>/km<sup>2</sup>)<sup>4</sup>

- <4,000
- 4,001 - 8,000
- 8,001 - 12,000
- 12,001 - 18,000
- >18,000

1. Albert and Schoen 2007.
2. Audubon Alaska 2014, based on: Albert and Schoen 2007b; USFS Tongass National Forest Timber Management Staff 2013 a,b.
3. US Forest Service 2016.
4. Albert and Schoen 2013.



Second-growth stands are ecologically much different from old-growth stands because after 20-30 years, the stands often reach the stem exclusion stage where pole-sized trees grow so tightly packed that light does not reach the forest floor, and understory forage does not grow. Industrial-scale logging operations began in Southeast Alaska about 60 years ago. It is estimated that 12% of all productive old-growth (POG) forest in Southeast Alaska has been harvested, and roughly 50% of the original large-tree old-growth has been logged. Extremely large trees, those over 10 feet (3 meters) or more in diameter, have been almost completely removed from the landscape. Importantly, this logging was not evenly distributed across Southeast, with 38% of what has been logged forest-wide occurring in the North Prince of Wales province. Inset: At the landscape scale, 31% of contiguous high-volume forest in Southeast Alaska historically occurred on Northern Prince of Wales Island, and these forests were reduced by 94% between 1954 and 2004.





A clearcut from the Big Thorne Sale on Prince of Wales. Photo: John Cannon.

### THE LONG-TERM LOSS OF CLEARCUTTING

Clearcut logging removes many hundreds of acres at once, unlike the small disturbances over time that create large-tree old-growth's diverse age and structure. The forest stands that grow in the wake of a clearcut quickly enter a "stem-exclusion" phase where spindly trees grow so tightly that light does not reach the forest floor, excluding wildlife. This ecological void can last more than 100 years. There is no evidence that forestry restoration techniques will in fact replace lost value for wildlife. Meanwhile, large-tree old-growth characteristics may take centuries to return on their own.



A second-growth forest stand 60 years after clearcutting, displaying the dense re-growth not suitable for deer and other wildlife. Photo: John Schoen.

#### LEARN MORE:

Ecological Atlas of Southeast Alaska  
[ak.audubon.org/conservation/tongass-national-forest](http://ak.audubon.org/conservation/tongass-national-forest)

#### ABOUT AUDUBON ALASKA:

Audubon Alaska works to conserve habitat for the spectacular birds and wildlife in Alaska to ensure their place for future generations.

**3%** of Southeast Alaska is comprised of large-tree old-growth forest; historically this figure was closer to 7%, meaning over half has been felled for timber.

#### HOW TO HELP THE BIG OLD TONGASS TREES

- *Stop clearcutting old-growth.* The Tongass National Forest is the only U.S. National Forest where large-scale old-growth clearcutting still occurs. The Forest Service should transition swiftly away from this outdated practice, particularly on Prince of Wales Island, where endemic wildlife are facing mounting pressure from decades of clearcutting.



The forest structure of large-tree old-growth benefits the region's wildlife, like this Sitka black-tailed deer. Habitat loss from old-growth clearcutting is a major conservation concern for many wildlife species. Photo: John Schoen.

- *Public lands in public hands.* Oppose transfers of Tongass National Forest lands into state or corporate ownership, where past precedent strongly suggests old-growth will be clearcut. Keeping Tongass lands in public hands also maintains access for fishing, hunting, and recreation and ensures management is informed by robust public process.