

## Wrangell / Etolin / Zarembo Province



**FIG 1.** Wrangell / Etolin / Zarembo Province.

The Wrangell / Etolin / Zarembo Province is a mid-sized province consisting of three major islands and some adjacent smaller islands south of the Stikine River Delta (Fig 1). Seventeen percent of this province is legislatively protected in the South Etolin Wilderness, 26% is administratively protected under the Tongass Land Management Plan, and 58% is managed in development lands.

Most of the Wrangell / Etolin / Zarembo Province falls within the Gravina geologic terrane. Productive metamorphic and sedimentary rocks underlie the timber lands of northern Wrangell and Etolin Islands, while the South Etolin Wilderness area is composed

mostly of unproductive granite. In addition to bedrock influences, surficial geology contributes to the variability in forest types in this province. Fine, wind-transported *loess* (glacial silt) blows out of the Stikine River mouth. Its deposits cover the small river-mouth islands (Fig 2) as well as the northern part of Wrangell Island, supporting what were once (along with the Kashevarofs, described below) some of the finest forests in the province.



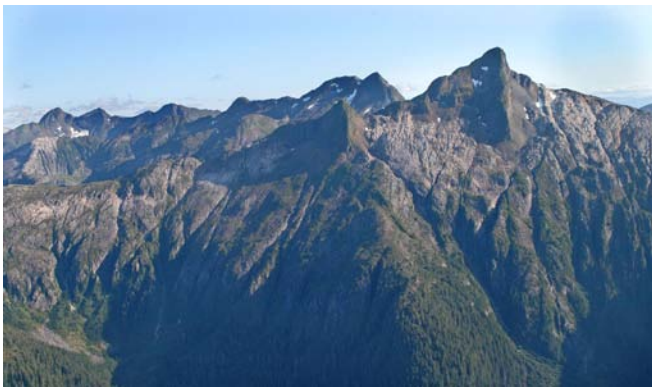
**FIG 2.** View northeast over Vank, Sokolof and Rynda islands to Stikine flats in the distance. These islands have widely differing bedrock geology—ranging from granodiorite to volcanics to sedimentaries—but have in common a blanket of nutrient-rich wind-deposited “loess” soils that once supported large-tree spruce forest. Ninety-five percent of Vank Island has been logged, beginning with coastal A-frame projects in 1925 and culminating with interior clearcuts in 1982. Because of its proximity to the Stikine, this island is home to regionally rare species such as the long-toed salamander whose subspecific genetics are unknown. Five granodiorite hills rim Sokolof Island, standing above the loess-covered plateau of Cretaceous sedimentaries. The granitic knobs were unlogged, so only about 70% of the surface of Sokolof was cut. Rynda Island is almost entirely granodiorite, and so it was the last of the 3 islands to be logged. Between 1985 and 1995 the northwestern 20% of the island was logged down to the beach fringe. All 3 islands are managed by the Forest Service under the “scenic viewshed” Land Use Designation. (John Schoen photo)

With 23 mammal species, Wrangell / Etolin has the second highest number for any of the Southeast island provinces. An endemic red-backed vole

(*Clethrionomys gapperi wrangeli*) occurs only in this province. The islands' species richness is owed to their proximity to the Stikine River Delta, a relatively easy crossing for some mainland species. At The Narrows, in Blake Channel, only 300 yds (274 m) separate Wrangell Island from the mainland.

The high amphibian richness of the Stikine River corridor also extends out onto the rivermouth islands; Vank and Sokolof Islands host long-toed salamanders (*Ambystoma macrodactylum*), Columbia spotted frogs (*Rana luetiventris*), and meadow voles (*Microtus pennsylvanicus*) (S. MacDonald, vertebrate taxonomist, Albuquerque, NM, personal communication, 2006).

Zarembo Island and the smaller Kashevarof Island cluster serve as stepping stones by which mammals and amphibians have colonized Prince of Wales and its neighboring islands. Franklin's spruce grouse (*Falcapennis canadensis*) occurs only on Zarembo and Prince of Wales, while blue grouse (*Dendragapus obscurus*) inhabits the rest of the archipelago. Shrubby Island in the Kashevarof group has a distinctive western toad (*Bufo boreas*) and a unique black-colored deer mouse (*Peromyscus keeni*). The northern two-thirds of Shrubby Island was logged to the waterline in the 1970s, a contiguous 2,300 acre (931 hectare) clearcut. Along with adjacent Bushy Island (also intensively logged), Shrubby Island contains the only mapped karst in the Wrangell / Etolin / Zarembo Province.



**FIG 3.** View south to 3,900-ft (1,189 m) Red Mountain on northern Etolin Island. These summits are composed of the same resistant Tertiary granite that dominates the South Etolin Island Wilderness. (John Schoen photo)

Elk (*Cervus elephas*) were introduced to Etolin Island in 1985 and have now become established and also have spread to nearby Zarembo Island (Kirchhoff and Larsen 1998). With this addition to the native Sitka deer and colonizing moose, Etolin became the only

island in Southeast to host three cervids. The spread of non-native elk is of concern because of the potential competition with deer and impacts to the plant community (Kirchhoff and Larsen 1998).



**FIG 4.** View southeast over Thoms Lake to Thoms Place State Marine Park on southern Wrangell Island. The area in the middle distance was roaded in the late 1980s and logged just prior to the 1990 Tongass Timber Reform Act. It has since been removed from the timber base and is now in the "old-growth habitat" Land Use Designation. (John Schoen photo)

High grade logging patterns are similar to the Kureanof / Mitkof Provinces. Although only 15% of the POG was harvested, large-tree old growth was cut at a much higher rate than its original occurrence (Chapter 2, Table 5). Today, only 24% of remaining large-tree forest occurs in watershed-scale reserves and 40% is within the timber base. The portage between Burnett Inlet and Anita Bay on Etolin Island is a heavily logged "pinch-point" for wildlife movements. Further harvest of timber in this area should be discouraged to maximize habitat connectivity and facilitate movement of wildlife.

This province is estimated to retain only 65% of its original summer habitat value for black bears with only 31% of this occurring in watershed-scale reserves (Chapter 2, Table 15). Significantly, 60% of remaining black bear habitat occurs in lands managed primarily for development. Winter deer habitat in this province is estimated to be 77% of its original habitat value (Chapter 2, Table 8). Only 24% of winter deer habitat is protected in watershed-scale reserves while 37% occurs on development lands. Only 11% of riparian forests associated with anadromous fish habitat has been cut in this province but only 20% are protected in watershed-scale reserves while 48% occur on lands managed for development (Chapter 2, Table 12).



Forest types, historical logging, and roads are mapped within the Wrangell / Etolin / Zarembo Province in Figure 7. Refer to the Arc Reader GIS database in Appendix C of this report to review detailed mapped information on location of large-tree stands, past timber harvest, roads, forest reserves, protected areas, and regions of core ecological values.

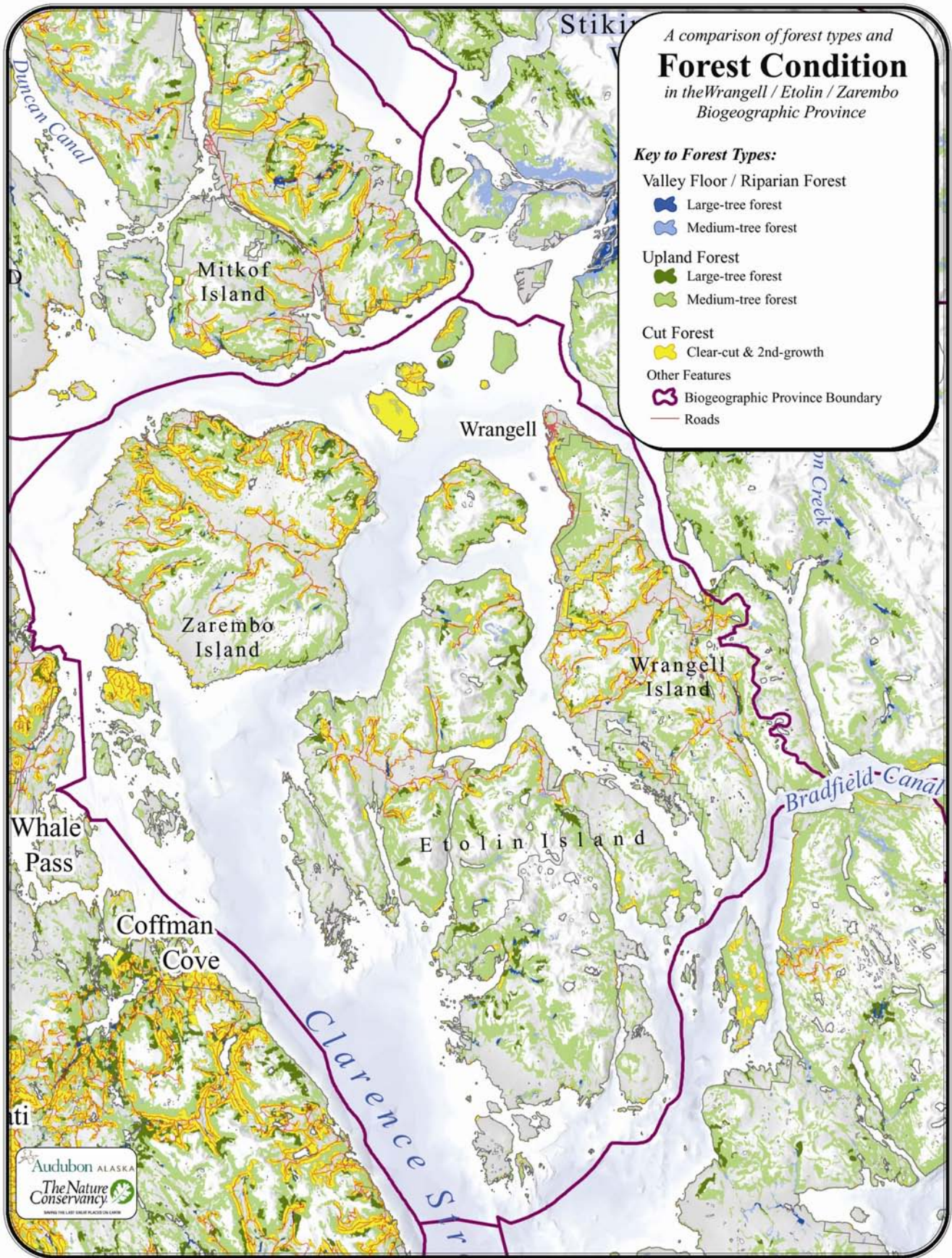


**FIG 5.** The legacy of handlogging can be seen on almost every mile (km) of Southeast coastline. Here in the beach fringe of the South Etolin Island Wilderness, the two largest trees were felled almost a century ago. A third redcedar, about 4 ft (1.2 m) in diameter remains. It was much smaller at the time its neighbors were cut, and has since been “released” by the decreased competition. (Richard Carstensen photo)



**FIG 6.** View northwest toward Wrangell Narrows from Zarembo Island. Few mid-size islands have been more thoroughly high-graded than Zarembo. The mostly-unlogged southern portion has poorly drained volcanic rock hosting peatland and scrub forest. The clearcuts target a belt of metamorphosed graywacke, mudstone and subordinate limestone running obliquely NW-SE across the island on either side of the low central valley. In terms of aspect, the logging took a combination of south-facing high-volume wind forest and more protected north-slope old growth, with a preponderance of the latter. (John Schoen photo)





**FIG 7.** A comparison of forest type and condition in the Wrangell / Zarembo / Etolin Province of southeastern Alaska.