Temperate Rainforests of the Northern Pacific Coast

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(Author's Note: This article was written in 2007 by Erin McKittrick as part of our preparation for the Journey on the Wild Coast (/Journeys/WildCoast.html). For up to date and more neutral articles on a variety of natural resource issues in Alaska visit the newer portion of our website (/Issues/).)

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Storms and clouds from the Pacific crash into the towering mountains lining the coast. Icefields grow from their peaks, sending glacial fingers back down towards the sea. Beneath the

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mountains, copious rains and year-round mists soak the land. In the rains grow towering evergreens - enormous cedars, spruce, firs, and hemlocks - draped in a blanket of dripping moss.

Though tropical rainforests will win for diversity of species, the temperate rainforests beat them out for sheer size. These forests were once home to some of the largest concentrations of biomass on the planet. Some of them still are.

Temperate rainforests are a rare thing on the earth, even without logging - thin lines of green on a world map. A coastal temperate rainforest occupies a necessarily narrow strip of land between an ocean and a mountain range. The ocean must be near to moderate the climate, and the mountains must be near to catch the rain. Coastal temperate rainforests are cool and wet year round, without ever getting too cold. Less than one fifth of one percent of the world's land was ever temperate rainforest, and the largest of them was here on the Pacific Coast, stretching from Northern California.

coastal temperate rainforests map
zones of the coastal temperate rainforests
from Inforain (http://www.inforain.org) **Ecology of the Temperate Rainforest**

In these forests, the sea and the land are closely intertwined. For much of our route, the forest exists in a complicated landscape of islands and fjords, and many species depend on both the forest and the ocean. Salmon (Salmon.php) are one of the primary species of the rainforest, spawning in the forest

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streams, and fertilizing the land. The marbled murrelet (http://en.wikipedia.org/wiki/Marbled_Murrelet) nests in old growth trees at night, but feeds in the ocean during the day.

In sheer mass of living and decaying material - trees, mosses, shrubs, and soil - these forests are more massive than any other ecosystem on the planet. In part, this is due to the rarity of fire. Unlike drier forests, which burn periodically, temperate rainforests are naturally subject to only small-scale disturbances, such as blow-downs and avalanches.

This rainforest spans a wide range of latitude - from about 40 degrees north to about 60 degrees north. The differences in climate from south to north create several major forest zones, characterized by different species.
Our journey starts in Seattle - in Washington's Puget Sound, in the middle of the "seasonal rain forest zone". The major tree species here are douglas fir, western red cedar, sitka spruce, and western hemlock.
Beyond the northern end of Vancouver Island, we pass into the "perhumid rainforest zone". Douglas fir wanes as a dominant species, and the forest is primarily made up of western red cedar, sitka spruce, and western hemlock.
The Gulf of Alaska begins where the fjords of southeast Alaska end, and marks the transition into "sub-polar rainforest". Here the forest occupies only a very narrow strip between the ocean and the icy alpine zone. The cedar trees no longer thrive in this harsher climate, and the dominant trees are limited to sitka spruce, and western and mountain hemlock.

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Wildlife

Many of the most iconic photos of these forests include a large bear somewhere in the frame. Grizzly bears and black bears once thrived throughout the rainforest zone and beyond. Black bears can still be found throughout the forest's range, while grizzlies are largely confined to areas north of the Canadian border. These forests have some of the largest concentrations of grizzly bears in the world, mainly due to the region's rich salmon (Salmon.php) streams. The Great Bear rainforest in Canada is home to the rare white variant of the black bear known as the "spirit bear". Other wildlife species of note include the bald eagle, marbled murrelet, wolf, and sitka deer.

protected mountains
typical mountainous protected area
Misty Fjords National Monument **Threats to the Rainforest**

Unlike the slippery salmon, who are impacted by a myriad of different things we do both in the ocean and on the land, trees pretty much stay put. And what we do to impact the forests is pretty simple. We cut them down.
Over half these forests have been logged, particularly in the southern part of their range. But that number understates the real problem. If you look at the most productive habitat, far more than half is gone.

logged lowlands
typical logged lowland area
Kuiu Island One of the biggest issues in protecting these forests is their extreme topography. Much of the land is rock, ice,

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muskeg, or less productive forest on steep slopes. The stereotypical old growth - those exceptionally productive ecosystems with trees that take a whole classroom of kids to reach their arms around - is limited to lowland flats and valleys. The problem in this case is that you can't tell the difference on a map.

The most common protocol has been to protect the mountains, and leave the valleys (full of high-value timber), to the timber industry. So while some very large areas are protected as parks and monuments, very little of the highest-value habitat has been protected. Much of it has already been cut.

The history of management and mismanagement of these forests is complicated. And since forests are tied to their place, and subject to our political whims, I'll talk about them by political region Washington, B.C., and Alaska

washington forest status
Status of Washington's rainforests
from Inforain (http://www.inforain.org) skagit river
Development around the Skagit River Wild sky
Forested valley in the proposed Wild Sky Wilderness

Washington's forests

In the not-too distant past, my house here in Seattle was instead the home of giant trees. To the first white settlers in the region, the forests seemed infinite and endless. Trees were not just lumber, but also obstacles to modern development. Soon, what was once endless was virtually gone.

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The controversy over the endangered spotted owl created a huge furor in the state, where many people saw it as a fight between logging jobs and a bird. In reality, protection for the spotted owl at most only slightly hastened the end of old growth logging in Washington. There is virtually no old growth left in the state.
Most of what remains is in the Olympic National Park, or in high valleys on the fringe of the Cascade Mountains. Lowlands in western Washington are highy populated, and highly developed, and it's often hard to even imagine them as forested.
The satellite image shows a segment of the Skagit River. The loss of the forests along Washington's rivers is one of the major contributing factors to the loss of the salmon (Salmon.php), which depend on the log jams in the river, and the free meander of the channel to create the habitat they need.

This image shows a forested valley in the upper Skykomish River, one of the few old-growth valleys left in the Cascades. It's part of the proposed Wild Sky wilderness (http://www.wildwashington.org/). One of the major selling points of the Wild Sky is that unlike most of the state's wilderness areas, it protects not just scenic alpine, but also lowland old-growth forest and important fish habitat.

BC forest status
Status of B.C.'s rainforests
from Inforain (http://www.inforain.org) **British Columbia's forests - the Great Bear Rainforest**

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The most extensive logging extends from Washington into southern British Columbia, to approximately the north end of Vancouver island. This correlates both with population and with the extent of the douglas fir's primary range - douglas fir is a particularly valuable timber species.

The Great Bear Rainforest (http://www.raincoast.org/), encompassing the central and northern B.C. coast, has some of the largest intact areas of temperate rainforest in the world. Most of the forests in B.C. are "crown lands", controlled on the provinicial level. Historically, most of the Great Bear has been wide open to clear cut logging, and many key areas have been logged.

BC forest 2006 agreement (http://www.raincoast.org/images/oddball/gbr-map-feb-06.gif)
2006 B.C. rainforest agreement
from Raincoast (http://www.raincoast.org) In February 2006, there was an agreement that set aside a number of new protected areas in the Great Bear - green on this map (photos/bcCoast.pdf). According to scientists (http://www.canadianrainforests.org/resources/david_suzuki_foundation_canadian_rainforests_status_report_year_3.pdf), this is still short of the 40%-60% required to ensure the survival of wide-ranging species like bears and wolves.
According to a study by the David Suzuki Foundation in 2005 (http://www.canadianrainforests.org/resources/david_suzuki_foundation_canadian_rainforests_status_report_year_3.pdf) (the 2006 protections are considered as proposals, but not fact) - over three quarters of the logging in B.C.'s coastal forests is in

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old growth forests, and over three quarters is done by clearcutting. Almost half of the logging is done in the most productive salmon watersheds, and small salmon-bearing streams are rarely protected by a buffer.

While protections for U.S. ecosystems have often been based on the Endangered Species Act, the protection system for endangered species is quite different in Canada. Until 2003, Canada left endangered species up to the provinces. In 2003, they passed the Species At Risk Act (http://www.ec.gc.ca/press/000411_b_e.htm), but it has a number of shortcomings. The act cannot protect important habitat unless it is identified in recovery plans, but most plans are released without habitat info. Also, if the habitat is on provincial land, it can be only be protected by order of the federal cabinet. See a recent lawsuit over the act (http://www.ecojustice.ca/pressrelease/feds-change-direction-after-endangered-species-lawsuit/), and Nature Canada's assessment of SARA's shortcomings (http://www.naturecanada.ca/endangered_atrisk_sara.asp)

More information on B.C.'s coastal forests from Raincoast (http://www.raincoast.org/), and a report from the David Suzuki Foundation on Clearcutting Canada's Rainforests (http://www.canadianrainforests.org/)

alaska forest status
Status of Alaska's rainforests
from Inforain (http://www.inforain.org) **Alaska's forests - the Tongass and the Chugach**

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Coastal rainforests in Alaska are primarily in two national forests, the Tongass and the Chugach.

Tongass Forest

At 17 million acres, the Tongass (http://www.fs.fed.us/r10/tongass/index.shtml) encompasses most of Southesat Alaska (about 80%), and is our largest national forest. It was created by Teddy Roosevelt in 1907.

In
the 1950s, in part to aid in Japanese recovery from WWII, the Forest Service set up long term contracts with two pulp mills: the Ketchikan Pulp Company and the Alaska Pulp Company (http://seacc.org/healthy-forests/tongass-history). These contracts were for 50 years, and pretty much divided up the forest into areas slated for APC logs and areas slated for KPC logs, with little consideration for conservation, or indeed any other uses of the forest. These two companies conspired to drive log prices down, conspired to drive smaller logging operations out of business, and were major and recalcitrant polluters of their local areas.
These long term contracts guaranteed low prices to the pulp companies - in some cases resulting in trees being given away for less than the price of a hamburger. Since 1980, the forest service has lost over a billion dollars in Tongass timber sales (http://seacc.org/healthy-forests/tongass-history).

Tongass cliffs
Waterfall in the Tongass forest
No economic timber here! Half a million acres of the Tongass

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was selected by native corporations under the 1971 Alaska Native Claims Settlement Act. Most of this area has been clearcut.

Though its land area is huge, two thirds of the Tongass is not actually forest, but snow, ice, rock, and non-forest vegetation. And only 4% of the Tongass is the low-elevation old growth most important for wildlife and most productive for timber. Over half of thishas already been logged (http://www.inforain.org/tongass/). About 70% of the biggest and best trees have been logged. The terrain underlying the Tongass is divided between karst (limestone rock, well-drained soil, and many caves), and granite (poorly-drained soil). Karst terrain produces much larger trees and fewer muskeg bogs, and has been preferentially logged.

The most controversial timber sales in the Tongass are in the roadless areas (http://www.inforain.org/maparchive/tongass_timber_sales.htm). In September 2006, a landmark court decision overturned Bush's repeal of the Roadless Rule (http://www.akrain.org/pressroom/pressreview.2006-10-06.8099665109/view), reverting to the 2001 roadless area protections established under Clinton. However, the Tongass was exempted from that ruling, and it is unclear what the fate of its vast roadless areas will be.

The forest service has recently released the Tongass Forest draft plan (http://catalog.hathitrust.org/Record/002437594), with seven different alternatives for the the fate of the forests. They're taking comments until April 30, 2007

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More info on the Tongass and the controversy over its logging from the Southeast Alaska Conservation Council (http://seacc.org/), Inforain's atlas on the state of the Tongass (http://www.inforain.org/tongass/), and the Alaska Rainforest Campaign (http://www.akrain.org/) Chugach
Chugach forest
Prince William Sound

Chugach Forest

The Chugach National Forest (http://www.fs.fed.us/r10/chugach/) is centered around Prince William Sound, streching from the Copper River delta on the east to the middle of the Kenai Peninsula on the west. At 5.6 million acres, it's the second largest national forest in the U.S., after the Tongass. At the northern limit of the temperate rainforest zone, and draped over a landscape of steep, glaciated mountains, one third of the Chugach "Forest" is actually rock and ice. Though the Chugach forest is largely wild, with roads in only a few places, none of it is currently designated as wilderness.

References and Links

Tongass: Pulp Politics And The Fight For The Alaska Rain Forest - Kathie Durbin, 1999
Southeast Alaska Conservation Council (http://www.seacc.org/) - protecting southeast Alaska's rainforest - good information on the Tongass.
Alaska Rainforest Campaign (http://www.akrain.org/) - coalition of groups working to preserve Alaska's rainforest.

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Raincoast (http://www.raincoast.org) - protecting B.C.’s Great Bear Rainforest.
Inforain (http://www.inforain.org) - atlases of the rainforest.
Nature Canada (http://www.naturecanada.ca/default.asp)
Clearcutting Canada’s Rainforests (http://www.canadianrainforests.org/) - a report from the David Suzuki Foundation.
Terrestrial Ecoregions of the World (http://www.nationalgeographic.com/wildworld/terrestrial.html) - from the World Wildlife Foundation.
Wild Washington Campaign (http://www.wildwashington.org/) - working on the Wild Sky Wilderness.
(/photos/CRW_1275.jpg)queets river sunset

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