

Vancouver Island and South Coast Rainforest at High Ecological Risk



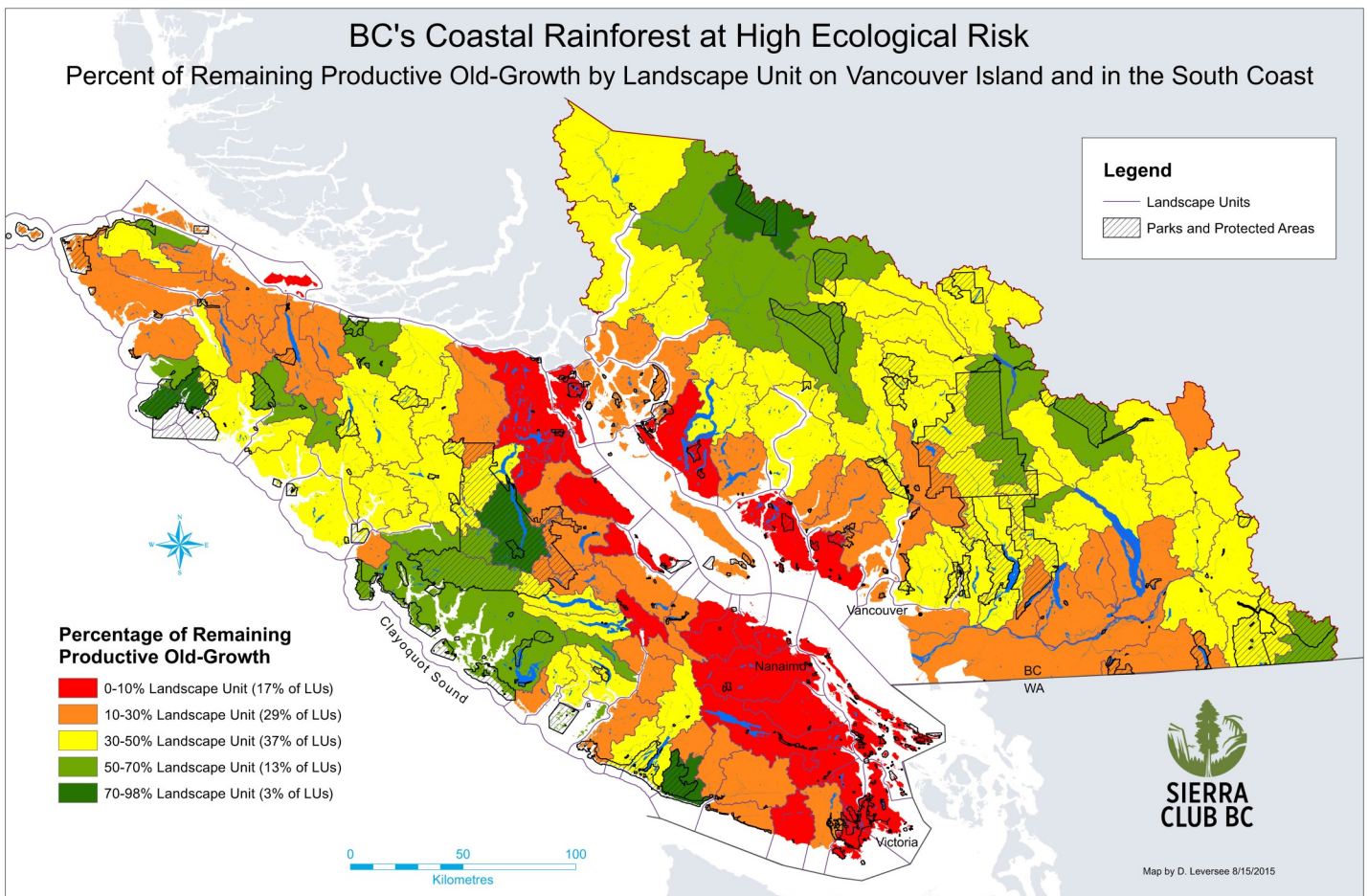
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Photo by TJ Watt

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A new mapping analysis by Sierra Club BC shows almost half the rainforest areas on Vancouver Island and the South coast at high ecological risk due to dangerously low levels of remaining productive old-growth forest.

The new Sierra Club BC map shows the remaining percentage of productive old-growth in 155 landscape units across Vancouver Island and the South coast. These rainforest ecosystems¹ typically grow relatively big trees (good² and medium³ productivity forest) and store record amounts of carbon, but are also of high interest for logging.



After decades of industrial logging, almost half (46 per cent) of the landscape units have less than 30 per cent of productive old-growth⁴ remaining, a threshold considered 'high ecological risk' for loss of species by experts.⁵

Seventeen per cent of the landscape units have less than 10 per cent good and medium productivity old-growth rainforest remaining. What the map doesn't show is that certain forest types (e.g. some Douglas Fir ecosystems), have as little as one per cent remaining as old-growth, and some of these small areas still remain unprotected.⁶

The high-level results of this landscape unit (LU) analysis are:

- 17 per cent of LUs with less than 10 per cent old-growth forest (very high ecological risk)
- 29 per cent of LUs with 10 - 30 per cent old-growth forest (high ecological risk)
- 37 per cent of LUs with 30 - 50 per cent old-growth forest (high to moderate ecological risk)
- 13 per cent of LUs with 50 - 70 per cent old-growth forest (moderate to low ecological risk)
- only 3 per cent of LUs with 70 - 98 per cent old-growth forest (low ecological risk)

Landscape units with remaining old-growth forest below the 30 per cent critical limit appear on the map in red (less than 10 per cent) and orange (10 – 30 per cent). Landscape units with 30 – 70 per cent old-growth remaining appear in yellow (30 – 50 per cent) and light green (50 – 70 per cent): this corresponds to some level of risk for a number of species. Ecosystems with over 70 per cent old-growth remaining (i.e. relatively close to the natural level of old growth for most types of coastal temperate rainforest, with no significant risk of species loss) appear in darker green.

Landscape units below 30 per cent old-growth are of the highest concern from a conservation perspective. At this threshold, a significant number of species show alarming population declines or species loss from the remaining suitable habitat (two thirds of species according to one review⁷). In conservation planning, projects that focus on the question of how much of an ecosystem is needed to maintain functional landscapes have often called for much higher percentages (e.g. 57 per cent for Florida⁸; 60 per cent in Oregon⁹; 50 per cent for the boreal¹⁰).



Unprotected old-growth Douglas Fir, Koksilah River Grove
Photo by TJ Watt

Climate change provides additional pressure with unknown consequences. Arguably, climate change will result in a need for increased protection to reduce external pressures on ecosystems if we desire to maintain as many of today's species and benefits to human life and our economy as possible into the future (such as clean water, air, abundant fish populations, carbon sequestration and other critical ecosystem services).

Sierra Club BC is calling for immediate action by the provincial government to protect and restore intact, resilient, coastal rainforest, before intensifying climate impacts like this year's drought, wildfires and storms coupled with irresponsible logging practices further exacerbate pressure on ecosystems.

Coastal temperate rainforest: Globally rare, threatened by logging and climate change impacts

B.C.'s coastal temperate rainforests are home to species that don't exist anywhere else and represent part of a globally rare ecosystem covering less than 1 per cent of the planet's land¹¹. Coastal temperate rainforests are one of the best carbon storehouses on the planet, with accumulated carbon storage often above 1000 tonnes per hectare. However, without increasing protection of old-growth and an overhaul of logging practices in key regions, we may lose this natural carbon sink¹².

Coastal rainforests have been buffered from the effects of climate change relative to other ecosystems, by their proximity to the ocean¹³. Intact and largely functional rainforest ecosystems have a better chance than other systems of maintaining many of their species and adapting to a certain level of climate change.

Compared to temperate rainforests in much of the world, B.C.'s coastal forests, in particular on the Central and North Coast, are considered to be in relatively good condition. In many areas, salmon still run in the rivers, trees hundreds of years old still tower across vast landscapes, bears and wolves remain as key elements of intact predator-prey systems and a yet unknown number of beetles inhabit the canopy.

However, after decades of old-growth logging and increasing climate change impacts such as droughts, wildfires and storms, B.C.'s coastal rainforests are under increasing pressure as shown by declines in populations of iconic species.

The Vancouver Island Wolverine and the Vancouver Island Marmot have disappeared or are at the brink of extinction and other rainforest species like the Marbled Murrelet, Tailed Frog, the Haida Gwaii Northern Goshawk and Grizzly Bear are classified as species-at-risk.

The levels of protection for coastal rainforest vary greatly along the B.C. coast. In the Great Bear Rainforest, 85 per cent of the total forest will remain off-limits to logging through a combination of protected areas and logging regulations based on Ecosystem-Based Management announced in February 2016. In this region, rainforest is protected from logging in a representative manner to meet the goal of setting aside 70 per cent of the natural level of old growth forest by ecosystem.

On Vancouver Island, however, only 13 per cent of the land base is protected (only 8 per cent of good productivity rainforest), and on the South coast only 15 per cent (only 6 per cent of good productivity rainforest). Conservation of old-growth forest through other mechanisms such as Old-Growth Management Areas remains minimal.

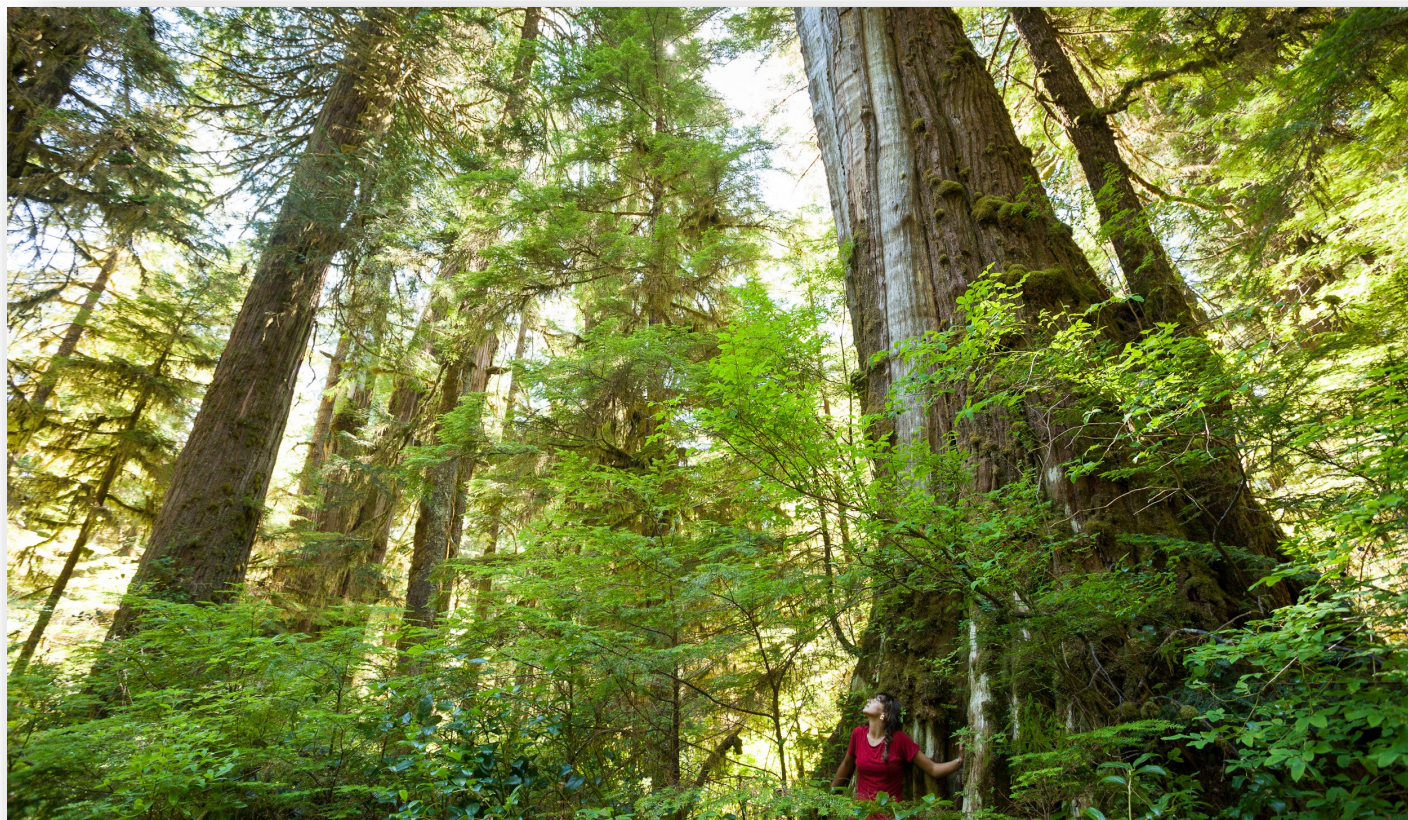
Our analysis highlights the importance of protecting remaining areas of intact old-growth forest from logging and identifying older second-growth forest for conservation, to close the gap to the high-risk threshold (30 per cent by landscape unit).

Regions that are still relatively intact - like the Great Bear Rainforest or Clayoquot Sound - must be managed using the precautionary approach¹⁴ to avoid further degradation of those ecosystems. Increasing conservation on Vancouver Island and in the South coast is urgent because with climate change, old-growth rainforests will likely become a non-renewable resource¹⁵; old forests are fairly resilient and might withstand climate impacts for some time but, once cut, will likely never fully return.

Remaining old-growth areas on the South coast are highly fragmented and most watersheds covered by forests too young to support critical species such as salmon and ecosystem services such as clean water during drought conditions.

On Vancouver Island, the most important cluster of intact rainforest valleys can be found in Clayoquot Sound. Other smaller but very important areas with largely intact rainforest are: Central Walbran Valley, Klaskish River/East Creek, Mt. Wolfenden, Nimpkish, Tsitika River, Artlish River, West Sayward, Mount Nora, Tahsis and Leiner Rivers, Nootka Sound, Nahmint and Henderson Lakes, Cameron Lake, McLaughlin Ridge and Gordon River East/Edinburgh Mountain Ancient Forest.

These remaining intact rainforest areas on Vancouver Island and in the South Coast need immediate protection and should be connected through new rainforest reserves to counter the threat of species extinction. New larger contiguous conservation areas must be established by restoring older second growth.



Ancient Cedar in the unprotected Central Walbran, at risk of logging in the near future.
Photo by TJ Watt

Sierra Club BC's call for immediate action to restore forest health and forestry jobs

Sierra Club BC is calling on the B.C. government¹⁶ to make forest health a priority, instead of LNG terminals, and to shift fossil fuel subsidies to protect forests, improve forest management and create forestry jobs that will reduce carbon emissions, instead of increasing them.

Sierra Club BC recommends setting aside \$1 billion to develop and implement a five-year plan to restore B.C.'s forest's function as a carbon sink, create forestry jobs, ensure a future timber supply and prepare the province for climate change impacts by protecting intact watersheds and habitats to allow species a better chance to adapt to the changing climate

Core elements of a B.C. forest action plan, with strategies considering different ecozones, must include:

- Increase conservation of carbon-rich old-growth rainforest, in particular long-term capacity for monitoring and implementation of the 2016 Great Bear Rainforest Agreements, support for First Nations aspirations towards protection of intact old-growth valleys in Clayoquot Sound and conservation and restoration of rare, endangered rainforest ecosystems on Vancouver Island and the South Coast
- Make carbon an integral element of forest management in B.C. and systematically revise regulation and create incentives to reduce carbon loss and enhance carbon sequestration in natural, resilient forest ecosystems, especially longer harvesting cycles, selective logging, avoidance of slash burning and wood waste
- Boost government funding to restore forest stewardship, monitoring and enforcement
- Restore government capacity to map forests, update inventories and undertake research, especially related to climate change impacts such as fire and pests and climate adaptation
- Adjust the Annual Allowable Cut to a realistic, sustainable level reflecting past overharvesting and climate impacts like the Mountain Pine Beetle outbreak.
- Amend regulation and create incentives to support forestry operations and value added businesses that create a higher number of jobs per cubic metre, reduce raw log exports and other forestry business practices which create too few jobs per cubic metre and use wood in wasteful ways.
- Provide transition assistance to forestry dependent communities and workers hit by climate change impacts like the Mountain Pine Beetle and mill closures to restore healthy forest landscapes and forestry opportunities for the future

In order to be successful, a B.C. forest action plan needs to be coupled with strong leadership to reduce emissions from fossil fuels. More oil pipelines, coal mines and fracking wells will speed up global warming and result in worst case scenarios for our forests, clean air, clean water and communities. Climate-harming fossil fuel subsidies must be transferred to increase forest conservation, improved forest management and support value-added forest products manufacturing, because there is no climate-friendly wood product without forest-friendly forestry.

British Columbia's forests absorb carbon and give us oxygen to breathe. They are our only viable hope to reverse at least a portion of our carbon emissions. Only by taking immediate climate action will our forest return to being an ally in the fight against global warming.

End Notes

¹Our map shows remaining good and medium productivity old-growth rainforest by landscape units looking at groups of ecosystems using a combination of site productivity and climatic units (Biogeoclimatic Ecosystem Classification, BEC). A biogeoclimatic zone is a geographic area with similar patterns of energy flow, vegetation, and soils as a result of a broadly homogeneous macroclimate. A biogeoclimatic variant is a subdivision of a biogeoclimatic subzone. <http://www.for.gov.bc.ca/hfd/library/documents/glossary/Glossary.pdf>

²Good productivity forest ecosystems tend to produce the largest stature forests, with fast-growing trees and many large-girth and tall trees. Often associated with nutrient rich sites such as floodplains, areas that can grow trees like this tend to be relatively rare over the coastal landscape.

³Medium productivity sites usually grow trees more slowly but depending on conditions can also grow very large and very old trees. These sites are often located on steeper slope situations and are found commonly across the coastal landscape.

⁴The old-growth definition most commonly used for these ecosystems puts the threshold at 250 years. However, for the purpose of this map we use 140 years as a cut-off point because forests over 140 years in age regenerated naturally (rather than from industrial forestry, which started more recently on the vast majority of the coast).

⁵Price, K., R.F. Holt and L. Kremsater. How much is enough: can threshold science inform old growth targets? Submitted for publication. Originally written for Ecosystem Based Management Working Group. http://www.researchgate.net/publication/237121668_targets_with_threshold_science

⁶A more detailed analysis can be found in Sierra Club BC's State of the Coastal Forest Report http://sierraclub.bc.ca/wp-content/uploads/2015/08/CoastForestReport2009_print_corrected.pdf

⁷Price, K., R.F. Holt and L. Kremsater. How much is enough: can threshold science inform old growth targets? Submitted for publication. Originally written for Ecosystem Based Management Working Group. http://www.researchgate.net/publication/237121668_targets_with_threshold_science

⁸Hector, T.S., M.H. Carr, P.D. Zwick. 2000. Identifying a linked reserve system using a regional landscape approach: the Florida Ecological Network. *Conservation Biology* 14: 984-1000.

⁹Noss, R.F., C. Carroll, K. Vance-Borland, G. Wuerthner. 2002. A multicriteria assessment of the irreplaceability and vulnerability of sites in the Greater Yellow Ecosystem. *Conservation Biology* 16: 895-908.

¹⁰International Boreal Conservation Science Panel: <http://www.interboreal.org/>

¹¹Dominick A. Della Sala, *Temperate and boreal rainforests of the world*, Washington, DC: Island Press, c2011

¹²Carbon at Risk - B.C.'s Unprotected Old-Growth Rainforest, February 2013 http://sierraclub.bc.ca/wp-content/uploads/2015/08/Old-Growth-and-Carbon-report_low-res-final1.pdf

¹³See for example fig. 2, *Temperate forest health in an era of emerging megadisturbance*, Science, August 2015, http://www.fs.fed.us/psw/publications/millar/psw_2015_millar002.pdf

¹⁴Based on a review of current best available science in the context of land use planning in the North and Central Coast, low risk precautionary management requires maintaining 70 per cent of the natural amount of old forest present in the ecosystem

¹⁵Jim Pojar: *Unfinished Business in Great Bear Rainforest* <http://thetyee.ca/Opinion/2012/11/23/Great-Bear-Rainforest-Agreements/>

¹⁶BC Forest Wake-Up Call: Heavy Carbon Losses Hit 10-Year Mark, Sierra Club BC backgrounder, June 2015 http://sierraclub.bc.ca/wp-content/uploads/2015/08/Forest-Emissions-Detailed-Backgrounder_June22.pdf

