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# B.C. Forests Carbon Meltdown

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British Columbia is covered by some of the most productive carbon-storing forest ecosystems on the planet. Forest ecosystems with low levels of natural disturbance like temperate rainforest accumulate more and more carbon over time, especially in soils.

B.C. forest emissions data shows that throughout the 1990s our forests continued to be an overall carbon sink, despite high rates of emissions from logging. But that changed in 2003, the first year on record in which forest lands turned from carbon sink to carbon source due to the outbreak of the Mountain Pine Beetle infestation.

The beetle killed enough trees to reduce carbon sequestration at a rate that prevented the remaining healthy trees to 'offset' the ongoing high emissions from logging. In addition, a number of severe wildfire years have led to massive additional carbon dioxide emissions. Another source of forest emissions is slash burning.

Forest management, particularly the choice of logging practices, influences how much carbon is being lost as a result of harvesting. Poor forest management, like slash-burning, excessive wood waste and extended clear-cuts in rare, carbon-rich old-growth forests, causes significant loss of carbon. Only a small portion of the carbon stored in trees remains stored in wood products over time.<sup>3</sup>

In November 2013, the Climate Action Secretariat quietly updated its website with new data tables<sup>1</sup> summarizing annual greenhouse gas emissions from land use, land use changes and forestry for 2011. These show ongoing high net emissions from B.C. forest lands for the ninth successive year ("Forest Land remaining Forest Land" in the spreadsheet).

Net carbon dioxide emissions from B.C. forest lands in 2011 were 34.9 million tonnes, equivalent to more than half of B.C.'s official emissions (62.2 million tonnes carbon dioxide equivalent in 2011<sup>2</sup>). However, forest emissions are considered a 'memo item', not counted as part of the

official emissions, and mostly ignored in the public discourse and forest policy discussions.

According to the government data 2011 net emissions from forest lands were a result of 63.1 million tonnes of carbon dioxide from 'logging without burning'; 7.9 million tonnes from 'logging and burn'; and 2.4 million tonnes from wildfires. The sum of these carbon losses is reduced by sequestration in the order of 38.5 million tonnes in 'annual processes' (i.e. the overall annual carbon plus from the growth of standing, living trees absorbing carbon, over the 'normal' loss of carbon from decay of organic matter in forests), resulting in the aforementioned net emissions of 34.9 million tonnes.

Based on the government data, the total amount of carbon dioxide emissions from B.C.'s forests from 2003 to 2011 adds up to 420 million tonnes. The provincial data doesn't account for carbon stored in wood products. Based on our literature review Sierra Club BC estimates that 23 per cent of the carbon removed through harvesting remains stored in wood products (only a portion long-term<sup>3</sup>).

Applying this factor to the combined emissions from logging from 2003 – 2011 (with and without burn, totalling 653 million tonnes) reduces the overall emissions by 150 million tonnes to 270 million tonnes of carbon dioxide lost from B.C.'s forest lands from 2003 to 2011.

The 2011 emissions data is remarkable in the fact that despite fewer wildfires and a small improvement in terms of forest area under attack by the Mountain Pine Beetle, net forest emissions remain high because of the ongoing high emissions from logging.

**Sierra Club BC estimates that B.C. forest lands emitted 270 million tonnes of carbon dioxide between 2003 and 2011, equivalent to over six times the province's official annual emissions.**

**D**espite the alarming information about the state of the provincial forests, there is no indication that the BC government is turning its mind to meaningful province-wide strategies to ensure the ecological integrity of provincial forest lands.

In fact, Sierra Club BC is very concerned about the B.C. government's intention to reintroduce a plan supporting tenure roll-over in large portions of the province. This initiative would give logging companies greater control over public land and make it more difficult to implement the necessary changes to restore the health of our forests.

One notable positive exception is the Great Bear Rainforest. The agreements for its protection, endorsed in 2006 by the provincial government, First Nations, a group of environmental organizations and a group of logging companies, included the goal to set aside 70 per cent of the natural old growth forest under Ecosystem-Based Management. Currently 50 per cent of the region's rainforest is off-limits to logging and work is underway with the goal to meet the 70 per cent target in 2014.

However, all efforts to protect natural ecosystems like in the Great Bear Rainforest could be in vain without short-term progress in reducing overall greenhouse gas emissions. 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 our own survival.

Climate zones will shift more rapidly, but standing trees cannot migrate. B.C. and other resource-rich jurisdictions must stay away from ramping up fossil fuel extraction and instead invest in already existing alternatives, to avoid losing most of our forests as we know them as a result of extreme climate change. Forest die-off would lead to further massive greenhouse gas emissions and an increasing likelihood of triggering runaway global warming.

The world's forests offer us a spectacular service by absorbing carbon and giving us oxygen to breathe. They are also 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.

We need the B.C. government's eyes focused on restoring the health of our forest now, and on transitioning to a low carbon economy, not on expanding fossil fuel infrastructure.

## Outlook and Recommendations

**T**he warning signs are clear – our forests and other ecosystems have already been severely impacted by the Mountain Pine Beetle and wildfires at just below one degree of global warming. The latest science indicates that the two degree goal is not a safe limit but a recipe for a climate crisis<sup>4</sup>.

Business-as-usual forest management combined with global warming will not allow B.C.'s forests to return to function as carbon sinks. Achieving this goal will require a coherent forest action plan and corresponding resources.

Core elements of such a plan, with strategies considering different ecozones, should include:

- Enhanced reporting and analysis of forest carbon emissions.
- Improved ecosystem mapping, better inventories and forest health information.
- Increased conservation of rare and carbon-rich old growth ecosystems, especially temperate rainforest.<sup>5</sup>
- Improved forest management practices, especially longer rotation, selective logging, avoidance of slash burning and wood waste.
- Increased research and preparedness to control pests and wildfires.

## References

1. [http://env.gov.bc.ca/cas/mitigation/ghg\\_inventory/excel/2011\\_land-use-forestry.xls](http://env.gov.bc.ca/cas/mitigation/ghg_inventory/excel/2011_land-use-forestry.xls)
2. [http://env.gov.bc.ca/cas/mitigation/ghg\\_inventory/index.html](http://env.gov.bc.ca/cas/mitigation/ghg_inventory/index.html)
3. Harmon ME, Harmon JM, Ferrell WK, Brooks D: Modeling carbon stores in Oregon and Washington forest products: 1900–1992. *Clim Chang* 1996, 33:521-550
4. <http://www.plos.org/wp-content/uploads/2013/05/pone-8-12-hansen.pdf>
5. <http://www.sierraclub.bc.ca/our-work/nature-global-warming/spotlights/old-growth-logging-eliminates-b.c.2019s-progress-in-reducing-carbon-emissions>