

VOICES

SLASH BURNING AND CLIMATE CHANGE

Do British Columbians believe B.C. forestry practices are addressing carbon sequestration? Experiencing the smoke associated with nearly 30,000 slash piles being burnt in 2017 within the Bulkley Valley-Lakes District airshed raises serious questions.

Are government policies intended to make people believe that what is going on is adequately addressing climate change? Here are a few examples worth pondering:

Most British Columbians know that global warming is overwhelmingly the result of people burning hydrocarbons, but it seems few are made aware that wood is composed mainly of hydrocarbons, and when people burn wood, they increase the amount of carbon dioxide humanity is pumping into the global atmosphere. Canadian governments officially do not recognize the fact that burning forestry waste is contributing to climate change.

In B.C., the Carbon Tax is not applied to wood burned in the course of forestry operations. Likewise in Alberta, there is no carbon tax on emissions from the burning of forestry slash. Why not? Because the carbon tax in each province is confined to carbon dioxide resulting from the combustion of fossil fuels.

Something else about which there is little public awareness is that forestry slash burning in B.C. is one of the two or three largest sources of greenhouse gases, and government monitoring of the amount of forestry slash burned in B.C. is really just guesswork. However, enough is known for curious citizens to work out approximate totals themselves, and the quantities of greenhouse gases generated by slash burning are truly colossal – about five times as much as the emissions for Residential Energy consumption for the whole province, and approximately five times the figure for Light-Duty Gasoline Vehicles. Although slash burning emissions are not accounted for, they are roughly one-third the size of the total reported CO₂ emissions for B.C.

Not only are greenhouse gas emissions from forestry waste not subjected to a carbon tax, and not only do Canadian governments have no proper accounting mechanism, Canada and its provinces go a long way towards pretending they do not exist. Under international agreements such as the Paris Accord, Canada adds together all the greenhouse gas emission totals recorded by the provinces, then reports the grand total. However, Canada does not include in its grand totals the emissions from forestry management operations, and in particular not the emissions from slash burning. So the emissions are “disappeared” from public consciousness at that scale, too.

Maybe the finest example of slash-burning sleight of hand is the way Canada and its provinces “launder” the carbon emissions from slash burning. Their rationale for not adding them to total greenhouse emissions is that Canadian forestry emissions are roughly balanced out by carbon sequestration in new trees. And where do those new trees grow? Principally on lands on which natural forests, and a lot of which were old-growth forests, have been logged off. Hence they

claim, no problem with burning slash; the carbon dioxide released will be recaptured and sequestered by plantation trees. But it is not so simple.

One problem with that logic is that it takes plantation trees roughly twenty years before their own carbon budget starts to be positive, that is that they sequester more carbon than what they release through respiration via growth. In Canada, the only plantation trees significantly sequestering carbon are those planted decades ago, not those being planted today. If our intent is to sequester carbon via forest plantations, harvesting these trees would need to take into account the carbon release associated with forest engineering, logging, transport and processing/milling operations versus the duration of carbon sequestration of the wood product through time.

The fact remains that it will take a century, if not centuries for plantation forests to store as much carbon as the former natural forests they replaced; this will not happen since plantations are being targeted for rotations of generally 60 to 80 years.

We don't have a hundred years. We may not even have twenty years. The International Panel on Climate Change conservatively informs us that we have eleven or twelve years before climate change becomes runaway (i.e. irreversible). So this plantation "theory" about why B.C. forestry is carbon sustainable depends on ignoring what science tells us about how fast the catastrophic scenario of global warming is unfolding.

Converting natural forests to plantations in B.C. does not produce a balance between carbon dioxide emissions from logging, processing and burning. The conversion of natural forests, many of which are old-growth that are a carbon storehouse, into short rotation plantations does not achieve a carbon balance - not in the short term, and not ever.

From a commercial logging perspective, the best trees are those which grow in lower elevations and on toe slopes of valleys, where site fertility, soil moisture, and growing season are optimal. In northern-central interior B.C., such stands are typically the white/Engelmann spruce and the generally short-lived lodgepole pine. These stands are now mostly harvested, so logging keeps moving up slopes into stands of subalpine fir with a component of spruce. These longer-lived trees could sequester carbon for centuries ahead if left alone. These higher elevation stands also produce a high proportion of waste wood when clear-cut due to stand maturity, tree decay, and an abundance of immature growing stock of trees associated with shade-tolerant tree species that predominate. These stands contain the deadfall of centuries and have an abundance of dead standing snags, much of which is presently slash piled and burned following clear-cut timber harvesting. Clear-cut logging a hectare of high-elevation old-growth subalpine fir contributes far more carbon dioxide to the atmosphere than logging a hectare of lodgepole pine.

There is no current policy of the B.C. government, other than a minimal percentage of old-growth retention, that discourages logging of old-growth or high-elevation forests, with the special intention of mitigating climate change. On the contrary, some government thinkers assert that B.C. should speed up the liquidation of old growth on the grounds that doing so would replace slow-growing trees with fast-growing plantation stock for accelerated carbon sequestration. The thinking is downright fanciful: We will fight climate change by bringing it on faster. Present timber appraisal compensates forest licensees by charging them less stumpage the

more difficult and expensive the timber is to get. This only facilitates the liquidation of old-growth and natural high-elevation forests and converts them to plantations.

It should be mentioned here that the scientific literature includes virtually no peer-reviewed reports demonstrating that forestry slash burning has any significant value to society. Yes, “experts” allege that slash burning provides additional growing space for plantation trees, inhibits forest fires and improves worker safety. These opinions, however, are almost entirely without support from hard research. Even if they were valid, the alleged benefits are vastly outweighed by the terrible costs slash smoke imposes on human health, not to mention opportunity costs for local economies which might thrive if their environmental amenities were not being damaged by air often as bad as the air in urban China.

How should current B.C. forestry policies be reshaped into intellectually honest policies? How could new forestry policies make a genuine contribution to humanity’s last stand against potentially unsurvivable climate change, and do it within eleven or twelve years?

The first change would be to impose a province-wide *moratorium* on forestry slash burning until the global climate is no longer in peril, or at least until B.C. has devised better ways to not produce excessive slash or minimize slash carbon emissions. A simple moratorium would cause B.C. greenhouse emissions to plunge overnight. If unburned slash builds up on logged ground over a period of ten years, surely that is something British Columbians could live with. At any rate, there are many ways of not producing slash and not removing slash from the landscape. Some include partial timber harvesting with the intent to utilize what is felled, burying slash, or immobilizing carbon for very long periods of time via pyrolysis for charcoal production (biochar). Biochar is very beneficial for soil microorganisms and thus soil fertility.

The second change would be to *forbid the clear-cut logging of all self-perpetuating old-growth forests (CWH – Coastal Western Hemlock, ICH – Interior Cedar Hemlock, MH – Mountain Hemlock & ESSF – Engelmann Spruce Sub-alpine Fir biogeoclimatic zones)*. Conservation researchers all around the world regard the clear-cut logging of such old growth forests as extremely undesirable, not just because it makes no sense from a climate change perspective but because it is among the very worst of practices for long-term social, economic, and environmental sustainability.

Witnessing the record low water flows of our watersheds this past summer of 2018 informs us that there is a greater need to have “protection” forests to help ensure watershed hydrological integrity. Standing old-growth forests are very important in capturing snowmelt and rainfall, releasing water gradually like a sponge, thus sustaining stream flow and regulating stream temperatures through drier periods. Old-growth forests are generally deemed to be resilient forests, as proven by the test of time, resilient to disease and insect infestations, resilient to climatic fluxes, but not resilient to human ambition for quick profit and ill-thought out stewardship.

Eleven or twelve years....