



January 27, 2024

To:
BC Provincial Government
biodiversity.ecosystemhealth@gov.bc.ca

Thank you for considering biodiversity issues in BC's forests.

Highlights of this letter:

- Peak plant diversity is in early forest development and broadleaf forests, aspen in particular
- It is of critical importance that we don't end up **only** protecting old-growth conifer, sacrificing the rest of the landscape for conifer plantation forestry. The entire successional cycle of our forests including the broadleaf needs protection.
- "Ecosystem-Based Management" often just means management of simplified conifer plantations where broadleaf species are excluded
- BC needs a broadleaf forest conservation strategy
- Legalize broadleaf including the immediate end to forestry herbicide spraying, brushing, and the war on broadleaf, with immediate changes to free-to-grow conifer stocking standards and a shift to minimum broadleaf or conifer-free requirements in cutblocks and consideration of ungulate over-grazing.
- Herbicides including glyphosate have no place in BC forests

I suspect the majority of your letters will be about old-growth conifer, and yes, protecting old-growth conifer is important. But it is important we do not lose sight of the critical role the younger (and older) deciduous forests in this province- the aspen, alder, birch, cottonwood, maple, and other broadleaf species- play in biodiversity. They play a massive role in this. ***If all we have is old-growth conifer and managed conifer plantations, a vast array of biodiversity will be absent from our forests.***

I run a group on facebook with 9300 followers called Stop the Spray BC. We also have a website www.stophthespraybc.com and have spearheaded a [petition with over 137,000](#) signatures. Our work has been aired on the [The National](#) and has been covered in the [Globe and Mail](#), [CBC BC](#), and other [media platforms](#).



Picture 1: Lush, browse-rich Aspen, birch, cottonwood forest near UNBC, Prince George, BC

The point of this group is to educate the public about the biodiversity values of deciduous broadleaf forests, along with other critical values, which are so often forgotten about due to cultural, commercial, and educational biases. For example, aspen is widely thought of as a “weed” in Canadian forests, something even leading Canadian [academics believe](#).

It is fairly well-known that in many forest ecosystems of Western North America, [peak plant diversity](#) exists during early forest development after a disturbance. What is [less known](#) is that **[broadleaf forests in general and aspen forests in particular, are biodiversity hotspots in the boreal and interior forest throughout their entire life-cycle](#)**, with the [exception of bryophytes](#). The [same is true with red alder](#) forests on the coast.

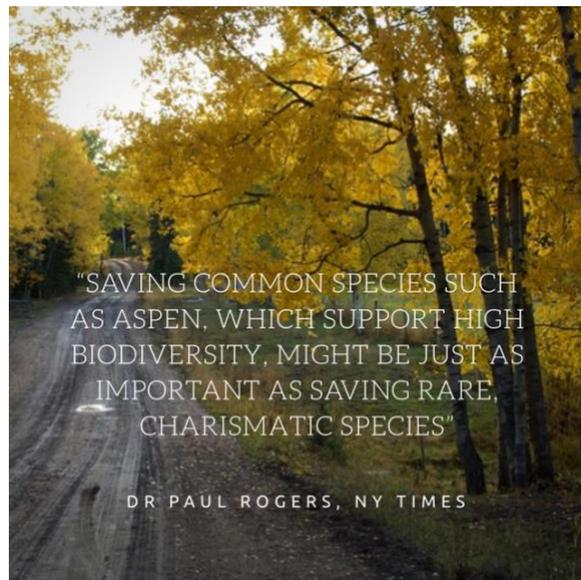


Not only do aspen forests generally have [higher biodiversity](#) relative to conifer, their more productive and succulent ecosystem supports higher densities of wildlife, including [black bears](#), [moose](#), [deer](#), [elk](#), [birds](#), [insects](#), [beavers](#), and [molluscs](#), [fungi](#) and by two out of three measures in this study, [bacteria](#).

First Nations practiced burning to [reduce conifer and enhance deciduous ecosystems](#) and archaeological evidence shows that [food forests](#) were planted in Southern British Columbia of mostly deciduous species.

The highest ungulate densities recorded in North America are in Elk Island National Park east of Edmonton. The forest there is [97% broadleaf aspen/balsam poplar](#).

Despite this, there are no protections for these forests or ecosystems outside of provincial parks. Broadleaf stands are [actively converted to conifer](#) on the industrial landbase. Old-growth deferral areas lost in wild-fires lose their protection and may be salvage logged and usually converted into even-aged pine plantations and become part of the industrial forestry land-base. This is the standard outcome of treeplanting and reforestation across the Central Interior where [pine is the cheapest and easiest tree to grow](#) and [deciduous are suppressed to comply with legislative requirements](#). This directly suppresses the high-biodiversity values of early successional forests and the broadleaf/aspen forests that dominate parts of these burns in the decades thereafter.

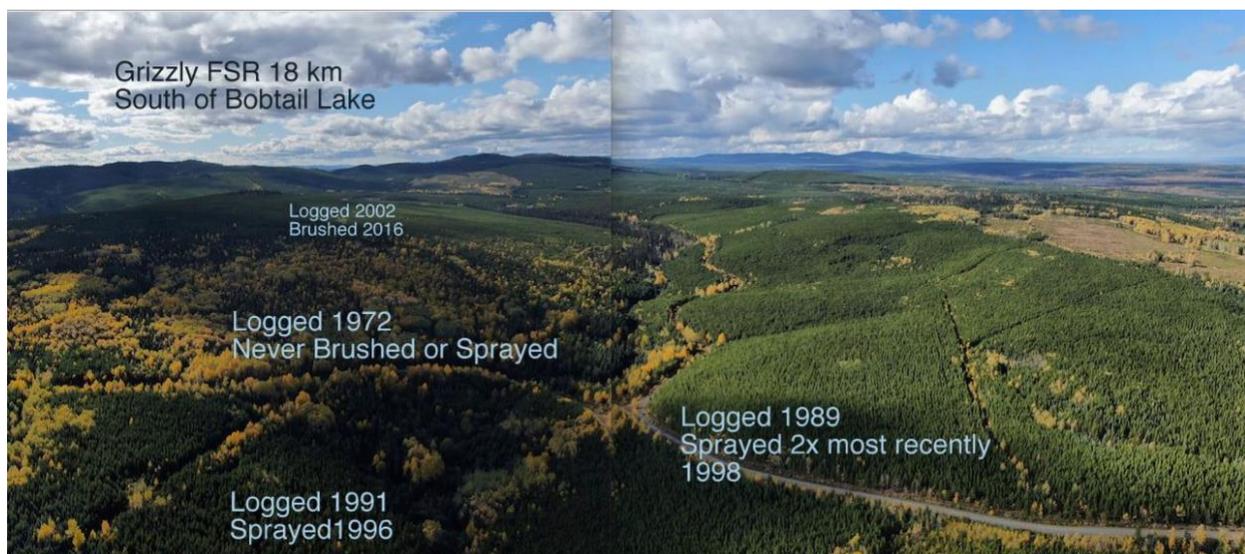


Therefore it is of critical importance that ***we protect not just old-growth, but the entire successional cycle of our forests, including the deciduous broadleaf stage.*** The biodiversity value of an old-growth conifer is not lost when it burns. [In fact it can create the conditions](#) for an explosion of life with burnt out snags offering habitat, shade, and nutrients along with the proliferation of deciduous species that can often follow.

Things get particularly biodiverse when aspen roots send forth a new cohort to dominate the former conifer forest. For aspen, this only really happens where aspen is already established. Following this ancient pattern of succession, ***the aspen or broadleaf dominated stage of a boreal forest might last for [over 100-200 years](#) as late successional species like spruce, sub-alpine fir, and douglas fir slowly regain domination.*** During this time the aspen provide [exponentially more food](#) for cattle and wildlife, [build soil carbon at record rates](#), hold off wildfire, and set the stage for a healthy old-growth spruce forest with leaf litter and fungal associations. In many cases, the aspen exists indefinitely as a [stable climax forest](#).

Due to their clonal, practically immortal root system, *an aspen forest in Utah, called Pando is as old as 14,000 years old. With many of our aspen forests possibly as old as the retreat of the last ice sheet, aspen may be the oldest tree in British Columbia, if you count the roots.*

With some exceptions, aspen/broadleaf conservation is ignored in Canada, probably because we think of aspen as a prolific, self-generating weed. It is easy to forget aspen is in sharp decline across it's southern range and in parts of Canada. It is also easy to forget prolific clonal aspen regeneration is part of their life cycle requirement. Aspen have weak seed and depend on clonal reproduction but also suffer high mortality on account of many species feeding directly on them (tent caterpillars, moose, beaver, elk, deer, porcupine, bear, ruffed grouse, aphids, ants etc). Many hundreds or thousands of stems are required to maintain a single old-growth aspen that persists in the climax conifer forest. **A stand of 80% aspen in year 10 after a disturbance may be necessary to support a stand of 10% aspen at year 120.** Eliminating the aspen at year 10 likely threatens long-term root energy levels, their health, and undermines their continual presence in the forest. Millions of hectares of aspen clones have been permanently lost or are in decline in the United States and **there is no reason to believe these treatments in BC do not entail potentially irreversible or difficult to reverse ecocidal implications (see picture 2) with impacts on genetic diversity and forest adaptation potential.**



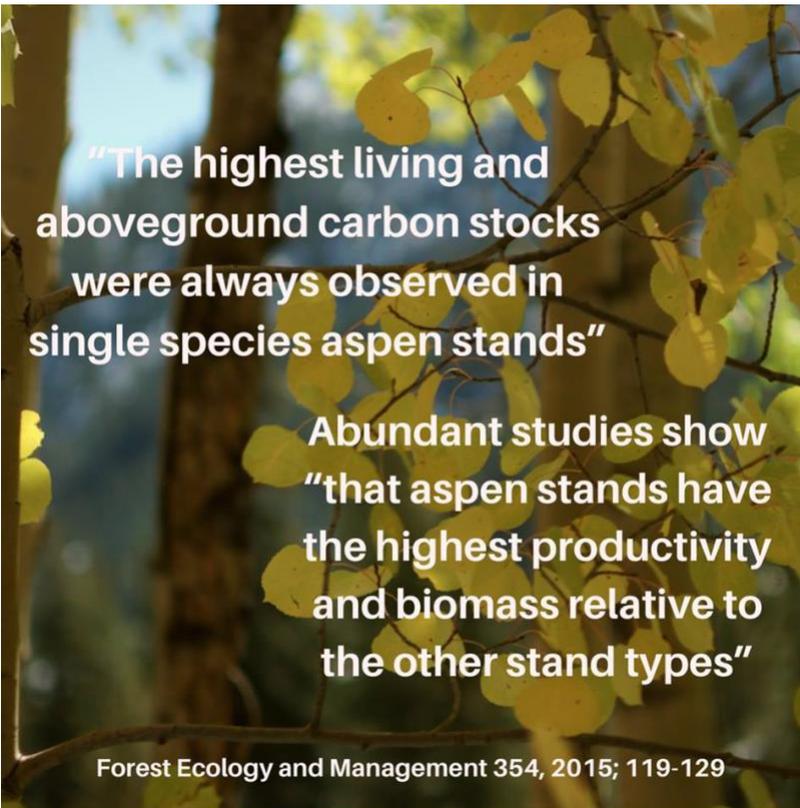
Picture 2: Silviculture impacts showing long-term impact on aspen and therefore biodiversity on sprayed and brushed cutblocks south of Bobtail Lake

This misunderstanding is evident with “Ecosystem-Based Management (EBM).” The practical assumption of EBM is to ‘maintain the natural ecological range of variation.’ Usually this means aspen regeneration on a formerly coniferous forest could be falsely construed as an aberration. This can be parlayed into the argument that a forest dominated by native conifers should be forcefully recreated with the same species composition as the climax forest, even if there was aspen in the original forest. **In this way EBM can justify spraying aspen with herbicides or cutting them down with brush saws, denying the critical stage of biodiversity in managed forests and potentially impacting long-term aspen stability.**



The irony of this is that EBM, in failing to understand or have the patience for how aspen fit in a forest's regeneration, undermines the commercial aims of this concept to begin with. ***To mitigate climate change and build maximum fire-resistance in our forests we need the maximum number of pure aspen stands possible.*** [Pure aspen forests are exponentially more fire-resistant](#)

than all conifer species. This is on account of the absence of pitch, minimal ladder fuels, thick fire-resistant bark, and a forest architecture that allows much [more rainfall and snowpack accumulation](#) that not only contributes to moister understories but also [higher stream flows](#). By eliminating the aspen stage we dry out the landscape and [increase the likelihood of fire](#).

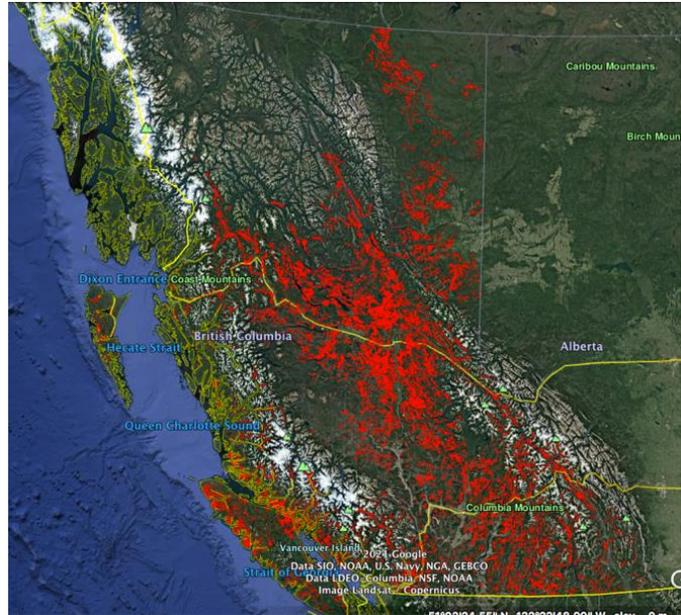


Not only that, systematically eliminating the deciduous component as is currently practiced, [undermines landscape carbon sequestration](#), reduces [landscape albedo](#), reduces [landscape watershed function](#), in addition to [reducing biodiversity](#). Recent research has shown that aspen can sequester up to [5 times the carbon in the same amount of time as black spruce](#), and by virtue of being fire-resistant, can store that carbon more reliably. In a study done in Europe, converting deciduous forests to conifer in that continent alone has darkened the

earth's surface ([conifer are much darker than deciduous and so absorb more heat](#)) to the point it has created as much global warming as the [burning of 6% of all fossil fuels up until 2017](#).

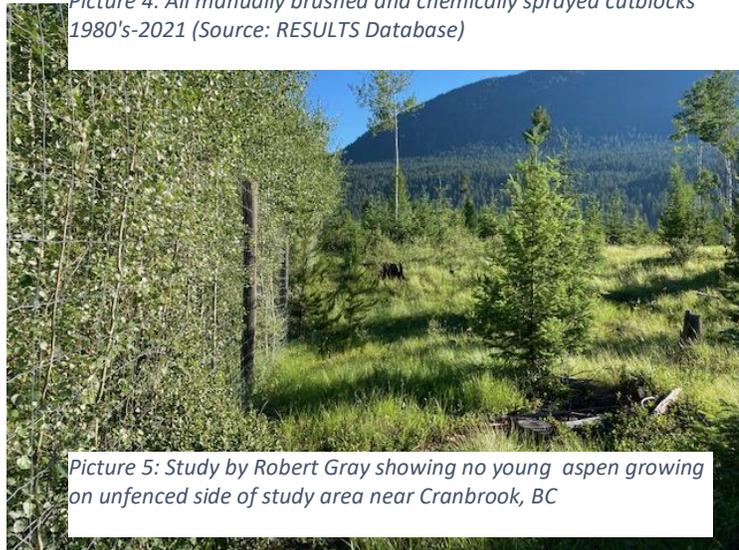
It is therefore critical that any definition of Ecosystem-Based Management or Sustainable Yield Forest Management must respect broadleaf and aspen forests from the perspective of our own self-preservation

There is an overall absence of a conservation strategy around broadleaf and aspen forests. Aggressive conifer plantation policies, from the planting of high-density conifer seedlings to brushing and spraying, [even misplaced conservation](#), are not the only threats to aspen, birch, cottonwood, and alder. Over-grazing is also a major factor reducing aspen throughout the Southern Interior and Eastern Kootenays. [Over-grazing from both cattle and wild ungulates is a major factor in the alarming decline of aspen throughout the American West.](#)



Picture 4: All manually brushed and chemically sprayed cutblocks 1980's-2021 (Source: RESULTS Database)

The United States has active [decades-long aspen conservation research programs and strategies](#), including logging and burning conifer with the express goal of regenerating aspen. [Long-term monitoring is routine.](#) Wolves were re-introduced to Yellowstone primarily to reverse the [sharp decline in aspen forests](#) in that ecosystem due to over-grazing. Pando, the ancient aspen forest in Utah, has been partially fenced off to protect it from the [over-grazing that has been killing it.](#)



Picture 5: Study by Robert Gray showing no young aspen growing on unfenced side of study area near Cranbrook, BC

In sharp contrast, such concern is [mostly](#) unheard of in British Columbia. To the contrary, we expend considerable energy waging war on aspen, having brushed and sprayed close to 1.5 million hectares of broadleaf forest in this province ([annual brushing statistics are no longer published by the Ministry of Forests](#)). ***It is in fact 100% legal to spray and brush 100% of every single aspen and broadleaf tree and shrub growing in every single cutblock under every major Forest Stewardship Plan across the entire Central Interior.*** There are no legal requirements to maintain any aspen or deciduous broadleaf in any cutblock across the entire Central Interior whatsoever. The provincial government not only pays for the spraying and brushing of our deciduous species and legally requires their suppression, they [tolerate wasteful and excessive suppression](#) above and beyond what is legally necessary if need be, [an abuse of public money that the Ministry ensures is done in secret with no public oversight.](#) While there is no minimum level of conservation, the maximum size of an aspen or broadleaf forest is 5% of a cutblock, and no more. This requirement is the [product of 46.11 of the Forest and Range Practices Regulation.](#)



Picture 6: Glyphosate spraying aspen in a former mixed forest near Chilako River in 2013, Punchaw BC

There must be a place in landscape management to legally protect early seral and juvenile forest types dominated by aspen, birch and cottonwood.



Picture 7: Natural undiagnosed aspen disease and decline south of Williams Lake

British Columbia also urgently needs a broadleaf forest conservation strategy. This should include better monitoring and assessment of aspen health and disease, better education around aspen and how their lifecycle requirements work, and an immediate end to forestry herbicide spraying, brushing, and the war on broadleaf.

Any policy change on biodiversity in our province's forests must begin with immediate changes to free-to-grow conifer stocking standards and a shift to minimum broadleaf/conifer-free requirements in cutblocks.

Finally, to close off this letter, glyphosate and other herbicides like the poorly studied aminopyralids now being used in Alberta, have no role in our forest ecosystems.

Glyphosate, we've recently discovered, [contaminates forests for over 10 years](#). It remains in forest plant tissues of vegetation it has injured but has not killed. In fact 26% of raspberries had levels higher than the legal allowable limit for fruit and vegetables sold in stores, and some vegetation had levels 40x higher than the legal limit. Long-term contamination of aspen is evident in picture 6.

Furthermore, it was recently discovered it can cause [infertility in wild flowers](#). In a recent EPA study in the United States, glyphosate impacts [93% of the species on the endangered species list](#).

In summary, we must incorporate a herbicide-free pro-broadleaf perspective in BC Forests. This will protect not just biodiversity, but forest health, resilience, climate change mitigation, and other social values.

James Steidle
Herb Martin
Stop the Spray BC



Picture 8: Stunted, half-dead aspen 13 years after being sprayed, showing no growth and about to be completely out-shaded by the pine plantation