

Written Testimony on LD 125
An Act to Prohibit the Aerial Spraying of Glyphosate and Other Synthetic Herbicides
for the Purpose of Silviculture
for Agriculture, Conservation, and Forestry Committee
For Hearing on 3/2/21
by Mitch Lansky

Is there a problem?

With a quick Internet search, one can find links to web sites with studies that link glyphosate-based herbicides (GBH) with human health problems. For example, an increase in non-Hodgkin's lymphoma¹ or changes in essential gut microbes.² There are also numerous negative ecosystem impacts that show up, including decline of amphibians³ or disruption of mycorrhizal fungi.⁴ Mycorrhizae are fungi that are essential for increasing nutrient and water uptake in trees while storing carbon in forest soils.⁵

GBHs have been banned or severely restricted in 17 countries.⁶ Last July, Bayer, the company that bought Monsanto, the major manufacturer of glyphosate-based herbicides, agreed to pay \$10.9 billion dollars to settle the bulk of weedkiller cancer lawsuits.⁷

There is no guarantee that less-studied substitutes of non glyphosate chemicals are any safer.

Infallible glyphosate?

Foresters testifying at a 2019 Fort Kent hearing on banning aerial spraying of herbicides on forests declared that Glyphosate can't possibly have any problems. If there are studies that show no problems, these are "scientific." If there are studies that show problems, however, these are "unscientific," and "emotional," and "politically motivated." This form of logic is called "circular reasoning." We are also supposed to believe that a person who has an expertise in forestry by some happy coincidence also has an expertise in toxicology, and thus can authoritatively judge which studies are valid and which are not.

Precautionary Principle.

The Forest Stewardship Council, which has set objectives and standards for "green" or "sustainable" forestry certification, suggests that following the "precautionary principle," is the responsible approach to pesticide use. "Experience has repeatedly shown the difficulty of ensuring consistent proper use, and the limits of knowledge of the ecological and environmental impacts of pesticides, and the consequent unforeseen consequences of their use."⁸

1 <https://www.cnn.com/2019/02/14/health/us-glyphosate-cancer-study-scli-intl>

2 <https://www.sciencedaily.com/releases/2020/11/201120095858.htm>

3 <http://www.news.pitt.edu/news/roundup%C2%AE-kills-frogs-well-tadpoles-pitt-biologist-finds>

4 <https://www.sciencedirect.com/science/article/pii/S0048969718320345>

5 <https://www.sciencedirect.com/science/article/pii/S0048969718320345>

6 <https://sustainablepulse.com/2019/05/28/glyphosate-herbicides-now-banned-or-restricted-in-17-countries-worldwide-sustainable-pulse-research/#.YC7vvOhKiyI>

7 <https://www.reuters.com/article/us-bayer-litigation-settlement/bayer-to-pay-up-to-10-9-billion-to-settle-bulk-of-roundup-weedkiller-cancer-lawsuits-idUSKBN23V2NP>

8 FSC GUIDANCE DOCUMENT FSC PESTICIDES POLICY: GUIDANCE ON IMPLEMENTATION
FSC-GUI-30-001 VERSION 2-0 EN

Rather than an outright ban, “the FSC Principles and Criteria aim to *prevent, minimize* and mitigate the negative environmental and social impacts of pesticides use whilst promoting economically viable management of the world’s forests. The FSC label is a ‘green’ label, indicating high levels of social and environmental performance.”

"Management systems shall promote the development and adoption of environmentally friendly *non-chemical* methods of pest management and *strive to avoid the use of chemical pesticides*." (my emphases)

It is a non-certification threshold if "forest management practices are selected that *heighten dependency on pesticides*."⁹

Scientific Certification System’s (SCS certifies by FSC standards) Forest Conservation Plan Operating Manual states (pg. 36) that: "The use of chemicals as an expediency or as an indispensable facet of broadly applied silvicultural prescriptions is fundamentally incompatible with the precepts of sustainable forestry."

So, there you have it. Prevent, minimize, avoid, use non-chemical methods. Pesticides should be the last tool in the tool box. And landowners shouldn’t be certified if they rely on forest practices that create a dependency on pesticides. If this were the policy followed, then there wouldn’t be much of a problem. There would be almost no spraying because there are plenty of non-chemical alternatives.

More is less?

JD Irving, Maine’s biggest landowner, is certified under FSC and SFI (industry-created Sustainable Forestry Initiative) standards. JDI says, on a website about Outcome Based Forestry, that “Our FSC and SFI certifications require us to minimize and strive to reduce our use of chemical pesticides.”¹⁰ JDI sprays more acres with herbicides than any other forest landowner in the State.

JDI plants over 4,000 acres a year to spruce.¹¹ They spray nearly all of the plantations with herbicides, and spray some twice. The most recent recertification document shows that JDI sprayed 9,798 acres of glyphosate based herbicides, in a mix with other herbicides, for site preparation and “release.”¹² In 2018, Maine forest landowners sprayed a total of 16,417 acres with herbicides. So, JDI’s contribution was more than half.

How can one argue that the biggest herbicide sprayer in the state is setting an example of minimizing or avoiding pesticides? How can Irving be certified for doing “sustainable forestry” if it is using

⁹ Ibid

¹⁰

https://www.jdirving.com/uploadedFiles/Products_and_Services/Forestry_and_Forest_Products/Irving_Woodlands/WDLS%20-%20Maine%20OBF%20-%202019%20-%20V5-low.pdf

¹¹

https://www.jdirving.com/uploadedFiles/Products_and_Services/Forestry_and_Forest_Products/Irving_Woodlands/WDLS%20-%20Maine%20OBF%20-%202019%20-%20V5-low.pdf

¹²

https://www.jdirving.com/uploadedFiles/Products_and_Services/Forestry_and_Forest_Products/Irving_Woodlands/FM_PUB_JDIrving_ReEval_120419.pdf

chemicals as an “indispensable facet of its silvicultural system,” which SCS declares is “incompatible with the precepts of sustainable forestry”?

JDI relies, for softwood management, mostly on even-aged practices, including for short-rotation softwood plantations. This regime of clearcutting, site preparation, and planting, *heightens a dependency on herbicides*. Are we supposed to believe that if JDI sprays 95%, instead of 100% of its plantations that this is an example of striving to “avoid use” of chemical pesticides? Other ownership types in Maine, including owners with more than 100,000 acres, spray much less, or not at all.

Who clearcuts and who sprays in Maine

Here are 2018 data (the most recent available) for forest landowners with over 100,000 acres in Maine.

¹³ Smaller landholdings (not shown on this spreadsheet), on average, do much less clearcutting and spraying.

Landowner Class	Acres Clearcut	Acres Sprayed
Forest Industry Land (over 100,000 acres)	6,614	11,342
Investor Timberlands (over 100,000 acres)	6,516	326
Non-Industrial Lands (over 100,000 acres)	7,394	3,632
Other (public, tribal, etc.) (over 100,000 acres)	36	135

Total (all ownership classes) clearcuts was 22,033 acres. Total herbicides for release was 15,457 acres and for site preparation was 960 acres.

From this table we can see that Industry Lands alone sprayed 73% of all acres with herbicides for “release.” JDI is the biggest industrial landowner in the state. Combined with large Non-Industrials, these two ownership classes represent 97% of the total acres sprayed. Seven Islands/Pingree Heirs is the biggest non-industrial landowner in the state.

Note that Investor Timberlands owners do almost the same amount of clearcutting as Forest Industry, but do a tiny percentage of herbicide spraying—326 acres or 2% of the total. These landowners have a different time horizon for investments than does Forest Industry Lands.

Public Lands, in contrast, contribute little of either clearcuts or herbicide spraying. Maine Bureau of Parks and Lands owns 3.5% of forests in the state, but only clearcut 36 acres in 2018; 2/10 of 1% of all clearcuts in the state that year. Public Lands sprayed herbicides on 135 acres in 2018 to stop resprouting in a heavily cut, diseased beech stand as part of Outcome Based Forestry program.¹⁴ This represents 9/10 of 1% of all the area sprayed with herbicides that year.

¹³ Maine Forest Service Annual Reports 2018 silvicultural activities report

¹⁴ https://www.maine.gov/dacf/parks/publications_maps/docs/2019landsannualreport.pdf

Desired Outcome—to spray more?

In 2012, JDI contracted to participate with the State's Outcome Based Forestry (OBF). By participating with this initiative, JDI and the other participants (Katahdin Forest Management, Seven Islands, and the State's Bureau of Parks and Lands) are exempted from regulations under the Forest Practices Act (FPA).

Since the FPA only regulates the size and distribution of clearcuts, the reward for doing OBF is be allowed to do bigger clearcuts with less separation zones. The major benefits of bigger clearcuts are economic—economies of scale for spraying herbicides or for doing less hauling of heavy logging machinery. Economic goals, however, are not the same thing as scientific goals, even if scientists help develop the chemicals or technologies used to ensure higher profits.

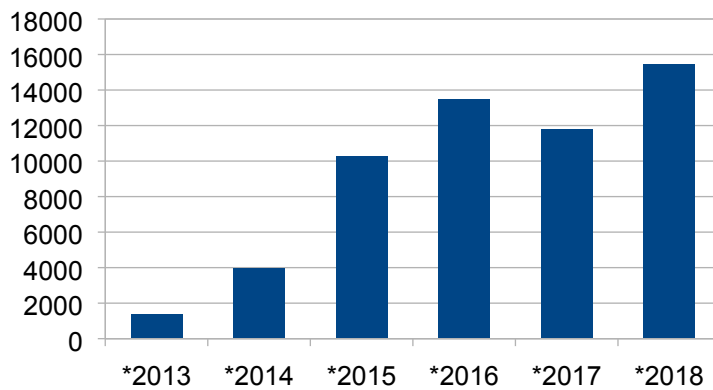
Reducing reliance on chemical pesticides is not even listed as a desired OBF outcome, even though OBF depends on the results of forest certifications, including those under FSC standards. The 2020 annual OBF report, however, quotes some happy conclusions from another report that was issued in response to hearings on aerial herbicide spraying in 2019: "...we observed a consistent and genuine effort on the part of forest managers and pesticide applicators/suppliers to minimize reliance on and use of herbicides, principally through thorough planning and integrated pest management."

The author of the report is Robert Hrubes, the head of SCS, the company that certified JDI and Seven Islands with FSC standards. If he had written a more negative conclusion, it would have reflected poorly on the certifications...

Even though there is no desired outcome, under OBF, concerning pesticides, the Technical Review Committee, according to the 2020 annual report, has expertise on the subject of chemical spraying: "Two panel members have significant academic training and experience in pesticide use; three are licensed pesticide applicators." There are seven members of the Panel.

JDI contracted with OBF in 2012, so 2013 was the first full year of a large landowner in the program. I graphed the data from 2013-2018 to see if there have been any trends of reducing reliance:

Acres of Forest Herbicides Sprayed for "Release" in Maine 2013-2018



From this chart we can see that herbicide “release” spraying jumped from 1,367 acres in 2013 to 15,457 acres in 2018. That sounds more like an increased reliance, not a decreased reliance, on herbicides. I am not arguing here that OBF, by allowing bigger clearcuts, *caused* herbicide spraying to dramatically increase in acreage, but I think it is fair to argue that participating in OBF or certification did not cause spraying to decrease in acreage.

There *was* a great decrease in herbicide acreage after 1989, a year when 90,000 acres were sprayed. The reduction was mostly due to the sell-off of industry lands, the reduction on clearcut size due to the FPA, and the end of the spruce budworm outbreak (1985). During the 1980s, thousands of acres were “salvaged” with clearcuts, even, in some cases, hardwood stands.

Shortening rotations to create more Late Succession?

JDI’s use of herbicides for softwood management contributes to the simplification and conversion of the natural mixed Acadian forest in northern Maine to domination by boreal softwoods. Because clearcut rotations are short compared to disturbance cycles in more natural stands, later-successional stages have become rare or absent from much of the forest landscape. The stands of genuine older forests that might get some protection can end up as isolated islands in a sea of younger forests.

It *is* an OBF outcome to “Maintain or manage for acreage in the late successional (LS) condition through management and protection.” But that outcome, as stated, does not address how many acres, or what percent of acres, or what minimum habitat characteristics are enough (or not enough) to be viable LS habitat.

More carbon storage with clearcuts and short rotations?

Using herbicides for short-rotation even-aged softwood stands impacts carbon storage as well as biodiversity. A 2019 study (Catanzaro and D’Amato) on managing forests to enhance carbon sequestration and storage points out that heavy forest disturbances can temporarily cause forests to be net carbon emitters.¹⁵

"One important thing to recognize is that the forest might actually be a source of carbon immediately following a disturbance, as rates of tree growth, although rapid, are unable to counteract losses of

¹⁵ https://masswoods.org/sites/masswoods.org/files/Forest-Carbon-web_2.pdf

carbon due to the decomposition of organic matter in the soil. This loss of carbon from decomposition is enhanced when large openings are created in the forest, which increases soil temperature and moisture availability and hence microbial activity. It generally takes 10–15 years before there is enough forest growth to shift a disturbed area from a carbon source to a carbon sink."

A study from Oregon concluded that "Timber harvesting is by far the largest source of greenhouse gas (GHG) emissions in Oregon. [...] Nationwide, logging emits more carbon than the residential and commercial sectors combined."¹⁶

Increasing carbon storage is not even a listed OBF outcome, let alone one with measurable benchmarks.

Herbicides, by suppressing early successional growth may *prolong* the time that a stand is a carbon source, rather than a sink, by knocking back early growth. If the cutting rotation is 60 years, that might mean that one fourth or more of the softwood acres in rotation are net emitters of carbon. I thought the Maine Climate Council wanted to see an increase in forest carbon storage, not thousands of acres of forest turned into net carbon emitters. Does the left hand know what the right hand is doing?

Industry might argue that at certain stages of growth, plantations, or plantation-like stands, are sequestering (capturing) carbon at a much higher rate than the average for Maine timberlands. If cut is equal to or greater than growth, however, then average carbon storage per acre will decline, regardless of temporary growth spurts. Numerous studies have recommended longer, not shorter, rotations for improving carbon storage.

The more intense the cutting, the longer it will take to recover soil nutrients and organic matter to pre-harvest levels. The shorter the rotations, the less time allowed for recovery. Soil productivity is an OBF desired outcome, but short-rotation softwood management seems to fail the test of soil nutrient and organic matter sustainability.

Reducing degradation, increasing productivity on partially-cut forests

Spraying more than 15,000 acres a year of clearcuts has a much smaller impact on forest productivity than doing better partial cuts on 176,593 acres. Partial cuts in Maine make up around half of all acres cut, but according to a 2018 study from UNH (Gunn, et al)¹⁷ of cutting in northern New England, 40% of the stands examined were understocked and/or were highgraded. If, instead, these cuts left better stocking and higher quality, this could both increase carbon storage as well as increase the volume and quality of timber supply in Maine.

Duveneck and Thompson, (2019)¹⁸ looked at current versus potential carbon storage in the northern New England forest landscape. Fully 68% of the reduction of potential forest carbon storage in the region is due to "harvest regimes on corporate-owned lands."

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<https://www.streetroots.org/sites/default/files/Oregon%20Forest%20Carbon%20Policy%20Technical%20Brief%201.0.pdf>

17 <https://mypages.unh.edu/gunnlab/publications/evaluating-forest-degradation-northern-new-england>

18 [Social and biophysical determinants of future forest conditions in New England_ Effects of a modern land-use regime \(harvard.edu\)](#)

Landowners who want to do better management—management that improves volume, stocking and quality—can do so whether there are regulations or not. The Forest Practices Act does not force landowners to overcut, understock, or highgrade. Landowners do these practices because they are profitable, in the short term, and legal.

Maine's Public Lands demonstrate that better management can be done on a fairly large scale. Public Lands cuts less than growth and manages for either uneven-aged stands or even-aged stands on long rotations. The average volume per acre is close to 24 cords. This is in contrast to less than 16 cords to the acre in Aroostook, Washington, and Somerset Counties. Growth per acre per year on BPL is 18% greater than the state average. Higher volumes per acre mean more carbon per acre. Bigger trees and less highgrading mean more valuable trees, and also more beautiful trees.

Conclusion

One does not have to suspend (or violate) any forestry regulations to do less degrading, more productive forest management right now. One does not have to pretend that clearcuts are more aesthetically pleasing than cuts that leave better-quality, bigger-diameter trees. One does not have to spray toxic chemicals over naturally diverse Acadian forests to maintain an artificial concentration of boreal softwoods. A ban of aerial spraying of herbicides over clearcuts is, by itself, not going to save the woods. But it can be a part of a broader strategy to manage as if the future mattered.

The State can:

- Set an example on Public Lands.
- Do research on improving yields and value while maintaining LS habitat elements.
- Educate landowners on improved management systems and techniques.
- Reform Tree Growth Tax to require management plans that do not lead to increased degradation (overcut, understocked, and highgraded).
- Help encourage development of forest technologies that have lower impacts than feller bunchers and grapple skidders on residual trees, soil, and percentage of land in trails and yards.
- Ban aerial spraying of toxic chemicals over complex ecosystems
- Support research and discussion on how to set up our economic system to encourage management that helps damaged forests to recover and that benefits future generations.
- Support a world-wide movement to reduce waste, inefficiency, and frivolous uses of forest products.

“Our technological, economic, and political systems are supposed to serve people, not enslave them. If it becomes impractical within these systems to have healthy forests and stable communities, if it becomes impractical to ensure the passing of biological wealth to future generations, then there is obviously something wrong with these systems. Rather than degrade forests and communities to adjust to the needs of these systems, we should adjust the systems to the needs of forests and communities.”¹⁹

19 Lansky: Beyond the Beauty Strip pg. 420

Two roads diverged in a yellow wood...

