

# **The Essentials: What you need to understand [LD 125](#) An Act To Prohibit the Aerial Spraying of Glyphosate and Other Synthetic Herbicides for the Purpose of Silviculture**

Comments from [Robert G. Wagner](#), Professor and head of Forestry and Natural Resources, Purdue University, and formerly Henry W. Saunders Distinguished Professor, School of Forest Resources, University of Maine.



*Fields of expertise: Academic and research leadership, industry/university partnerships, silviculture, forest management, forest regeneration, vegetation ecology and management*

<p><b>Forest managers must be able to determine which tree species make up future forest</b></p>	<p>In order to successfully manage forests to achieve ecological or economic goals for the people of Maine, foresters must be able to promote the kinds of tree species needed to achieve specific forest management goals. This is a core principle that determines whether forestry is a viable business or public enterprise or whether it is a total failure. Decades of research from around the world (Wagner et al. 2006) have clearly shown that effectively managing vegetation is vital to the success of forest regeneration. Indeed, one of the longest running studies in the world, the Austin Pond study in northern Maine, has clearly demonstrated the important role that herbicides play in providing for successful conifer regeneration over many decades (Olson et al. 2012, Bataineh et al. 2013). The inability to use herbicides, especially glyphosate, will lead to forest regeneration failures in many places that will have negative repercussions for many decades to come.</p>
<p><b>Herbicides are vital for preventing the spread of invasive exotic plants in Maine’s forests</b></p>	<p>Invasive plant species are threatening native tree regeneration in forests across the United States. A number of invasive plant species are increasing in abundance across Maine’s forests every year. The Maine Natural Areas Program has identified 52 plants species that are severely invasive, and 31 species considered to be very invasive. Herbicides, especially glyphosate, are highly effective, and in most cases, the only effective and affordable tool for combating the spread of invasive exotic plants in Maine’s forests. Loss of this safe and effective tool will severely reduce the ability of forest managers to help stop the spread of invasive exotic plants.</p>
<p><b>Herbicides are important tools for providing critical habitat for snowshoe hare and Canada lynx</b></p>	<p>Research has shown that snowshoe hare, a primary prey species of Canada lynx and other major forest carnivores, prefer habitats with high densities of young conifer regeneration. These conditions were provided in abundance following the salvage cutting and subsequent herbicide spraying following the spruce budworm outbreak of the 1970s. The increases in snowshoe hare populations were followed by substantial increases in Canada lynx populations (Simons-Legaard et al. 2013) and produced the largest lynx populations in the lower 48 states. Reduction in the use of harvesting that produces large forest openings and herbicide treatment in recent decades is associated with a projected decline in lynx habitat in the coming decades. Herbicides, particularly glyphosate, are important tools used by professional foresters to create the young, conifer-dominated habitats that are needed to promote Canada lynx and other major forest carnivores in Maine’s forests.</p>

<p><b>Reducing abundance of diseased beech in Maine’s forests</b></p>	<p>The abundance of American beech has increased substantially across the Northeastern US forests over the past three decades (Bose et al. 2017). Beech has been shown to competitively exclude more desirable tree species such as sugar maple and yellow birch. Since beech across Maine is also universally infected with the invasive beech-bark disease, reducing its spread in portions of Maine forests is important to providing desirable wildlife habitat and healthier forest stands. Glyphosate has been shown to be one of the most effective herbicides in controlling beech (Nelson and Wagner 2011) and is the only affordable approach to addressing the beech problem. The loss of glyphosate will prevent forest managers from reducing the dominance and spread of diseased beech in many circumstances.</p>
<p><b>Increased carbon sequestration comes from a larger wood products pool</b></p>	<p>The important role of forests in sequestering carbon comes not just from carbon in trees and vegetation itself, but also in the carbon that can be sequestered synergistically in wood products, the use of wood energy, as well as from the forested landscape (Lippke et al. 2011, Cameron et al. 2013, Oliver et al. 2016). Therefore, long-term enhancements in carbon sequestration in Maine’s forests should also consider the ability of the forest to contribute to the long-term wood products pool. The Austin Pond study in northern Maine has clearly demonstrated the crucial role that herbicides can play in producing commercially viable forests that will be able to contribute to the wood products pools of the future (Olson et al. 2012, Bataineh et al. 2013). The loss of herbicides, therefore, could reduce the overall ability of Maine’s forest to sequester carbon by reducing the successful regeneration of commercially viable tree species and thereby reducing the abundance of forest species and stand conditions that can make a greater contribution to the long-term wood products pool, not to mention the associated gains in the state’s economy.</p>
<p><b>MFPC answers frequently asked questions</b></p>	
<p><b>What does the EPA say about glyphosate?</b></p>	<p>When it comes to safety assessments, glyphosate is among the most extensively tested pesticides on the market. Evaluations spanning more than 40 years, and the overwhelming conclusion of experts and regulators worldwide, support the safety of glyphosate and that glyphosate does not cause cancer. Regulatory authorities routinely review all approved pesticide products. Most recently, in January 2020, the U.S. EPA published its Interim Registration Review Decision on glyphosate and stated EPA scientists performed an independent evaluation of available data for glyphosate<sup>1</sup> and found:</p> <ul style="list-style-type: none"> <li>• No risks of concern to human health from current uses of glyphosate. Glyphosate products used according to label directions do not result in risks to children or adults.</li> <li>• No indication that children are more sensitive to glyphosate. After evaluating numerous studies from a variety of sources, the Agency found no indication that children are more sensitive to glyphosate from in utero or post-natal exposure. As part of the human health risk assessment, the Agency evaluated all populations, including infants, children and women of child-bearing age, and found no risks of concern from ingesting food</li> </ul>

<sup>1</sup> U.S. Environmental Protection Agency, Glyphosate, Human Health, <https://www.epa.gov/ingredients-used-pesticide-products/glyphosate#:~:text=EPA%20scientists%20performed%20an%20independent,risks%20to%20children%20or%20adults.>

	<p>with glyphosate residues. EPA also found no risks of concern for children entering or playing on residential areas treated with glyphosate.</p> <ul style="list-style-type: none"> <li>• No evidence that glyphosate causes cancer in humans. The Agency concluded that glyphosate is not likely to be carcinogenic to humans. EPA considered a significantly more extensive and relevant dataset than the International Agency on the Research for Cancer (IARC). EPA’s database includes studies submitted to support registration of glyphosate and studies EPA identified in the open literature.</li> <li>• EPA considered a significantly more extensive and relevant dataset than the International Agency on the Research for Cancer (IARC). EPA’s database includes studies submitted to support registration of glyphosate and studies EPA identified in the open literature. For instance, IARC only considered eight animal carcinogenicity studies while EPA used 15 acceptable carcinogenicity studies. EPA does not agree with IARC’s conclusion that glyphosate is “probably carcinogenic to humans.”</li> <li>• EPA’s cancer classification is consistent with other international expert panels and regulatory authorities, including the Canadian Pest Management Regulatory Agency, Australian Pesticide and Veterinary Medicines Authority, European Food Safety Authority, European Chemicals Agency, German Federal Institute for Occupational Safety and Health, New Zealand Environmental Protection Authority, and the Food Safety Commission of Japan and the Joint Food and Agriculture Organization/World Health Organization (FAO/WHO) Meeting on Pesticide Residues (JMPR).</li> <li>• For more information, read the Revised Glyphosate Issue Paper: Evaluation of Carcinogenic Potential “EPA has thoroughly evaluated potential human health risk associated with exposure to glyphosate and determined that there are no risks to human health from the current registered uses of glyphosate and that glyphosate is not likely to be carcinogenic to humans.”</li> <li>• No indication that glyphosate is an endocrine disruptor. Glyphosate has undergone <a href="#">Tier I screening</a> under EPA’s <a href="#">Endocrine Disruptor Screening Program</a>. Based on all available information, EPA concluded, using a weight-of-evidence approach, that the existing data do not indicate that glyphosate has the potential to interact with the estrogen, androgen or thyroid signaling pathways. The screening program did not indicate the need for additional testing for glyphosate. All registered glyphosate uses have value for weed control in agriculture and non-agricultural land management.</li> <li>• <b>In addition</b>, The National Pesticide Information Center reports that “in humans, glyphosate does not easily pass through the skin. Glyphosate that is absorbed or ingested will pass through the body relatively quickly. The vast majority of glyphosate leaves the body in urine and feces without being changed into another chemical.</li> <li>• Also it’s important to keep in mind that most studies have focused on agriculture, not forestry where trees would be treated perhaps one or twice in 40-to 80 years.</li> </ul>
<p><b>What did Canada’s in-depth research conclude about glyphosate?</b></p>	<p>Health Canada's Pest Management Regulatory Agency (PMRA) recently conducted an in-depth analysis of the latest scientific data on assessed the potential human health risk of glyphosate from drinking water, food, occupational</p>

	<p>and bystander exposure, as well as the environmental risk to non-target organisms and sale and use in Canada in 2017<sup>2</sup> and concluded: Glyphosate is not genotoxic and is unlikely to pose a human cancer risk.</p> <ul style="list-style-type: none"> <li>○ Dietary (food and drinking water) exposure associated with the use of glyphosate is not expected to pose a risk of concern to human health.</li> <li>○ Occupational and residential risks associated with the use of glyphosate are not of concern, provided that updated label instructions are followed.</li> </ul> <ul style="list-style-type: none"> <li>● The environmental assessment concluded that spray buffer zones are necessary to mitigate potential risks to non-target species (for example, vegetation near treated areas, aquatic invertebrates and fish) from spray drift.</li> <li>● When used according to revised label directions, glyphosate products are not expected to pose risks of concern to the environment.</li> </ul> <p>All registered glyphosate uses have value for weed control in agriculture and non-agricultural land management.</p>
<p><b>What did the World Health Organization (WHO) say about glyphosateophate?</b></p>	<p><b>In March 2015</b>, the International Agency for Research on Cancer (IARC), which is associated with WHO, deemed glyphosate “probable carcinogenic to humans.”<sup>3</sup>classified glyphosate as “probably carcinogenic to humans.” This was based on “limited” evidence of cancer in humans (from real-world exposures that actually occurred) and “sufficient” evidence of cancer in experimental animals (from studies of “pure” glyphosate). IARC has also stated red meat, and very hot drinks are probable carcinogens.</p> <p><b>In May of 2016</b>, at the Joint Meeting on Pesticide Residues by WHO and the U.N.’s Agriculture Organization of the United Nations and World Health Organization), “the meeting concluded that glyphosate is <b>unlikely to pose a carcinogenic risk to humans from exposure</b> through the diet.” This was based on following all label instructions.</p> <p>As an example, a person would have to eat 12 pints of freshly sprayed blueberries per day for 80 years to exceed the levels deemed acceptable by the EPA and Health Canada.</p>
<p><b>Is pesticide spraying increasing or decreasing?</b></p>	<p>There are about 17.5 million acres of forest land in Maine. According to data compiled from the Maine Forest Service data Silvicultural Activities Reports,<sup>4</sup> the long-term (1989-2018) average acres sprayed was about 25,000 (both site prep and competition control), or about 0.1% of total forest land. The average for 2012-2018 is 10,700 acres, or about 0.06% of total forest land. If you just want to compare acres sprayed with total acres harvested, the long term average is 5.4% and the 2012-2018 average is 2.8%. In other words, the percentage of acres sprayed has declined sharply over the last 30 years.</p>
<p><b>Is clear-cutting increasing or decreasing?</b></p>	<p><b>Clearcutting (as reported in the Maine Forest Service Silvicultural Report for 2018:<sup>5</sup></b></p>

<sup>2</sup> <https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/decisions-updates/registration>

<sup>3</sup> IARC Monographs on the Identification of Carcinogenic Hazards to Humans. <https://monographs.iarc.who.int/list-of-classifications>

<sup>4</sup> Maine Forest Service, publications, Annual Reports, Silvicultural Activities Reports, [https://www.maine.gov/dacf/mfs/publications/annual\\_reports.html](https://www.maine.gov/dacf/mfs/publications/annual_reports.html)

<sup>5</sup> Maine Forest Service, publications, [2018 Silvicultural Activities Report](https://www.maine.gov/dacf/mfs/publications/annual_reports.html) (February 20, 2020.) [https://www.maine.gov/dacf/mfs/publications/annual\\_reports.html](https://www.maine.gov/dacf/mfs/publications/annual_reports.html)

	<ol style="list-style-type: none"> <li>1. Average clear cut size in 2018 was 27 acres. Landowners owning more than 100,000 acres had an average clear cut size of 36 acres. Landowners owning less than 100,000 acres had an average clear cut size of 14 acres. 51 clear-cuts larger than 75 acres were created in 2018. The total area clear cut increased 1% from 22,741 acres in 2017 to 23,033 acres in 2018. Clearcutting amounted to 6.7% of total harvested acres.</li> <li>2. Landowners owning more than 100,000 acres in Maine created 89% of all clear cut acreage (20,560 acres). The primary silvicultural reason for clearcutting reported by large landowners was the removal of poor quality, intolerant, under stocked, short lived or mature overstories where the retention of the residual overstory trees is not justified for further increase in value, as a source of seed, or for protection of the new stand.</li> <li>3. Salvage harvesting contributes to clear cutting. As wind events and other severe weather causes blow down and mortality in thinned and partially harvested areas, frequently the only treatment option is to clear cut these stands, and finish what mother nature started.</li> </ol>
<p><b>Do the SFI and FSC certification programs allow pesticides?</b></p>	<p><b>Sustainable Forestry Initiative (SFI):</b> SFI recognizes that the proper use of forest chemicals can be an effective tool for ensuring prompt reforestation resulting in healthy, vigorous forests. The SFI Forest Management Standard has eight auditable requirements addressing the use of forest chemicals. In summary, the standard requires:</p> <p>Minimizing chemical use, use of least-toxic and narrowest spectrum pesticides necessary to achieve management objectives and use of integrated pest management wherever feasible.</p> <p>Pesticides be used in accordance with label requirements with the supervision of state/provincial-trained or certified applicators.</p> <p>That practices for application are appropriate for the situation which include:</p> <ul style="list-style-type: none"> <li>• Notification of adjoining landowners or nearby residents concerning applications and chemicals used:</li> <li>• Designation of streamside and other needed buffer strips, monitoring of water quality or safeguards to ensure proper equipment use and protection of streams: lakes and other water bodies and use of methods to ensure protection of threatened and endangered species.</li> <li>• The minimization of chemical use and the use of only government approved chemicals. Pesticides listed under the Stockholm Convention on Persistent Organic Pollutants are banned and World Health Organization type 1A and 1B pesticides are prohibited, except where no other viable alternative is available.</li> </ul> <p>In summary, SFI permits the limited use of chemicals approved by government regulators, including the Federal Environmental Protection Agency (EPA), the Occupational Health &amp; Safety Administration (OSHA) and state and local equivalents to the EPA, and OSHA. SFI certified organizations are only allowed to use these substances responsibly and as approved by scientifically accepted standards of forest management. Guidance to SFI 2022 Standards and Rules (Section 7) May 1, 2020.<sup>6</sup></p> <p><b>Forest Stewardship Council (FSC):</b> Much like SFI, FSC allows for the use of herbicides and requires the landowners to demonstrate an effort to minimize the use.</p>

<sup>6</sup> Guidance to SFI 2022 Standards and Rules, [https://www.forests.org/wp-content/uploads/Section-7\\_clean\\_May-1.pdf](https://www.forests.org/wp-content/uploads/Section-7_clean_May-1.pdf)

	<p>There are two types of FSC certification: Forest Management and Chain of Custody. In both types of certification, independent FSC-accredited Certification Bodies ("certifiers") verify that all FSC-certified forests conform to the requirements contained within an FSC forest management standard. FSC certification information.<sup>7</sup></p> <p>Certifiers assess forest management and chain of custody operations using the FSC standards. Certifiers are independent of FSC and the companies they are auditing. This third-party verification is crucial to the integrity of the FSC system. FSC Forest Management certification confirms that a specific area of forest is being managed in line with the FSC <a href="#">Principles and Criteria</a>. To achieve FSC Forest Management certification, the forest manager or owner contracts with an FSC-accredited <a href="#">Certification Body</a> or joins a <a href="#">Forest Management Group</a>. In either case, the forest is audited to FSC's Forest Management standards.</p>
<p><b>Bureau Pesticides Control role in evaluating chemicals, calculating risk.</b></p>	<p>As Megan Patterson, director of Maine’s Board of Pesticide Control, testified March 2, 2021, on LD 316 An Act to Prohibit the use of Chlorpyrifos, “The Board’s structure, member experience, as well as its required robust public input process make it well-suited to address the directive presented in this bill. The Board is a public volunteer board appointed by the Governor where members from diverse professional and personal backgrounds apply their collective expertise to help guide pesticide policy and regulation. In addition, the Board has the ability to enforce its rules and regulations, which is an important consideration. By following the administrative procedures act and utilizing the experience of the BPC members and the capable expertise of Board staff, we believe that the BPC is the appropriate body to address the prohibition of use outlined in LD 316. Additionally, the routine technical rulemaking process allows for adjustments, should they be needed, more readily and timely than the legislative process.”</p>
<p><b>Is aerial spraying a safe and essential tool for Maine’s forestry products industry?</b></p>	<p><b>Testimony from Megan Patterson, director of Maine Board of Pesticide Control (BPC), on LD 1691 An Act To Ban Use of Aerial Herbicide Spraying for the Purpose of Deforestation, 129<sup>th</sup> Legislature<sup>8</sup></b></p> <ul style="list-style-type: none"> <li>• Applications rely on ultra-low volumes of product with little active ingredient, so that vegetation is not typically killed, but is delayed in growth just long enough to allow quality tree saplings to gain a competitive advantage.</li> <li>• Herbicide applications are unique inasmuch as there is no need to get thorough coverage of the foliage thus allowing the applicator to use extremely large spray drops which are not prone to off-target movement.</li> <li>• Historically, forestry practitioners have required the use of Accuflow nozzles which produce large, uniformly sized spray droplets resulting in very low drift potential.</li> <li>• Planned application areas are carefully ground-truthed, which typically involves physically walking the application area and using drones for observation and recording of sensitive areas.</li> <li>• Detailed ground observations combined with information on previously mapped sensitive areas result in the production of comprehensive digital site maps used to delimit the aerial application.</li> <li>• Buffers for aerial applications around sensitive areas, such as surface water and occupied buildings are</li> </ul>

<sup>7</sup> FSC certification information, <https://us.fsc.org/en-us/certification>.

<sup>8</sup> [Megan Patterson testimony](#) on the original version of LD 1691, <http://legislature.maine.gov/legis/bills/getPDF.asp?paper=SP0556&item=1&num=129>

	<p>larger than required by state law.</p> <ul style="list-style-type: none"> <li>• Although these applications are made on private property, companies employ additional measures to prevent accidental human exposure to the pesticides applied by posting signage and physically blocking all known access points.</li> <li>• Notification of application is, at minimum, provided to the public through local newspapers or in person, to the Board of Pesticides Control, and to Northern New England Poison Control.</li> <li>• Applicators must hold a commercial pesticide applicator's license.</li> <li>• Aerial forestry applications, done in conformance with all applicable regulations and under appropriate conditions are a clearly regulated, carefully considered, essential tool for the Maine forestry products industry.</li> </ul>
<p><b>Soil carbon effects</b></p>	<p>According to the <a href="#">National Pesticide Information Center</a>,<sup>9</sup> glyphosate binds tightly to soil. It can persist in soil for up to 6 months depending on the climate and the type of soil it is in. Glyphosate is broken down by bacteria in the soil. Glyphosate is not likely to get into groundwater because it binds tightly to soil. In one study, <a href="#">half</a> the glyphosate in dead leaves broke down in 8 or 9 days.</p>
<p><b>What is the role of forests in Maine's climate change goals?</b></p>	<p><a href="#">Maine Climate Council report – Maine won't wait</a>, December 2020:<sup>10</sup> “Maine’s forests, which cover 89% of the state and support an important forest industry sector that has at least an \$8 billion direct economic impact. Maine also has some of the highest densities of non-native forest pests in the United States, further stressing important tree species.</p> <p>“Maine’s forests and forestry sector are important resources for meeting our climate goals. Forests sequester over 60% of our annual carbon emissions (approximately 75% including forest growth and durable products).</p> <p>“Maine’s forests cover 89% of the state and support an important forest industry sector that has at least an \$8 billion direct economic impact. Global trends for innovative, climate- friendly products offer new markets to diversify and grow Maine’s forest-products industry. Supporting industry innovation can make the most efficient possible use of sawmill residuals and other residual biomass from timber, adding value for the industry while also reducing waste that could potentially be landfilled, causing additional climate impacts.</p> <p>“Maine should develop and enhance marketing programs for Maine forest products, in coordination with efforts such as FOR/Maine, focused on products such as mass-timber, biofuels, bioplastics, nano-cellulosic materials, and wood-based insulation products. State construction projects should leverage opportunities to use mass timber and encourage related manufacturing facilities to locate in Maine. The state should continue to invest in the University of Maine research facilities to become a globally recognized hub for climate-friendly bio-based wood-market innovation.”</p>
<p><b>What is the effect of aerial spraying on Maine wildlife?</b></p>	<p>In November 2020, EPA released the <a href="#">draft Biological Evaluation (BE)</a> assessing likelihood of affect to listed species from labeled uses of glyphosate. (Listed species refers to those that are federally listed as endangered or threatened, as well as experimental populations and those species that are proposed and candidates for listing).</p>

<sup>9</sup> National Pesticide Information Center, Glyphosate General Fact sheet., <http://npic.orst.edu/factsheets/glyphogen.html>.

<sup>10</sup> [https://climatecouncil.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait\\_December2020\\_printable\\_12.1.20.pdf](https://climatecouncil.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020_printable_12.1.20.pdf)

### Maine Species

Of the 1,795 species listed in the BE 23 are identified by the USF&WS as occurring in Maine. These include 7 whales, 3 sea turtles, 3 coastal birds, 1 plant that occurs in York & Cumberland Counties, the Graywolf (extirpated from Maine by the 1890s), Eastern Cougar (USF&WS five-year review March 2011-

“The U.S. Fish and Wildlife Service has completed a review of all available information about the eastern cougar, which has been on the endangered species list since 1973. The review concludes that the eastern cougar is extinct”). and New England Cottontail Rabbit (see below).

The remaining 6 species are Atlantic Salmon, Atlantic Sturgeon, Short Nose Sturgeon, Canada Lynx, Furbish’s Lousewort and Eastern Prairie Fringed Orchid.

- Forest industry has been leading efforts to restore the Atlantic Salmon through the FINS network. This work also benefits Atlantic Sturgeon.
- Maine has the largest population of Canada Lynx in the continental U.S. in large part due to the habitat created by use of the herbicide tool for forestry.
- New England Cottontail doesn’t occur in the forests of northern and western Maine. Known occurrences in Maine: York and Cumberland Counties: recent occurrences in Berwick, Biddeford, Cape Elizabeth, Cumberland, Dayton, Elliot, Falmouth, Gorham, Kittery, Portland, Saco, Scarborough, South Berwick, South Portland, Wells, Westbrook, Windham, and York.

Threats: Development, maturing forest, predation, invasive species, deer browsing impacts on under-story.

- Furbish’s Lousewort occurs in Shrub- or herb-dominated, wet, circumneutral riverbanks, between the forest edge and the summer water level; St. John River. All known occurrences are from Aroostook County (Allagash, Fort Kent, Frenchville, Hamlin, St. Francis, St. John Plantation, T16 R12, T14 R13, T14 R14, T15 R13, T16 R12). A January 2021, report from the US Fish and Wildlife Service States that Irving lands contain more than 50% of the known population, and they have protected 9 sites representing 457 acres.

Threats: Habitat alteration from **shoreline development and agriculture, global warming, recreational activities.**

- Eastern Prairie Fringed Orchid occurs in Maine in a single calcareous fen (Crystal Bog) in Crystal, Aroostook County, Maine. Threats: **Habitat loss, global warming.**

### Analysis Plan and Action Area

The conclusions of any Biological Evaluation (BE) are based on the results of the analysis completed. The analysis plan includes multiple steps beginning with a determination of the action area, the surface area (land and water), to be evaluated. The action area combines agricultural and non-agricultural uses, uses being the registered

product uses. The action area will also include transport drift areas. Non-agricultural uses include non-cultivated lands, developed open space, right of ways, forest trees, and developed lands.

Given the broad use of glyphosate, there is minimal transport drift areas. Generally, the action area for this BE is the continental US and areas outside of the continental US, including Alaska, Hawaii, Puerto Rico, Guam, Marianas, American Samoa and the Virgin Islands. The areas outside of the continental US are also referred to as the non-lower 48 (NL48).

Of the 280 million pounds of glyphosate applied within the action area, only 21 million pounds or 7.5% are applied to non-agricultural lands. Of those non-agricultural lands, only 4.2 million pounds or 21% of the total non-agricultural uses and 1.6% of total glyphosate use are used for forest trees.

Within the action area, 1,795 species and 792 habitats were identified for evaluation.

#### **Effects Determinations**

The data analysis makes a determination of either Not Likely to Adversely Affect (NLAA) or Likely to Adversely Affect (LAA) for each species and critical habitat within the action area. A finding of LAA does not mean that the species identified will be impacted, only that it could be impacted. The data analysis is a probabilistic methodology that uses highly conservative values and assumptions that overstate the number of species exposed to and impacted by the pesticide being studied.

Each determination of LAA is then described by the strength of the evidence: strong, moderate or weak. A total of 119 species and 33 habitats were listed as NLAA. The remaining 1676 species and 759 habitats were listed as LAA. Of the total LAA ratings, 96% of species ratings and 97% of habitat ratings were given a moderate strength of evidence. Only 1 species rating was based on strong evidence of impact. The moderate strength rating is based on specific criteria. Specifically, moderate ratings were given due to the following factors:

- The primary use associated with risks to individuals is non-agricultural.
- The impacts are only due to direct or in-direct impacts to the prey, pollination, habitat or dispersal (PPHD) of the species, i.e., there is no direct lethal impact to the species due to the application of the pesticide.
- The species range (where it is and is not) is different from the description according to FWS.
- Even if there is some direct impact to PHDD within the percent of cropland treated in a uniform distribution or within the upper acre distribution analysis, a moderate strength of evidence is still appropriate due to the other 3 considerations above.

#### **Summary of Species Impacts**

Non-cultivated, open space developed, right of way, forest trees and developed uses were found to be most frequently associated with impacts to species/habitats with LAA determinations. Remember, Forest Trees account for 21% of the glyphosate use in the northeast and 1.6% within the action area. The highest ranking use for potential impacts is non-cultivated followed by open space developed areas.

Not surprising, 940 of the 1,676 species given a LAA rating were plants, given the primary job of glyphosate is to kill weeds. The remaining 736 species included aquatic and terrestrial invertebrates, fish, reptiles, amphibians, birds and mammals. Similarly, for critical habitat effects, plants accounted for 456 of the 759 findings of LAA. The high number of potential impacts to plants and plant habitats contribute to the effects on the other species.

Again, these numbers only represent the number of individual species or habitats that could be impacted not that are or will be impacted by the use of glyphosate.

If EPA determines glyphosate may affect a listed species or its critical habitat, the agency will consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) as appropriate. The Services use the information in EPA's final biological evaluation to develop their biological opinion to determine if the pesticide jeopardizes the continued existence of the species and whether there is adverse modification to its critical habitat. If jeopardy or adverse modification is determined, the Services, with input from EPA, will propose protection measures. Protection measures could include seeking to change the terms of the pesticide registration to establish either generic or geographically specific pesticide use limitations if the agency determines that limitations are necessary to ensure that legal use of a pesticide will not harm listed species or their critical habitat. [Read more.](#)

EPA issued a notice in the Federal Register of November 27, 2020, opening a 60-day comment period on the draft nationwide biological evaluations for the registration review of the pesticide glyphosate relative to the potential effects on threatened and endangered species and their designated critical habitats. This document extends the comment period for 45 days, from January 26, 2021 to March 12, 2021.<sup>11</sup>

The result of the process will not be a ban, it will be additional regulation if deemed necessary, which will affect us through new label restrictions and oversight by the BPC.

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<sup>11</sup> EPA is seeking comment on the draft Endangered Species Act (ESA) biological evaluation relative to the potential effects of glyphosate on threatened or endangered (listed) species and their designated critical habitats. Docket ID EPA-HQ-OPP-2020-0585, <https://www.regulations.gov/docket/EPA-HQ-OPP-2020-0585>