

Aerial Herbicides in Forestlands

December 2019

Report to the Legislature per SSB 5597, passed by the
2019 Legislature

Prepared by:

Aerial Application of Herbicides on Forestlands Workgroup

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Executive Summary

During the 2019 Session, the Washington State Legislature passed Substitute Senate Bill 5597, creating the Aerial Application of Herbicides in Forestlands workgroup and directing a report back to the Legislature.

The bill recognized that forest managers, state agencies, and the broader community share an interest in minimizing human and environmental exposure to herbicides. Forest landowners have made significant gains in the protection of riparian and wetland areas along the state's waterways, as well as protecting the health and safety of the public and forest workers, through a combination of scientific advancements, ongoing education and training, improved technologies, and proper monitoring and regulation under the Forests Practices statute (Chapter 76.09 RCW) and the associated Forest Practices Rules (Chapter 222-16 WAC).

The legislation established a workgroup on aerial application of herbicides on private and state-owned forestlands. This group was tasked with reviewing and evaluating existing best management practices and, if necessary, recommending improvements to those practices. Workgroup members included legislators from both chambers and caucuses, as well as representation from state and local government, private timber management, pesticide applicators, tribes, and environmental organizations.

The workgroup sought public participation to learn more about currently implemented best management practices and discuss specific topics:

- Review the roles and regulatory requirements of management and regulatory agencies relating to the approval and use of herbicides in aerial applications on forestlands. This includes review of state and federal regulatory authorities concerning aerial herbicide applications.
- Review current herbicide application technology in the state and throughout the nation to increase application accuracy and other best management practices focused on reducing drift and exposure to humans, fish, and wildlife, as well as impacts on surface water, drinking water, and wetlands.
- Review research, reports, and data from all sources on the herbicides most commonly used in aerial application on forestlands.
- Develop recommendations, if appropriate, for managing working forestlands through an integrated pest management approach. Any recommended alternatives must consider the toxicity, mobility, and bioaccumulation of those alternatives as compared to traditional operations.

Many stakeholders, including but not limited to local timber landowner hosts, neighboring non-timber property owners, aerial applicators and concerned members of the public, contributed valuable assistance and input. To meet the timeline established by the legislation, the workgroup met seven times in five months at various locations throughout the state. The

workgroup enjoyed substantial public participation and received in-person comments as well as written comments relevant to the work group's tasks.

The workgroup reached nine noteworthy recommendations regarding considerations that may improve best management practices:

Recommendations for Best Management Practices (BMPs):

- The workgroup recommends that non-chemical vegetation management strategies should continue to be evaluated and small trials should be conducted in consultation with the Washington State Department of Natural Resources, the U.S. Forest Service, the University of Washington, and Washington State University. When possible, this should be completed using existing research cooperatives.
- The workgroup recommends that the Forest Practices Board clarify adjacent property buffer rules, particularly concerning buffers around residences and agricultural land.

Recommendations for Communication:

- The workgroup recommends that DNR's [Forest Practices Application Review System](#) replacement or upgrade include an improved user interface for chemical application review.
- The workgroup recommends that DNR evaluate placement of the FPARS link on the [DNR website homepage](#) to make it more accessible (user-friendly) to the general public.
- The workgroup recommends that the signage in the [Forest Practices Illustrated](#) (FPI) and [Forest Practices Board Manual](#) section 12 be updated to reflect improvements to the legally required posting.

Recommendations for Administrative and Regulatory Issues:

- The workgroup recommends that the Washington State Department of Agriculture contract a literature review to identify possible data gaps as it relates to forestry herbicides in seasonal streams (first flush of rainwater after the dry season), buffer effectiveness, fish, and soil health. If gaps are identified, WSDA will work to obtain funding and address potential next steps.
- The workgroup recommends that the following agencies convene an external stakeholder workgroup to evaluate pesticide investigation rules and processes and report back to the Legislature any recommended changes, including how complaints should be reported and making sure the complaint is properly referred: Department of Natural Resources (DNR), Department of Agriculture (WSDA), Labor & Industries (L&I), Washington State Patrol (WSP), Department of Health (DOH), Department of Ecology

(ECY), the Poison Center, and local health jurisdictions/county health departments (LHJs).

- The workgroup recommends that DNR include herbicide applications into its larger biennial forest practices rules compliance monitoring sampling.
- The workgroup recommends the Forest Practices Board, using a stakeholder process, update the board manual section 12 for the Board's consideration and approval. The update should include best management practices and technical guidance consistent with the current forest practices rules, including but not limited to, equipment, weather conditions, neighbor communication BMPs, information about alternatives to herbicides, and signage.

These recommendations represent what could be agreed to by a majority of workgroup members within the time limits of meetings. The workgroup ran out of time to thoroughly discuss several topics and would have required additional meetings, which were not possible within the deadlines outlined in the legislation. Topics that were identified, but not fully addressed, included the evaluation of current State Environmental Policy Act (SEPA) thresholds, pesticide sensitivity registry, aerial application certification, and WSDA separating of reporting of forestry and agriculture.

This report was drafted by staff at the Washington State Departments of Agriculture and Natural Resources and reviewed by members of the Aerial Application of Herbicides on Forestlands Workgroup.

Introduction

During the 2019 legislative session, the Washington State Legislature passed Substitute Senate Bill (SSB) 5597, creating the Aerial Application of Herbicides on Forestlands Workgroup. The bill established that forest managers, state agencies, and the broader community share an interest in minimizing human and environmental exposure to herbicides. In addition, the Legislature found that forest landowners have made significant gains in the protection of riparian and wetland areas along the state's waterways, as well as protecting the health and safety of the public and forest workers, through a combination of scientific advancements, ongoing education and training, improved technologies, and proper monitoring and regulation under the Forests and Fish Law and the associated Forest Practices Rules.

SSB 5597 created the workgroup to develop recommendations for improving the best management practices used in aerial applications of herbicides on forestlands in Washington. The workgroup was co-chaired by Stephen Bernath of the Washington State Department of Natural Resources and Kelly McLain of the Washington State Department of Agriculture. Legislators appointed to the work group included Sen. Christine Rolfes, Sen. Keith Wagoner, Rep. Tom Dent, and Rep. Beth Doglio. The full workgroup membership is listed in Appendix A.

The workgroup was directed to:

- Review the roles and regulatory requirements of management and regulatory agencies relating to the approval and use of herbicides in aerial applications on forestlands. This includes review of state and federal regulatory authorities concerning aerial herbicide applications.
- Review current herbicide application technology in the state and throughout the nation to increase application accuracy and other best management practices focused on reducing drift and exposure to humans, fish, and wildlife, as well as impacts on surface water, drinking water, and wetlands.
- Review research, reports, and data from all sources on the herbicides most commonly used in aerial application on forestlands.
- Develop recommendations, if appropriate, for managing working forestlands through an integrated pest management approach. Any recommended alternatives must consider the toxicity, mobility, and bioaccumulation of those alternatives as compared to traditional operations.

Workgroup Meetings

As part of their review, the workgroup held four, all-day meetings beginning in August 2019 to hear from state agencies, organizations, and individuals involved in or living near public and private forestlands. Here are summaries of each meeting:

August 2, 2019, Jane Russell Commons, University of Washington Tacoma – Tacoma, WA

This was the first convened meeting of the workgroup. After introductions, the group received presentations from the Department of Agriculture, Department of Natural Resources, Department of Ecology, and the Department of Health regarding regulatory roles around pesticides. Additionally, Edward Kasner with the University of Washington's Pacific Northwest Agricultural Safety and Health Center (PNASH) presented about prior research that illustrated methods of measuring human exposure and the roles of application technology and applicator precision in minimizing human exposure near a treatment site. Washington State University weed scientist Steven Seefeldt gave an overview of herbicides, their modes of action, and how they affect plants differently than animals or mammals. Each member of the workgroup discussed the things they hoped would be accomplished between August and December 2019.

September 6, 2019, Field tour on private forestland in and around Deer Park, WA and open public meeting

This meeting day began with a field trip to private lands owned by Hancock Forest Products in Northeast Washington. This included comparisons between sites managed through clearcut-type harvest and selective harvest, as well as sites managed for weeds before and after a major forest fire. Representatives from the Confederated Tribes of the Colville Reservation also spoke on the tour about the tribal forest management perspective, including how they combat weeds without herbicides through heavy tree planting rates. The afternoon meeting included a recap of the tour and conversations about notification, site posting, and general neighbor relations. Spokane Tribe of Indians representatives were also in attendance and provided comments to the workgroup.

October 9, 2019, Field tour and meeting, neighboring property and private forestland, Kitsap County, WA

The tour portion of the day began at a privately owned farm (Rainbowzen Farm) that sits adjacent to lands managed and previously clear-cut by Pope Resources. Pope Resources also allowed the workgroup to tour the site they intended to manage with aerial application in late summer 2018 but suspended treatment plans after public outcry. Topics presented in the field included weed and tree competition issues, neighbor notification and posting of properties, and tree stocking rates. The afternoon public meeting included a presentation on glyphosate and risk communication by Dan Wixted from Cornell University, and a presentation on pesticides and water resources from Jeffrey Jenkins from the National Pesticide Information Center at Oregon State University. An additional session at this afternoon meeting covered the local community perspective, including Tom DeBor from Kitsap Environmental Coalition, Kitsap Public Utility District Commissioner Debra Lester, Port Gamble S'Klallam Tribe Chairman Jeromy Sullivan, Jefferson County Commissioner Kate Dean, and Kitsap County Noxious Weed Board director Dana Coggon.

November 1, 2019, DNR-managed forestland and Great Wolf Lodge, Grand Mound, WA

The tour was hosted on DNR trust lands and included an overview of application technology, state lands process for posting and state lands neighbor notification. The afternoon meeting included DNR staff Taylor Mizar and Jack Shambo providing an in-depth review of the Forest Practices Application review process, including when SEPA is triggered; a discussion and sharing of studies on glyphosate impacts on organisms from Dr. Stephen Whitesides; a presentation on elk hoof rot disease by Kyle Garrison of the Washington Department of Fish and Wildlife and Dr. Margaret Wild of Washington State University; and coverage of notification, the Sustainable Forestry Initiative certification program, and the small forest landowner perspective by Meghan Tuttle of Weyerhaeuser and small forest landowner Steve Barnowe-Meyer. The Swinomish Indian Tribal Community also provided comments during this meeting.

November 19, 2019, Olympia, WA

The workgroup met at the Olympia Center to begin working through what information was still needed to start developing recommendations. It was determined there was still information needed, which led to developing an agenda for a meeting on December 5, 2019. In addition, a report was given in summary terms of the results of the investigation of the Pope Resources spray application in Jefferson County, and initial themes for the legislative report were identified.

December 5, 2019, Olympia, WA

The workgroup met at the Natural Resources Building in Olympia, with some members participating remotely, and evaluated information provided as a result of the “what’s missing?” exercise at the November 19 meeting. This included information provided by WSDA about investigation protocols, the pesticide sensitivity registry, EPA registration review analysis, and toxicity information for current use herbicides and possible organically registered alternatives. DNR also provided data available for Forest Practices compliance inspections since 2016. In addition, Dr. Tim Harrington, senior researcher with the U.S. Forest Service, gave a presentation on a recently completed study on the use of slash materials (tree debris on site during harvest) along with herbicides as a form of weed suppression.

December 19, 2019, Olympia, WA

The workgroup met to propose and agree on recommendations to be included in this legislative report. The agreed-upon findings and recommendations are included in a later section of this report.

Stakeholder Communication and Participation

The Washington State Department of Natural Resources (DNR) frequently used email to notify stakeholders about upcoming meetings and opportunities to provide comments or testimony to the workgroup. Written public comments were also accepted. Stakeholders participating and attending the meetings included, but were not limited to, concerned property owners living in the vicinity of managed timber, aerial applicators, farmers, local government representatives, tribal representatives, and large and small forest landowners. Written comments have also been received from members of the Kitsap Environmental Coalition, the Jefferson Environmental Coalition, cities within Kitsap County, Kitsap and Jefferson County government, and other interested parties. DNR created a website for this workgroup, and all meeting information and presentations can be found at dnr.wa.gov/aerial-herbicide-application-working-group.

Report Content

The legislation tasked the workgroup with developing recommendations, if appropriate, for managing working forestlands through an integrated pest management approach and improving existing best management practices. As a result, report content focuses on “any findings, recommendations, and draft legislation” reflecting this legislative intent. This report was drafted by staff at WSDA and DNR and reviewed and evaluated by members of the workgroup.

Workgroup Findings and Recommendations

The workgroup identified a number of similar themes from the presentations, background materials, and public comments. These themes include overall transparency with a focus on Best Management Practices, Communications, Regulatory and Administrative Processes, and Science.

Findings related to Best Management Practices

- The workgroup recommends that non-chemical vegetation management strategies should continue to be evaluated and small trials should be conducted in consultation with the Washington State Department of Natural Resources, the U.S. Forest Service, the University of Washington, and Washington State University. When possible, this should be completed using existing research cooperatives.

Yes: 19

No: 0

Abstain: 1

- The workgroup recommends that the Forest Practices Board clarify adjacent property buffer rules, particularly in regards to residences and agricultural lands.

Yes: 15

No: 4

Abstain: 1

Findings related to Communications

- The workgroup recommends that DNR's [Forest Practices Application Review System](#) replacement or upgrade include an improved user interface for chemical application review.

Yes: 20

No: 0

Abstain: 0

- The workgroup recommends that DNR evaluate placement of the FPARS link on the [DNR website homepage](#) to make it more accessible (user-friendly) to the general public.

Yes: 20

No: 0

Abstain: 0

- The workgroup recommends that the signage description in the [Forest Practices Illustrated](#) (FPI) and [Forest Practices Board Manual](#) section 12 be updated to reflect improvements to the legally required posting.

Yes: 20

No: 0

Abstain: 0

Findings related to Administrative and Regulatory Processes

- The workgroup recommends that the Washington State Department of Agriculture contract the completion of a literature review to identify possible data gaps as it relates to forestry herbicides in seasonal streams (first flush of rainwater after the dry season), buffer effectiveness, fish, and soil health. If gaps are identified, WSDA will work to obtain funding and address potential next steps.

Yes: 18

No: 0

Abstain: 0

Absent: 2

- The workgroup recommends that the following agencies convene an external stakeholder workgroup to evaluate pesticide investigations rules and processes and report back to the Legislature any recommended changes, including how to report complaints and making sure complaints are properly referred: Department of Natural Resources (DNR), Department of Agriculture (WSDA), Labor & Industries (L&I), Washington State Patrol (WSP), Department of Health (DOH), Department of Ecology (ECY), the Poison Center, and local health jurisdictions/county health departments (LHJs).

Yes: 17

No: 1

Abstain: 1

Absent: 1

- The workgroup recommends that DNR should formally include herbicide applications into its larger biennial forest practices rules compliance monitoring sampling.

Yes: 20

No: 0

Abstain: 0

- The workgroup recommends the Forest Practices Board, using a stakeholder process, update the [board manual section 12](#) for the Board's consideration and approval. The update should include best management practices and technical guidance consistent with the current forest practice rules, including, but not limited to, equipment, weather conditions, neighbor communication BMPs, information about alternatives to herbicides, and signage.

Yes: 20

No: 0

Abstain: 0

Two recommendations were discussed and voted on but did not receive a majority support vote to move forward. Those recommendations and the vote record are listed below.

Findings related to Administrative and Regulatory Processes

- The workgroup recommends seeking statutory and/or rule changes, as needed, to require that proponents provide to DNR, following completion of an aerial herbicide application, information that can be used to better understand and communicate such as: location, number of acres, date of application, type of and amount of herbicide applied, and Forest Practices Application number.

Yes: 8

No: 9

Abstain: 3

Findings regarding Science

- The workgroup recommends that after approximately five years of EPA pesticide registration review that the state contract a literature review of newly available science associated with forestry herbicides.

Yes: 9

No: 9

Abstain: 1

Absent: 1

There were also additional suggested recommendations within these topical areas; however, due to time constraints, for some of these areas we were not able to complete discussions within the deadlines outlined with the legislation. Some topics tabled by the workgroup would have required additional meetings, which was not possible. Topics that were identified, but not fully addressed, included use of SEPA, pesticide sensitivity registry, aerial application certification, and WSDA separation of reporting by forestry and agriculture.

Conclusion

Although the practices implemented in Washington around aerial application of herbicides in forestlands have reduced human and environmental exposure, the consensus of the workgroup is that this program could continue to benefit from improved distribution of information to interested parties and the public. Support was expressed for: improving signage, accessibility to FPARS for the public and an improved interface for all users of the FPARS system, additional scientific research associated with aerial herbicide applications, updates to the Forest Practices Board manual section that covers herbicide use, continued improvement of pesticide investigations, and, finally, formalizing herbicide application compliance monitoring conducted by DNR. Although some topics covered by this workgroup did not result in formal recommendations, the workgroup completed extensive work on the aerial application of herbicides on forestlands and identified improvements that will help all parties going forward, including relying on some of these topics to be addressed by the newly formed Pesticide Application Safety Committee.

Appendices

Appendix A: Aerial Application of Herbicides in Forestlands Workgroup Members

	Name	Association
Legislative Member	Senator Christine Rolfes	Senate Democratic Caucus
Legislative Member	Representative Tom Dent	House Republican Caucus
Legislative Member	Senator Keith Wagoner	Senate Republican Caucus
Legislative Member	Representative Beth Doglio	House Democratic Caucus
Legislative Member	Representative Mary Dye	House Republican Caucus (Alternate)
Tribal Representative	Valentino Villaluz	Swinomish Indian Tribal Community
Tribal Representative	Paul McCollum	Port Gamble S’Klallam Tribe
Tribal Representative	Cody Desautel	Confederated Tribes of the Colville Reservation
Co-Chair	Stephen Bernath	Department of Natural Resources
Co-Chair	Kelly McLain	Department of Agriculture
State Agency Member	Glenn Patrick	Department of Health
State Agency Member	Robin Schoen-Nessa	Department of Agriculture

State Agency Member	Joseph Shramek	Department of Natural Resources
State Agency Member	Rich Doenges	Department of Ecology
State Agency Member	Jeff Davis	Department of Fish and Wildlife
Noxious Weed Representative	Dana Coggon	Kitsap County Noxious Weed Control Board
Small Forest Landowner	Steve Barnowe-Meyer	Washington Farm Forestry Association
Industrial Timber – West	Meghan Tuttle	Weyerhaeuser
Industrial Timber – East	Scott Ketchum	Hancock Forest Products
Environmental Representative No. 1	Megan Dunn	Northwest Center for Alternatives to Pesticides
Environmental Representative No. 2	Tom DeBor	Kitsap Environmental Coalition
Environmental Representative No. 3	Alec Brown	Washington Environmental Council
Aerial Applicator	Corey Fransen	Wilbur-Ellis
Pesticide Representative	Wes Wasson	Helena Agri-Chemicals
University of Washington	Edward Kasner	Pacific Northwest Agricultural Safety and Health Center
Washington State University	Carol Black	Pesticide Safety Education Program

Appendix B: Acknowledgements The Aerial Application of Herbicides on Forestlands Workgroup would like to thank all of the many people and organizations that helped contribute to the meetings, offered public comments, and hosted field site visits or facilities. This includes but is not limited to:

Joanne	Prado	Washington State Department of Health
Robin	Schoen-Nessa	Washington State Department of Agriculture
Rich	Doenges	Washington State Department of Ecology
Kelly	McLain	Washington State Department of Agriculture
Joseph	Shramek	Washington State Department of Natural Resources
Edward	Kasner	University of Washington Pacific Northwest Agricultural Safety and Health Center
Dr. Steven	Seefeldt	Washington State University
Scott	Ketchum	Hancock Forest Products
Cody	Desautel	Confederated Tribes of the Colville Reservation
Lisa	Hurt	Rainbowzen Farms
Adrian	Miller	Pope Resources
Dan	Wixted	Cornell University
Dr. Jeffrey	Jenkins	Oregon State University
Tom	DeBor	Kitsap Environmental Coalition
Debbie	Lester	Kitsap County Public Utility District commissioner
Kate	Dean	Jefferson County Board of Commissioners
Jeromy	Sullivan	Port Gamble S'Klallam Tribe
Taylor	Mizar	Washington State Department of Natural Resources
Jack	Shambo	Washington State Department of Natural Resources
Dr. Stephen	Whitesides	
Meghan	Tuttle	Weyerhaeuser
Steven	Barnowe-Meyer	Small forest landowner
Kyle	Garrison	Washington Department of Fish and Wildlife
Dr. Margaret	Wild	Washington State University
Dr. Tim	Harrington	U.S. Forest Service
Washington Forest Protection Association		
Members of Kitsap Environmental Coalition		
Jefferson County citizens		
Members of the Spokane Tribe of Indians		

White Horse Golf Club
University of Washington Tacoma
Spokane County Fire District 4
Washington Friends of Farms and Forests
Weyerhaeuser Co.
Wilbur-Ellis Co.

