



**Spruce Budworm Forum
November 18, 2014**

12:30 – Tom Rumpf’s welcome

12:35 – 1:15 Bob Wagner’s overview; Q&A

1:15 – Tom announces which topics are covered in which rooms

1:30 – 2:20 Breakout sessions

2:30 – 3:10 Report back: Tom facilitates

3:15 – Adjourn

Breakout Session Topic	Facilitator
Wood supply/Economic Impacts	Bob Wagner
Monitoring & Protection	Dave Struble
Forest Management Strategies	John Bryant
Policy, Regulatory, & Funding Strategies	Patrick Strauch
Wildlife Habitat Issues	Ken Elowe
Report Back & Wrap-up	Tom Rumpf

Breakout Session Topics

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PROJECTED WOOD SUPPLY & ECONOMIC IMPACTS

Assumptions:

- We can expect the pattern of defoliation during past outbreaks to be repeated: levels of tree defoliation will grow quickly during the first 5 years, reach a peak that lasts 5 to 10 years, and then decline rapidly over the next 5 to 10 years.
- No substitutions are made for lost spruce-fir volume during the outbreak.
- No change in market price of spruce-fir wood with increased supply during the outbreak.
- No real price change in spruce-fir stumpage over time.
- No change in the annual economic contribution of Maine forest products sector in 2011 due to pulp & paper mill closures.

Impacts:

- Once the next outbreak begins, it is reasonable to assume that levels of tree defoliation will grow quickly during the first 5 years, reach a peak that lasts 5 to 10 years, and then decline rapidly over the next 5 to 10 years.
- 5.8 million acres of spruce-fir stands across the state are at risk of some level of defoliation.
- A slow (40-year) recovery of the spruce-fir forest will follow the peak impact of the outbreak.
- The effects of the next SBW outbreak on spruce-fir volume or biomass (both in severity and rate of recovery) were similar, regardless of when the outbreak begins over the next few decades.

Measure of Effect	Severe Outbreak	Moderate Outbreak
Total volume loss over the next 40 years	12.7 million cords	6.4 million cords
Maximum annual volume loss relative to 2006-10 harvest levels	30% (494,000 cords)	15% (247,000 cords)
Economic impact (without mitigation effort)	\$794 million per year	\$397 million per year
Annual job loss in the forest products sector (without multiplier effects)	1,196 jobs	598 jobs

To significantly reduce the spruce-fir wood volume and associated economic impact:

- Adapt harvest activities in the coming years before or as early possible into the outbreak to reduce the area available in high-risk stands (i.e., those with high balsam fir and white spruce composition),
- Apply insecticide to protect foliage in high-risk and high-value stands that are not ready for harvest, and
- Salvage dead and dying trees where they occur.

Potential Moderating Influences

- The total area in the spruce-fir forest type today is 2 million acres smaller than there was at the start of the last outbreak in 1970.
- Balsam fir stands in northern Maine are younger than they were during the 1970s.
- There is more area in mixedwood and hardwood stands that contain more diverse communities of SBW parasitoids that will likely result in less damage.
- There is some indication of alternating severe and moderate outbreaks during the past century. The outbreak in the 1970s was severe, therefore, the next outbreak may be more moderate.
- There may be some moderating influence on the rate of spread (and perhaps eventual severity) because the prevailing winds would tend to carry major moth flights in a northeasterly direction away from Maine.
- Favorable climatic conditions for SBW outbreaks may be shifting northward.
- Impacts of the coming outbreak will likely not be as severe economically because of a significant shift in preference by Maine's forest products industry to hardwood pulp.

MONITORING

Assumptions:

- Monitoring SBW populations is required to understand how the outbreak is progressing and for predicting how much and where damage to spruce-fir forests will occur.
- Effective monitoring is the first requirement in deciding when and where to harvest high-risk stands or prescribing insecticide applications to protect valuable stands that are not ready for harvesting.
- Intensive monitoring also is central to implementing integrated pest management (IPM) strategies.

Recommendations:

- Engage the public in SBW monitoring by educating them and encouraging their direct participation in monitoring efforts.
- Increase the number of pheromone traps in host forest types across northern Maine.
- Investigate new remote-sensing technologies for improved monitoring.
- Share and compare monitoring data and predictions with neighboring jurisdictions (US and Canadian) to improve internal and partner analyses.
- Conduct egg mass or L-2 larval survey if pheromone trapping and/or defoliation surveys indicate a high probability of significant population intensification or areas with significant damage that might indicate the need for insecticide applications in valuable stands was identified by landowners.
- Assess strengths and weaknesses of ongoing trapping efforts and making adjustments as needed, especially with regard to partnership agreements, trapping density and locations, and overall data quality.
- Review landowner progress in adapting harvesting efforts to reduce the availability of high-risk stands and identifying high-risk stands that landowners may want to protect using insecticide applications.

PROTECTION OPTIONS

Assumptions:

- No more than 20% of the infested area would need to be treated for maximum insecticide protection benefit if the coming outbreak is as severe as the one in the 1970s. Therefore, Maine's SBW insecticide protection program during the coming outbreak will likely be much smaller than the one used during the 1970s-80s outbreak.
- Some forest landowners will choose to apply insecticides to protect high-value stands during the next outbreak.
- In contrast to previous outbreaks, insecticide applications on private forestlands will likely be funded and coordinated primarily by private landowners and delivered much as aerial herbicide treatments have been financed and coordinated on private lands over the past 30 years.
- Insecticide treatment costs will be 5-10 times higher per acre than they were during the last outbreak.
- Insecticide treatments are not anticipated to occur before 2016 or 2017 in Maine since no SBW defoliation has been observed yet. The only exception could be possible testing of an Early Intervention Strategy treatment at limited locations.

Recommendations:

- Forest landowners should assess and map high-risk and high-value stands on their lands that they may consider protecting with insecticide application during the SBW outbreak.
- The Maine Forest Service should develop plans for providing technical assistance on SBW management to landowners.
- The Maine Forest Service, Maine Forest Products Council, Maine Board of Pesticides Control, and UMaine should work collaboratively to develop a communications strategy about SBW, its effects, and the need for insecticide applications for forest protection in some situations.
- The Maine Forest Service and UMaine's Cooperative Forestry Research Unit should be actively engaged with US Forest Service and Canadian counterparts to ensure that Maine landowners and policy makers have access to the latest information and experience for controlling SBW damage.

FOREST MANAGEMENT STRATEGIES

Recommendations:

- Map the location, condition, and concentration of high-risk stands on their forestlands.
- Shift harvesting now and in the coming years towards merchantable higher-risk stands.
- Stop pre-commercial and commercial thinning within three years of the outbreak in stands where balsam fir and white spruce make up more than 50% of the composition, or where red spruce will be greater than 50% of the post-thinned stand.
- Prepare action plans to salvage (or pre-salvage) trees that will likely be lost through SBW mortality.
- Seek and encouraging markets for low-value trees from pre-salvage and salvage operations.
- Prepare a decision-tree and use it to identify areas that should be foliage protected using preferred insecticides.
- Conduct foliage protection programs for 1) pre-merchantable stands that are in high-risk categories; 2) merchantable stands that cannot be harvested in the short-term; 3) other high-value stands such as seed orchards and permanent research plots, using preferred insecticides as soon as is warranted.
- Track annual progress of the infestation by monitoring SBW population levels and distribution.
- Regularly communicate with government agencies and other landowners to understand how the infestation is moving and to develop plans to minimize the impact.
- Implement the above recommendations be as soon as possible before the outbreak begins.

POLICY, REGULATION, & FUNDING ISSUES

Recommendations:

- Review the Spruce Budworm Management Act to determine whether any changes are needed given likely changes in roles and responsibilities between the state government and private landowners in managing the next SBW outbreak.
- Determine the personnel, financial, and timing needs to implement the required SBW monitoring within the Maine Forest Service, and how supplemental labor and financial assistance from forest landowners will be provided.
- Build and expand on Maine Forest Service training programs and protocols for developing a joint state and private landowner collaborative monitoring program.
- Large landowners anticipating the need for insecticide applications should consider exploring options for developing a cooperative organization for coordinating and delivering aerial insecticide applications.
- Maine Board of Pesticides Control and Maine Forest Service should work with insecticide manufacturers to ensure that products currently registered in Maine are available in sufficient quantities, and that all state and federal regulatory compliance requirements have been met.
- Maine Forest Service and Maine Forest Products Council should work with Maine Boards of Pesticides Control to address obsolete requirements of 22MRS §1471-S (Requirement for spotters and monitors for aerial forest treatment projects).
- Maine Forest Service should work with Maine DEP to finalize a MEPDES general permit for forest canopy pesticide treatment.
- Maine Forest Service and Maine Board of Pesticides Control should develop an efficient public notification procedure that allows insecticide operations to occur in a timely and efficient manner once areas have been designated for treatment.
- Determining the best regulatory mechanism to establish a standards-based variance procedure that is scientifically sound and field-efficient.
- Prepare legislation defining the regulatory process for determining an expedited variance for areas categorized as high SBW risk where there is a strong likelihood of increased SBW activity.
- Determine financial and labor resources required for the Maine Forest Service to provide forest inventory data of sufficient accuracy to report statewide inventory changes resulting from adaptive harvesting to reduce high-risk SBW stands and salvage harvesting of dead and dying trees.
- Ensure that the MFS oversees the SBW program to ensure public accountability and facilitate reporting.

WILDLIFE HABITAT ISSUES

Assumptions:

Five wildlife issues are of greatest concern:

- Mature softwood songbirds
- Deer wintering areas (DWAs)
- Riparian zones and cold water fish habitat
- Early/mid-successional species of concern (lynx / snowshoe hare / moose)
- Rare northern butterfly habitat
- High-elevation habitats and bird species

Recommendations:

Mature softwood songbirds:

- Assess landscape-level impacts of SBW outbreak on stands and leaving a diversity of habitats across the landscape where possible.
- Leave unharvested patches near harvested units when salvage logging damaged stands.
- In stands with small amounts of balsam fir, consider salvage plans that maintain or increase the number of snags and future downed wood.
- Leave snags in riparian areas and pond buffers where possible.

Deer wintering areas (DWAs):

- Adapt harvesting to reduce high-risk SBW areas to focus on areas outside of current DWAs.
- Maintain viable, mature softwood cover within and adjacent to active DWAs where possible.
- Strengthen forest landowner and Maine Department of Inland of Fisheries and Wildlife (MDIFW) communications and combine expertise to address stand- and landscape-level management of DWAs during the outbreak.
- Explore funding or other options for insecticide spraying to protect high-risk DWAs.
- Incorporate SBW impacts on DWA habitat into MDIFW Deer Species Assessment and management goals.

Riparian zones and cold water fish habitat:

- Encourage protection of high-risk SBW stands using B.t.k. or other appropriate insecticide applications in watersheds that are critical for cold water fish species.
- Minimize salvage operations of high-risk SBW stands within riparian zones and watersheds near high-value cold water fish habitats.
- Maintain current riparian management standards and allow for natural tree death and woody debris additions to streams in SBW-killed areas.

Early/mid-successional species of concern (lynx / snowshoe hare / moose):

- Encourage forest landowners to naturally or artificially regenerate high-density softwood stands following clearcut salvage logging on severely damaged spruce-fir stands where possible.

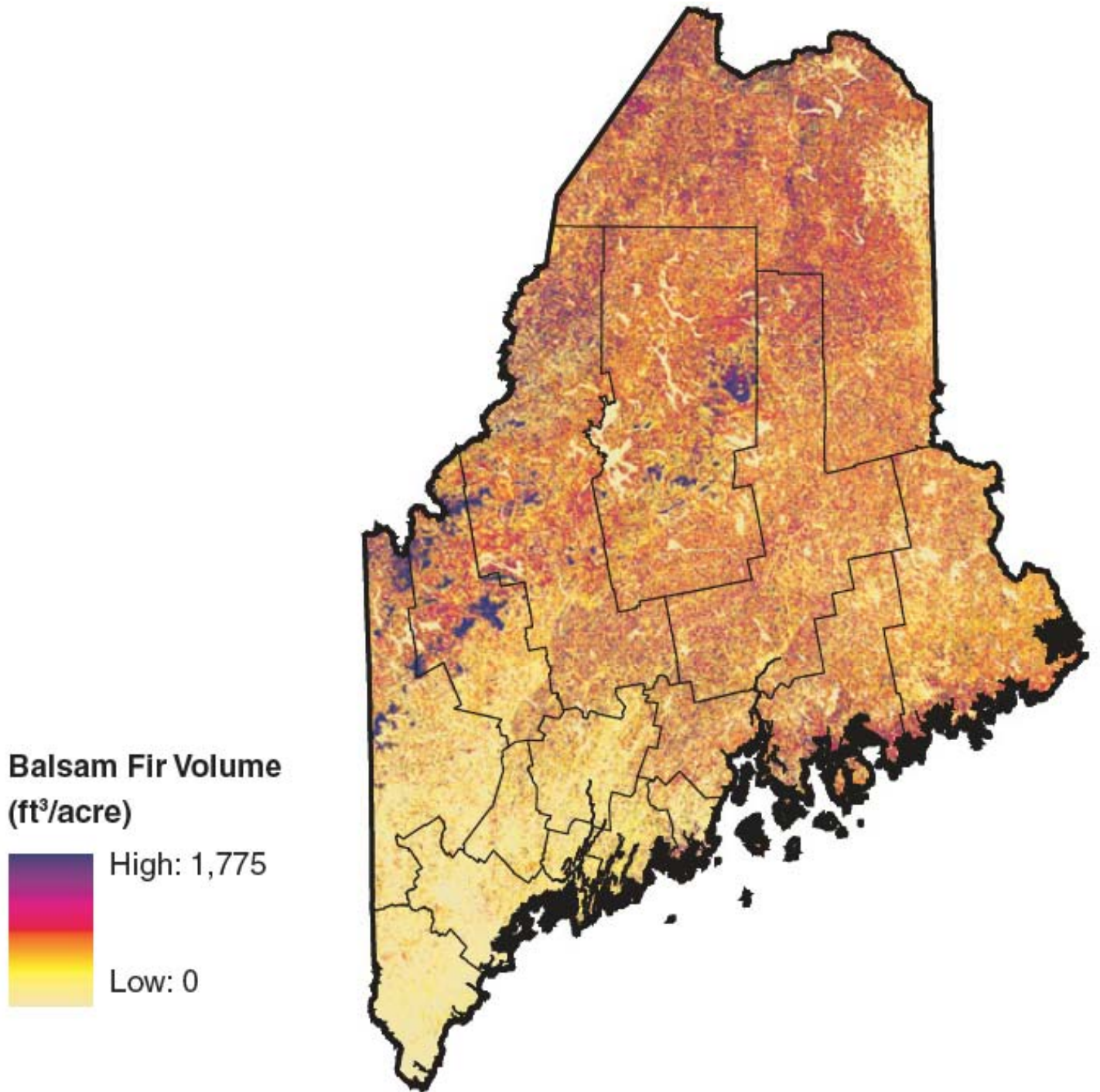
Rare northern butterfly habitat:

- Consult with MDIFW regarding a potential Incidental Take Permit under Maine's Endangered Species Act when aerial insecticide applications are anticipated in areas where any state-listed butterflies are known to occur.
- Use extra caution to ensure that appropriate spray buffer distances are used when SBW insecticides are used near populations of rare northern butterfly populations.

High-elevation habitats and bird species:

- Maintain existing harvest restrictions on high-elevation forests.
- Assess landscape-level impacts of SBW outbreak on stands to help ensure that a diversity of habitats is maintained across the landscape.
- Maintain or increase the number of snags and downed wood where feasible when salvage logging in mature higher-elevation spruce-fir stands.

Map – Balsam Fir Concentrations by Average Volume



INFORMATION RESOURCES

Cooperative Forest Research Unit:

http://www.umaine.edu/cfru/events/SBW_Caribou_10.09/SBW_Caribou.htm

Maine Forest Service:

http://www.maine.gov/dacf/mfs/forest_health/insects/spruce_budworm_2014.htm#strategy