Return of the Spruce Budworm to Maine

The **Spruce Budworm** (*Choristoneura fumiferana,* SBW) is a native moth capable of widespread outbreaks that can cause extensive damage and mortality to spruce-fir forests. Between outbreaks, SBW populations are so low that they can be difficult to detect. During outbreaks, heavy feeding by SBW larvae leads to obvious tree damage.

SBW outbreaks can last for many years. This sustained feeding can cause large areas of dead and dying trees which may provide fuel for wildfires to spread, reduce timber production, degrade water and air quality, and cause drastic changes to wildlife habitat.

Image: An aerial view of defoliation from spruce budworm in July 2024 in the T18R13 WELS region (Aroostook County). Note the reddish-brown needles indicative of spruce budworm feeding damage.

Quebec's most recent outbreak has been going on for almost two decades, causing more than 33.5 million acres of damage during that time. Canadian scientists have developed and tested an Early Intervention Strategy (EIS) for SBW, a management approach designed to suppress areas of small but growing SBW populations to prevent them from exceeding the outbreak threshold. This approach compliments population control from natural SBW predators and parasitoids by targeting small areas with caterpillar-specific insecticides.

Spruce budworm defoliation in Maine 2020

Because EIS is a successful approach for maintaining healthy spruce-fir forests, partners across Maine have identified an EIS approach as the best response to the return of SBW for the protection and health of Maine's forests.

The University of Maine Spruce Budworm Lab processes branch samples to monitor levels of overwintering SBW larvae and document populations that are at or above the EIS action threshold (seven larvae per branch). Beginning in 2021, EIS management has been implemented in northern Maine in areas where the populations have exceeded EIS thresholds.

In 2024, several surveys suggested SBW populations are building towards an outbreak in Maine. Maine Forest Service's 2024 aerial surveys documented roughly 3.5 thousand acres of defoliation from SBW in northwestern Maine. Larval surveys showed areas above EIS thresholds covering roughly 300,000 acres. In other areas of Maine, populations remain low – a condition that management strategies aim to maintain.

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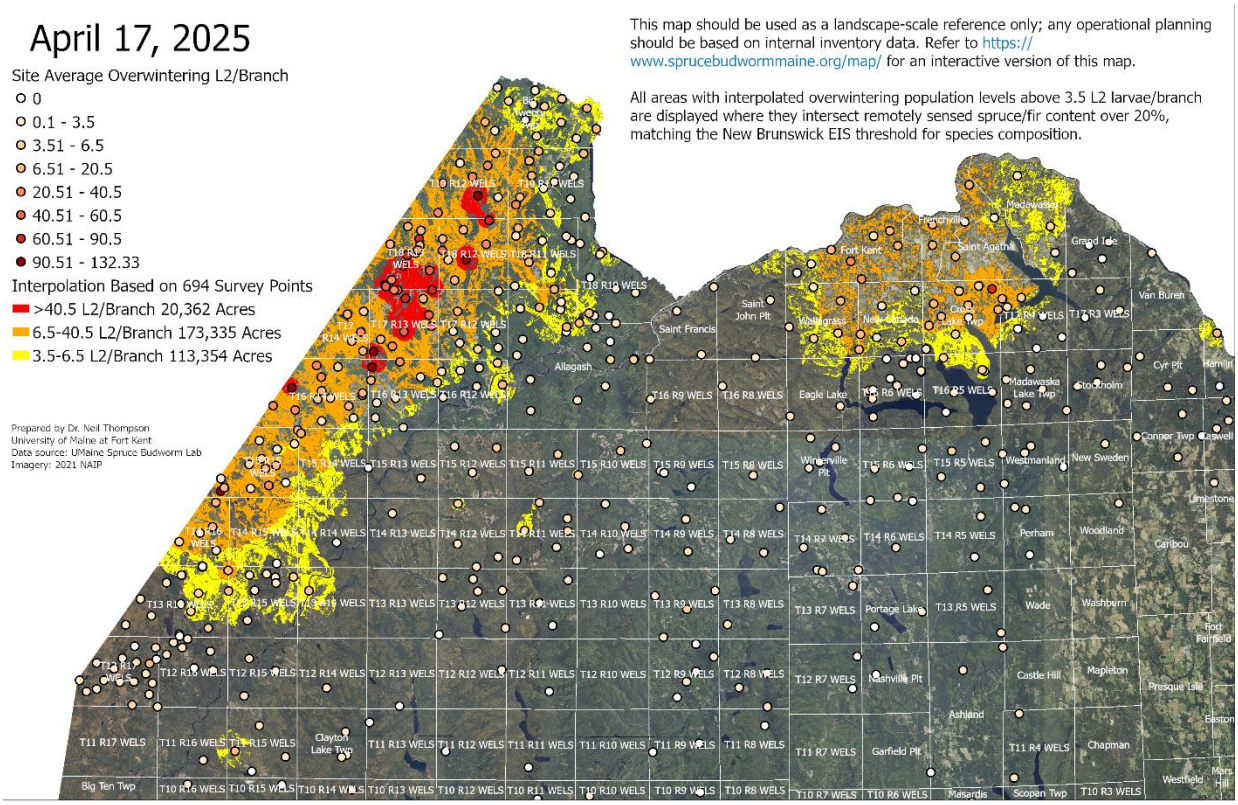
With the increase in affected areas, large landowners have formed the Maine Budworm Response Coalition (MBRC) to coordinate an EIS approach to SBW management in Maine. The goal is to prevent a widespread outbreak of SBW in the areas dominated by spruce and fir forestlands. To be most effective, this strategy will need to be implemented at the landscape scale and across all ownerships.

EIS can be looked at as a new tool in addition to those that have been used traditionally. Land managers are encouraged to continue to prioritize management of high risk stands before significant SBW populations build; to consider EIS where it is practical; and in areas where EIS is not practical, managers can plan to apply insecticides following a foliage protection strategy, conduct salvage or pre-salvage harvests, or have the option to take no action.

Owners and managers of smaller woodlots that may be impacted by spruce budworm are encouraged to reach out to the Maine Forest Service or their forester for information on assistance that may be available in the future.



Model of spruce budworm larval populations in Maine. Data is gathered by processing branch samples collected by a network of cooperators. Shading is clipped to exclude water and areas without appreciable spruce and fir trees. Source: N. Thompson, University of Maine Fort Kent, University of Maine Spruce Budworm Lab.