



**NWT COUNCIL**  
ON INVASIVE SPECIES,  
PESTS, AND PATHOGENS



An Eastern spruce  
budworm larva.  
Photo: GNWT



## Eastern Spruce Budworm

(*Choristoneura fumiferana*)

### BIOLOGY

The Eastern spruce budworm is a native species in the Northwest Territories (NWT). The larval stage feeds on the buds and current year needles of white spruce trees, beginning at the top of the tree and progressing downwards. Outbreaks are cyclical, with populations increasing to outbreak levels and then decreasing again approximately every 30 years.

### IMPACTS

The Eastern spruce budworm is considered the most serious forest pest in the NWT. During outbreak years, this insect can affect hundreds of thousands of hectares of forest in the NWT. The loss of needles weakens trees, making them more vulnerable to attacks by other insects. Trees that are attacked for multiple years in a row have reduced growth or may die if the damage is severe.

### MANAGEMENT

Aerial surveys and pheromone trapping programs are used to monitor for spruce budworm impacts in NWT forests. There are currently no control programs for Eastern spruce budworm in the NWT, but biological insecticides have been used elsewhere to suppress spruce budworm populations.



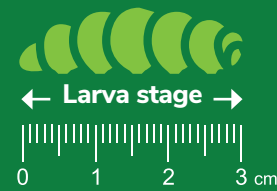
Eastern spruce budworm damage in Martin Hills, Dehcho. Photo: GNWT

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## IDENTIFICATION

About 2-3 cm long in the larval stage, the small caterpillar is green or brown with rows of small spots along the length of its body. As an adult, the moth has variably mottled wings, looking orangish, brown, or yellowish with dark streaking. Eastern spruce budworm forest damage is recognizable as defoliation of mature white spruce trees, progressing downwards from the tree top.



Eastern spruce budworm moth. Photo: Neil Thompson, University of Maine at Fort Kent, Bugwood.org



Eastern spruce budworm larva. Photo: Neil Thompson, University of Maine at Fort Kent, Bugwood.org

## RANGE

Found in every province and territory in Canada except for Nunavut. Its range coincides with that of fir, white spruce, and increasingly with the range of black spruce.

## HABITAT

In the NWT, the Eastern spruce budworm is generally found in mature stands of white spruce. It will also feed on black spruce and larch if population levels are very high during an outbreak.



Spruce needle rust (*Chrysomyxa* sp.) Photo: GNWT

## SIMILAR SPECIES

Another insect that causes similar forest damage is the yellow-headed spruce sawfly (*Pikonema alaskensis*), but it is usually found on young open-growing trees rather than mature stands. The damage from spruce needle rust may also be confused with that of the Eastern spruce budworm. Spruce needle rust is caused by several fungus species of the genus *Chrysomyxa* and causes yellowing needles from top of the tree downwards.



Yellow-headed spruce sawfly (*Pikonema alaskensis*). Photo: GNWT