

Going down: Budworm population declines in province

BY BRETT ANNINGSON

There's been some welcome good news in New Brunswick's forestry sector this year - a 90 per cent decrease in the spruce budworm population, the first decrease since 2014.

"Last year we had 120 hot spots at about 220,000 hectares that we managed," explains Dr. Rob Johns, a research scientist who is in charge of forest insect ecology for the Atlantic Forestry Centre in Fredericton. "This year we have only needed to manage 10,000 hectares."

Added Johns: "Each year we go out and look for hot spots, locations where density (of the budworm) has passed a certain threshold – seven larvae per branch – which is when they are prone to go into a full outbreak. And this year there was a 90 per cent reduction."

He said this is believed to be due in part to natural mortality. Because of the weather, or an increase in predators like birds, wasps, and parasites, more budworm died off.

The Healthy Forest Partnership website defines the spruce budworm as a native insect that is considered by many as the most serious pest affecting the forests of eastern Canada. The budworm spends the winter as a tiny larvae hibernating in the cracks and crevices on the branches of trees, but when

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Trapping spruce budworm. The intervention strategy used in New Brunswick to fight the budworm problem is monitoring and control. PHOTO: HEALTHYFORESTPARTNERSHIP.CA



New Brunswick’s reduced spruce budworm population is believed to be linked to factors like weather, predators and the province’s early intervention strategy for fighting budworms. PHOTO: HEALTHYFORESTPARTNERSHIP.CA

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spring arrives the larvae emerge and begin feeding on needles and buds of fir and spruce trees.

Those brown caterpillars eventually become grey moths and end up laying another 200 or so eggs on the bottom of the needles, starting the cycle over, says healthyforestpartnership.ca.

The rise and fall of spruce budworm devastation has peaks and valleys. As explained on the website, the latest

outbreak began in Quebec during the summer of 2006 and has since expanded to cover more than eight million hectares. In 2014, budworm populations began rising in New Brunswick.

However, that situation is now changing for the better and an official with the province’s Department of Energy and Resource Development says their budworm intel is solid.

“Our information, which comes from intensive monitoring using aircraft, allows us to be quite confident

that relative to two years ago, populations and damage associated has been brought down to a very, very low level,” said Chris Norfolk, the department’s director of forest planning and stewardship.

“The report from my crews is that they are having a very difficult time finding an impact. It is down to what we would call trace to light defoliation contained in a small area of the northern province.”

In addition to weather and predators,

the province’s early intervention strategy is also believed to be a factor in the current decline of the budworm. The strategy involves monitoring and control and Johns likens it to the body fighting a virus: while the body has natural responses and remedies, it doesn’t hurt to take a pill to give it a little help.

The help in this case, he said, is BTK, or *Bacillus thuringiensis kurstaki*, a bacteria found in soil in the natural environment and also what is sprayed for

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forest management.

(In a previous interview, he said BTK has no known toxic effect on other beneficial insects, humans, other mammals, birds, fish or plants.)

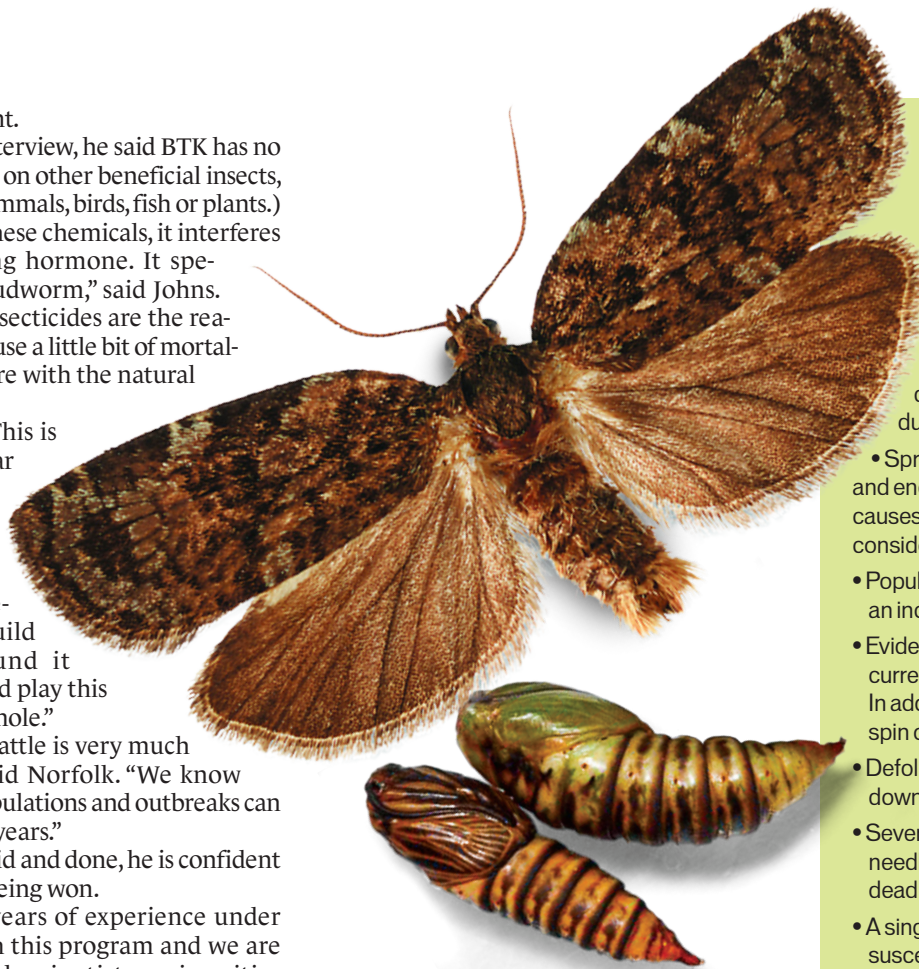
“When we use these chemicals, it interferes with the moulting hormone. It specifically affects budworm,” said Johns. “These types of insecticides are the reason that we can cause a little bit of mortality but not interfere with the natural ecosystem.”

Added Johns: “This is the game; each year we monitor, look for hotspots, and that depends on migration coming in from Quebec. And then build our blocks around it and treat them and play this game of whack a mole.”

The budworm battle is very much “a long game,” said Norfolk. “We know that budworm populations and outbreaks can last more than 15 years.”

But after all is said and done, he is confident that the battle is being won.

“We have five years of experience under our belt now with this program and we are collaborating with scientists, universities and citizens, and the evidence gives us confidence that we are being successful,” concluded Norfolk.



A ‘most serious pest’

- A native species, the spruce budworm is considered the most serious pest of fir and spruce forests in eastern North America. Its range coincides with that of fir and white spruce, and increasingly black spruce.

- The spruce budworm causes the most damage in overmature fir stands. White, black and red spruce are also defoliated. Other species such as tamarack can be consumed during outbreaks.

- Spruce budworm population cycles are characterized by epidemic and endemic phases, and outbreaks occur every 30 to 40 years. The causes of outbreaks are still debated, but climatic factors have been considered, along with changes in natural enemy abundance.

- Population collapse is attributed to resource depletion, disease and an increase in the impact of natural enemies.

- Evidence of a spruce budworm infestation includes defoliation of current-year shoots and the presence of larval nests and excrement. In addition, if an infested branch is disturbed, large numbers of larvae spin off the tree with strands of silk.

- Defoliation begins at the top of the tree and quickly progresses downwards.

- Severely affected stands turn a rust colour as a result of dried-out needles held by strands of silk spun by the larvae. In the fall, most dead needles fall off. Defoliated stands take on a greyish appearance.

- A single year of defoliation weakens the tree, making it more susceptible to attack by other insects.

SOURCE: NATURAL RESOURCES CANADA WEBSITE, WWW.NRCAN.GC.CA

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