Insects and Disease

Saskatchewan has a Forest Insect and Disease Strategic Action Plan.

Why it matters

Saskatchewan's boreal forest contains a wide variety of insects and diseases. They are all an important part of the forest. They play a part in determining the composition of forest species. They also define the way all parts of the forest ecosystem interact with each other.

Insect and disease populations in the forest change due to the effects of parasites, predators, suitable host numbers and climatic conditions. When conditions are favourable, insect and disease populations grow very rapidly and can reach epidemic levels.

The impacts of climate change and changes in annual weather patterns may affect the numbers and distribution of native and invasive forest pests. Range expansion and changes in biology, length of season and outbreak duration and frequency, can magnify economic and environmental impacts over time.

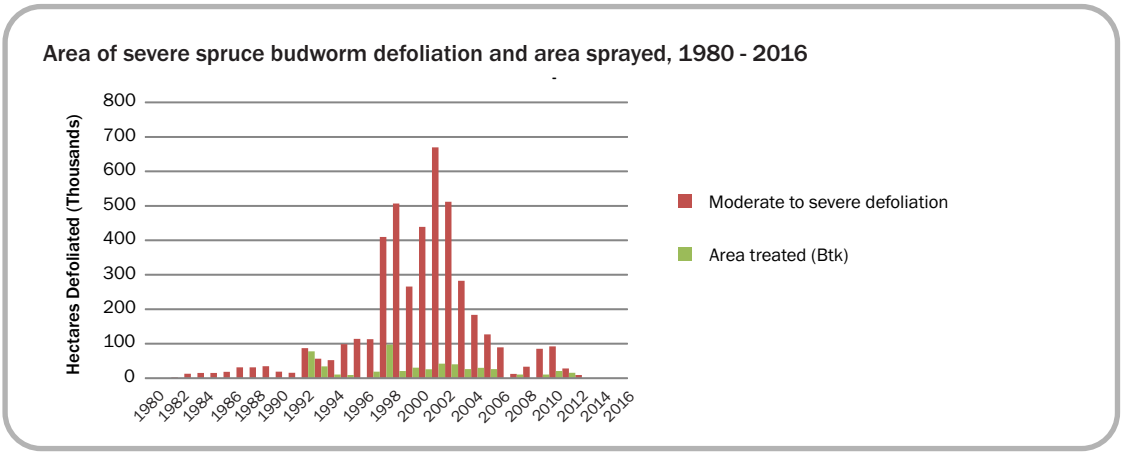
What is happening

Spruce Budworm

The spruce budworm (Choristoneura fumiferana) is a periodic defoliator of spruce and Balsam Fir trees across Canada. Outbreaks typically last from 10 to 12 years with approximately 30 years between outbreak peaks. The last outbreak in Saskatchewan ran from 1982 to 2012 and created large areas of severe defoliation.

Selected areas were treated with Btk (Bacillus thuringiensis kurstaki), a reduced-risk pesticide that uses a naturally occurring soil bacterium as the active ingredient. To be effective it must be eaten by the target caterpillars. The strain used against spruce budworm in Saskatchewan is harmless to beneficial insects such as bees and does not affect fish and animals. Vulnerable spruce stands were selected for treatment to reduce the impact of spruce budworm and protect high-value forest stands.

Since 2002, defoliation by the spruce budworm has gradually declined. The infestation reached its peak in 2002 and returned to pre-outbreak levels by 2008. Aerial surveys in 2014, 2015 and 2016 show no areas of defoliation for the first time since the early 1990s.



Mountain Pine Beetle

The most significant forest insect threat to pine forests in Western Canada is the mountain pine beetle (Dendroctonus ponderosae). Outbreaks of mountain pine beetle have occurred in the Cypress Hills. The previous outbreak took place in the 1980s and collapsed by 1984. There is a current outbreak that began in 2007, and that peaked in 2014 and now is in a decline. Although this insect is native to the lodgepole pine forests of the Cypress Hills area, it is not native to the boreal forest ecosystems of northern Saskatchewan. Typically, mountain pine beetles attack over-mature, stressed and weakened trees. When populations grow, widespread epidemics that kill millions of hectares of healthy forest can occur. Research has shown that the mountain pine beetle can colonize and breed in jack pine forests. It is a significant risk to jack pine across Canada.

Since 2009, the mountain pine beetle has spread slowly through Alberta. The risk of mountain pine beetle continuing to spread eastward and establishing in Saskatchewan's boreal jack pine forests is the primary threat to sustainable forest development. Saskatchewan continues to work in partnership with Alberta to restrict mountain pine beetle from spreading eastward into our northern forest.

Annual surveys are conducted to monitor and map the area, extent and severity of disturbances across the forested parts of the province. Aerial surveys are conducted each July, and affected areas are mapped. Insect and disease damage detected during aerial surveys is verified on the ground.

What we are doing

Saskatchewan has strategic planning in place to manage forest insects and disease. This planning identifies the resources needed to monitor and control insects and diseases. This includes a mountain pine beetle strategy for Saskatchewan. As part of this strategy, a pine forest inventory south of Meadow Lake Provincial Park has been developed. This expanded inventory helps us to understand the distribution and extent of vulnerable pine forests. Saskatchewan has the opportunity to focus on preventative approaches instead of solving problems after they occur.

Saskatchewan bans the transport and storage of pine forest products with bark attached from British Columbia, Alberta and the United States. In 2002, the Government of Saskatchewan set regulations to prevent the spread of mountain pine beetle into the province. In July 2008, this restriction order was strengthened by designating the mountain pine beetle as a pest under *The Forest Resources Management Act*. The 2008 order also designated lands where the transportation ban is to be enforced. This gave provincial officials greater powers of inspection and broader tools to prevent the beetle's spread.