

# The costs of clearcutting: The impact of forestry on insects

## Key Issues

Healthy insect populations are essential to the biodiversity and commercial value of Nova Scotia forests, but are being seriously impacted by on-going inappropriate forestry operations. Consequently, there is a continually declining capacity to support healthy forests, increased disease at the stand-level and declining capacity to support biodiversity (particularly birds) that depend on insect populations.

## Background

Insects are major ecosystem players; beetles, butterflies, bees and a host of other insect “bugs” support forest ecosystems in Nova Scotia. Insects are the major herbivores and play a pivotal role in the decomposition of plant material upon which the replenishment and accumulation of soil nutrients in our forests depends. Our forests – and the biodiversity and commercial opportunities they support – cannot exist without insects.

Forestry monocultures and practices that limit tree species diversity create ecosystem imbalances. This may cause some insect species (including those that damage trees and that are referred to as “pests”) to thrive while other species (including those that control “pests”) decline. Insect populations that thrive may be seen as an “infestation” in stands that have commercial or other value; these infestations, however, are frequently the consequence of the inappropriate creation of a monoculture (or similar) in the first place. Invasive insects from other parts of the world may also enter our forests; these may cause disproportionate damage because our native plants lack the defence mechanisms to keep populations low and our native ecosystems lack species to prey on these “invaders”.

In Nova Scotia – and Canada generally – insects are rarely studied or monitored. In Sweden, with a similar forest, there are an estimated 5000 species of beetles alone. Of these, over 1000 are red-listed under criteria that reflect different levels of threat; this very high proportion is primarily due to forestry activity. Forestry practices in Nova Scotia are not superior to those in Sweden from an ecological perspective, but our knowledge base of insect health in the forest is certainly less developed. There is therefore every reason to believe that forest insect populations in Nova Scotia are at least comparably stressed to those in Sweden.

The Government of Nova Scotia has stated that “*Nova Scotia’s forest policies and operational decision making will be guided by the practice of ecological forestry....*” and that “*Nova Scotia will protect and enhance ecosystems and biodiversity as the overarching policy priority, as they are the foundation for other values*”. Notwithstanding this commitment, the draft Silvicultural Guide the Ecological Matrix (revision 16 December 2020 – “SGEM”) fails to specify or define insect species health as a component of the pretreatment assessments (PTA’s) that are to be the basis of ecological forestry.

## Solution

The Government of Nova Scotia should recognize the centrality of healthy insect populations to the health on Nova Scotia forests, and should reflect this through the following actions:

1. Implement a forest ecosystem insect research program, financed by a levy on forest harvests
2. Establish science-based criteria for defining healthy insect communities in the forest context
3. Establish specific requirements for PTA's to address healthy insect communities in accordance with the science-based criteria such that harvests are permitted only at levels that ensure the maintenance of those communities within those criteria.

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## Further Information:

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