

The spruce bark beetle outbreak in Sweden initiated by the exceptionally warm and dry 2018 summer



Photo Göran Liljeberg

Outbreak start 2018

Warmest summer in southern Sweden since measurements started in 1860s

Almost no precipitation May - July

3 - 4 million m³ killed in southern Sweden (largest volume recorded for a single year)

Many killed trees still green in autumn (attacked somewhat later in summer)

Research study: Low attack density and high reproductive success



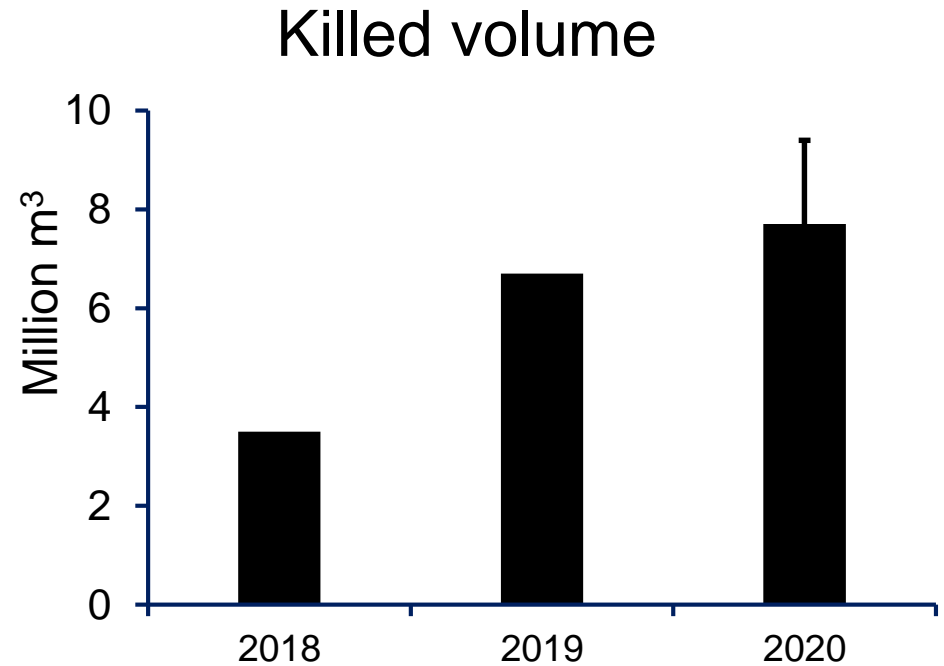
Outbreak development

2018 - 2020 = 18 million m³
southern Sweden (2.3%
growing stock spruce)

Mainly *Ips typographus*
(*P. poligraphus*, *P. chalcographus*)

Largest outbreak!

1961 - 2020 = 30 million m³
(six outbreaks)



Estimated from reference
forest properties and plot
survey in 2020

Handling of outbreak

Swedish Forest Agency:

Project "Stop the bark beetles" with stakeholders
(WPs: Control methods, Survey & Monitoring,
Protected areas, Logistics, Communication)

Digital maps: "Risk stands" and "Stands with
possible attacks"

Monitoring SBB flight activity (also stakeholders)

Communication and education to alert forest owners

Climate adaptation of forestry (more pine and
birch)

Control

Cutting of attacked trees (forest companies and forest owner associations):

(1) Salvage timber value (special assortments have been created)

(2) Remove bark beetles from forest (most efficient when larvae)

Largest challenges:

Early detection attacked trees

Capacity and market



What happens now?

Previous outbreaks in Sweden have ended long before all spruce forest is killed

Research project indicates that reproductive success in killed trees was low in 2020

Scenario normal summer 2021:

Most probable is lower damages (but still large)

Scenario 2018-summer 2021:

Same or higher volumes killed

Important to utilize outbreak for research!
(population dynamics, stand types most at risk, efficiency of control methods)