

# Current bark beetle outbreaks in Central Europe

Causes, impacts and future developments



FOREST WEEK

2 - 6 November 2020

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TOMÁŠ HLÁSNÝ, CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE, FACULTY OF FORESTRY  
AND WOOD SCIENCES

Menu

EurasiaTimesFR EN

Germany and France report forestry collapse

23 Jul 2019 by Eurasiatimes

EnergyEuropean UnionFinanceIndustry



This Tiny Bug Could Put a \$625 Million Hole in Sweden's Forests

By Jesper Starn  
7. května 2019 6:00 SELČ

► Spruce bark beetle caused more damage than wild fires in 2018

► AI, satellites are joining fight against the miniscule beetle

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KONZERT

Bundeswehrsoldaten starten Einsatz gegen Borkenkäfer im Harz

HARZGRÖDFAWERNICFRODF. Von Dienstagmorgen an sollen die Soldaten gemeinsam mit Forstexperten betroffene Fichten markieren und fällen sowie entrinden.



DAILY NEWS / GLOBAL TRENDS / MARKET ANALYSIS / FORESTRY / LUMBER / SAWMILLING / WOOD PRODUCTS / EUROPE / GLOBAL

🕒 September 21, 2020

Bark beetles are ruining Swedish forests at a record pace



Germany's forests decimated by insects, drought

Rising temperatures and droughts have made trees in Germany more vulnerable to attacks by bark beetles and other insects. That's led to a nearly sixfold jump in trees destroyed by pests over the past two years.


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🕒 October 27, 2020

France: Estimates see a doubling in bark beetle wood volume in 2021





# Tiny beetle, large-scale problem

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Bark beetles co-evolved with trees over millions of years

They support cycle of nutrients, serve as a food for other species, create diverse forest structures

In managed forests, however, beetles are our competitors and conflicts emerge

Is the beetle a friend or foe?



# Not only bark beetles and not only in Europe

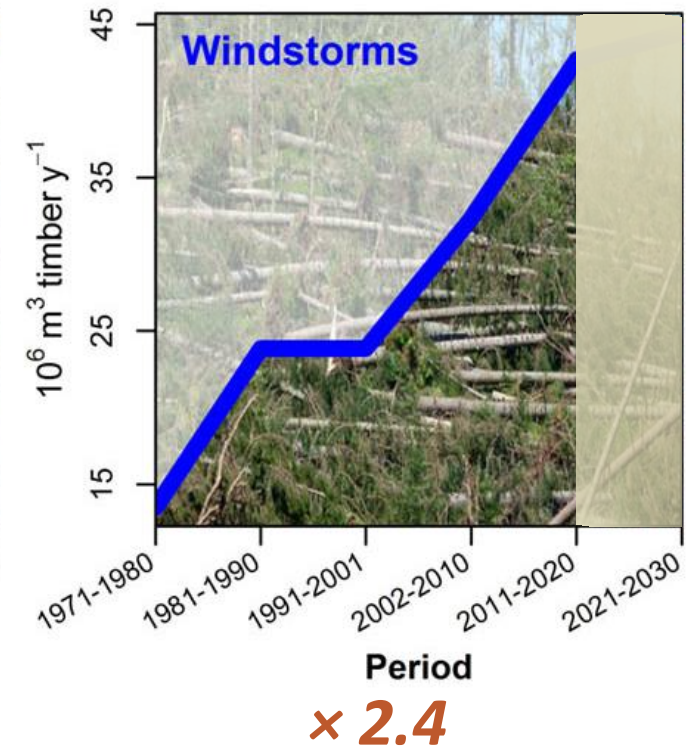
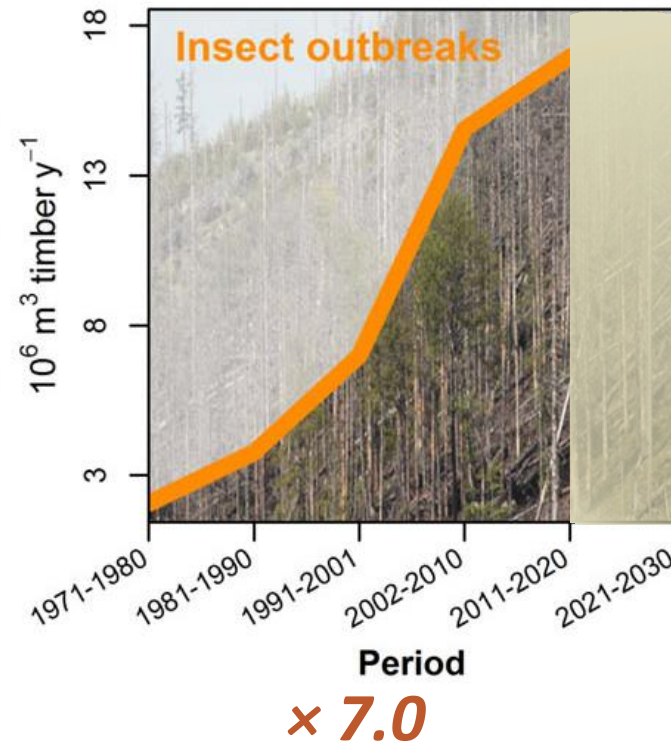
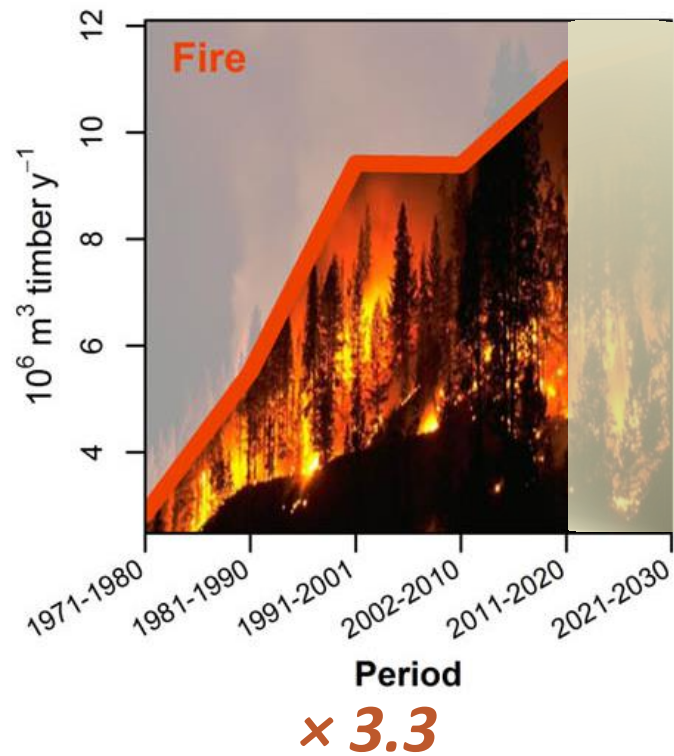
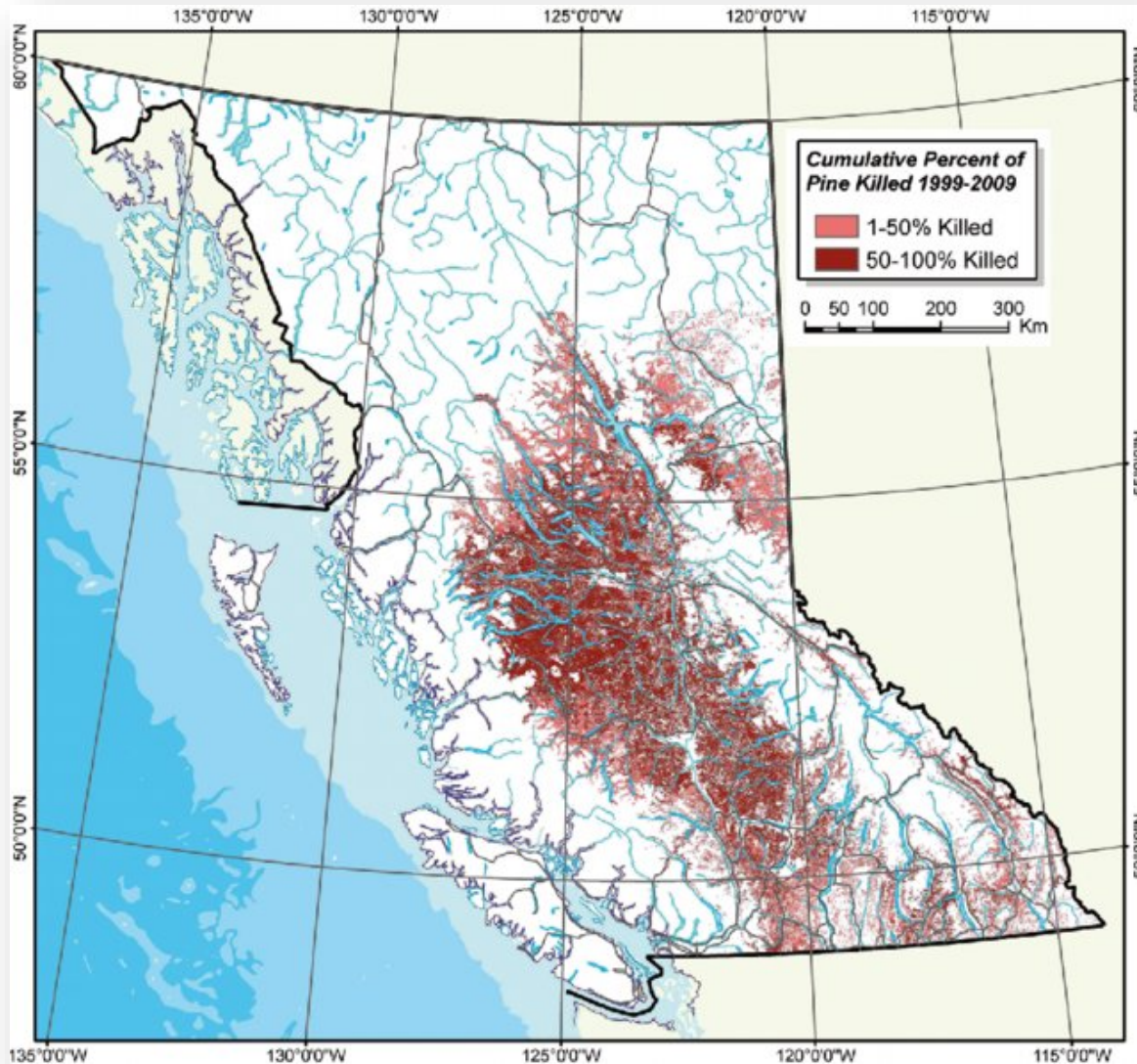


Figure credit: S. Thom



# Pines in North America

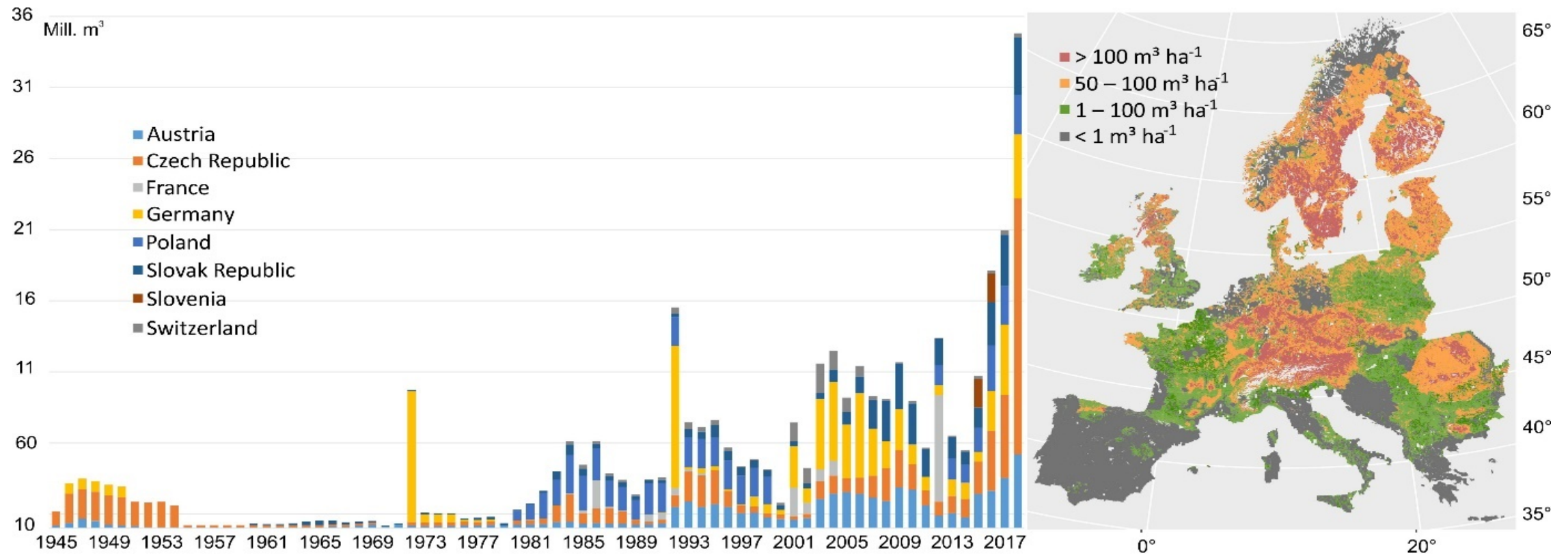


Walton A., 2010: Provincial-level projection of the current mountain pine beetle outbreak: update of the infestation projection based on the 1999 to 2009, Provincial Aerial Overviews of Forest Health (BCMPB. v7)



<https://www.nationalgeographic.com/magazine/2015/04/pine-beetles-forest-destruction-canada-rockies/>

# Outbreaks in Europe



Hlásny et al. under review; by M-J. Schelhaas, WUR



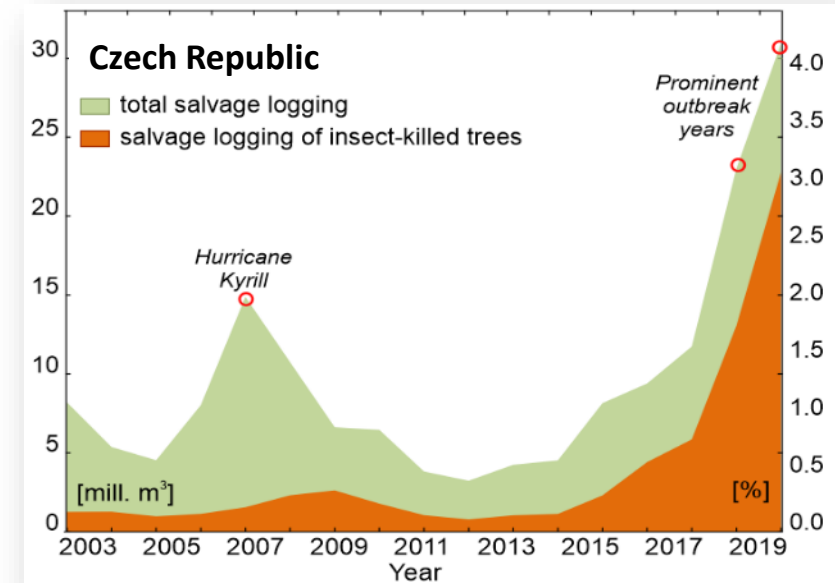
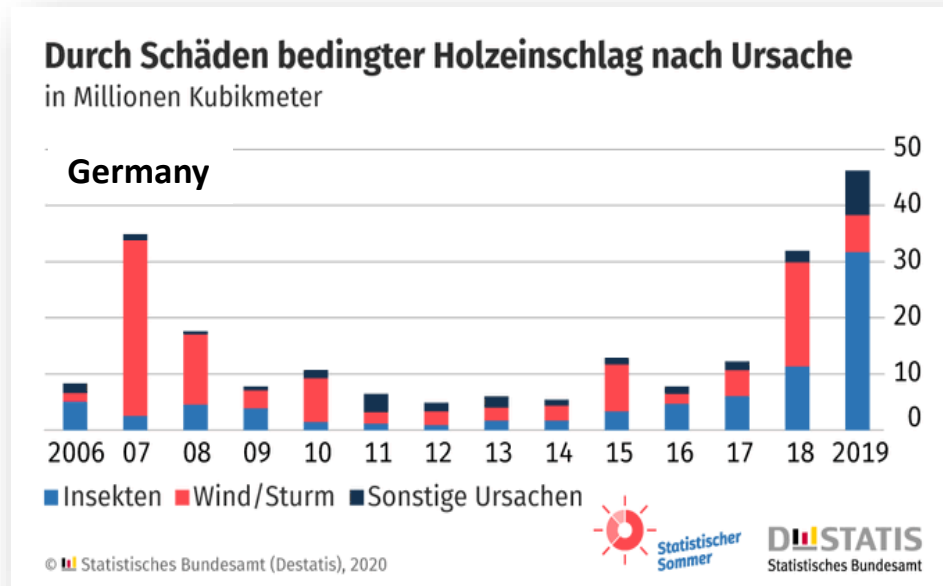
# What makes the current outbreaks special?

Bark beetles are becoming a major agent

Outbreaks occur synchronously over large territories

Are predominantly driven by extreme climate

Keep intensifying



# Why is it happening right now?

Coincidence of extreme weather and unfavourable forest structure

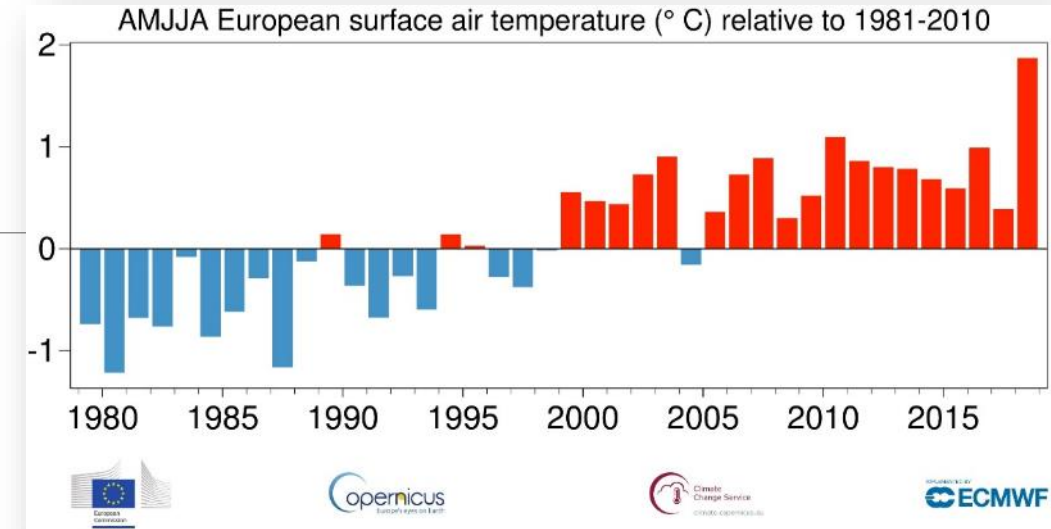
Increasing temperature, series of climatically extreme years

- Trees weakened, beetle's development accelerated, outbreaks synchronized over large areas

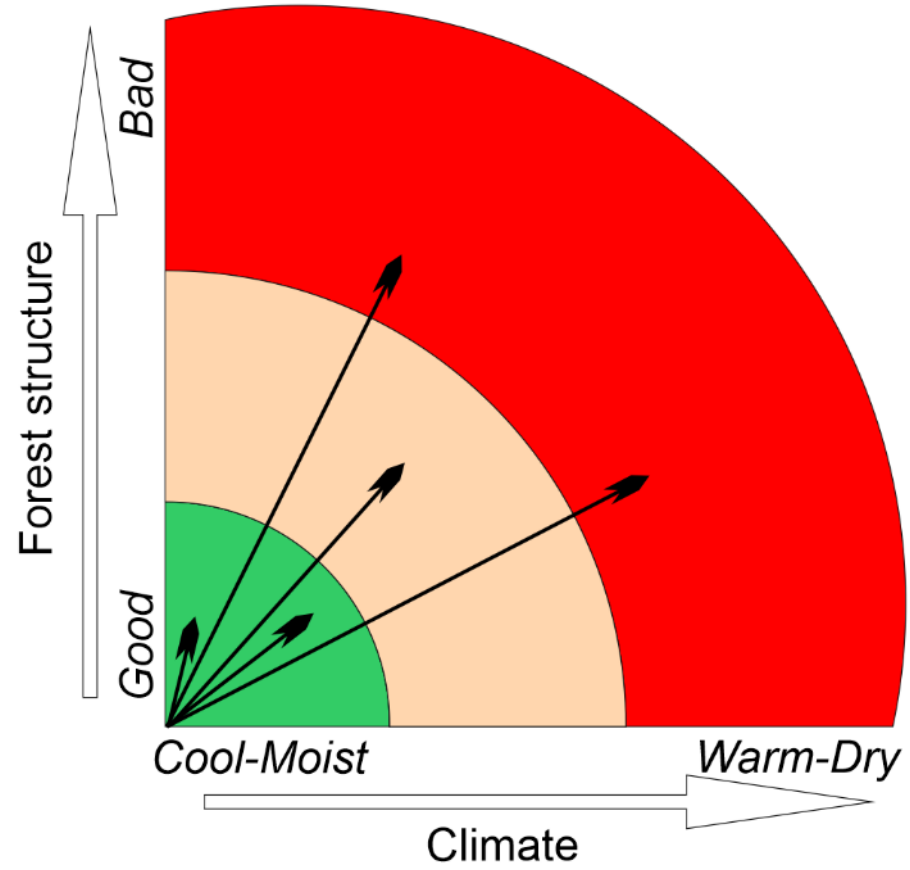
Legacy of historical forest management

- Long-term focus of productivity rather than on stability and resilience = overly homogeneous structure, high growing stock, etc.

Ecological tipping points are crossed, unfolding large-scale forest transformation







# The Czech Republic as Europe`s epicentre

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34.1 % of forests, 2.67 mill.ha

Norway spruce 50%

Forest rotation age ca 115 years

GDP of the forestry sector 0.5-0.8 %

13.5 th. of people employed

State owned forests 55%





# Outbreak in numbers

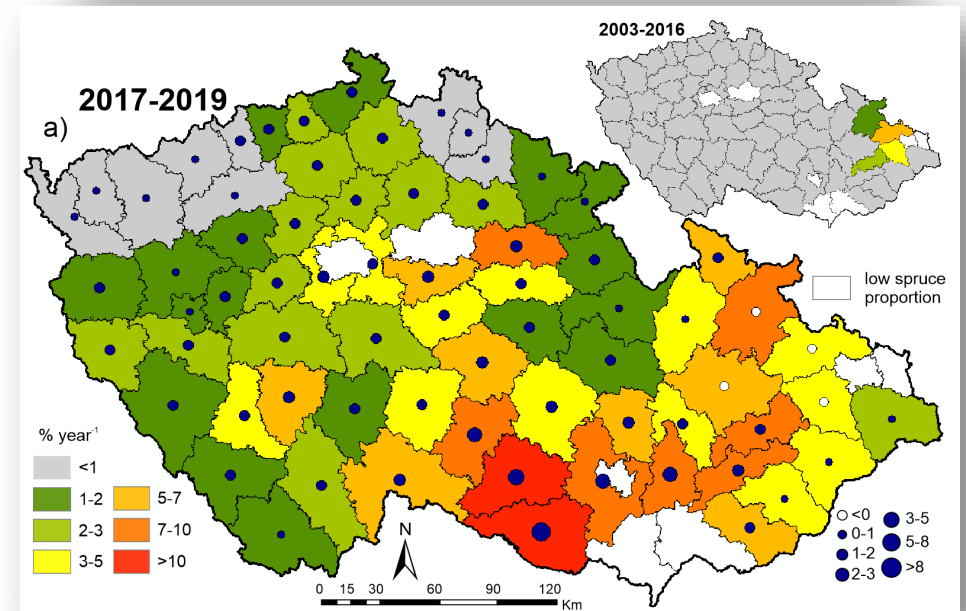
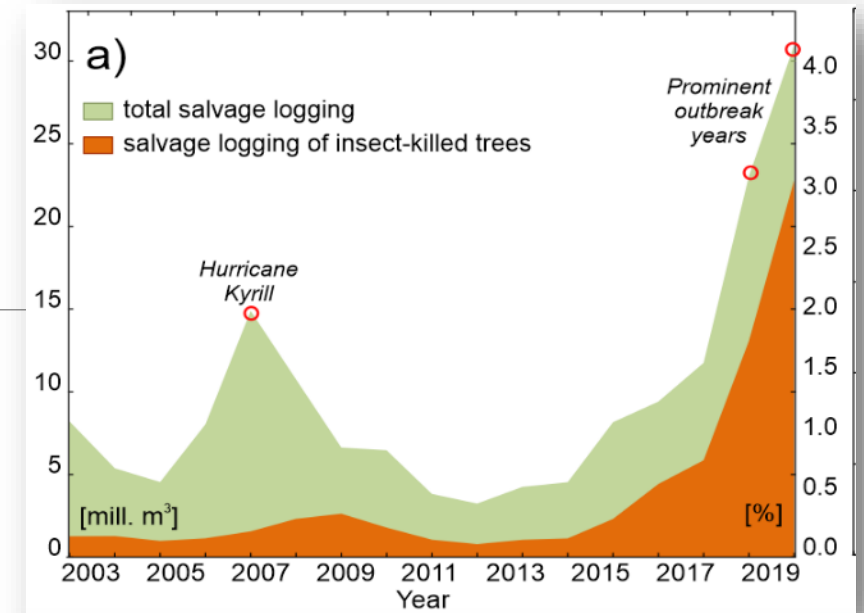
Trees killed by beetles and salvaged increased from ca 1.5 to 23 mill. m<sup>3</sup> within 4 years

Spruce growing stock decreased by 16% from 2014-2015 to 2019

Spruce log price decreased from 84 to 57 Eur

Main state forest enterprise (45% of forest land)  
-30 mill Euro in 2019

Ca 400 mill m<sup>3</sup> of spruce still remains in the forest,  
approximately 70% on the beetle's radar



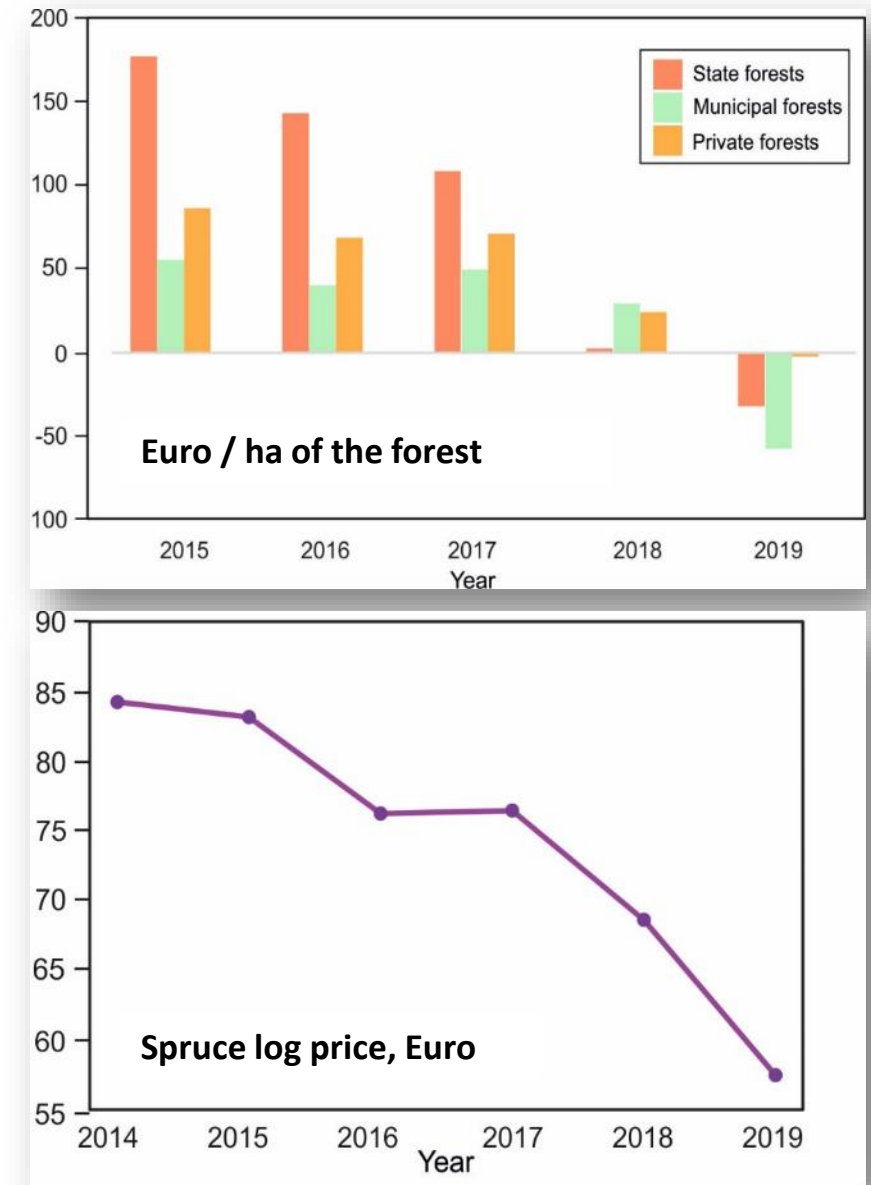
# Issues and impacts

Logistic bottlenecks along the entire processing chain

Ca 13 000 ha of protected areas affected

Social impacts, reduced life quality

Increased awareness, new level of dialogue between stakeholders, volunteering, etc.



Source: Ministry of Agriculture of the Czech Republic, Green Reports



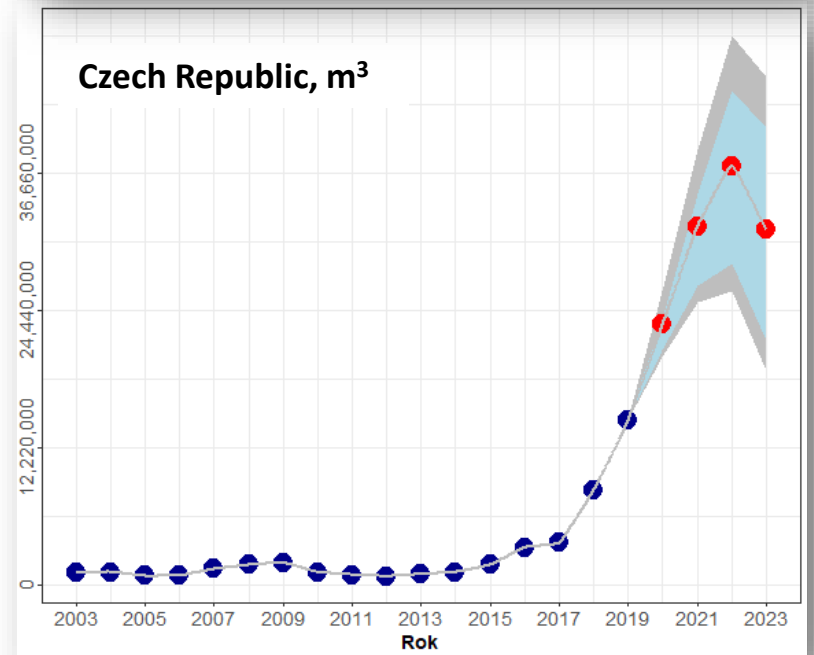
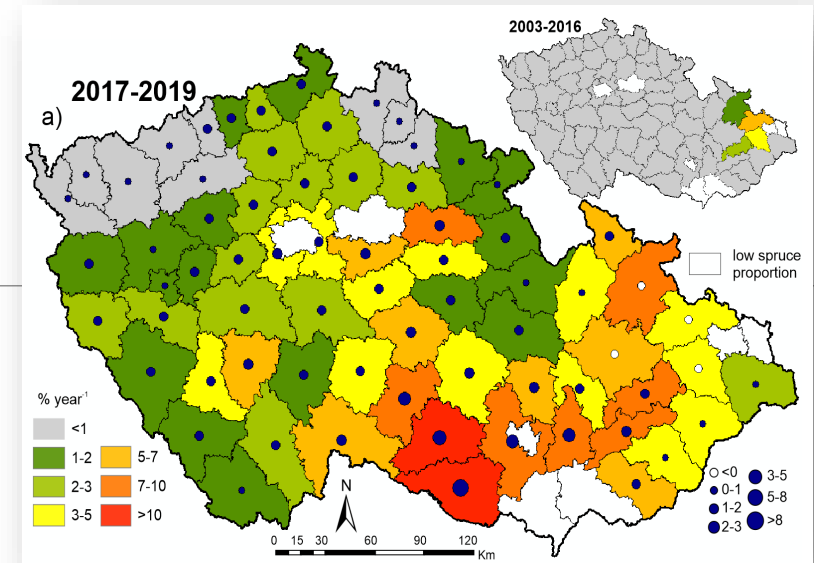
# Prospects

„Stabilization“ is unlikely in the coming years

Impacts may be coming in waves

Depletion of resources is most likely reason of outbreak decline

Surprises need to be expected, making planning difficult



# Summary

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The current outbreaks are just a tip of the iceberg

Major driving processes are global and thus beyond the control of operative management

Management needs to resolve the trade-off between mitigating the instant impacts and a forward-looking treatment of affected forests

Shape of the new forest generation depends on today's decisions!





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Thank you for your attention

# Living with bark beetles: impacts, outlooks and management options



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