Current state of bark beetle outbreaks in Poland

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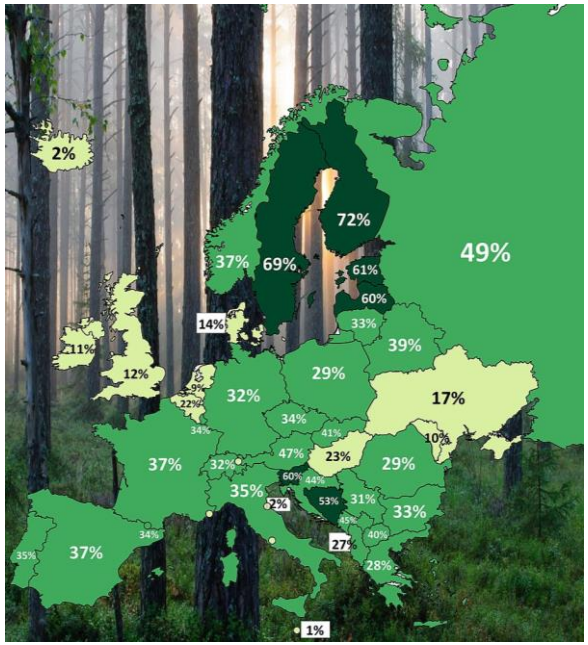
Forest Research Institute

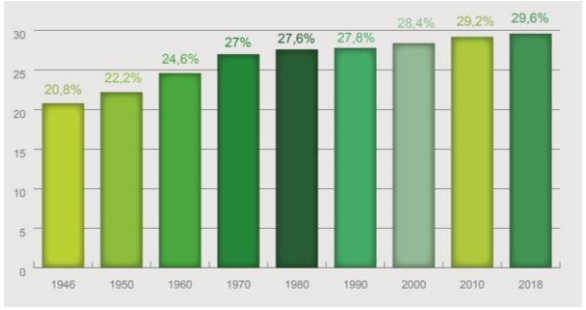
Outline

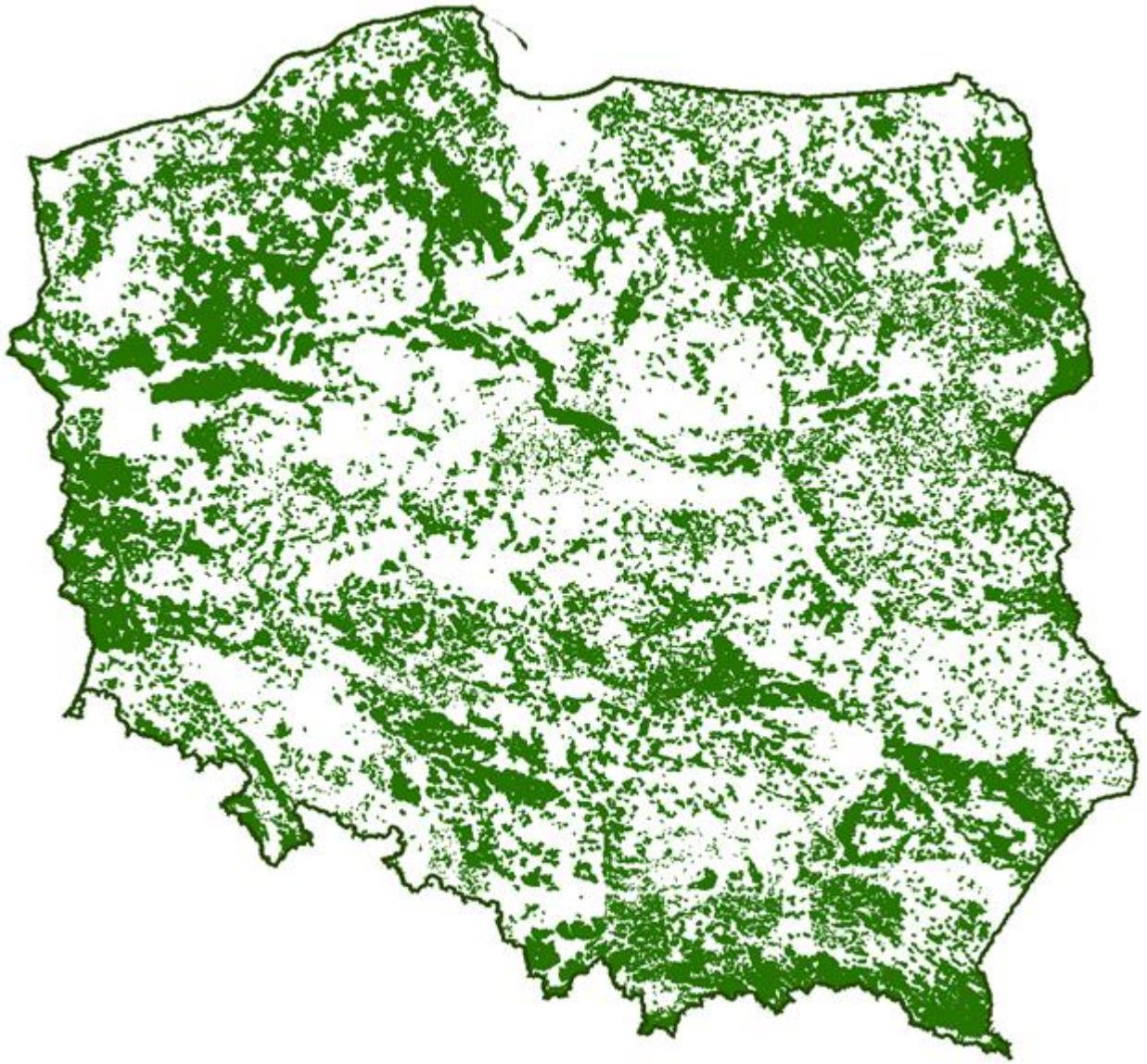
- Forests in Poland
- Recent outbreak of ***Ips acuminatus***
- History and dynamics of ***Ips typographus*** outbreaks
- Monitoring and control of bark beetles in Poland
- Current research on *I. acuminatus* management

Forests in Poland

Forest area: **9.3 mln ha**
Forest cover: **29.6%**



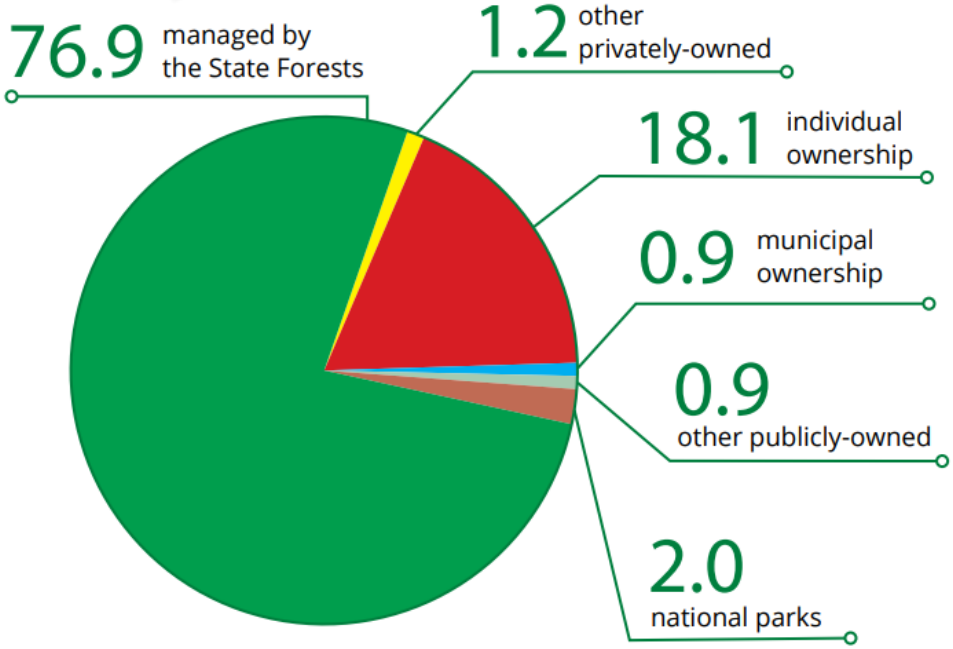




Forests in Poland

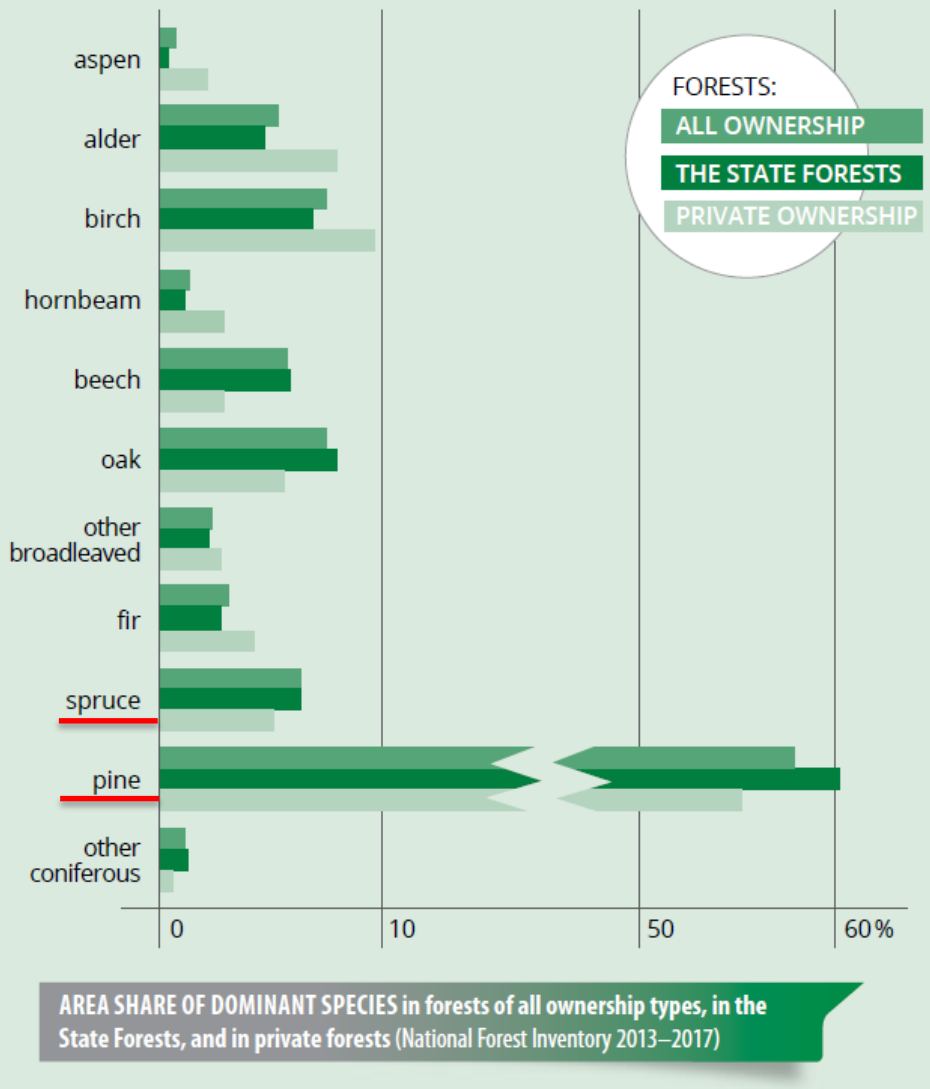
The State Forests management model:

- 1 General Directorate of the SF
- 17 Regional directorates of the SF
- 430 Forest districts



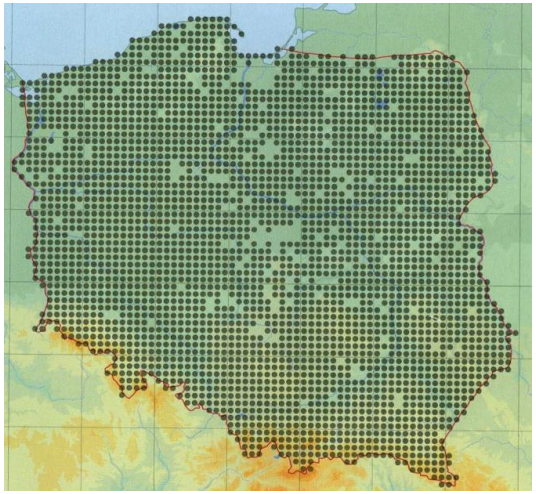
FOREST OWNERSHIP STRUCTURE (%) IN POLAND (Central Statistical Office)

Main tree species



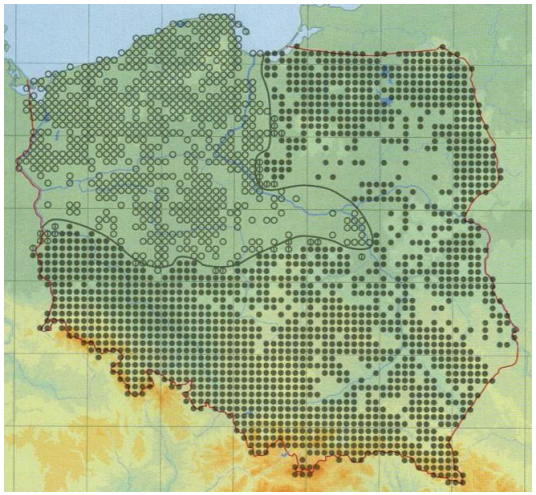
AREA SHARE OF DOMINANT SPECIES in forests of all ownership types, in the State Forests, and in private forests (National Forest Inventory 2013–2017)

Scots pine – *Pinus sylvestris*



cover: **58.2%**
mean age: **60**

Norway spruce – *Picea abies*



cover: **5.8%**
mean age: **54**

Bark beetle outbreaks in Poland

Ips acuminatus

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Ips typographus

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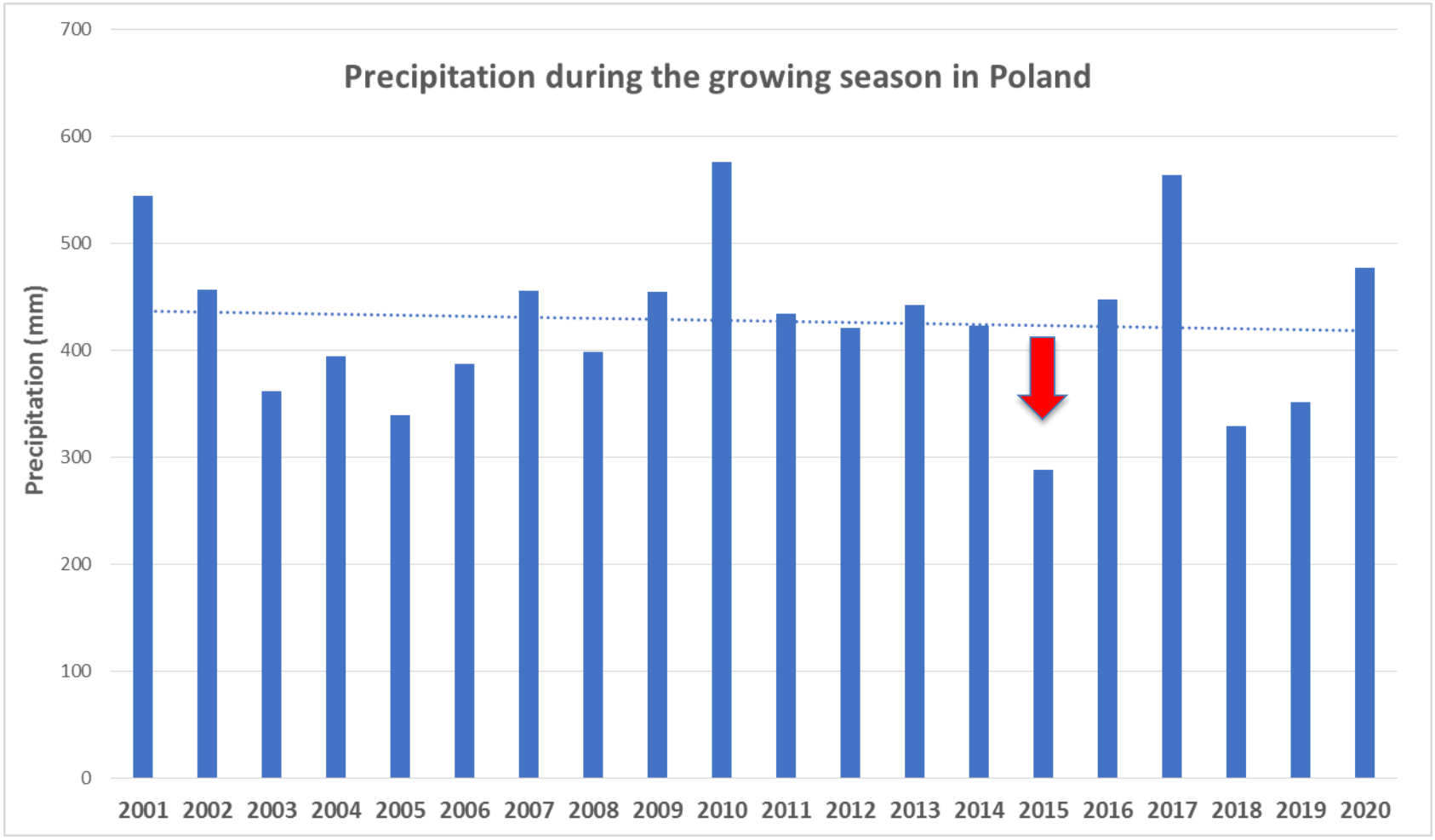
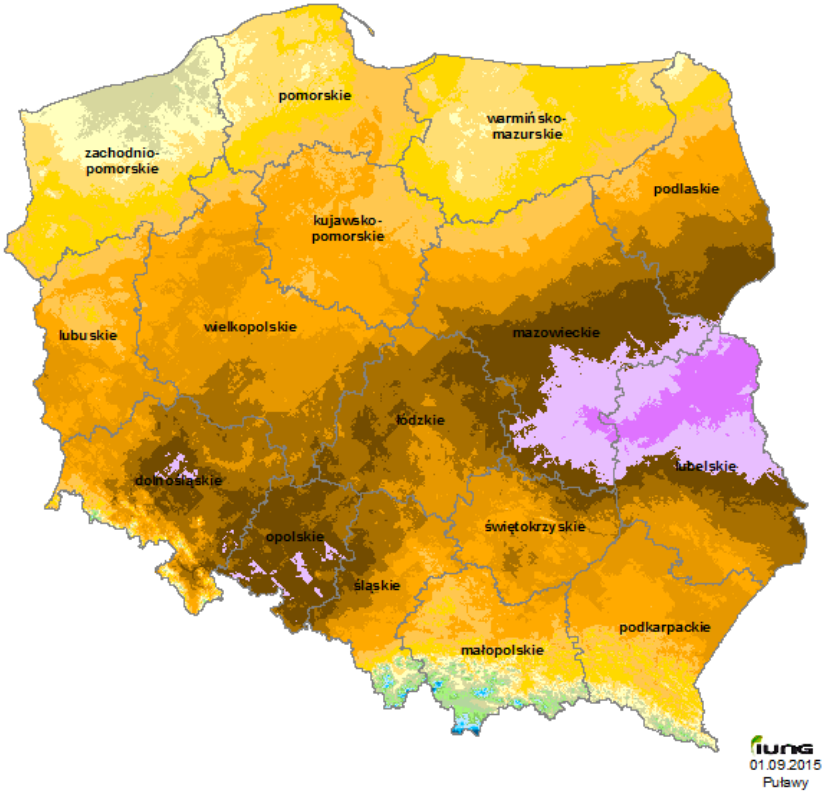
Factors behind forest health decline

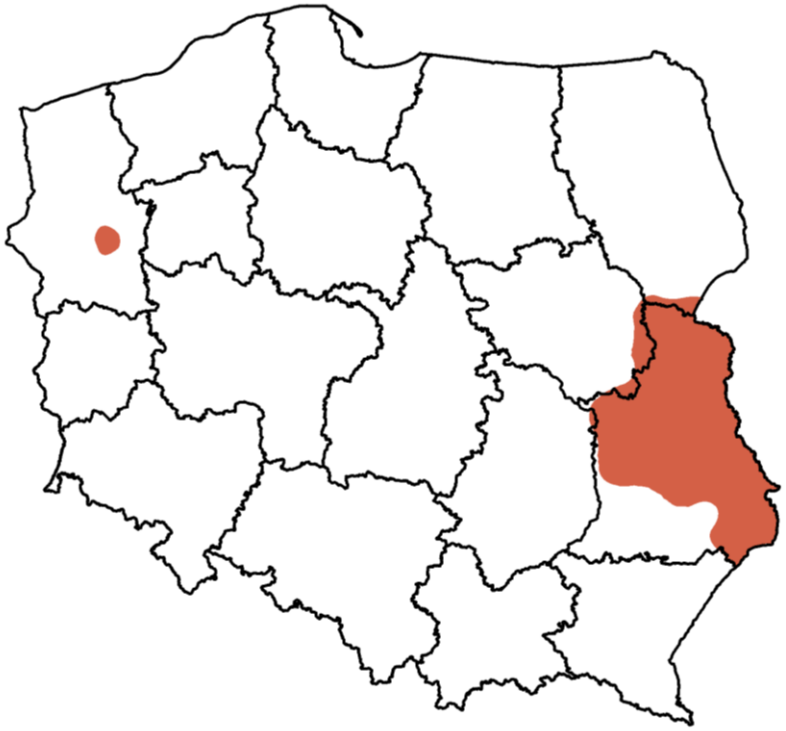


Factors behind forest health decline

Drought in 2015

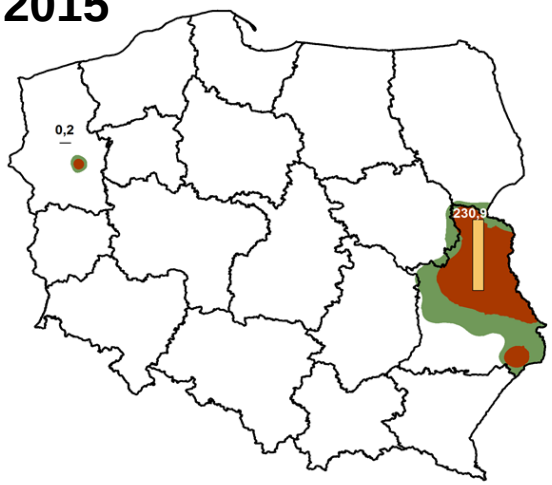


Ips acuminatus in 2015

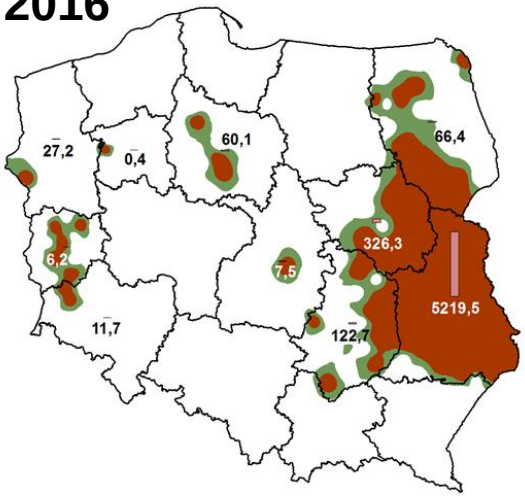


Spread of *Ips acuminatus* outbreak

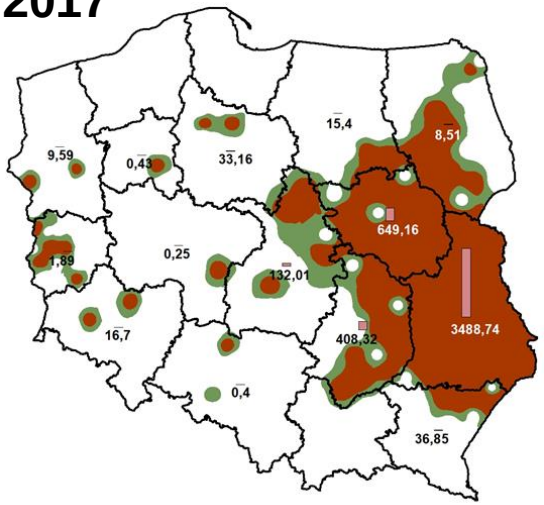
2015



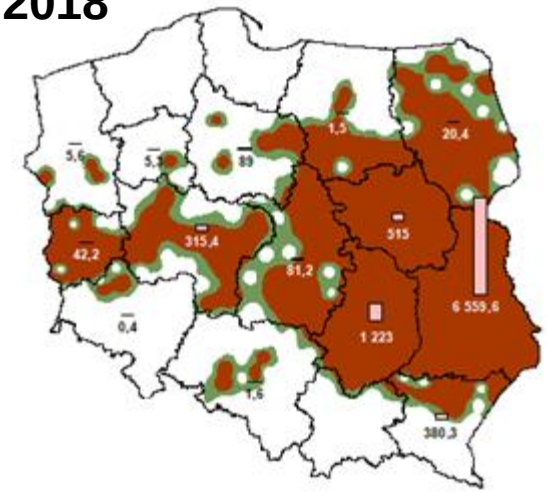
2016



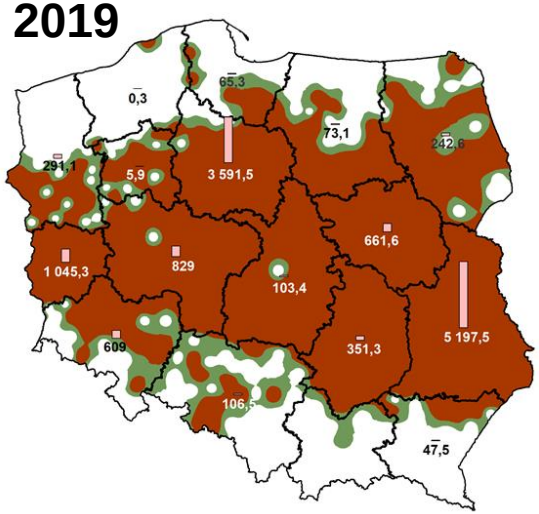
2017



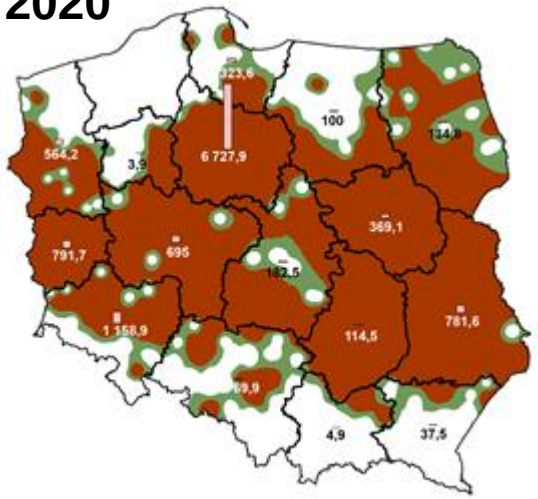
2018



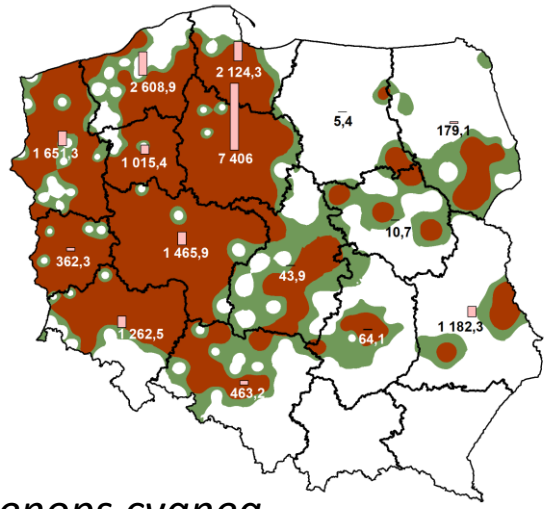
2019



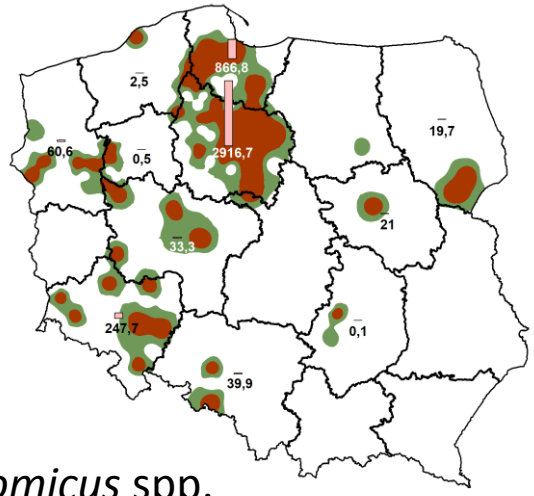
2020



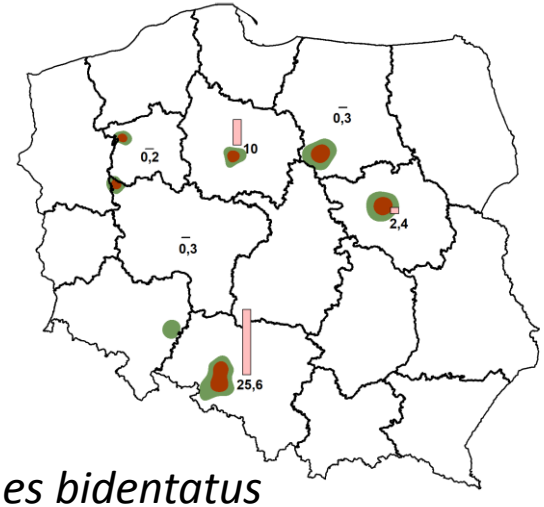
Accompanying species on Pine – 2020



Phaenops cyanea

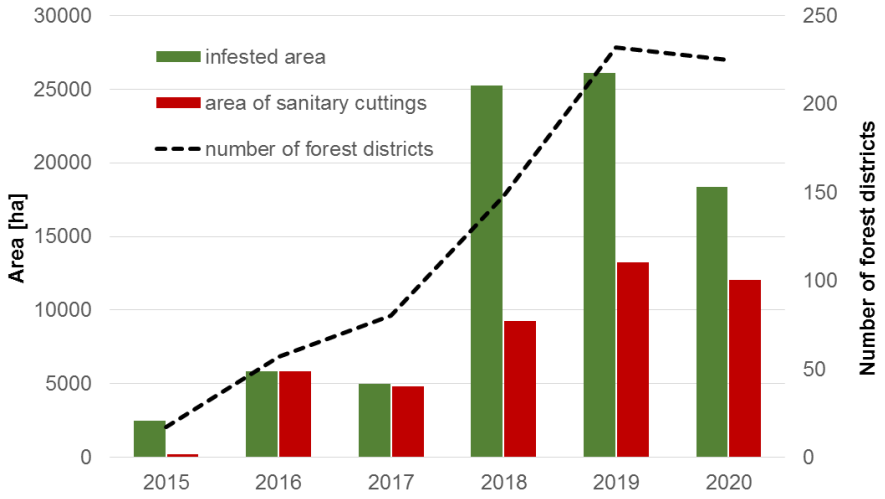


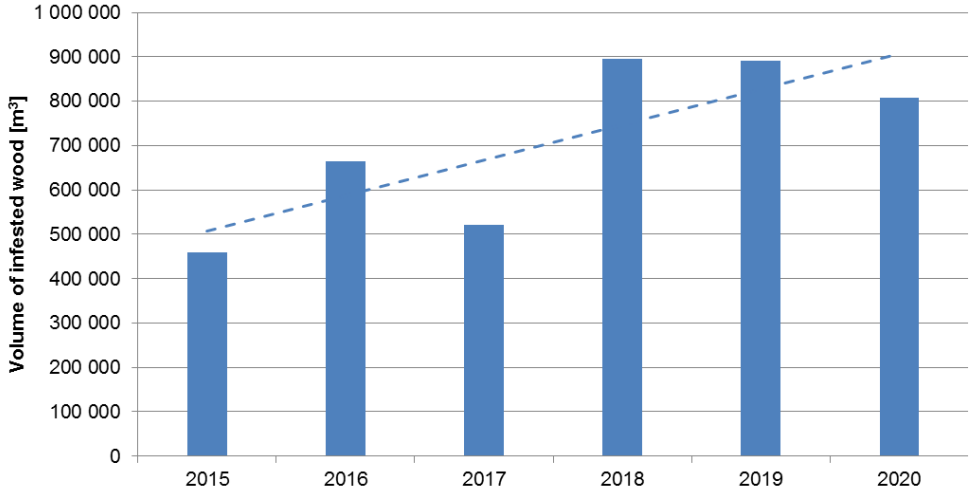
Tomicus spp.

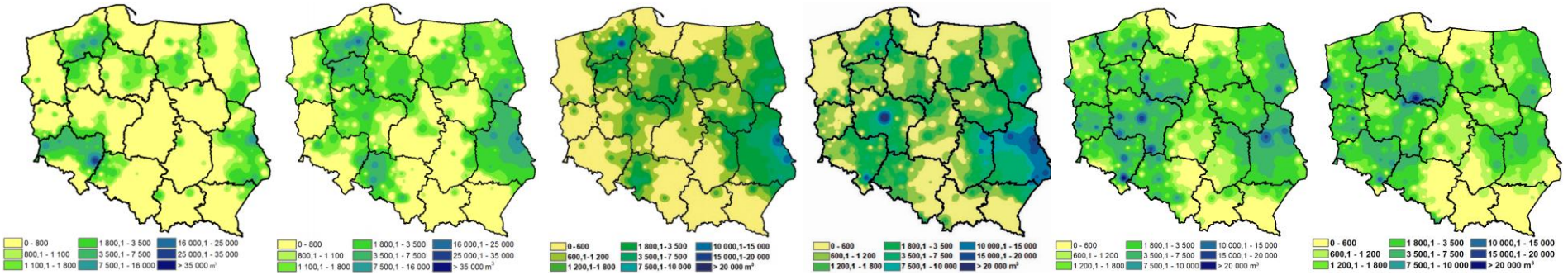


Pityogenes bidentatus

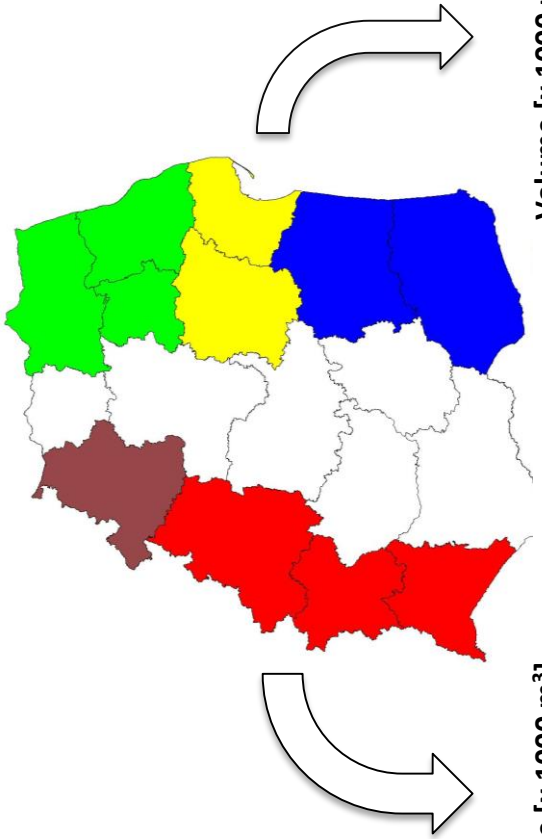
Intensity of sanitary cuttings – Scots pine

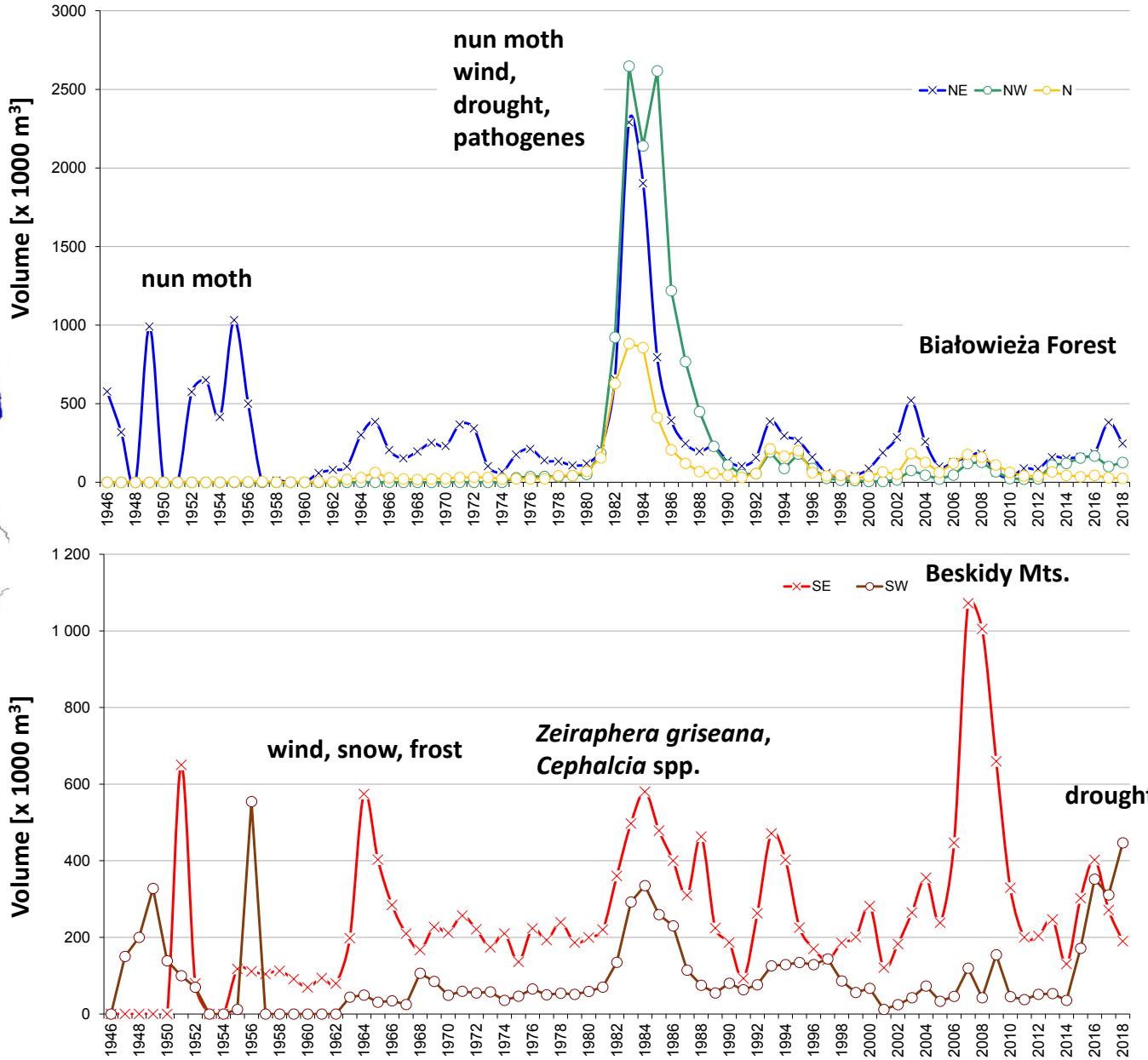






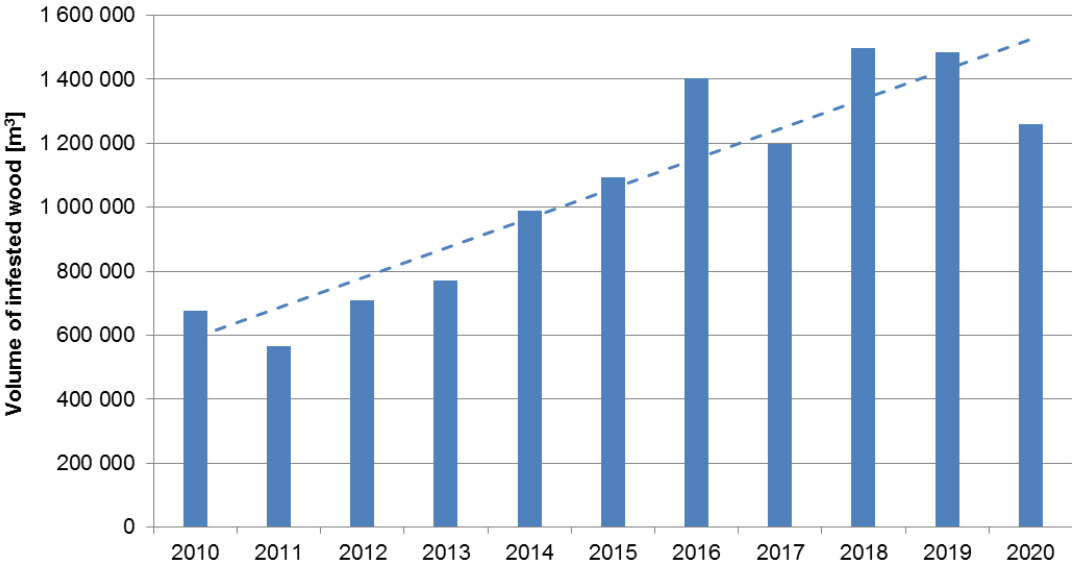
Outbreaks of *Ips typographus* in Poland





Intensity of sanitary cuttings – Spruce

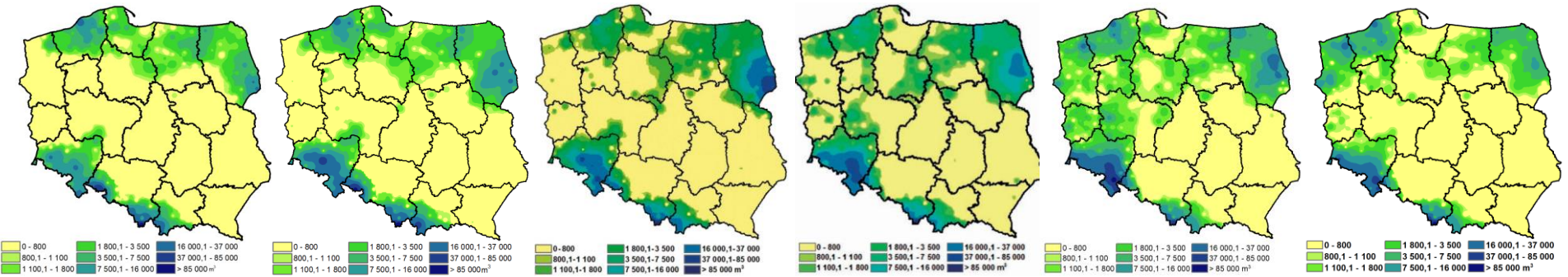
Ips typographus



Pityogenes chalcographus

Polygraphus poligraphus

Ips duplicatus



Population monitoring by pheromone-baited traps

Ips acuminatus

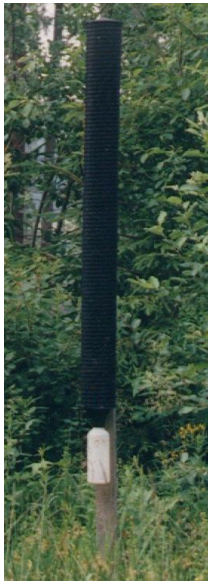
- Acumodor
- Acumodor Micro
- Acuwit

Ips typographus

- Pheroprax
- Ipsodor
- Ipsowit





The number of traps displayed depends on disturbance level:

- moderate – 1-2 groups of 2-3 traps/ha
- high – 3-4 groups of 2-3 traps/ha

Population monitoring by trap trees

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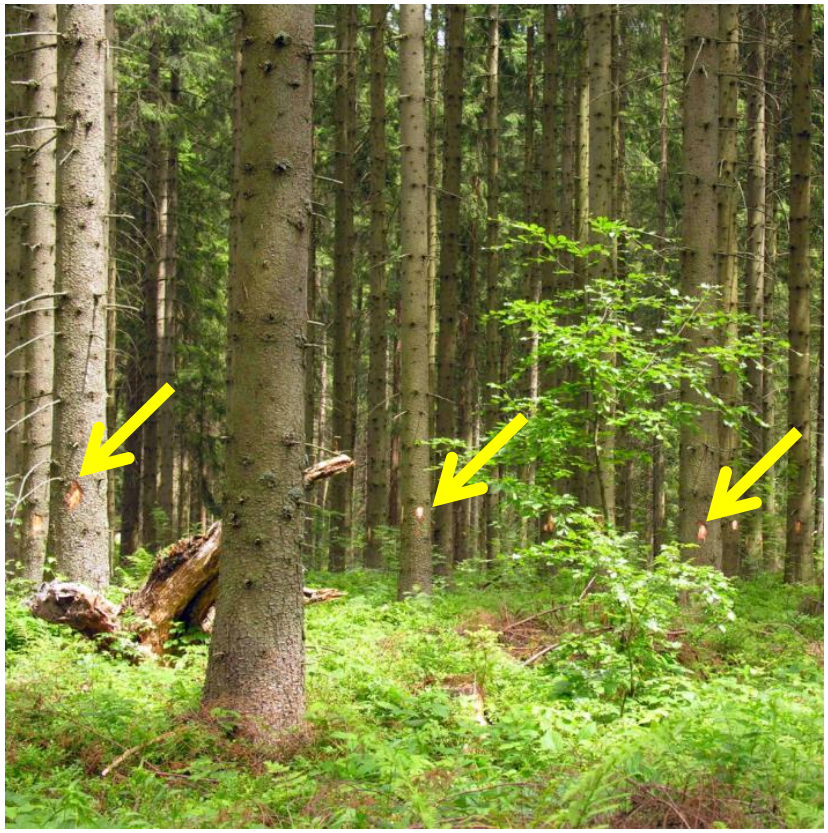
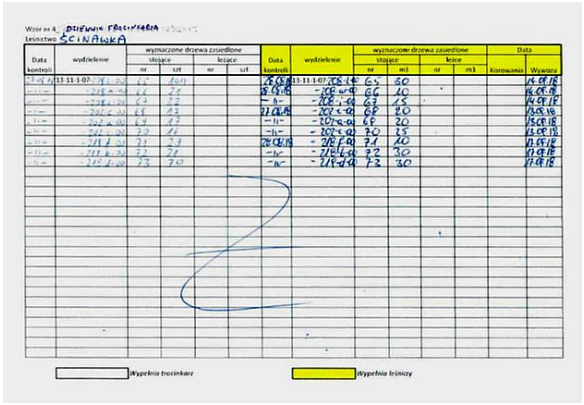
Searching, **marking** and **recording** of infested trees





Bark beetle management

Removal of infested trees (or manual debarking)
within 2-6 weeks after tree marking

Distance for tree removal – **3 km**

Mechanical debarking effective only during larval stages

Bark beetle management

Current research on *I. acuminatus* management in Poland

Trap type and location

Agricultural and Forest Entomology

Agricultural and Forest Entomology (2020), DOI: 10.1111/afe.12414

Effectiveness of different lures for attracting *Ips acuminatus* (Coleoptera: Curculionidae: Scolytinae)

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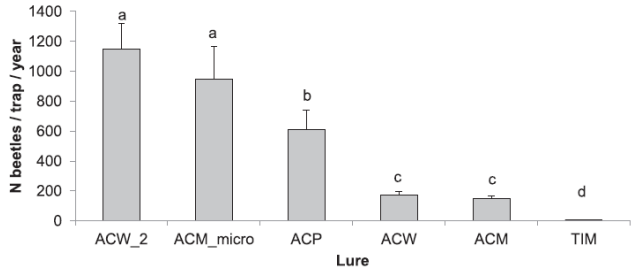
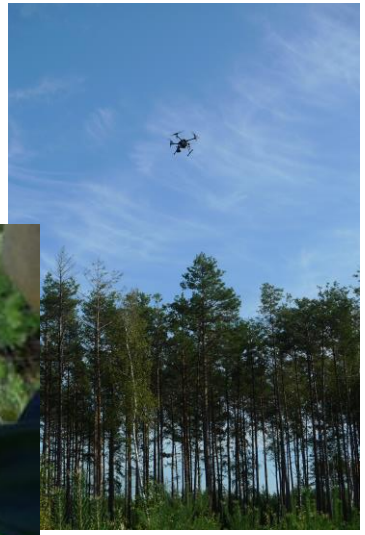


Early detection



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