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Forest Damages in the Federal State of Saxony during the extreme years 2018 – 2020

FORESTS´ FUTURE 2021: Consequences of Bark Beetle Calamity for the Future of Forestry in Central Europe

Sachsenforst

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Structure

- The federal State of Saxony – a short introduction
- Forest damage situation in Saxony
  - Causes of the Calamity
  - Development over the past years
  - The current situation
  - Other damaging bark and woodbreeding beetle species
  - Measures to address the problem across ownership
- Outlook

The federal State of Saxony

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Key figures

- Administrative information
  - 18.450 km²
  - Ca. 4 million inhabitants
  - Bordering the Czech Republic in the south and Poland in the east
- Topography
  - Lowland in northern Saxony, hill country affected by loess in central Saxony and low mountain areas in the south

The federal State of Saxony

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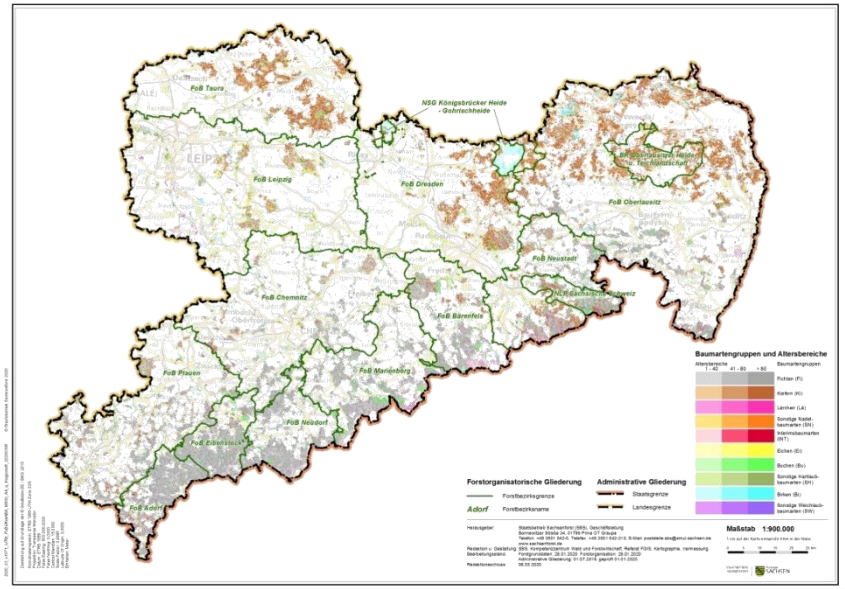
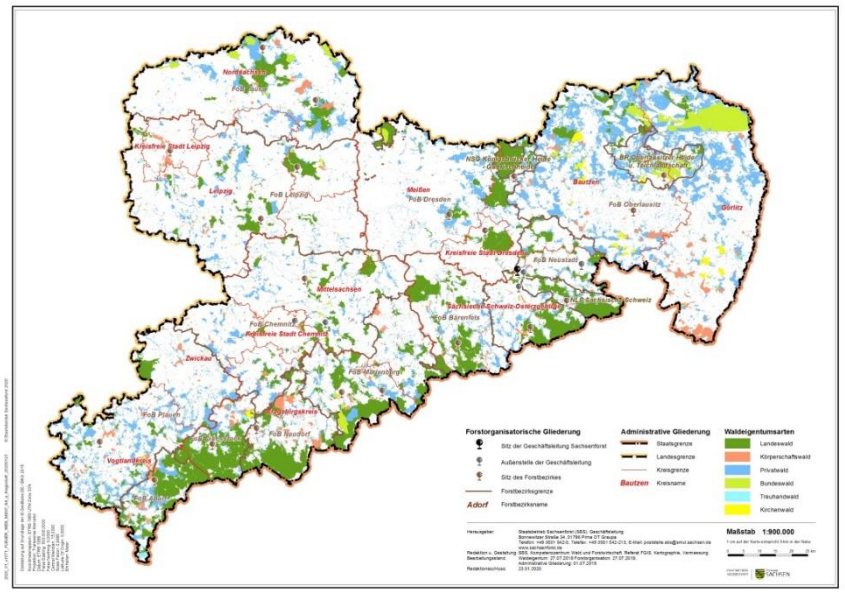
Key figures

- Forest distribution and characteristics
  - Forest area: 520.539 ha (28,2 %)
  - Large private forest complexes, especially in northern and eastern Saxony
  - Main tree species:
    - 35% Norway spruce, 31 % Scots pine, 7 % Silver birch, 6% Oak, 3% Beech
  - Ownership structure:
    - 52,3% public forest (state, federal and communal), 47,7% private forest





Causes of the Calamity

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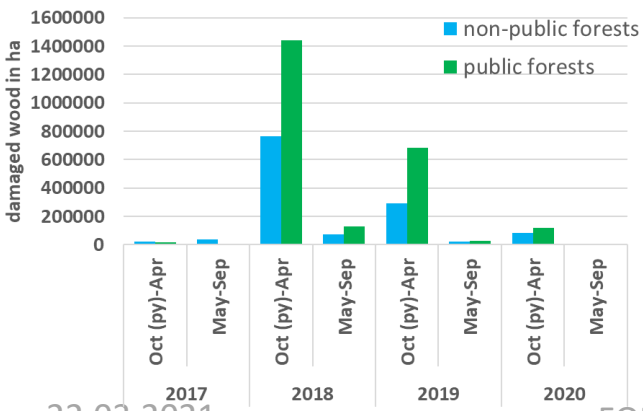
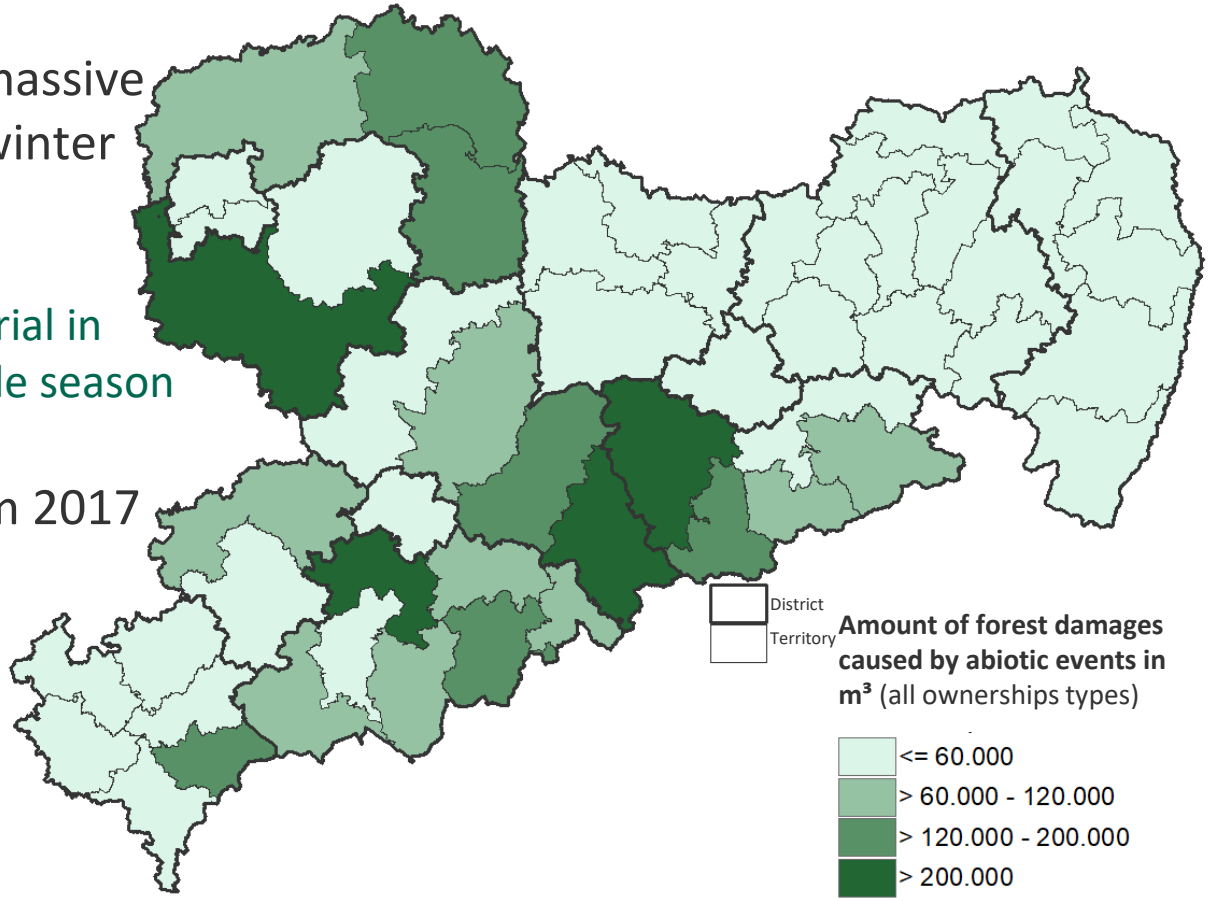
Abiotic forest damage events

- Regionally differentiated massive storm damage in fall and winter 2017/ 18
  - Suitable breeding material in the following bark beetle season
- Forest damage events from 2017 to 2020:





Causes of the Calamity

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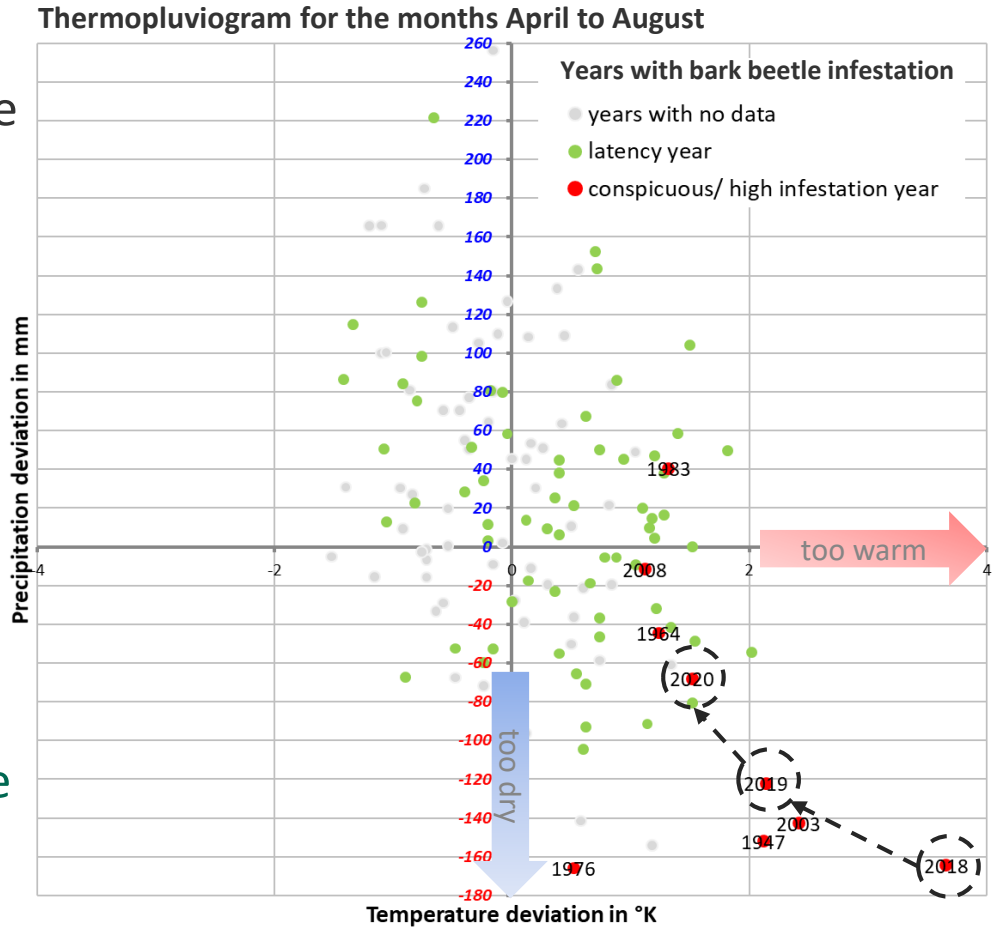
Weather conditions 1941 – 2020

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Comparison of spring and summer weather with the long-term average from 1961-1990
  - **2018:** the warmest year since 1941 and as dry as 1976
    - In combination with the presented initial situation = ideal conditions for mass reproduction
  - **2019** and **2020:** above average warm and dry



Current Situation

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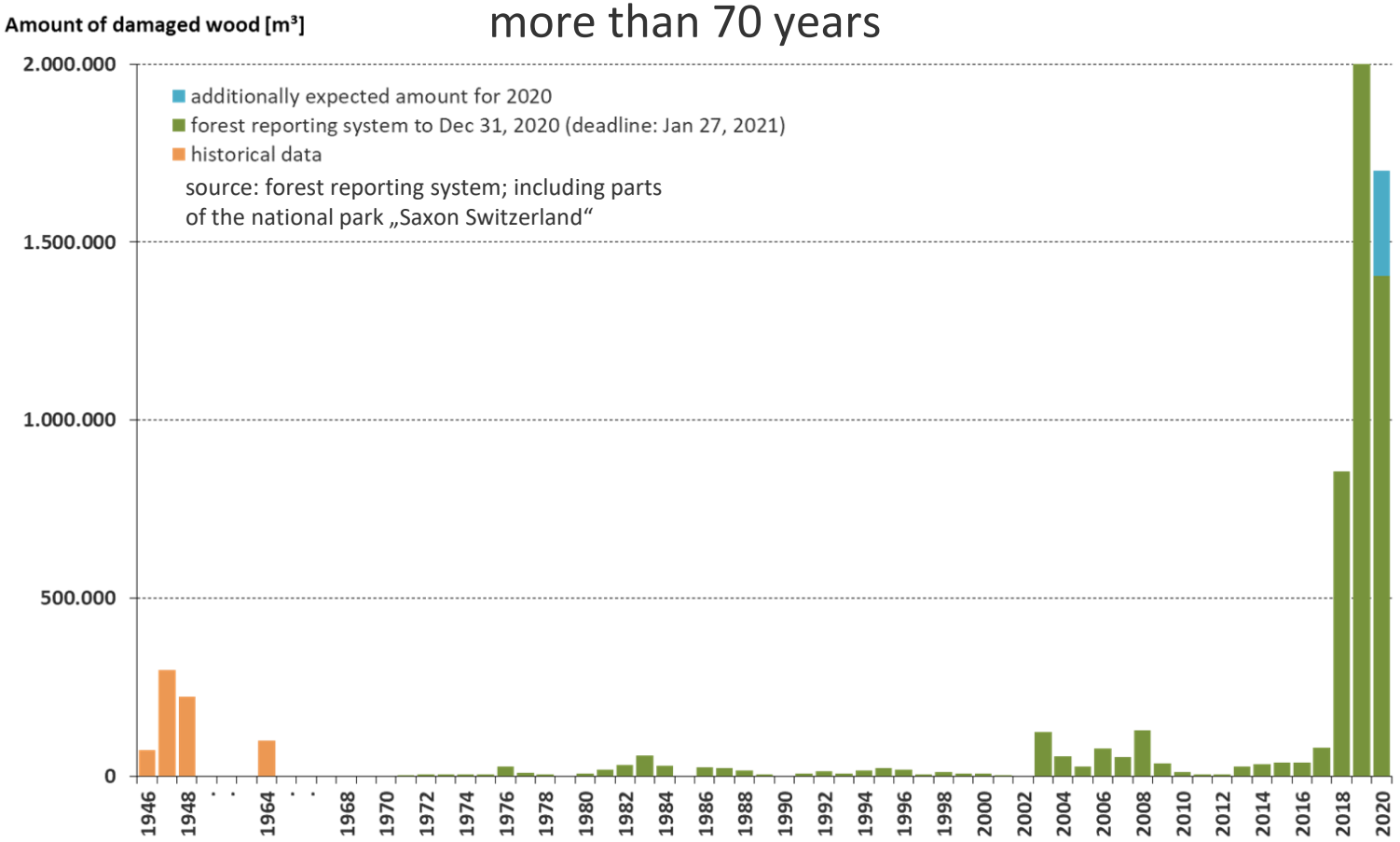
Time series of infestation development in Saxony since 1946

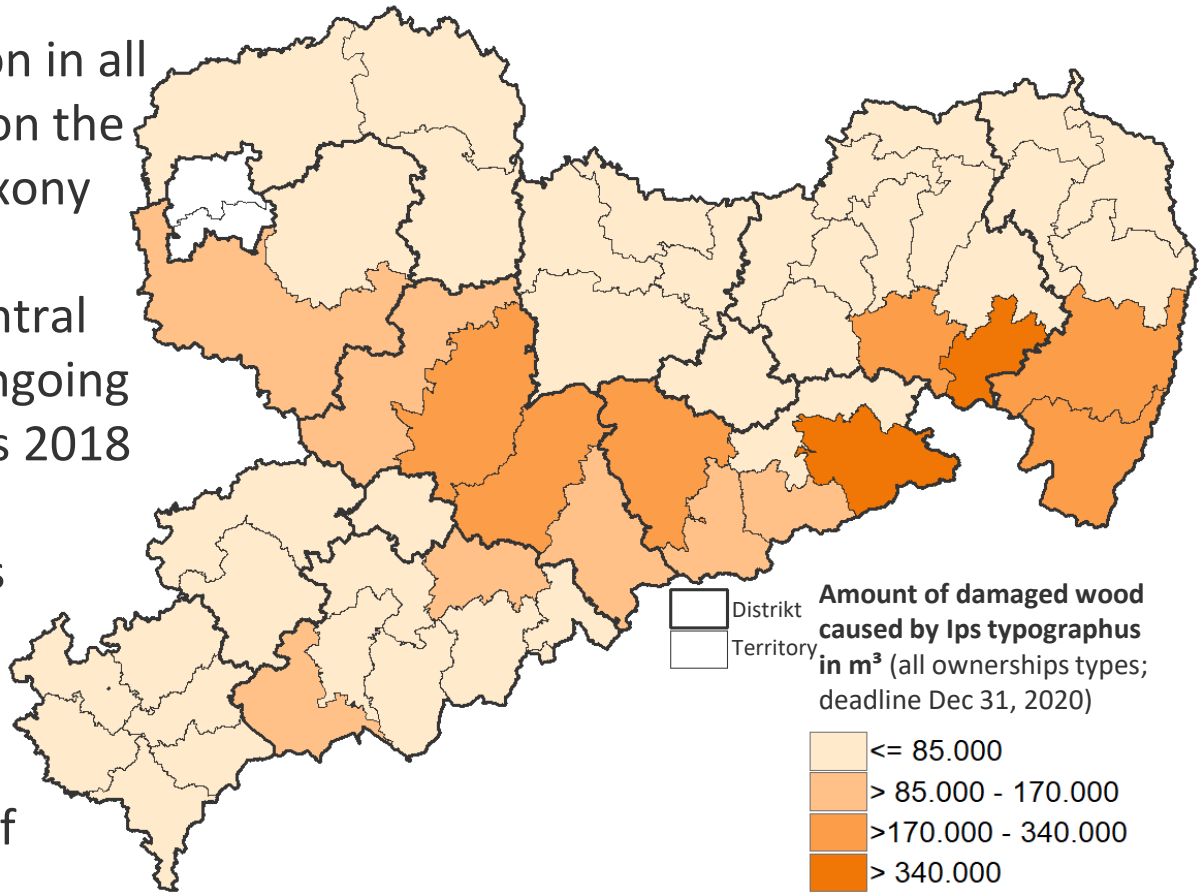
- Amount of damaged wood caused by Ips typographus for more than 70 years



Current Situation

Spatial distribution of damaged wood since 2018

- **2018:** Substantial infestation in all spruce areas, with a focus on the hill country and eastern Saxony
- **2019:** Concentration on central and eastern Saxony with ongoing increases in similar areas as 2018
- **2020:** Infestation continues in eastern Saxony and decline in western Saxony
- Almost the complete loss of spruce in some areas



Current Situation

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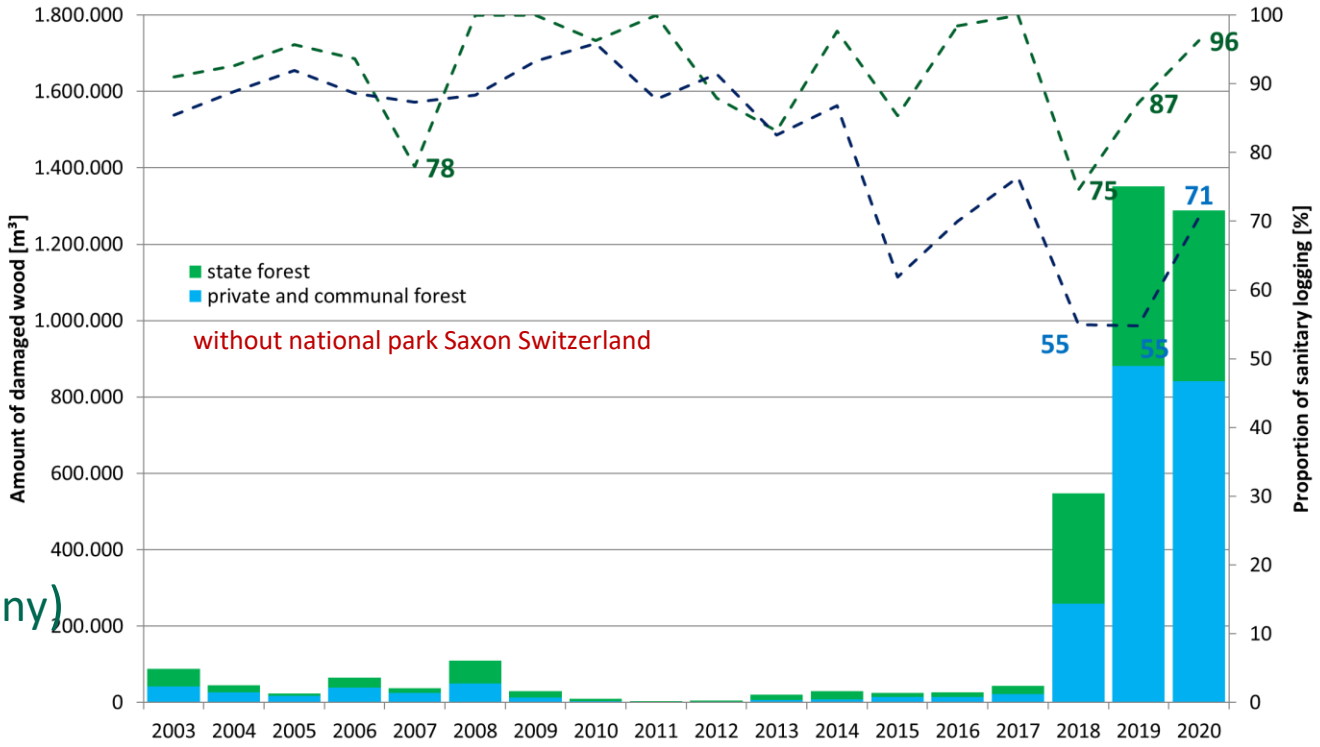
Development in forests with different forms of ownership

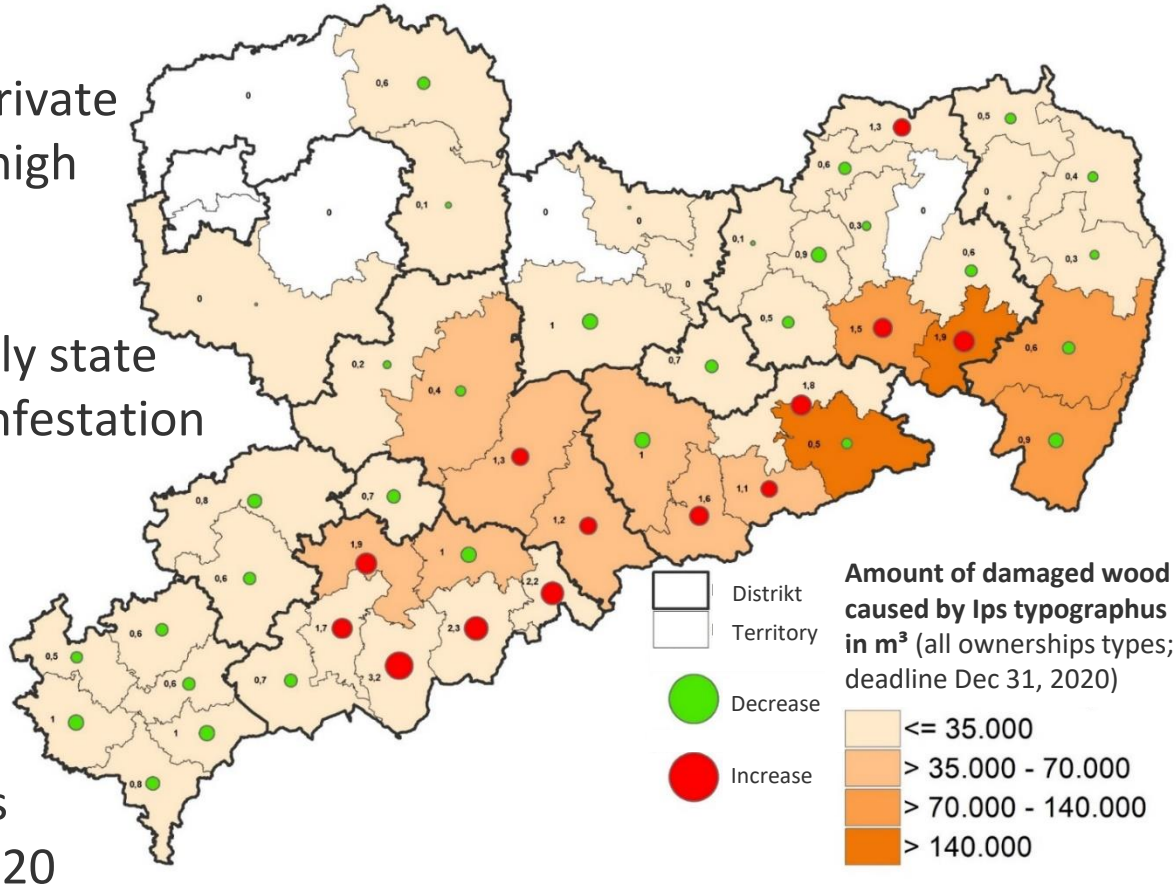
- **2018:** focus on storm damage (only 2nd gen. caused extensive standing infestation)
- **2019/2020:** 2/3 of damaged wood in private and communal forests
- Support measures are having an effect
- Proportion of detection and sanitary logging are increasing
- However, situation in some regions cannot be controlled (Eastern Saxony)



Current Situation

Cumulative infestation development in 2019 – 2020

- Increase in 2020, especially in eastern Saxony and in the Ore Mountains
- In eastern Saxony mainly private forests and already a very high starting level
- In the Ore Mountains mostly state forests and relatively low infestation last year
- Declines in the hill country due to a lack of spruce
- Currently no reliable values for the national park for 2020



Other conspicuous bark and woodbreeding beetles

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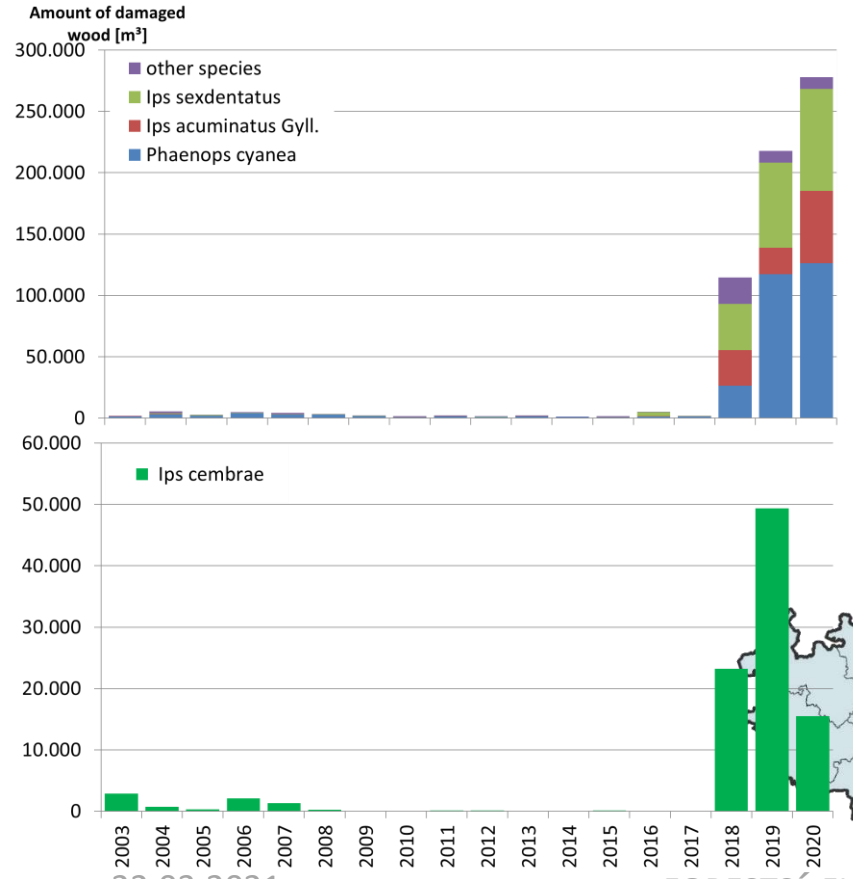
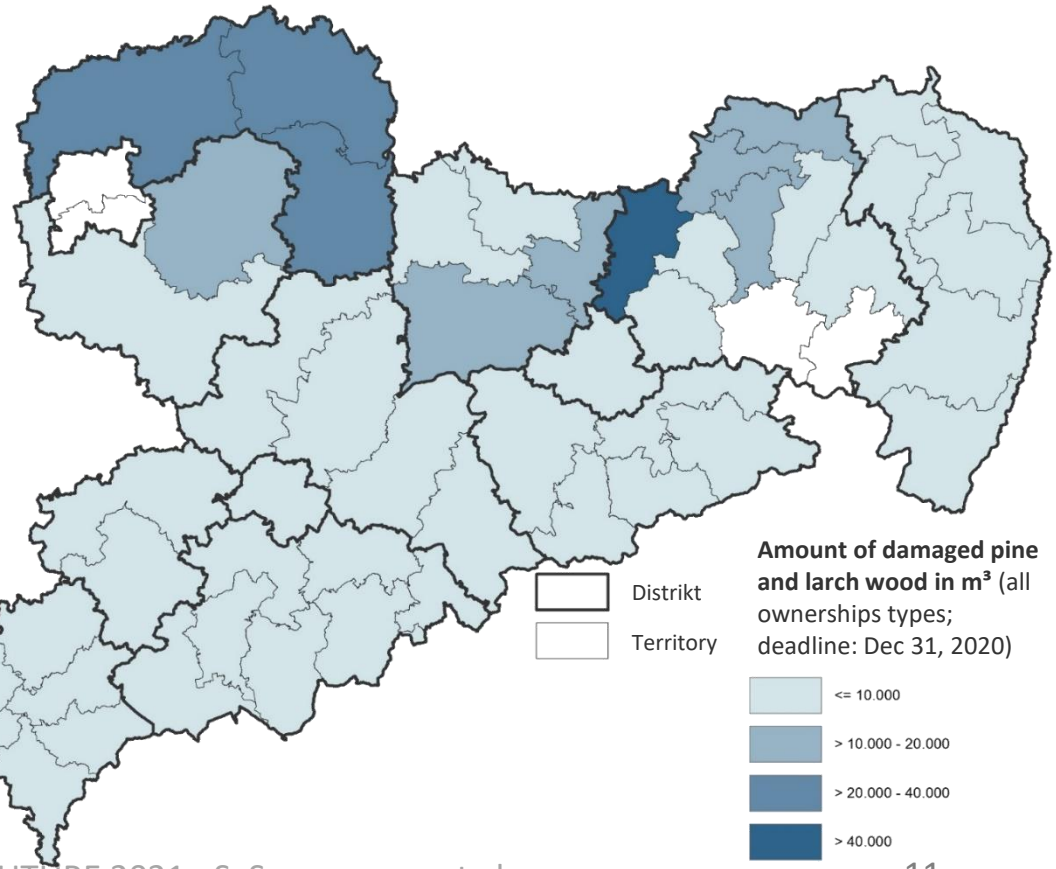
Damage in Scots pine and Larch stands

- Increasing intensity since 2018, especially in northern Saxony





Cross-ownership measures

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Framework conditions and resulting problems in Saxony

- Ownership structure and responsibilities
  - Mainly very small private forests (91% <5 ha) with limited possibilities to deal with this extreme situation
  - Different responsibilities for public and non-public forests in the state institutions - Communication between the participants
- Inadequate regional availability of forest companies
  - Scattered areas and a large number of forest owners in a territory
  - Only small local capacities, especially in eastern Saxony
- Lower awareness due to a lack of comparable damage events in the recent past

Cross-ownership measures

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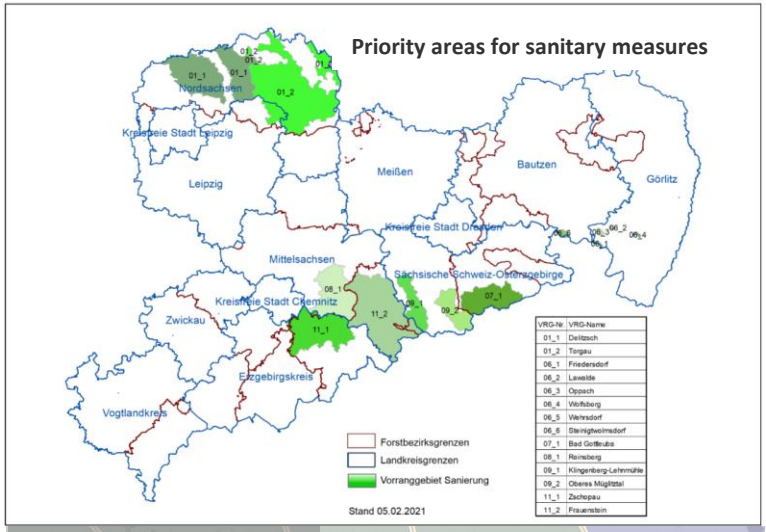
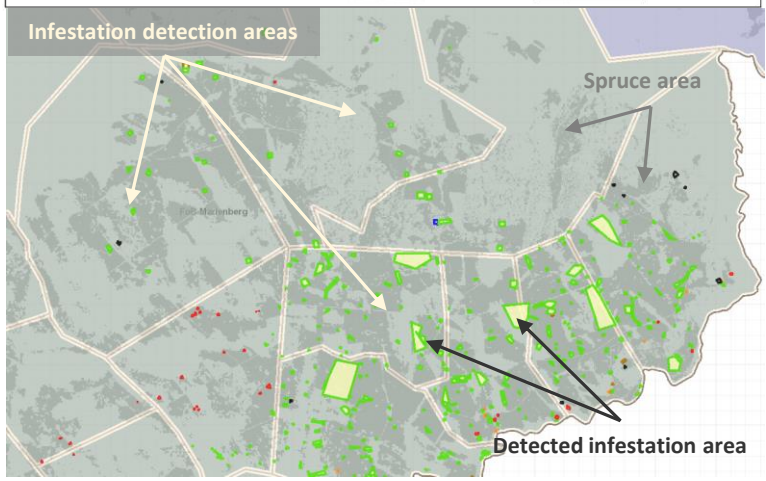
Solutions for a more effective fight against the calamity

- Establishment of local and regional crisis teams with the participation of all decision-makers
- Support with infestation detection and sanitary measures by the state enterprise Sachsenforst
  - Localization of the focus of infestations
  - Designation of priority areas
  - Optimization of the detection of infestation
    - Size depends on the amount of damaged wood and spruce area





Cross-ownership measures

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Solutions for a more effective fight against the calamity

- Technical assistance
  - Coordination of the supra-regional use of processing capacities
  - Framework agreements for the sale of damaged wood through the state enterprise

- Financial support for measures to process damaged wood
  - Promotion of central wood storage areas as well as temporary storage outside endangered stands
  - Support for further active sanitary measures, including responsible treatment with pesticides

Outlook

Expected development in the next years

- **Norway spruce:**
  - Further relocation of the damage to the low mountain range
  - Further decline in western Saxony, still high level of damage in eastern Saxony
  - Decline in infestation in many regions due to the lack of spruce
  - In the state forest largely under control, in the private forest the situation remains problematic despite good cooperation
- **Scots pine:**
  - Increasing problems in the lowlands, primarily due to climatic development


Thank you for your attention!