



Natasha Wright, Cook's Pest Control, Bugwood.org

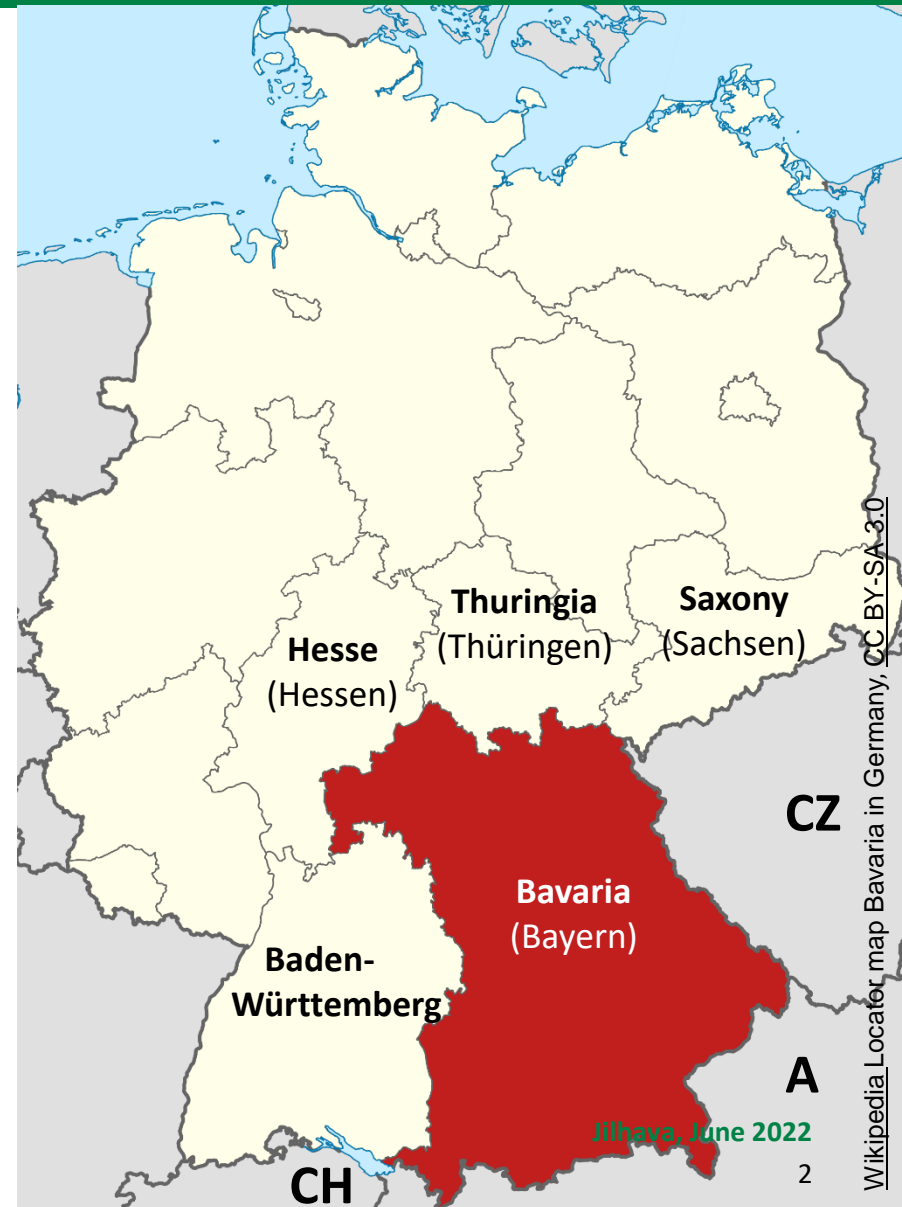
Bark beetle outbreak in Bavaria

Hannes Lemme, Andreas Hahn

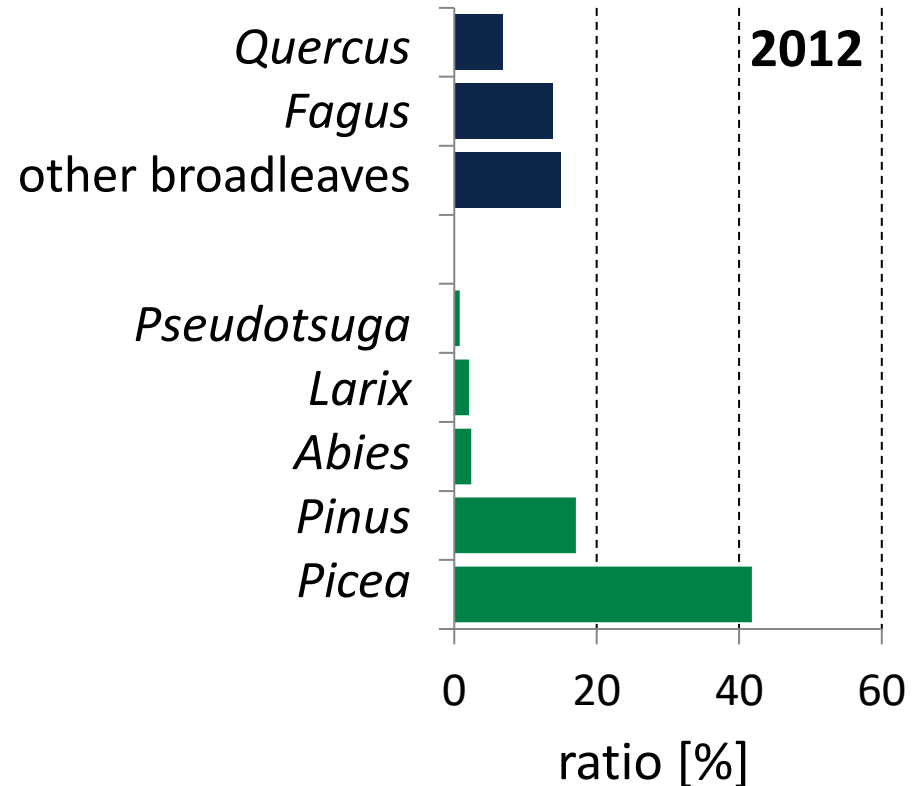
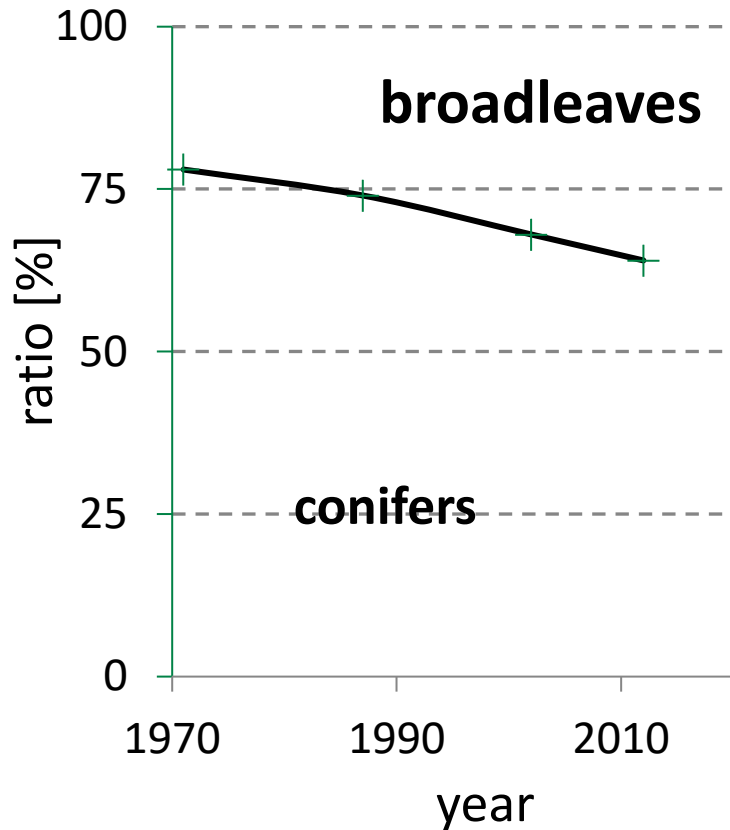
Consequences of Bark beetle calamity in Central Europe
Jihlava, Czech Republic, June 20th – 23th 2022

Outline

- Forests and Spruce in Bavaria
- Weather in Bavaria
- Bark beetle monitoring
- Bark beetle damage on Spruce in Bavaria and Germany



Forests and Spruce in Bavaria



- Forest area (*Germany*)
- Spruce area
- Spruce ratio
- Spruce solid volume, over bark

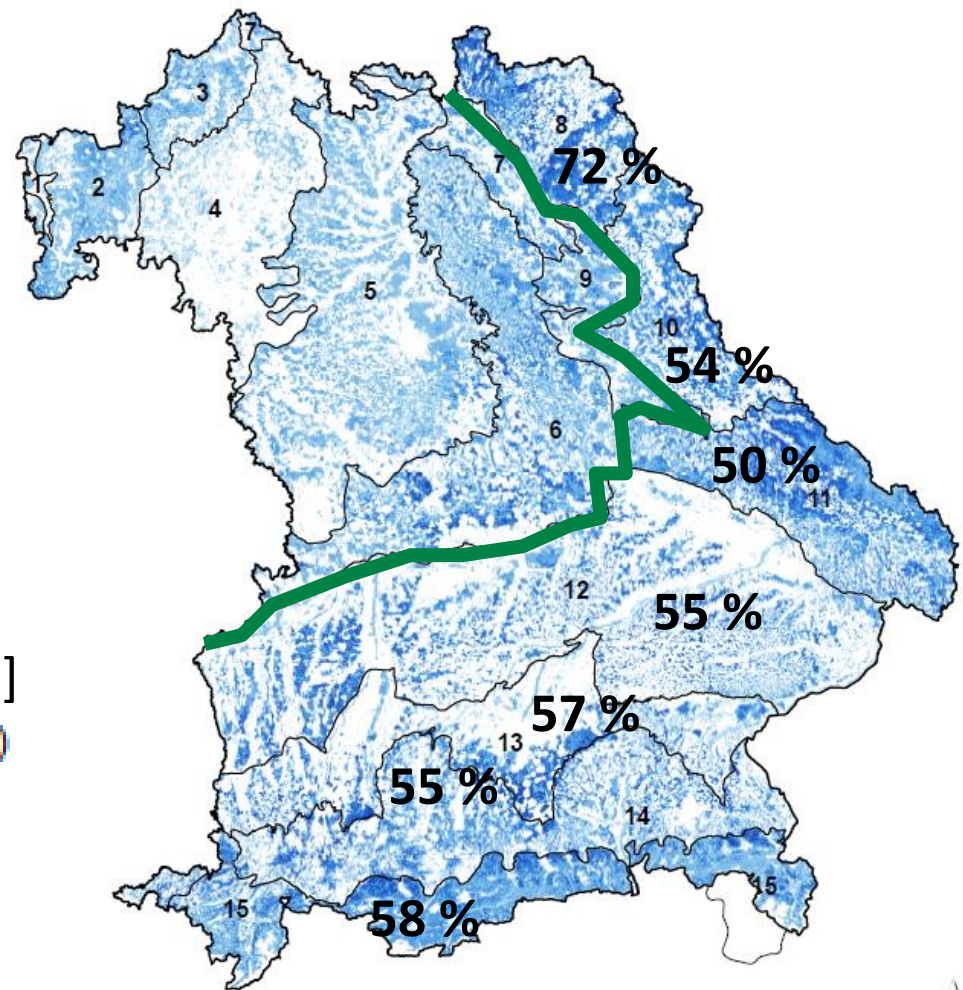
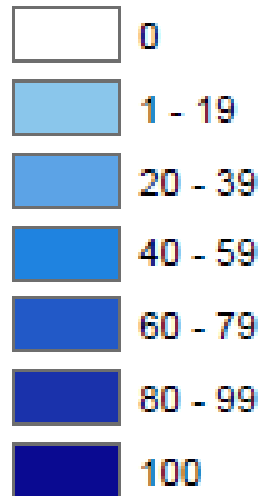
2,6 million hektar (11,4; 23 %)
1,0 million hektar (2,7 mil.; 37%)
41% (25,4%)
472 cubic metre /ha (427)

Jilhava, June 2022

Spruce in Bavaria

- 41% Spruce
- but regional differences

Spruce ratio [%]
(Quelle: Treident)

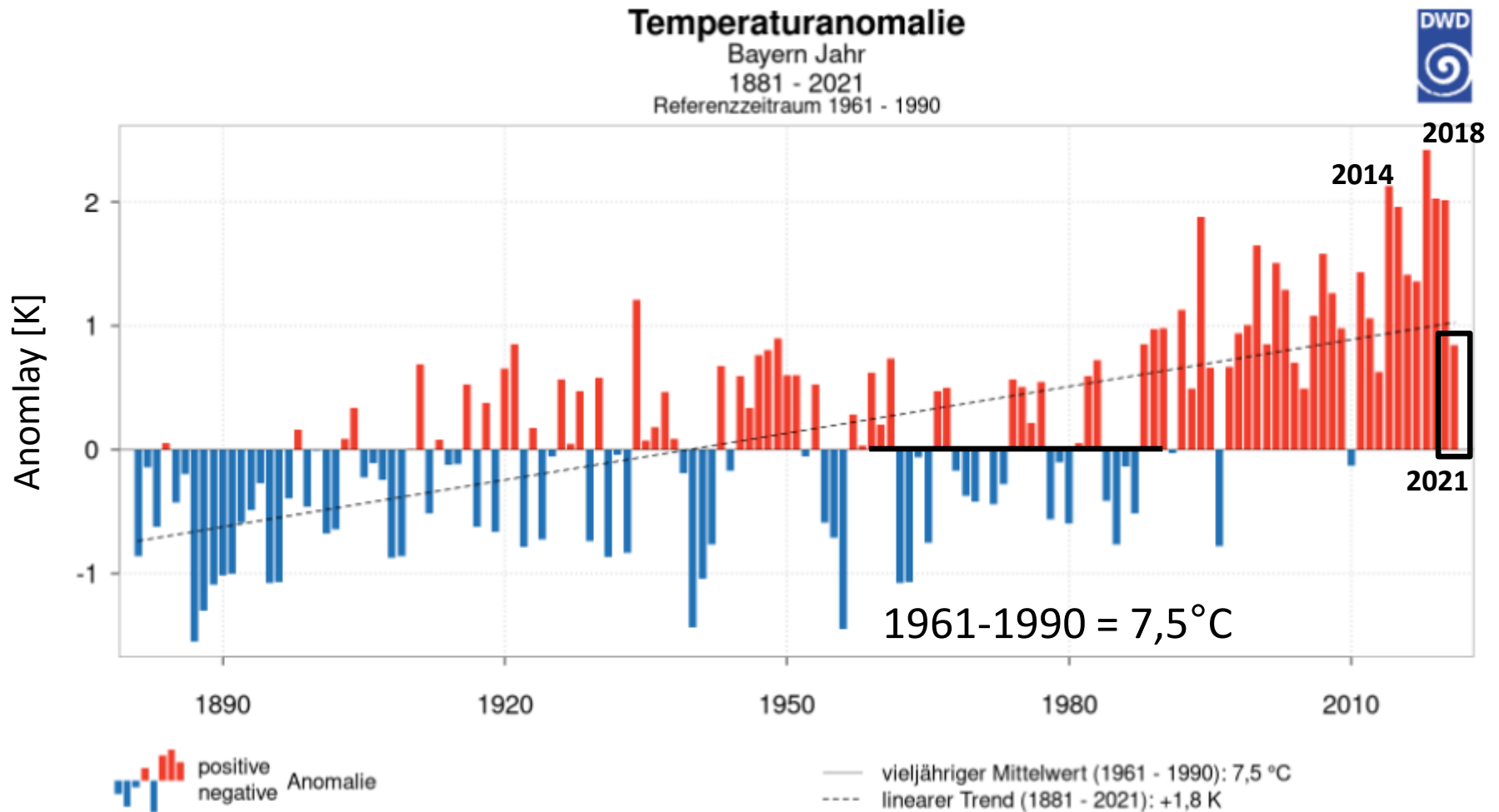


Geobasisdaten: Bayerische Vermessungsverwaltung 2022
Data Spruce distributen: treident Project, LWF

Wuchsgebietgliederung

- | | |
|---|--|
| 1 Unterrainebene | 9 Oberpfälzer Becken- und Hügelland |
| 2 Spessart-Odenwald | 10 Oberpfälzer Wald |
| 3 Rhön | 11 Bayerischer Wald |
| 4 Fränkische Platte | 12 Tertiäres Hügelland |
| 5 Fränkischer Keuper und Albvorland | 13 Schwäbisch-Bayerische Schotterplatten- und Altmoränenlandschaft |
| 6 Frankenalb und Oberpfälzer Jura | 14 Schwäbisch-Bayerische Jungmoräne und Molassevorberge |
| 7 Fränkisches Triashügelland | 15 Bayerische Alpen |
| 8 Frankenwald, Fichtelgebirge und Steinwald | |

Temperature in Bavaria from 1881 to 2021



Perticipation in Bavaria from 1881 to 2021

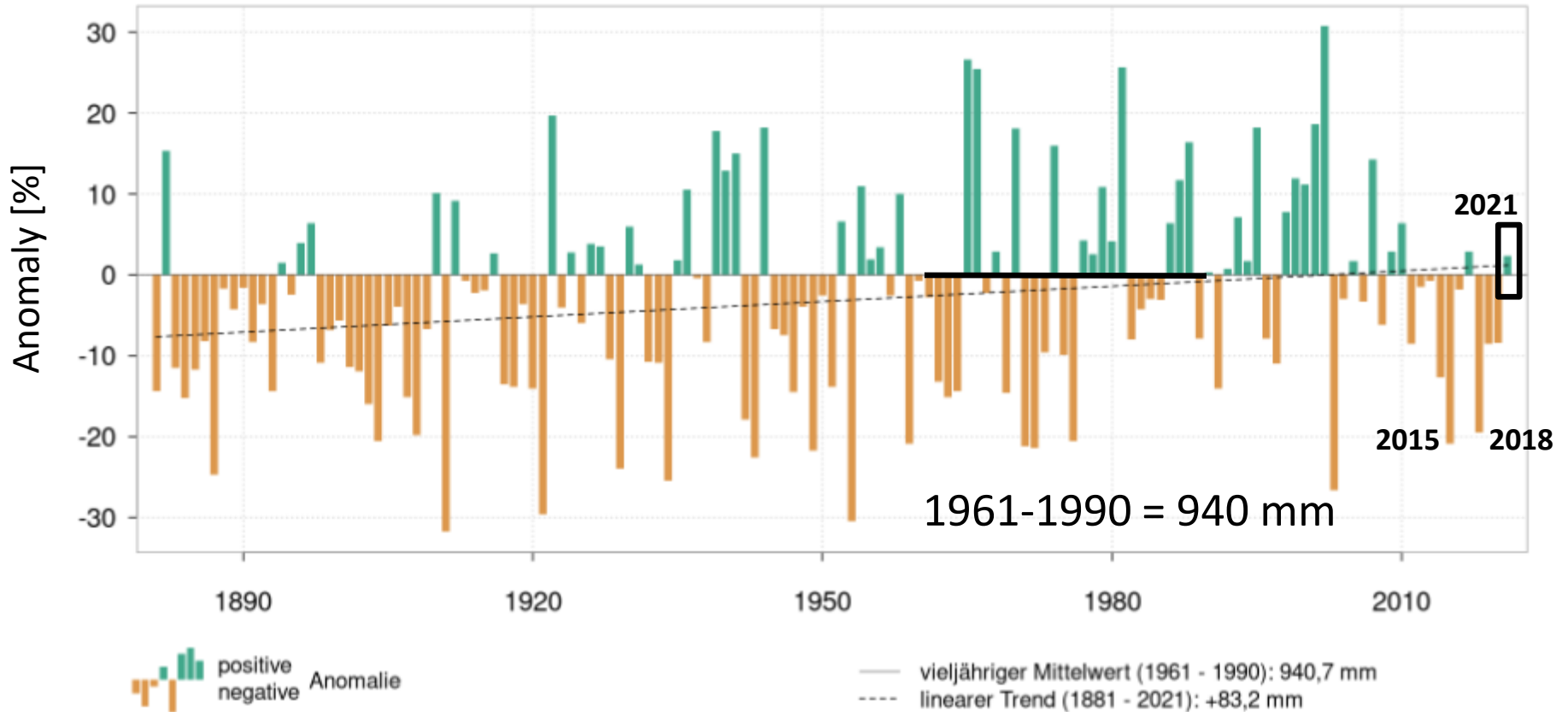
Perticipation

Niederschlagsanomalie

Bayern Jahr

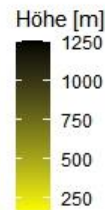
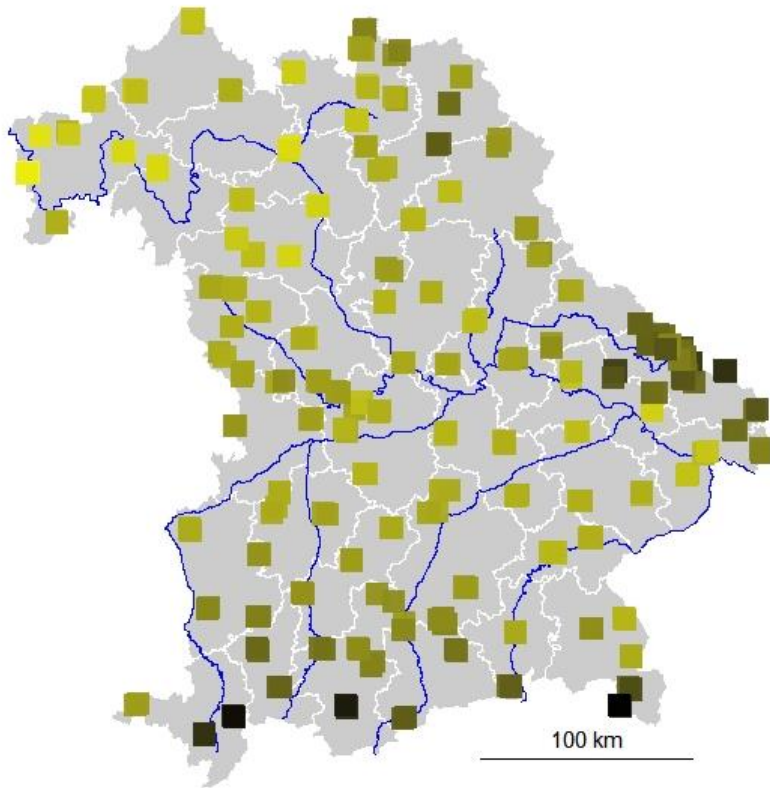
1881 - 2021

Referenzzeitraum 1961 - 1990



Bark beetle monitoring in Bavaria (1)

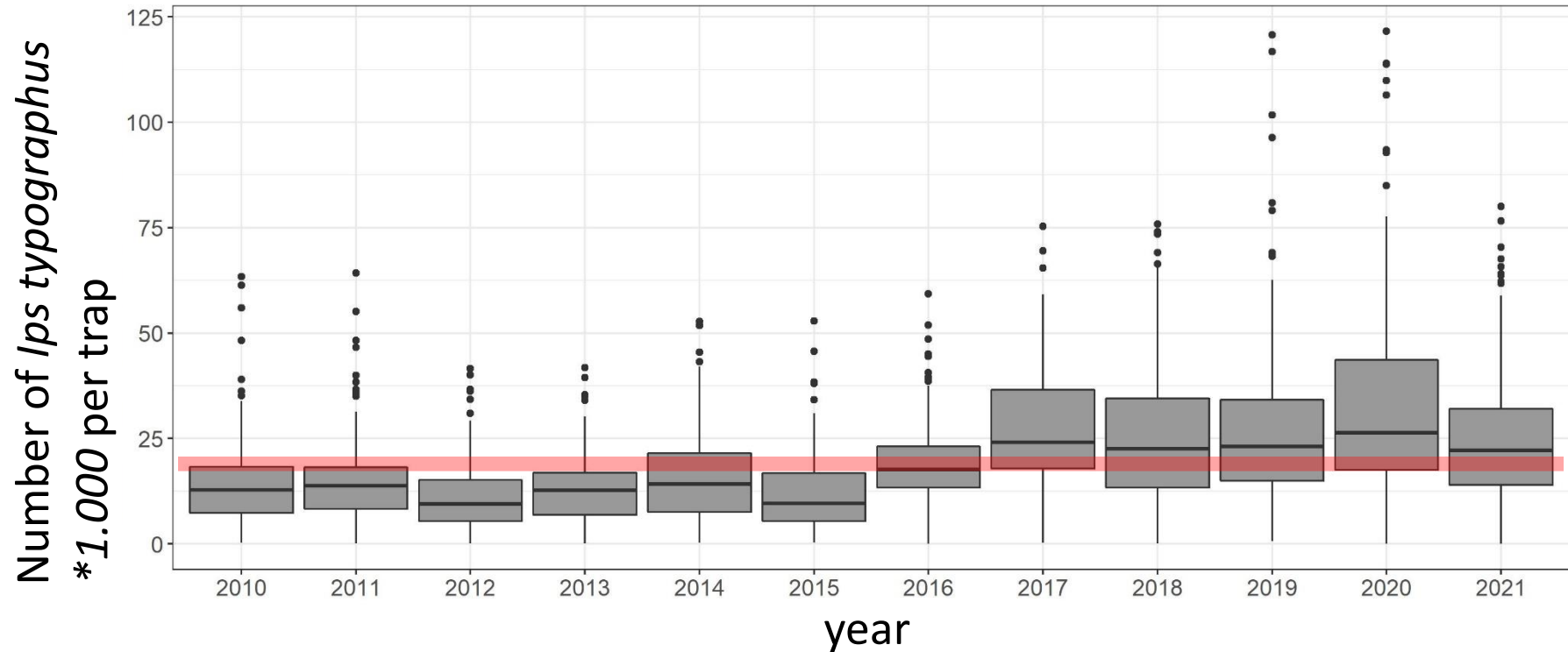
- 520 pheromone traps in 130 locations
- *Ips typographus* + *Pityogenes chal.*
- weekly check + assessment of status young / old beetle (only *Ips typographus*)



LWF, Abt. Waldschutz, 02.Febr. 2022; Geobasisdaten: Bayerische Vermessungsverwaltung 2022

Bark beetle monitoring in Bavaria (2)

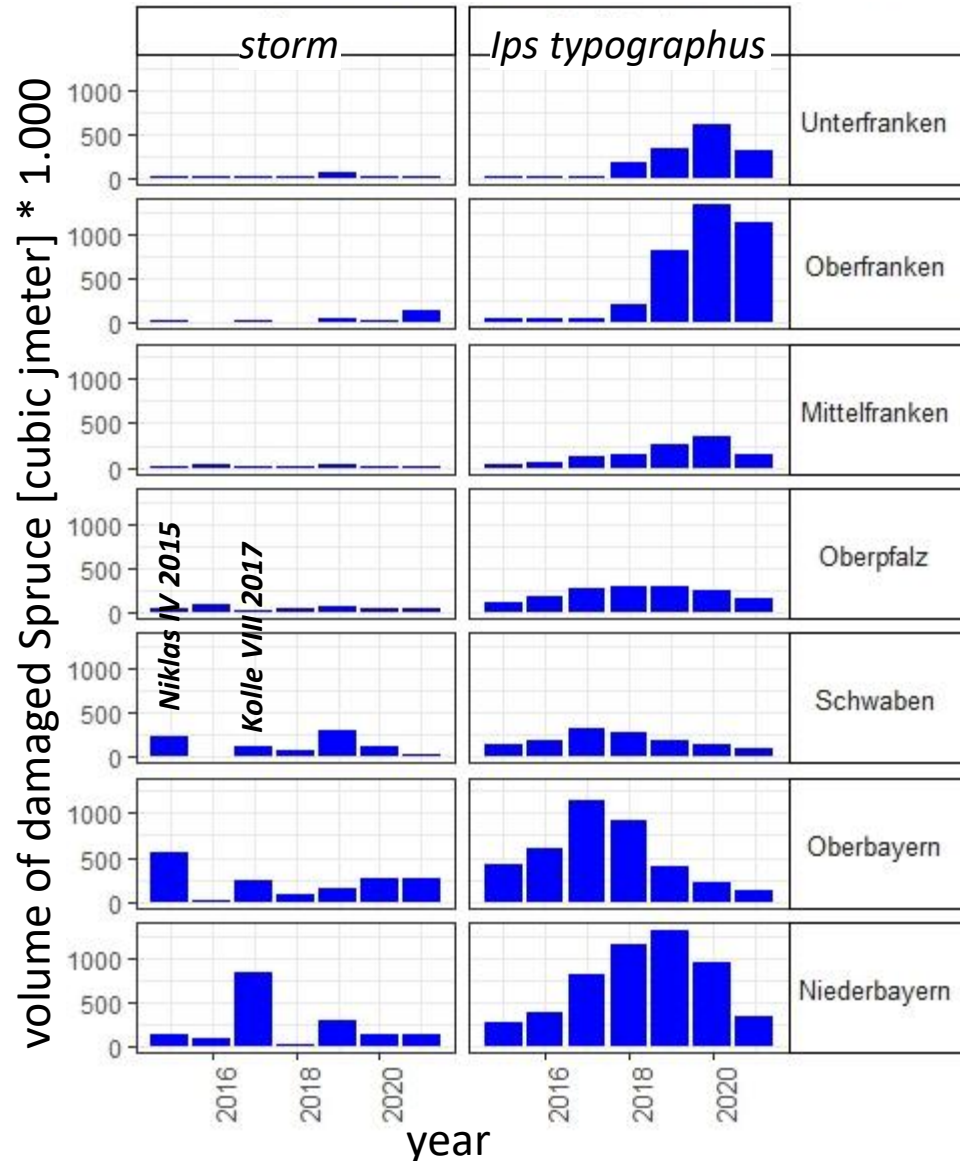
Total number of *Ips typographus* per trap and year



- Increased number of bark beetles per trap since **2016**
- **2021** slight decrease in the total number of beetles per trap compared to 2017 to 2020

Spruce bark beetle damage from 2015 to 2021 in Bavaria (1)

volume of damaged Spruce [data without volumen state enterprise]



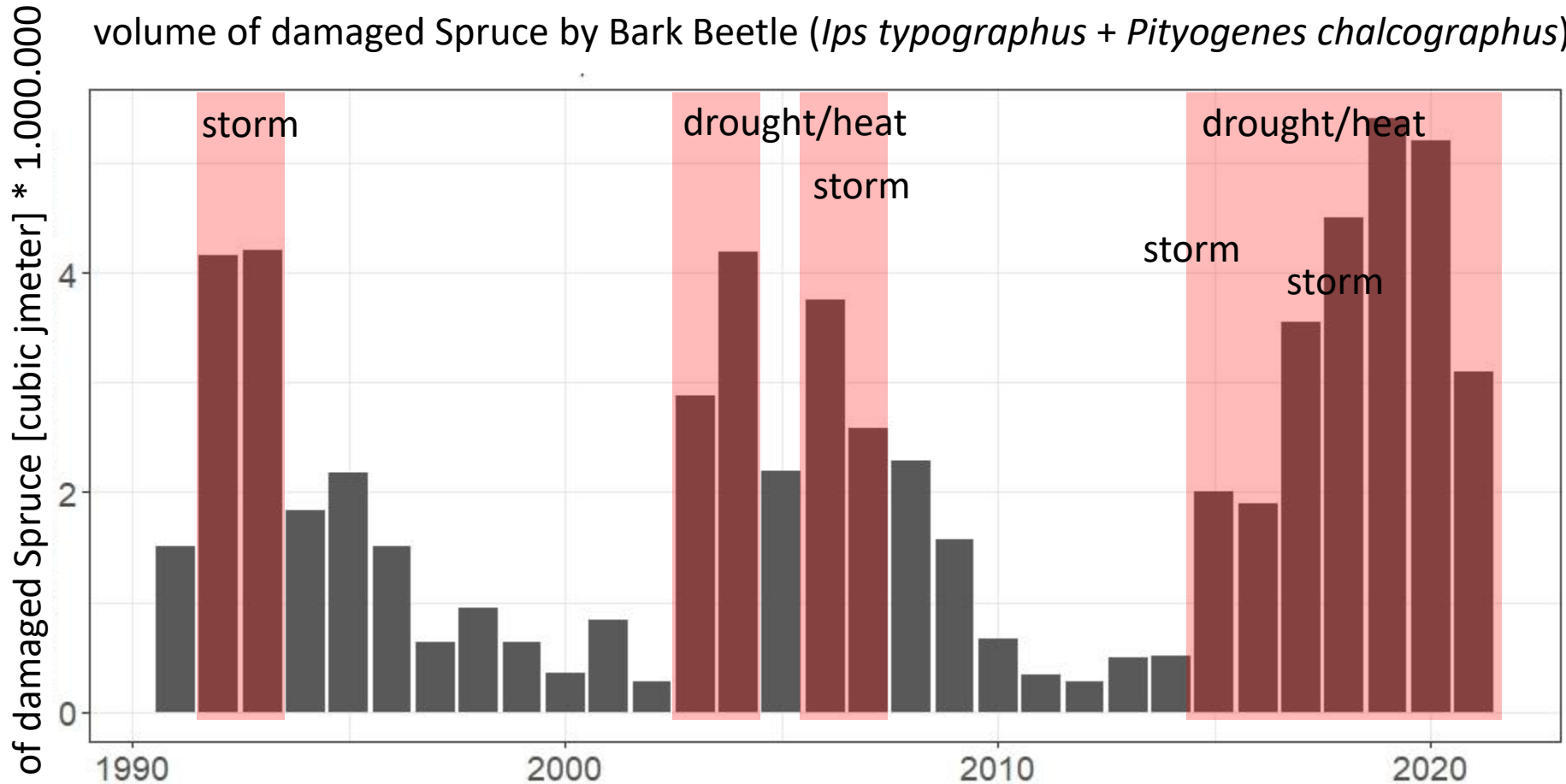
administrative districts in BY



LWF, Abt. Waldschutz, 02.Febr. 2022; Geobasisdaten: Bayerische Vermessungsverwaltung 2022

Spruce bark beetle damage from 1991 to 2021 in Bavaria (2)

volume of damaged Spruce by Bark Beetle (*Ips typographus* + *Pityogenes chalcographus*)

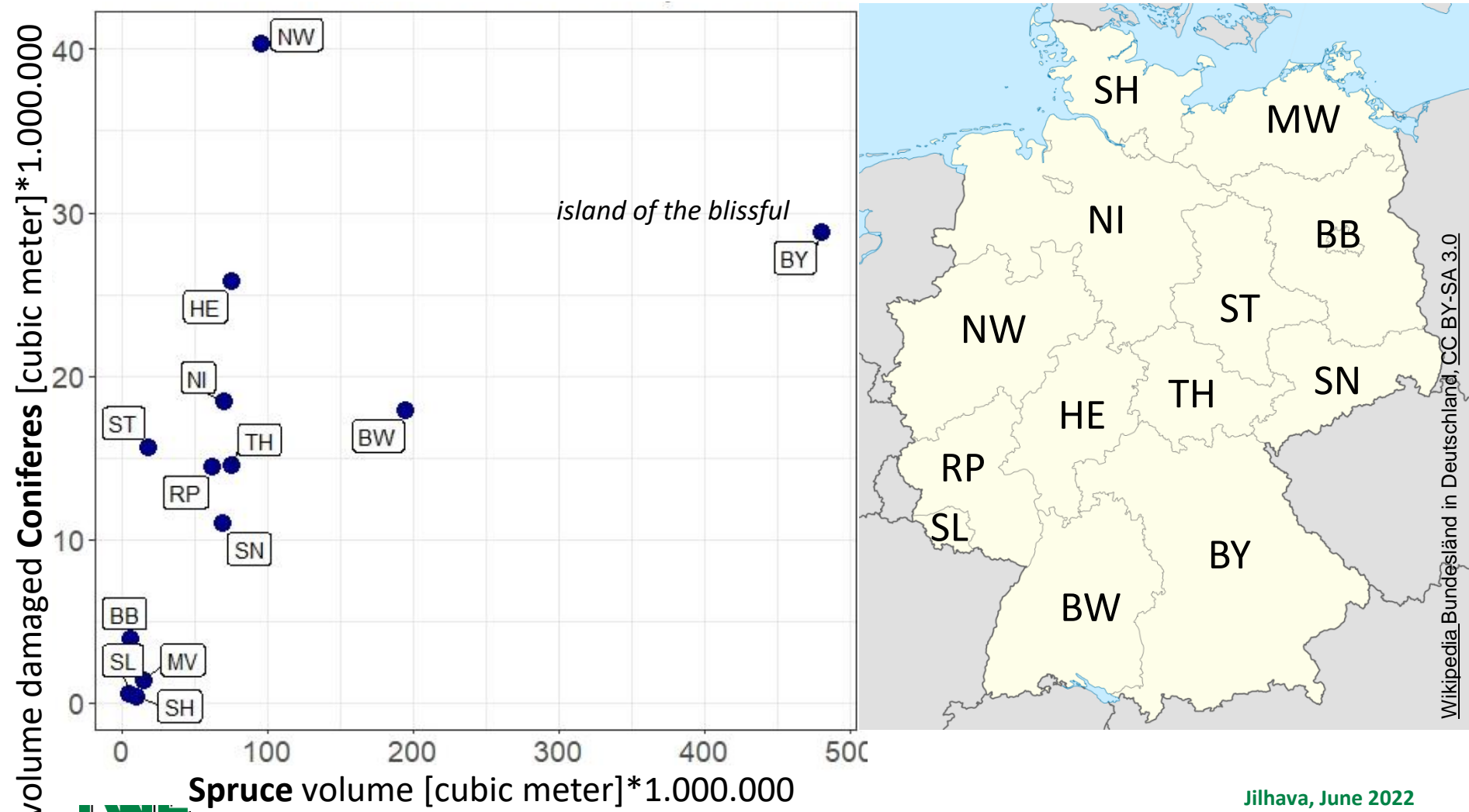


- 1990 Vivian/Wiebke
- 2007 Kyrill
- 2015 Niklas
- 2017 Kollé



Damage on Conifers in Germany 2018 - 2021

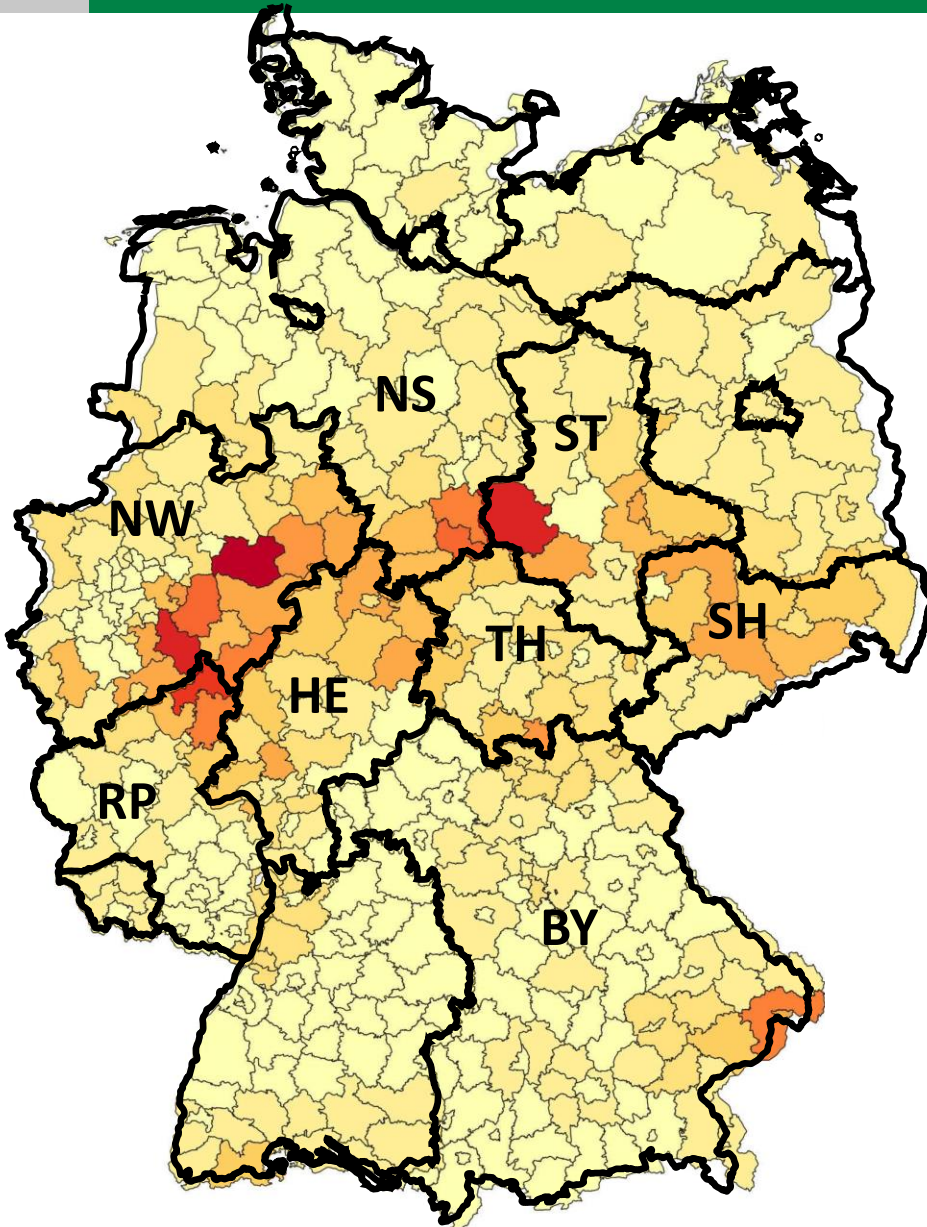
volume of damaged Coniferes from 2018 to 2021 – federal states



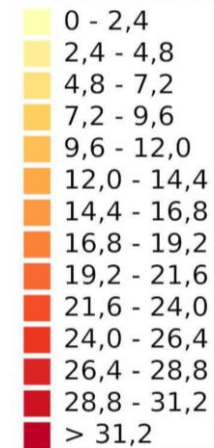
Summary

- Weather from 2015 to 2021 in all years too hot – with extreme drought in 2015 and 2018 with regional differences in Bavaria; 2021 is the first year since 2015 with ordinary rainfall in the growing season
- high number of Spruce bark beetles in traps from 2016 to 2021, slight decrease in 2021
- highest volume of damaged Spruce in 2015 to 2021 since 1950, small decrease in 2021, but regional differences
- bark beetle damage in the south from 2015 to 2019: combination of storm and drought
- bark beetle damage in the north with start 2018: only triggered by weather conditions

Damage on Conifers in Germany 2018 - 2021



Forest cover change 2018 to 2021 [%]



Press release (2022 02 21): Sorge um den deutschen Wald.
DLR - Deutsches Zentrum für Luft- und Raumfahrt / German
Aerospace Center

Online verfügbar unter
https://www.dlr.de/content/de/artikel/news/2022/01/20220221_sorge-um-den-deutschen-wald.html.

Damage on Conifers in Germany 2018 - 2021

