

# Recent spruce bark beetle calamity in Czechia



**Miloš Knížek, Jan Liška, Jan Lubojacký**

***Forest Protection Service, FGMRI***

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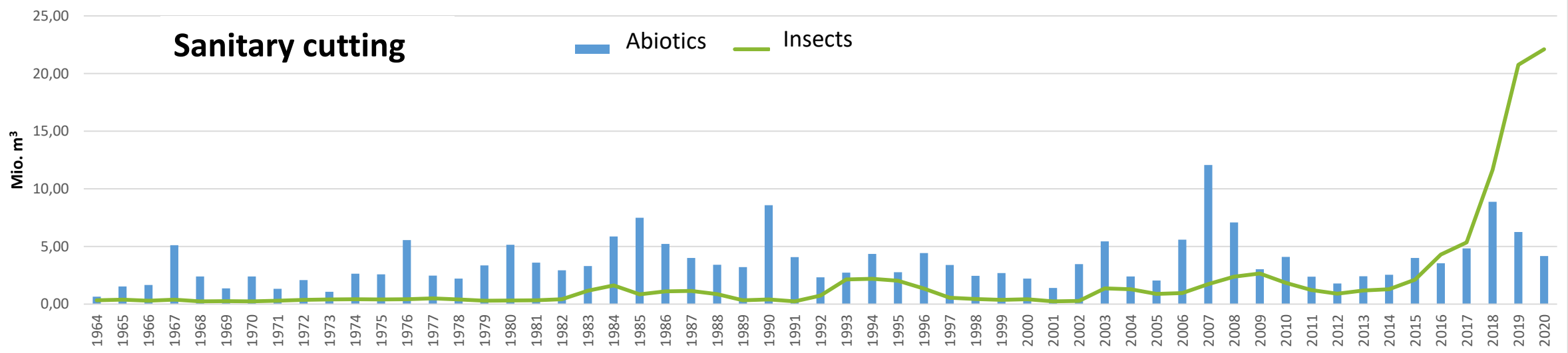
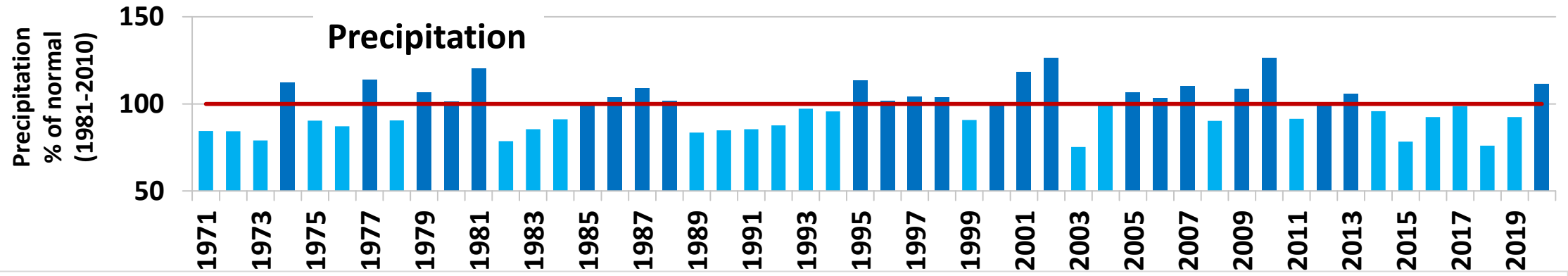
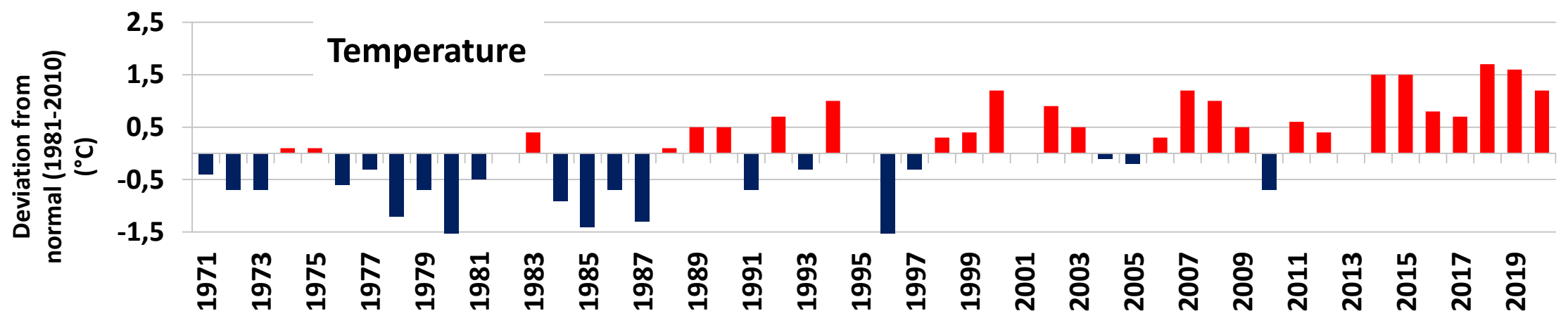
# Forests in Czechia

- Forest area in Czechia: 2.614 mio. ha
- Spruce forests area: 1.285 mio. ha

## Registered sanitary cuttings

- Registered sanitary cuttings in 2020 (68 % forest area) – **19.8 mio. m<sup>3</sup>** (2019 – 19.3 mil. m<sup>3</sup>)
- Total sanitary cuttings in 2020 (100 % forest area) – **29,1 mio. m<sup>3</sup>**
- Sanitary cuttings ca **90 %** of total cuttings!
- Biotic factors – key impact in 2020 – **22.6 mio. m<sup>3</sup>**





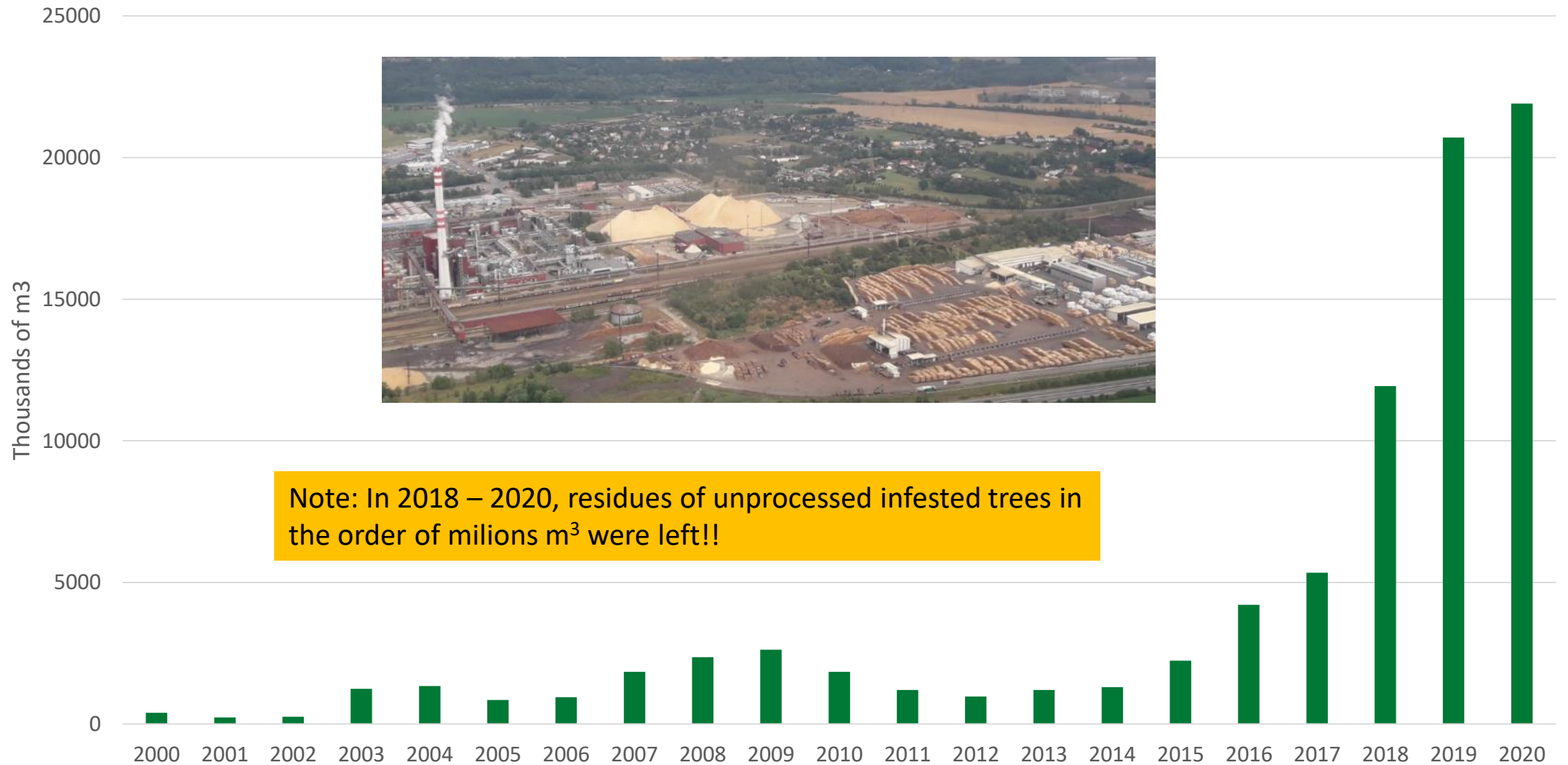
# The most harmful bark and wood boring insect in Czechia in 2020

- Dominant role of bark beetles, approx. 95 % of biotic damage
- Main damaged host: Norway spruce
- Main insect species: *Ips typographus*, *Ips duplicatus*, *Pityogenes chalcographus* in their combination
- Increasing role of *Ips duplicatus*
  
- Serious damages also in pine stands



# Recorded volume of spruce BB infested wood since 2000

(calculated to 100 % forest area)

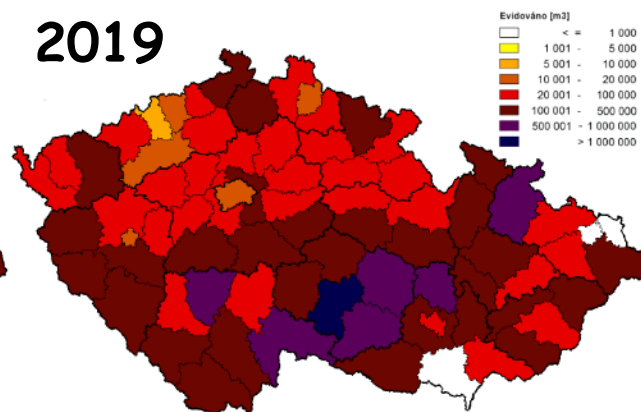
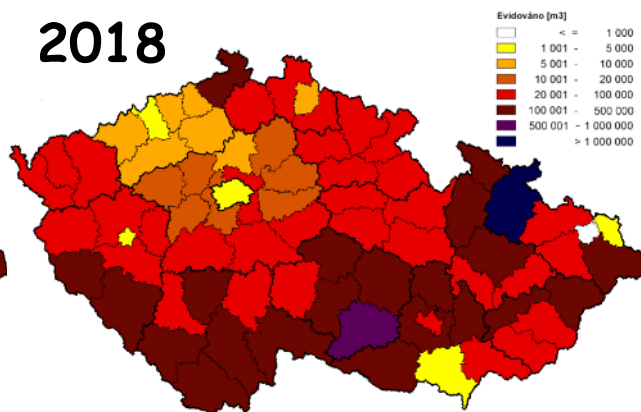
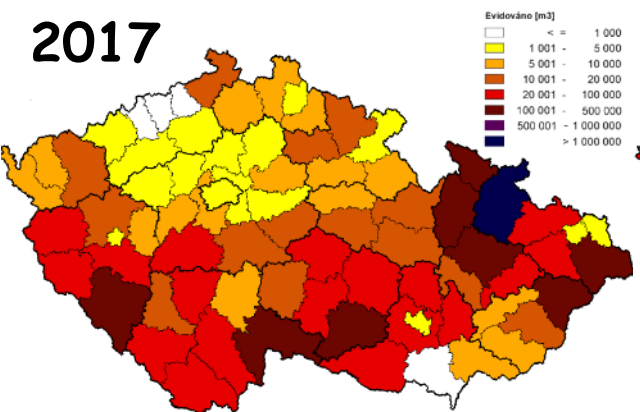
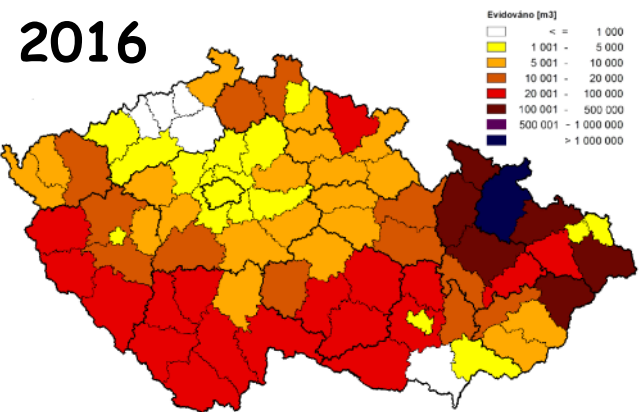
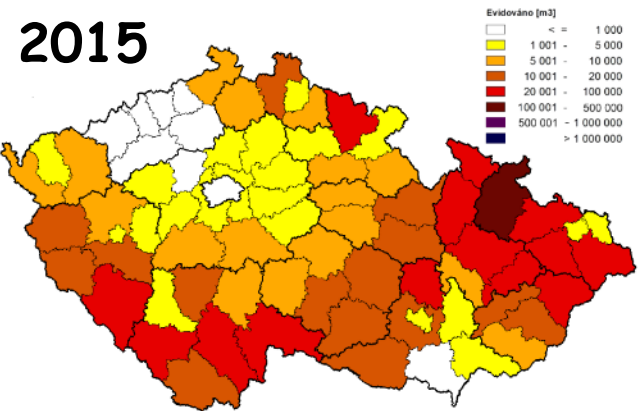
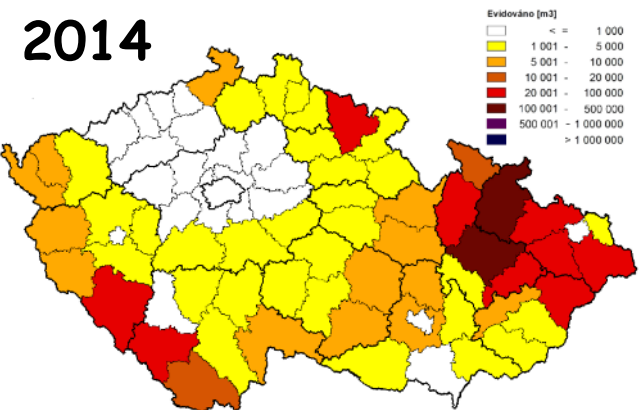




# Recorded volume of BB spruce wood in Czechia

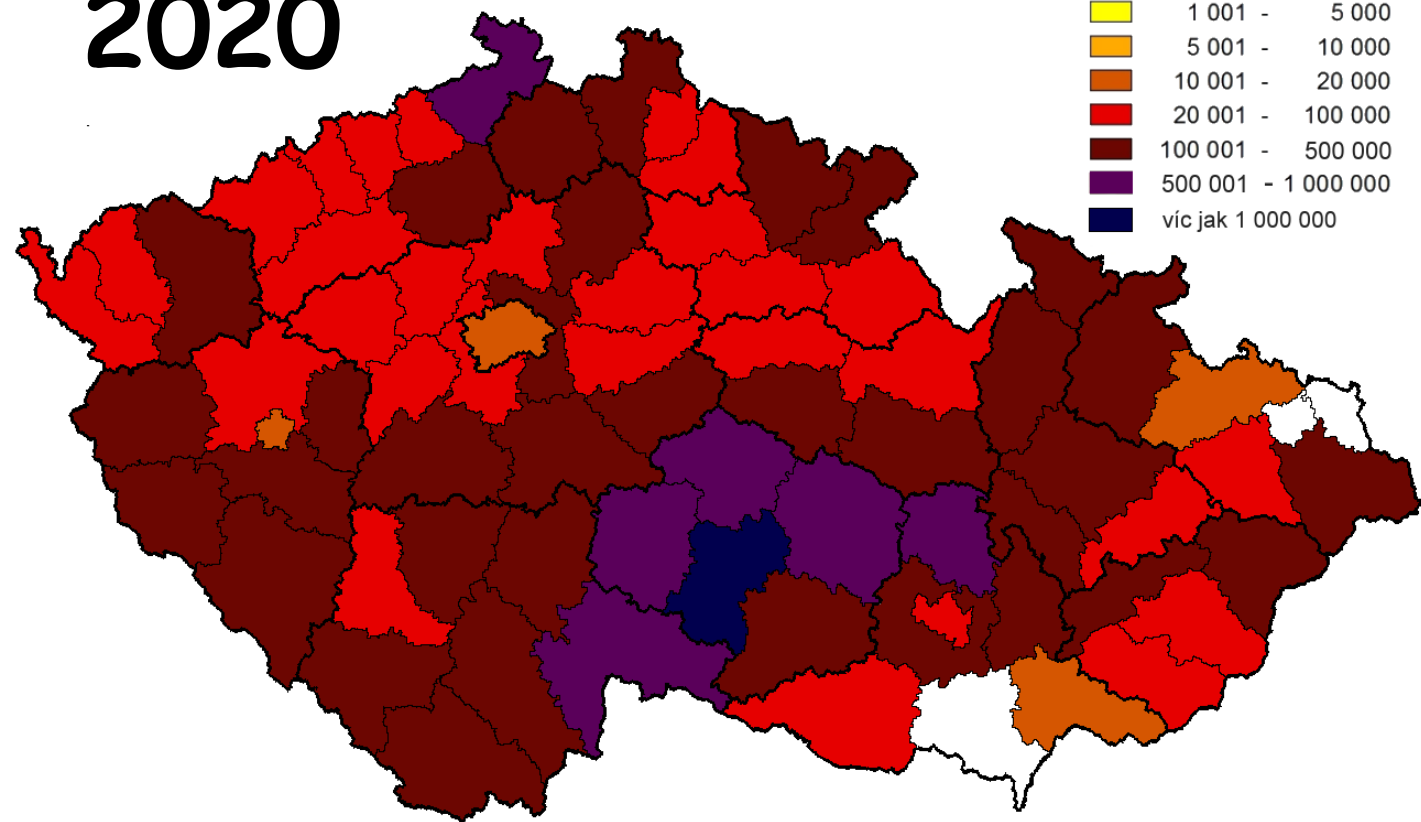
|           |                       |
|-----------|-----------------------|
| 1951-1960 | 2 mio m <sup>3</sup>  |
| 1961-1970 | 3 mio m <sup>3</sup>  |
| 1971-1980 | 4 mio m <sup>3</sup>  |
| 1981-1990 | 8 mio m <sup>3</sup>  |
| 1991-2000 | 9 mio m <sup>3</sup>  |
| 2001-2010 | 13 mio m <sup>3</sup> |
| 2011-2020 | 71 mio m <sup>3</sup> |

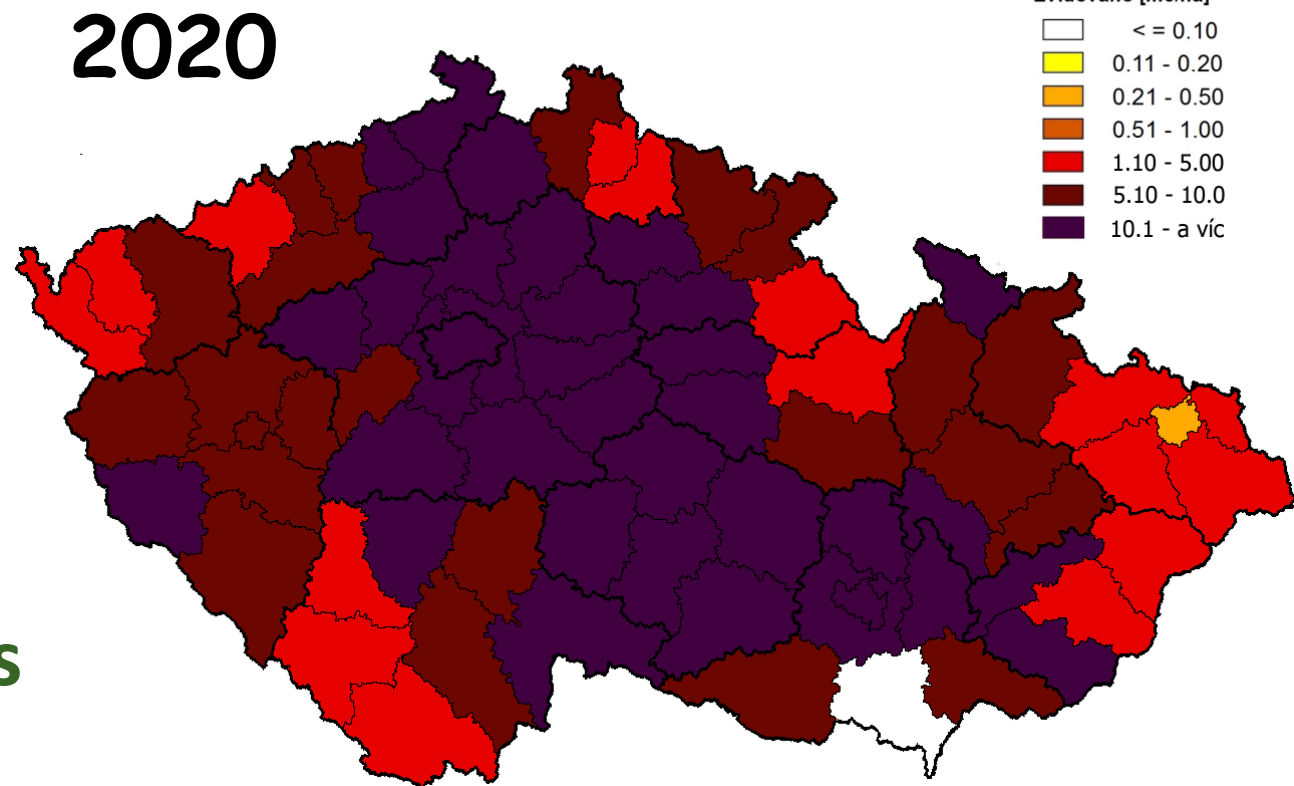
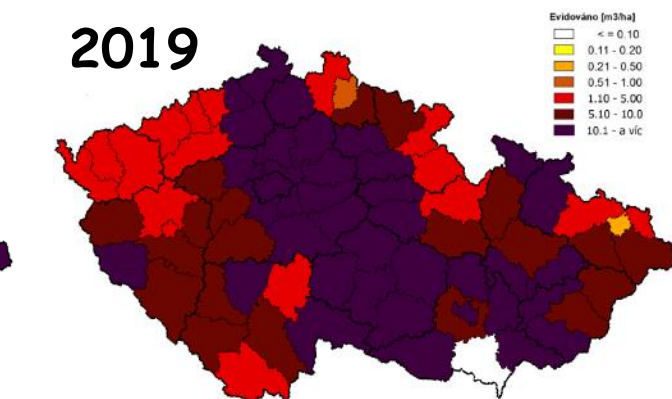
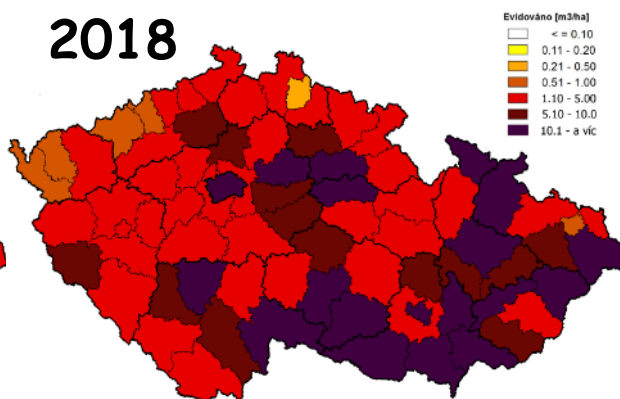
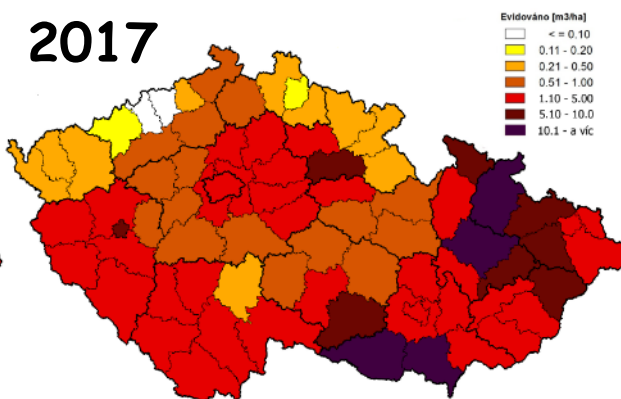
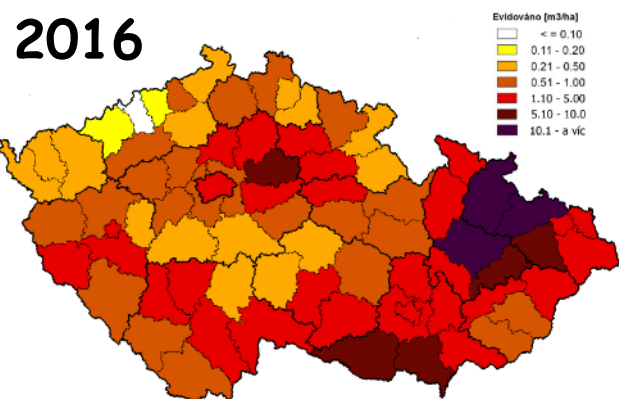
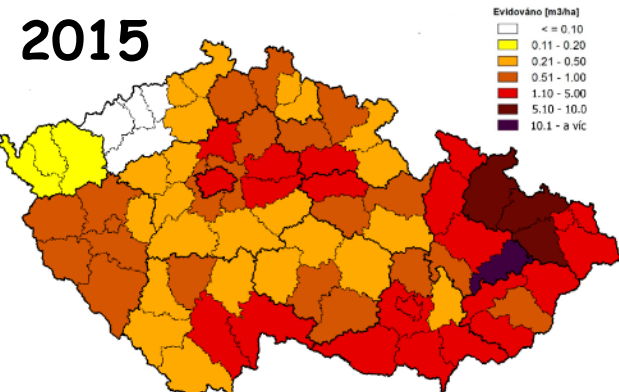
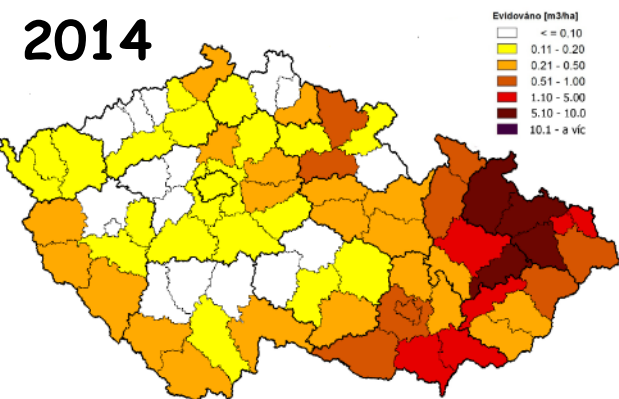




# 2020

Recorded  
volume of  
spruce BB  
infested  
wood



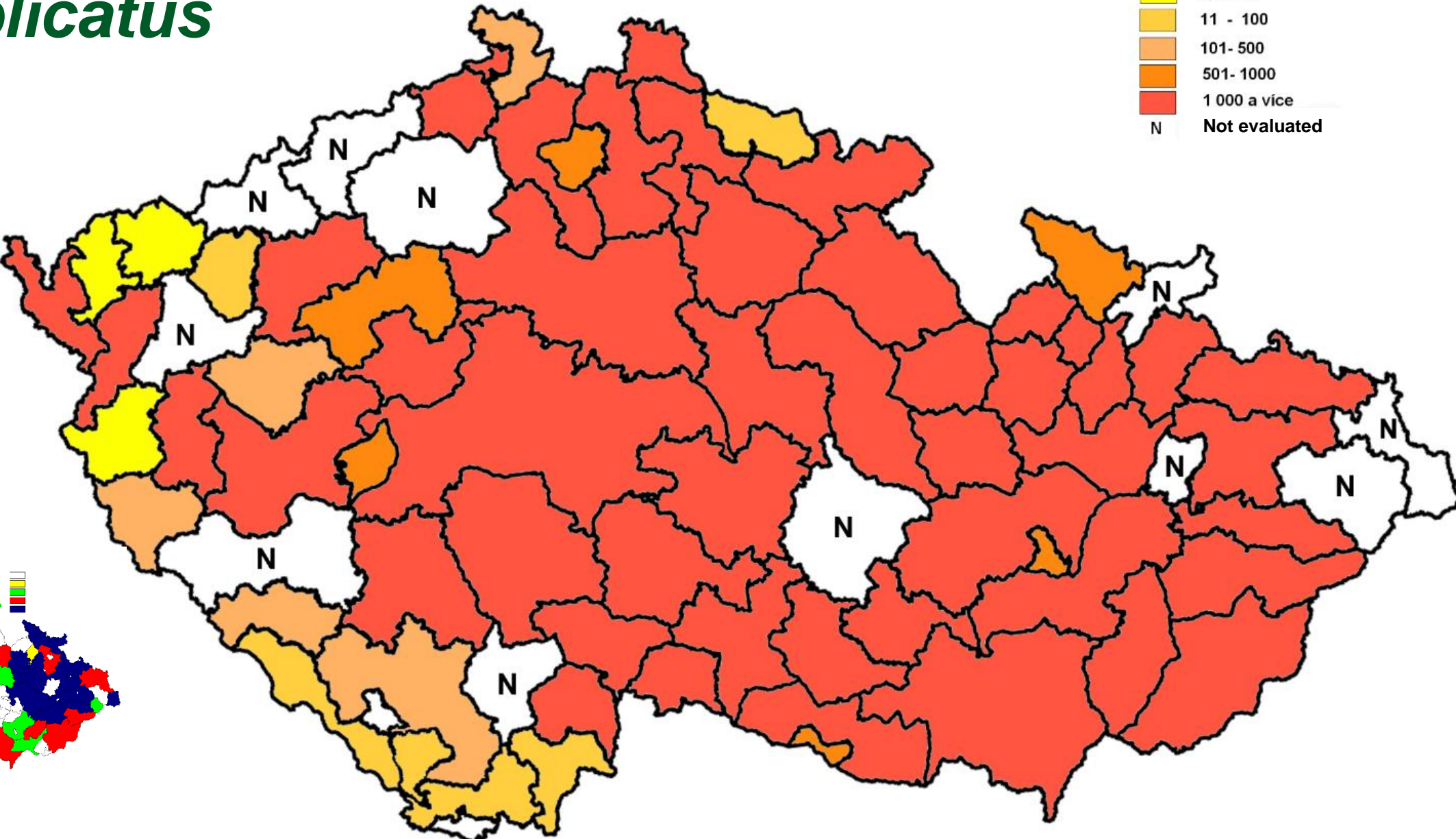
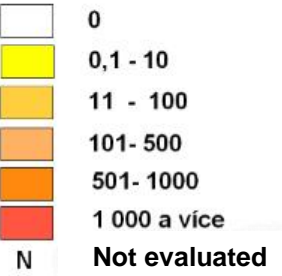


Recorded  
volume of  
spruce BB  
infested  
wood per ha  
spruce stands

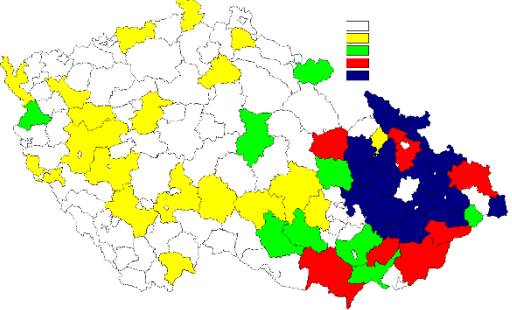


# Monitoring of *Ips duplicatus* in 2020

Mean capture in one pheromone trap



2000





# Protection measurements

- **2020:**

- cca 246 th. m<sup>3</sup> trap trees
- cca 55 th. pheromone traps
- barked ca 319 th. m<sup>3</sup>
- chemically treated ca 2 046 tis. m<sup>3</sup>



- **2019:**

- cca 250 th. m<sup>3</sup> trap trees
- cca 69 th. pheromone traps
- barked ca 183 th. m<sup>3</sup>
- chemically treated ca 2 209 th. m<sup>3</sup>



- **2018:**

- cca 282 th. m<sup>3</sup> trap trees (2017 - 461 th. m<sup>3</sup>)
- cca 71,5 th. pheromone traps (2017 - 53 th.)
- barked ca 106 th. m<sup>3</sup> (2017 - 30 th. m<sup>3</sup>)
- chemically treated ca 1 265 th. m<sup>3</sup> (2017 - 486 th. m<sup>3</sup>)



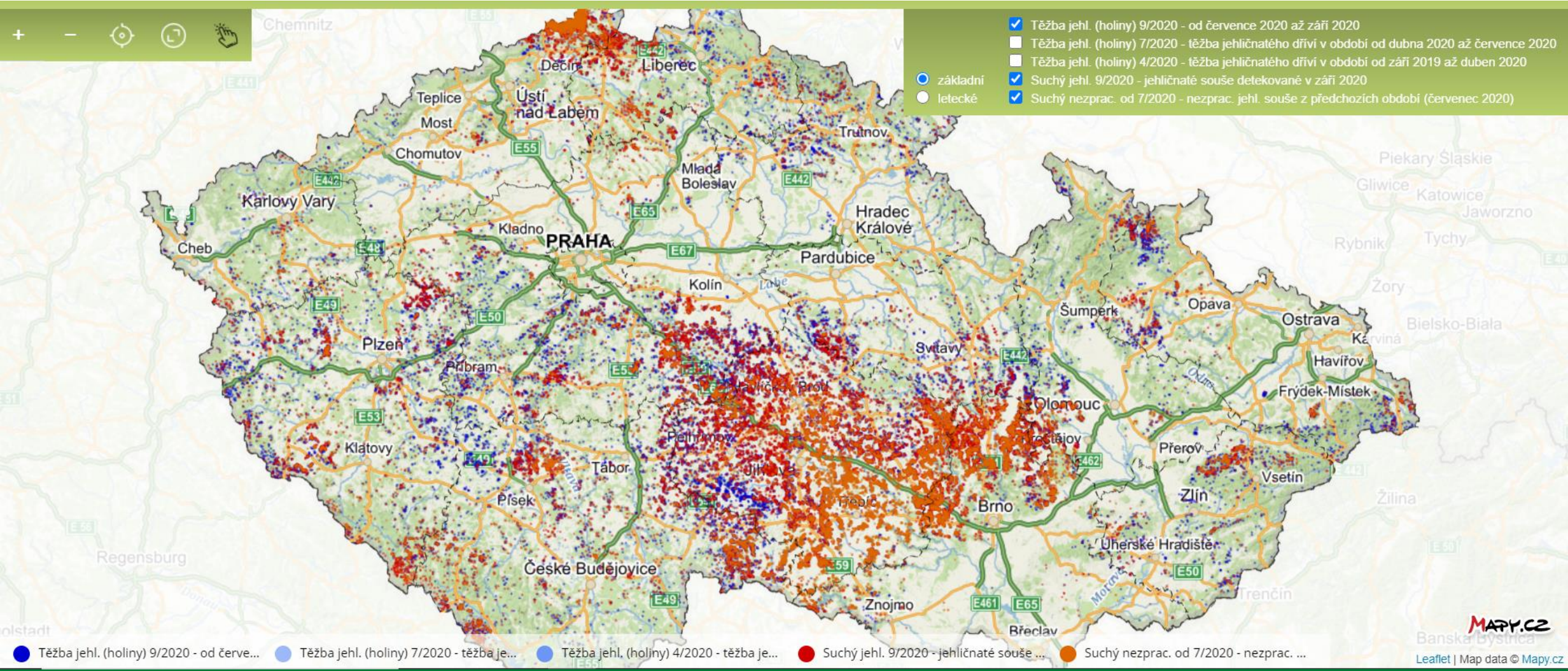


# Kůrovcová mapa (BB map):

<http://geoportal.uhul.cz/mapy/MapyDpz.html>

or <https://www.kurovcovamapa.cz/>

Forest Management Institute





### For the whole country:

1. Possibility to postpone logging until 31. 12. 2022.

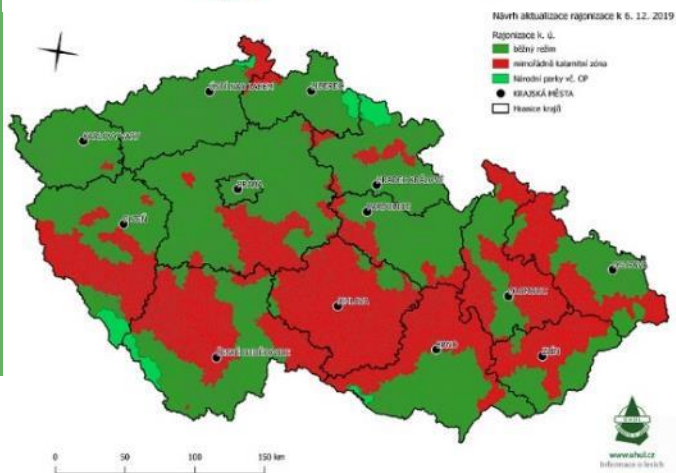
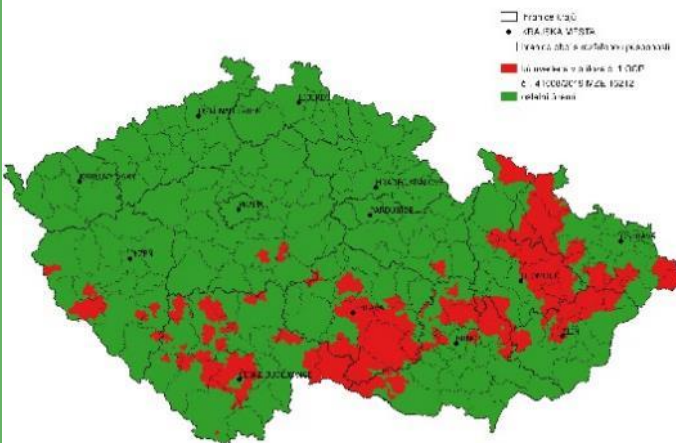
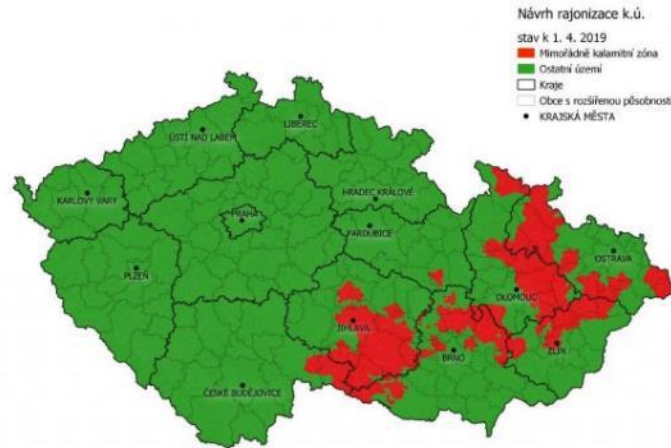
2. Extension of afforestation on clearcuts to 5 years and to 10 years respectively.

3. Possibility to use reproductive material (except spruce) from different areas and elevation until 31. 12. 2022.

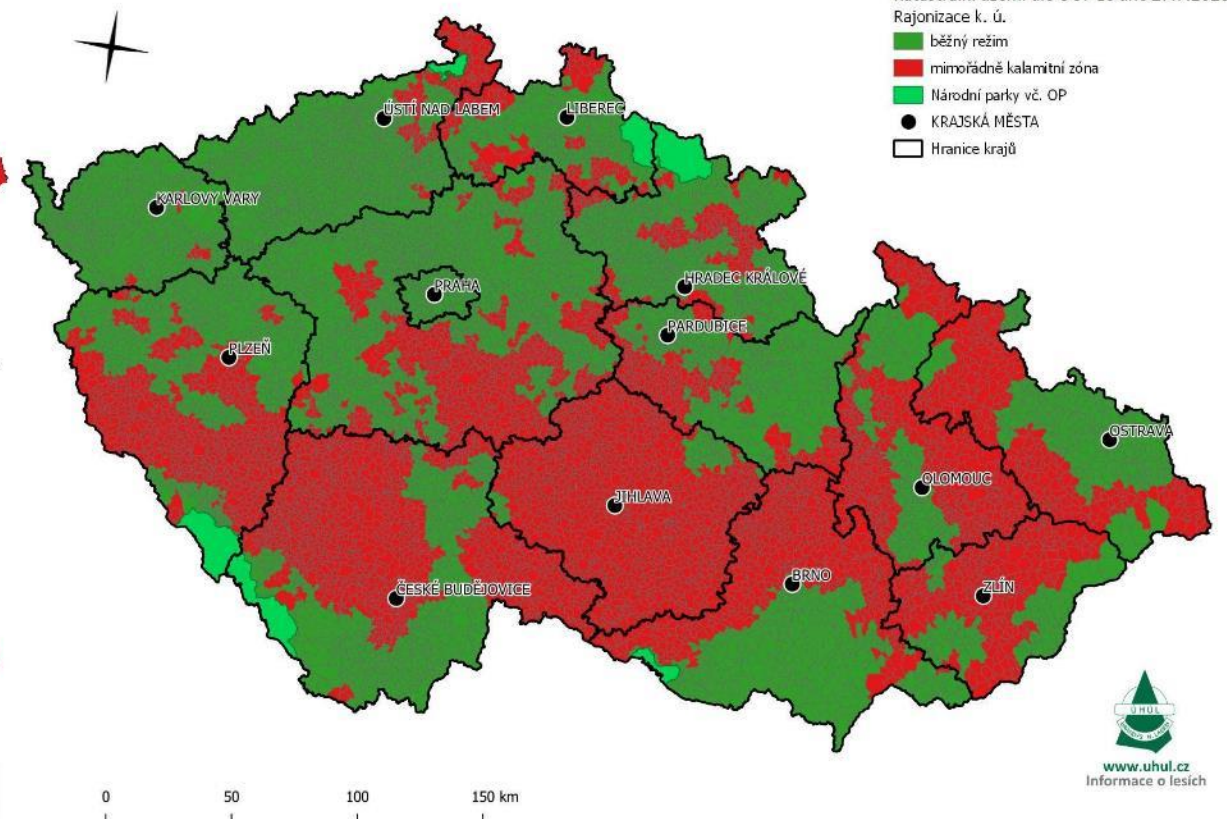
### Calamity zone:

4. Use of traps and trap tress voluntary.

5. Leaving of 5 m wide non afforested lanes on clearcuts and their edges

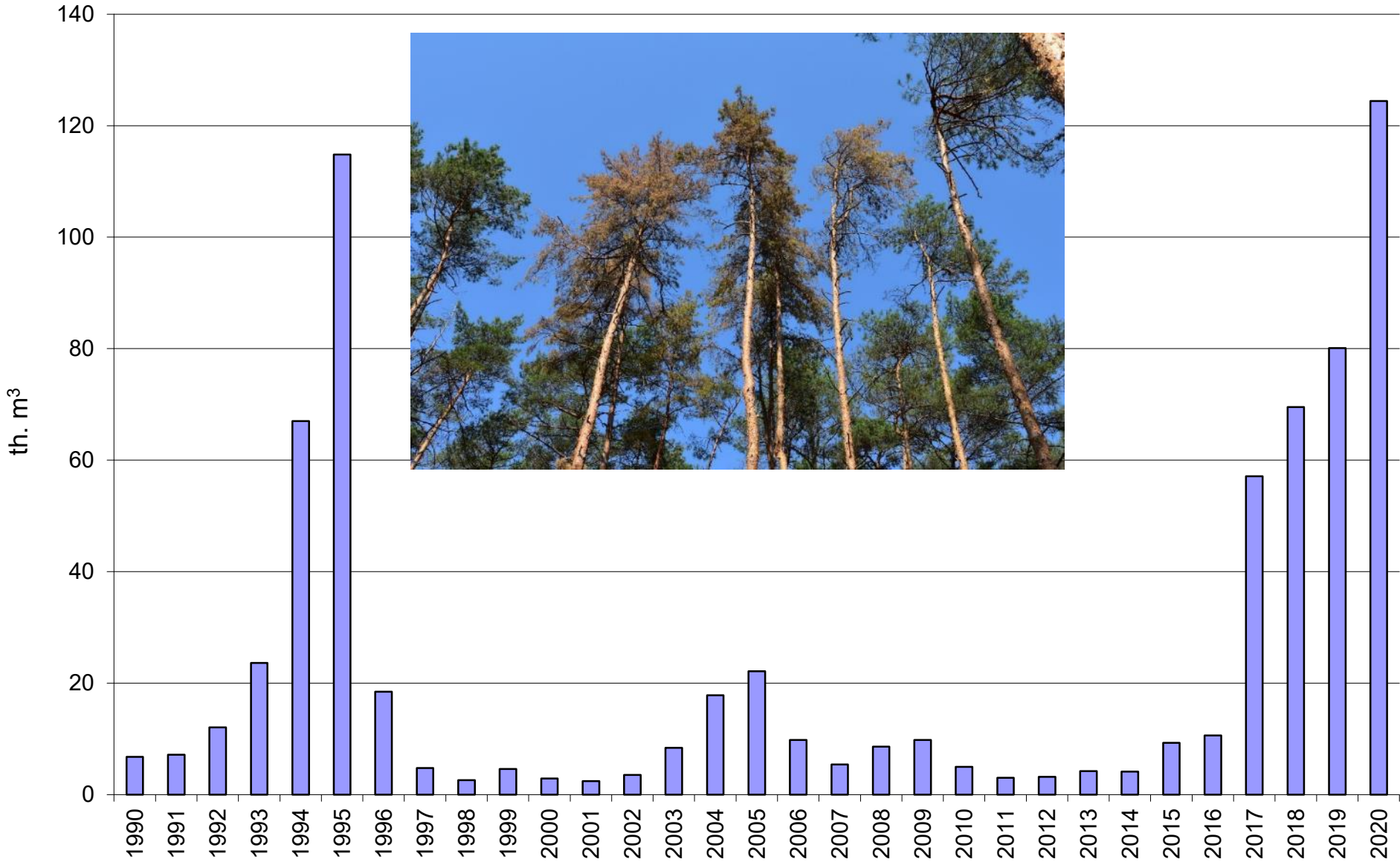


# Regionalization of extraordinary calamity zones according to General regulation of measures—valid since 3.4. 2019 (actualization 30.8.2019, 6.12.2019, 2.4.2020 a 27.7.2020)



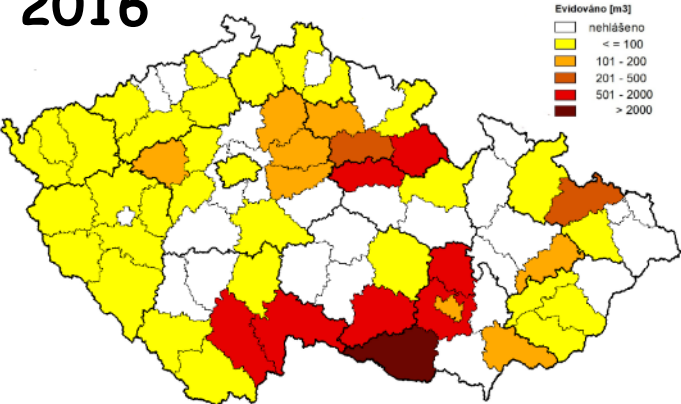


# Recorded volume of pine BB infested wood since 1990

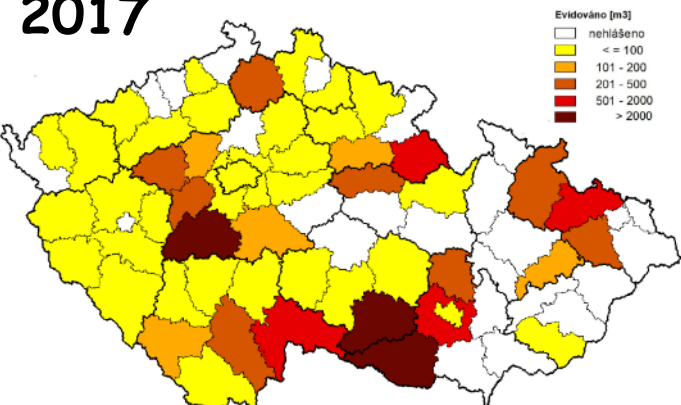


# Recorded volume of pine BB infested wood

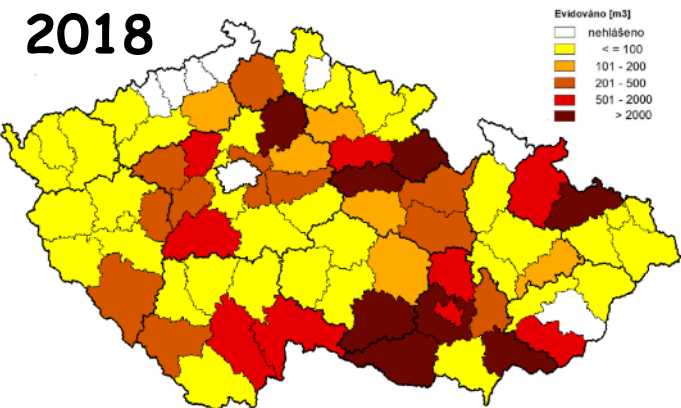
2016



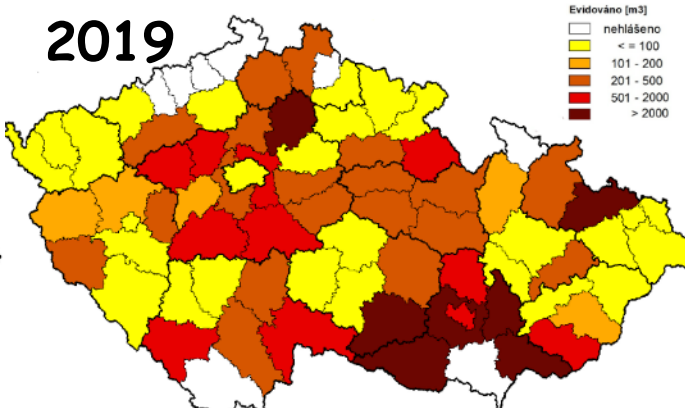
2017



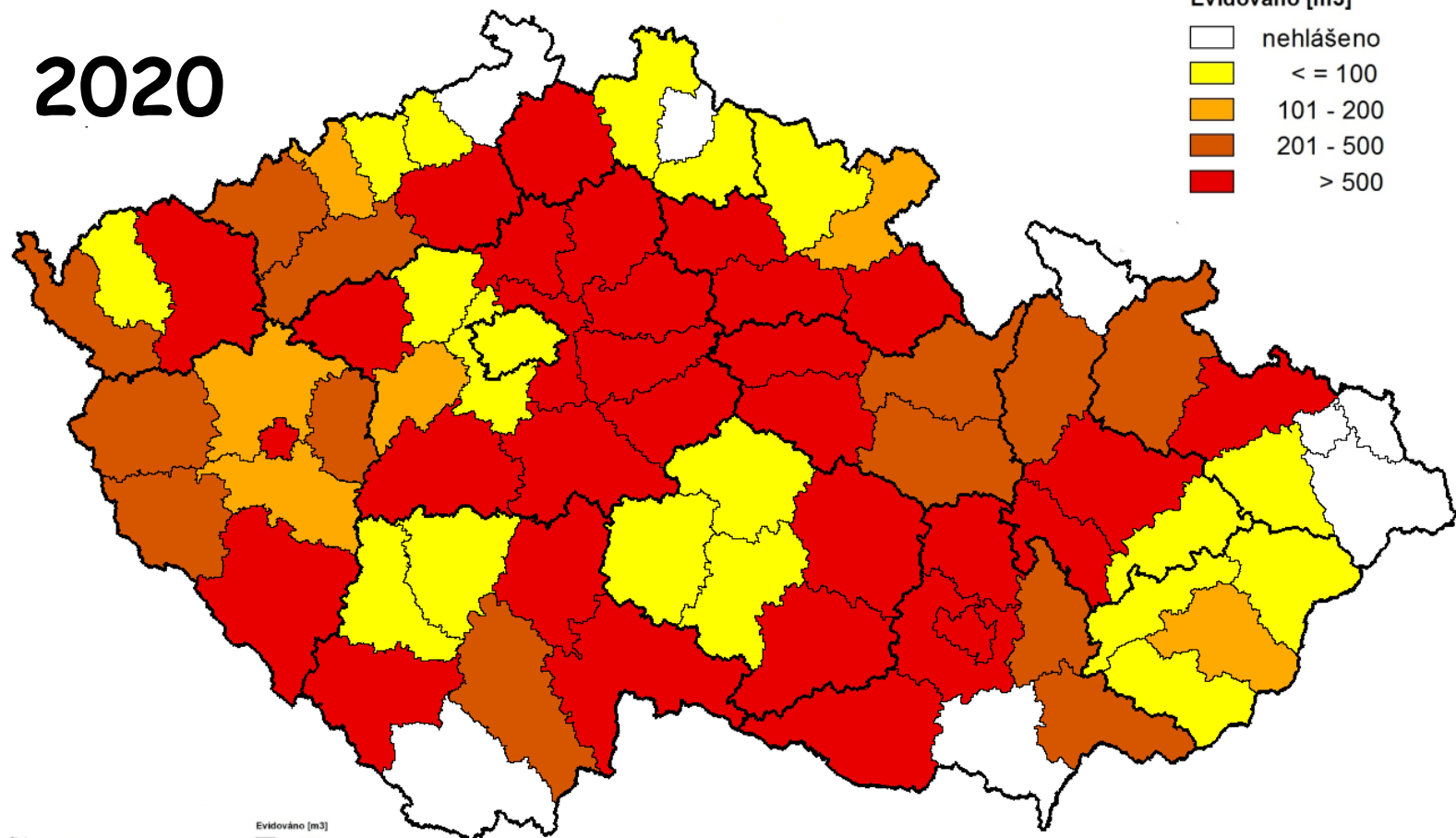
2018



2019



2020



Main species on pine: *Ips acuminatus*,  
*Ips sexdentatus*, *Orthotomicus* spp.,  
*Phaenops cyanea*, *Sirex noctilio*



## General reasons:

Weather conditions mentioned above (since 2014)

## Human reasons:

### General causes

- Permanent loss of qualified workforce
- Inactivity of a number of owners
- Inflexible system of public procurement

### Related impacts

- Late processing of bark beetles and other infested wood
- Insufficient processing of bark beetles infested wood



# Conclusions and forecast

- **ca 62 mio m<sup>3</sup> spruce BB infested wood cut in between 2003 and 2019 in Czechia!!**
- **ca 22 mio m<sup>3</sup>** in 2020, while the total infestation was approx. **25 – 30 mio m<sup>3</sup>** = ca 2x balanced annual amount
- Estimated stock of „living“ spruce wood still about ca 400 mil. m<sup>3</sup>
- In 2021 estimated ca **20-30 mio m<sup>3</sup>** spruce wood infested
  - Decrease of infestation in Moravia and Silesia
  - Deterioration in Bohemia and infestation on new locations
- In general - stagnation or hopefully improving of the stage in 2021 , but still high calamity situation => **Do not resign from the implementation of forest protection measures!!**
- Dramatically influenced static stability of spruce stands – high risk of windstorms...
- The issue of recovery of clearcuts under the pressure of overpopulated game...







lesní ochranná služba

# Thank you for your attention!

Miloš Knížek, Jan Liška, Jan Lubojacký



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Service**

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