



Faculty of Forestry  
and Wood Sciences

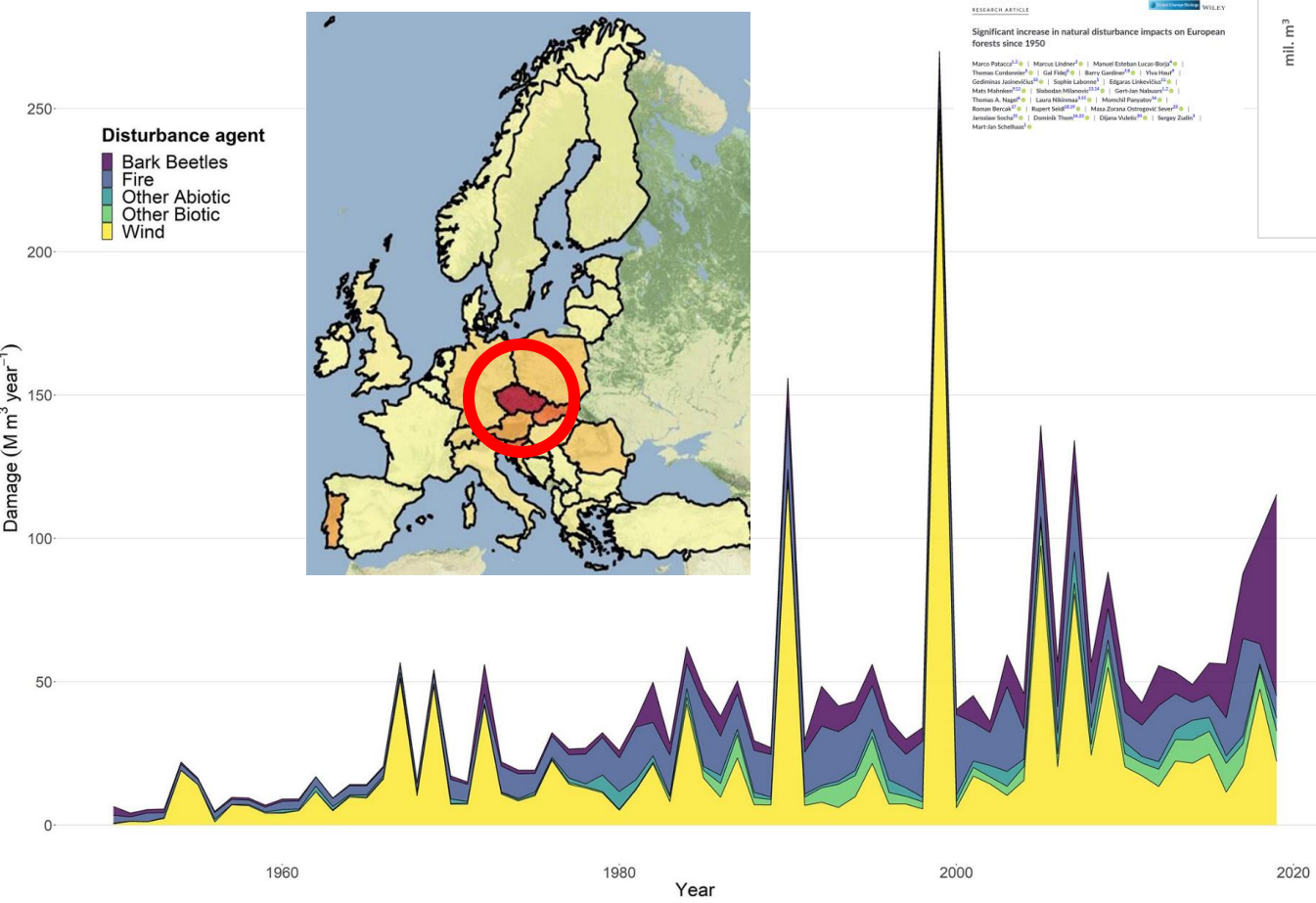
# Kůrovcová gradace v Česku a Českém Švýcarsku

Roman Modlinger, Tomáš Klouček, Josef Brůna, Jan Komárek, Peter Surový, Tomáš Hlásny

Chřibská 2.11.2023

CZECH UNIVERSITY OF LIFE SCIENCES

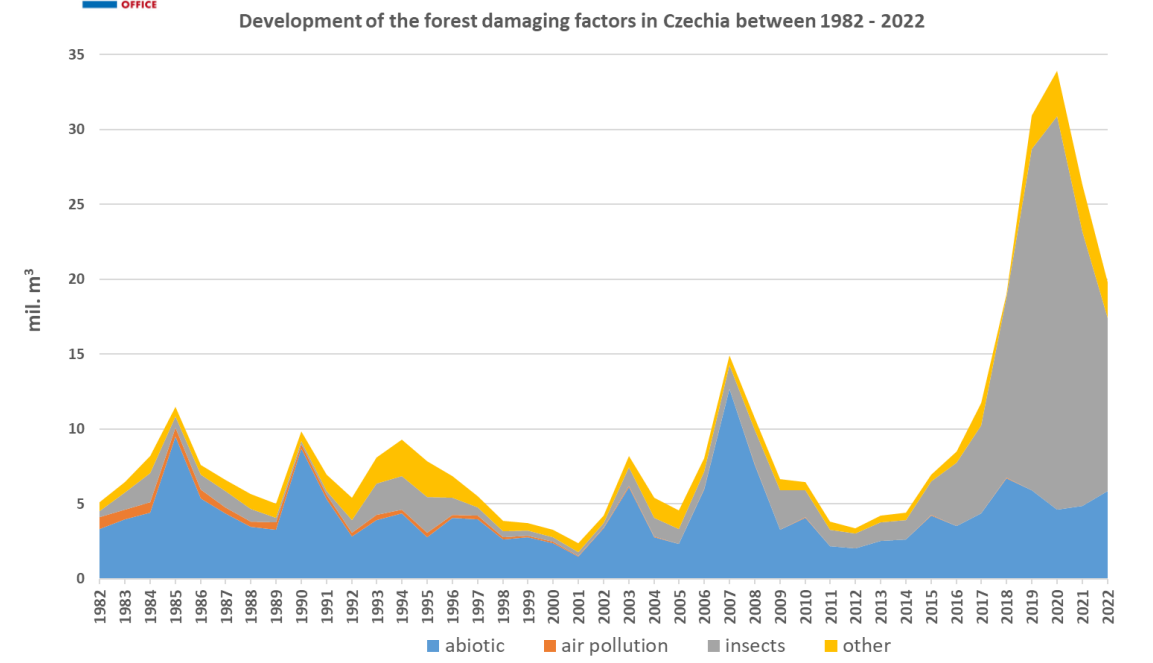
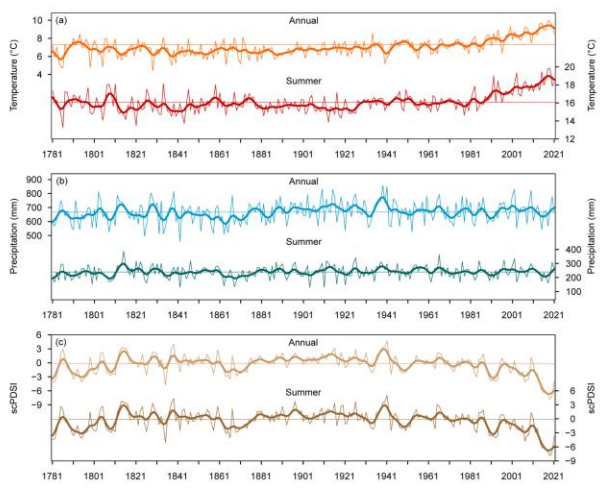
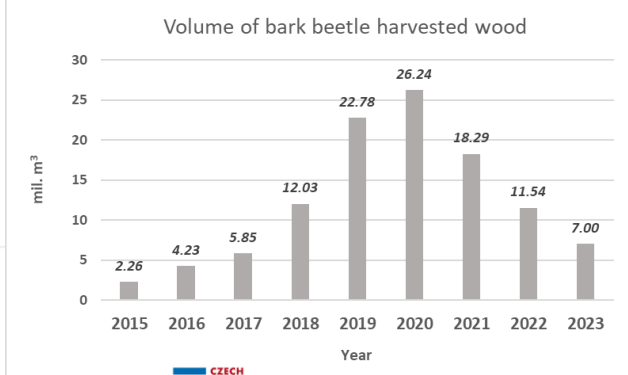
# Poškození lesů v Evropě a ČR



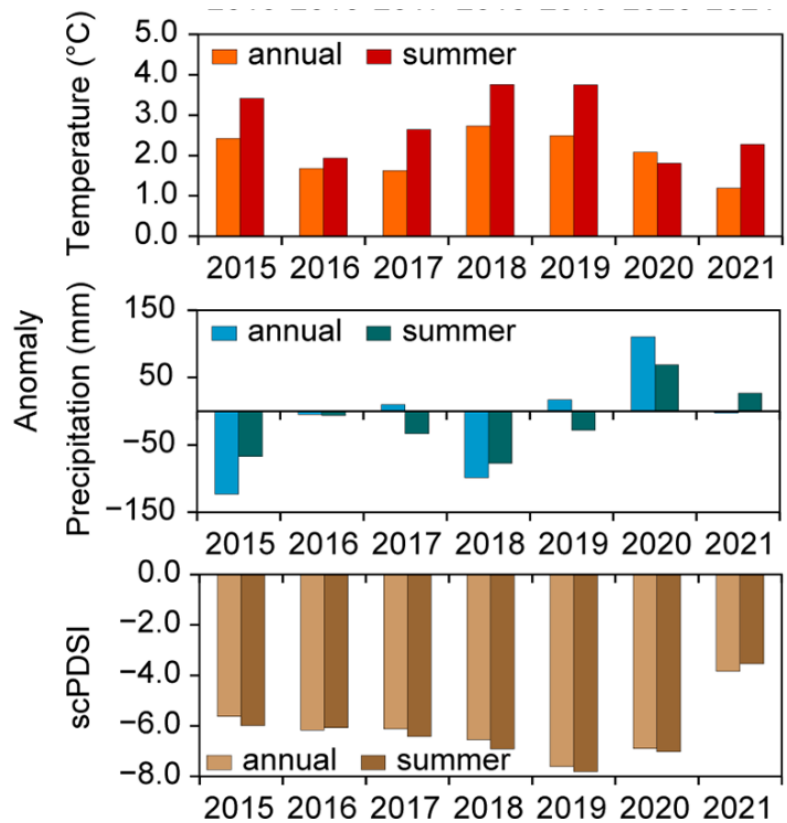
Research Article  
 Significant increase in natural disturbance impacts on European forests since 1950

Manuel Esteban-Lucio<sup>1,2</sup>, Marco Lindner<sup>3,4</sup>, Manuel Esteban-Lucio<sup>5,6</sup>, Thomas Göttsche<sup>7,8</sup>, Gal Kikvidze<sup>9</sup>, Barry Goodland<sup>10,11</sup>, Yvan Houllou<sup>12</sup>, Gediminas Jonkus<sup>13,14</sup>, Sophie Liberman<sup>15</sup>, Edgaras Linkeris<sup>16,17</sup>, Hans-Martin Meyer<sup>18,19</sup>, Silke-Maria Mielke<sup>20,21</sup>, Gert-Jan Nabuurs<sup>22,23</sup>, Thomas A. Nageleisen<sup>24</sup>, Laura Nikkila<sup>25,26</sup>, Marcello Panuotai<sup>27</sup>, Roman Renczik<sup>28</sup>, Robert Seidl<sup>29,30</sup>, Mica Zorina Orlingskog<sup>31,32</sup>, Anneliese Stock<sup>33</sup>, Dominik Thaler<sup>34,35</sup>, Diana Valiela<sup>36</sup>, Sergey Zaitsev<sup>37</sup>, Mari Jan Schelhaas<sup>38</sup>

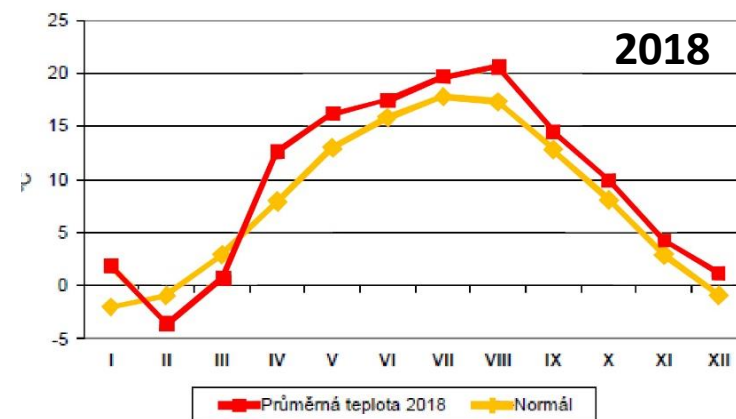
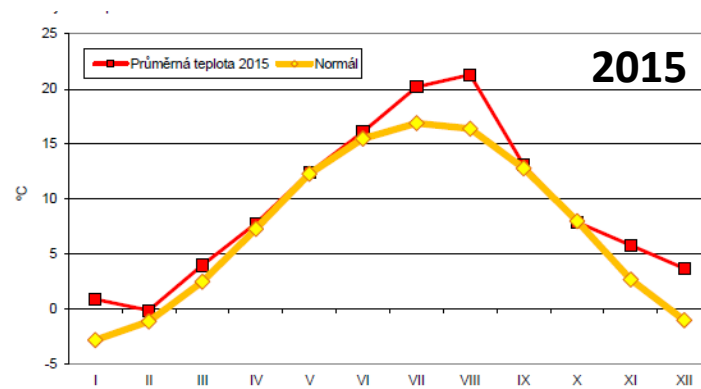
Climate of the Past  
**EGU**  
 Meteorological and climatological triggers of notable past and present bark beetle outbreaks in the Czech Republic  
 Rudolf Brzdil<sup>1,2</sup>, Petr Zahradník<sup>3</sup>, Peter Štábl<sup>4,5</sup>, Kateřina Chromá<sup>6</sup>, Petr Dabrowský<sup>1,2</sup>, Lukáš Dolák<sup>1,2</sup>, Miroslav Trnka<sup>7,8</sup>, Jan Řehel<sup>1,2</sup>, and Sílvia Suchánková<sup>9</sup>



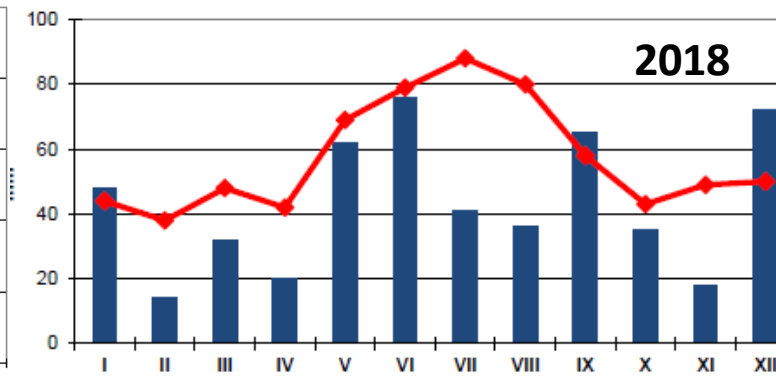
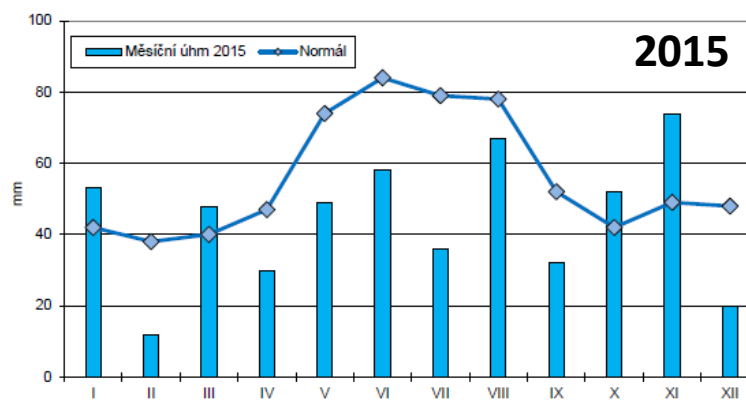
# Příčiny - klima



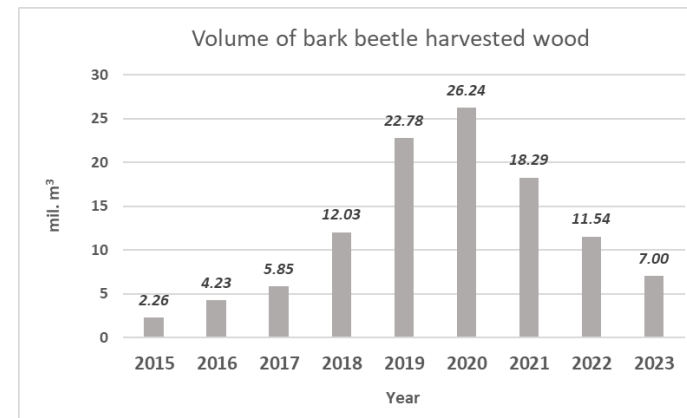
Průměrné měsíční teploty



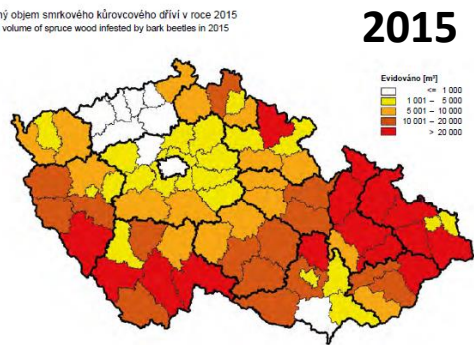
Měsíční suma srážek



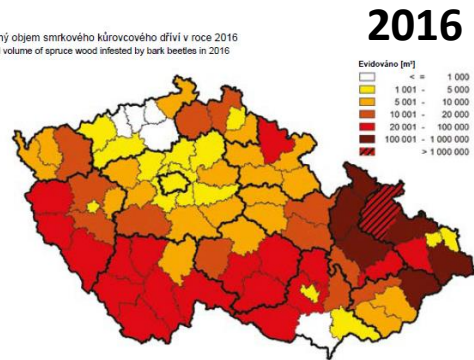
# Průběh současné kůrovcové kalamity v ČR



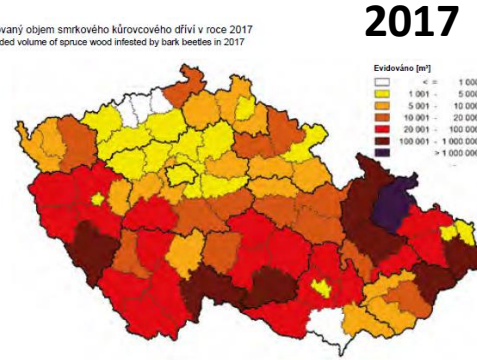
Obr. 24: Evidovaný objem smrkového kůrovcového dříví v roce 2015  
Recorded volume of spruce wood infested by bark beetles in 2015



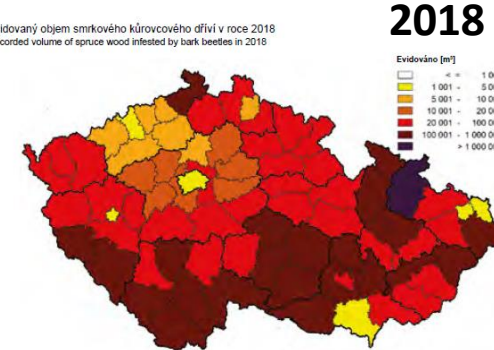
Obr. 24: Evidovaný objem smrkového kůrovcového dříví v roce 2016  
Recorded volume of spruce wood infested by bark beetles in 2016



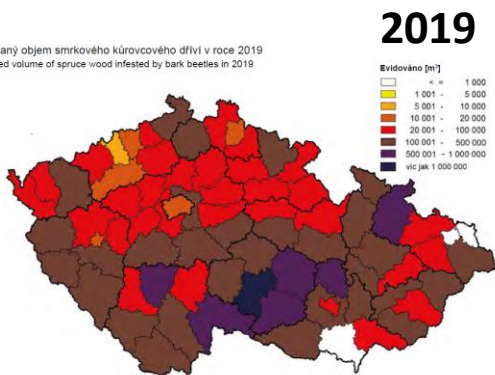
Obr. 25: Evidovaný objem smrkového kůrovcového dříví v roce 2017  
Recorded volume of spruce wood infested by bark beetles in 2017



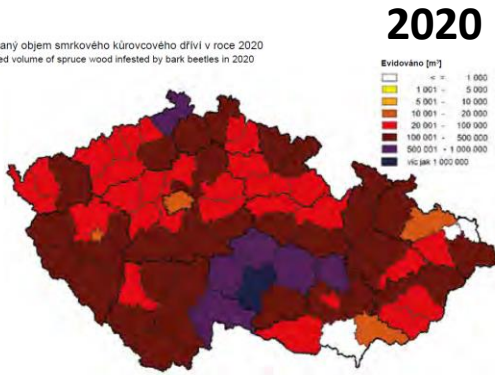
Obr. 25: Evidovaný objem smrkového kůrovcového dříví v roce 2018  
Recorded volume of spruce wood infested by bark beetles in 2018



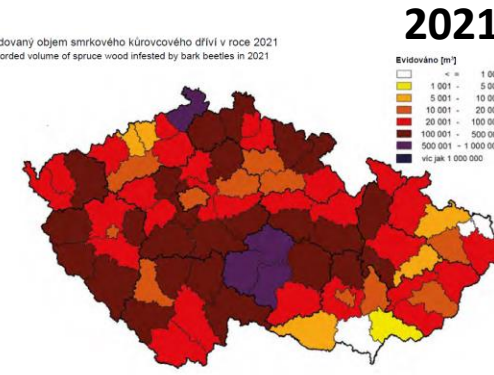
Obr. 25: Evidovaný objem smrkového kůrovcového dříví v roce 2019  
Recorded volume of spruce wood infested by bark beetles in 2019



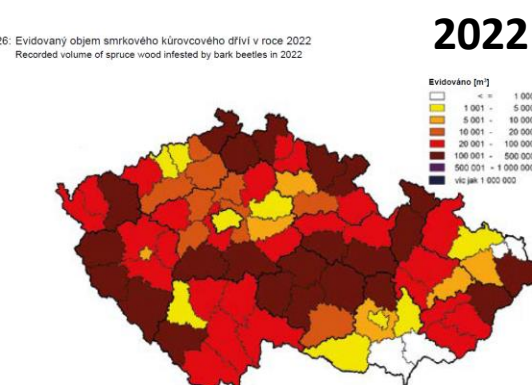
Obr. 26: Evidovaný objem smrkového kůrovcového dříví v roce 2020  
Recorded volume of spruce wood infested by bark beetles in 2020



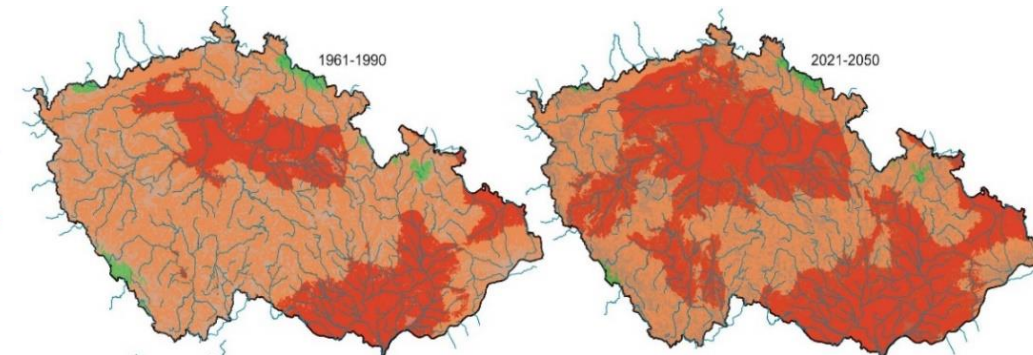
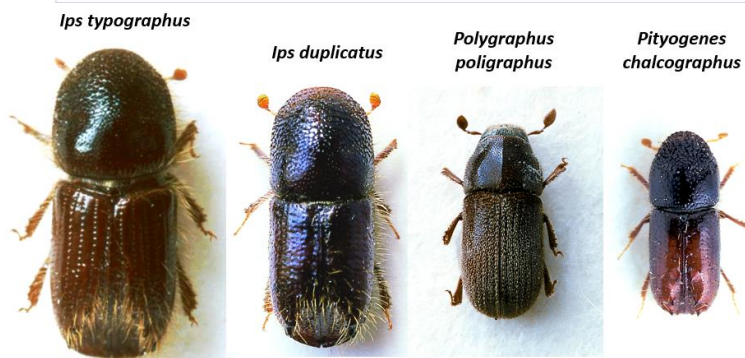
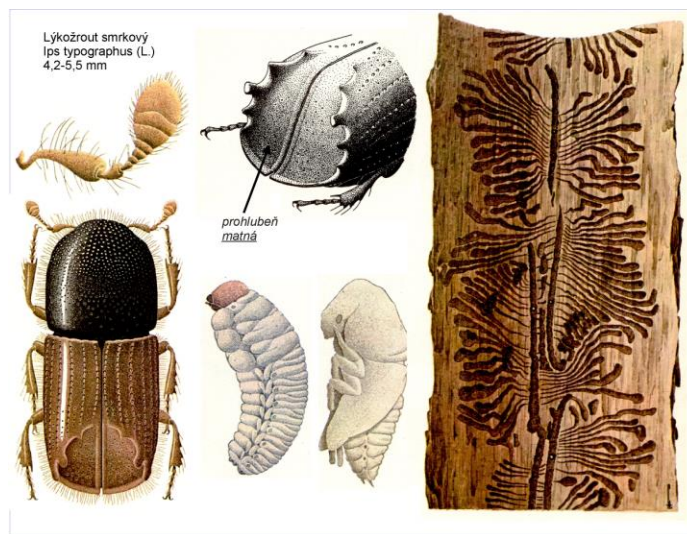
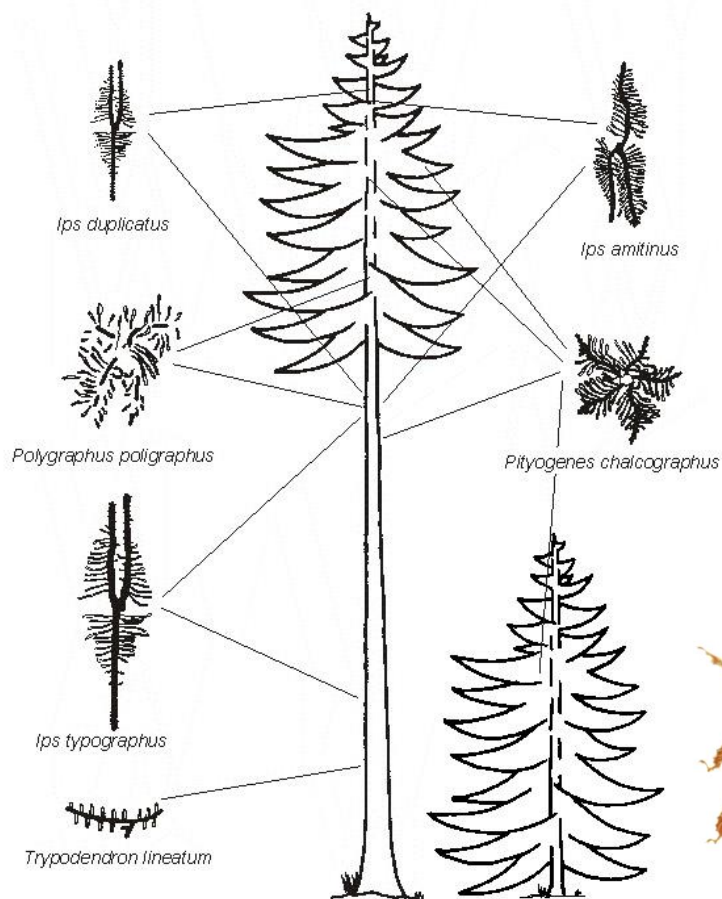
Obr. 25: Evidovaný objem smrkového kůrovcového dříví v roce 2021  
Recorded volume of spruce wood infested by bark beetles in 2021



Obr. 26: Evidovaný objem smrkového kůrovcového dříví v roce 2022  
Recorded volume of spruce wood infested by bark beetles in 2022



# Bionomie kůrovcovitých

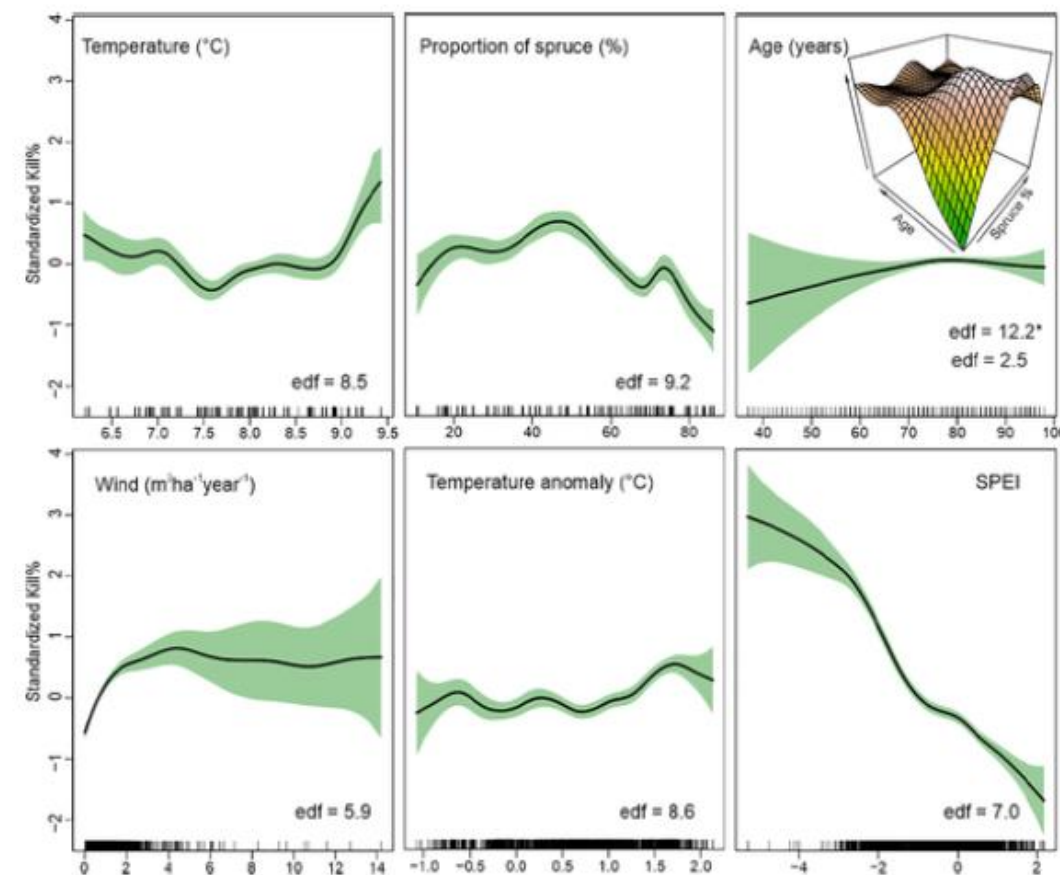


# Faktory ovlivňující dynamiku gradace

Devastating outbreak of bark beetles in the Czech Republic: Drivers, impacts, and management implications

T. Hlásný<sup>a</sup>, S. Zimová<sup>a</sup>, K. Merganičová<sup>a</sup>, P. Štěpánek<sup>b</sup>, R. Modlinger<sup>a</sup>, M. Turčáni<sup>a</sup>

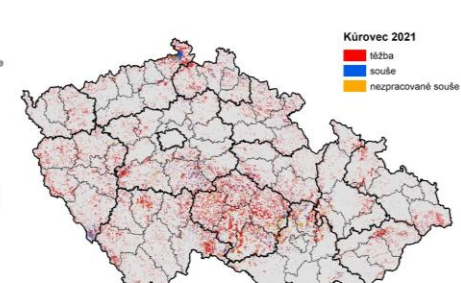
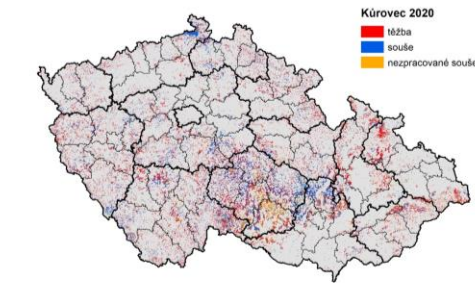
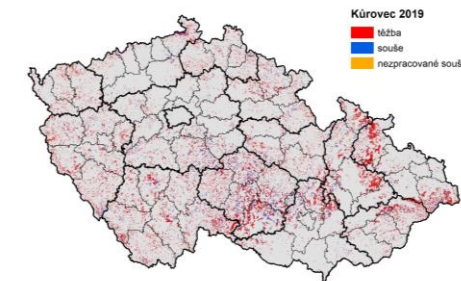
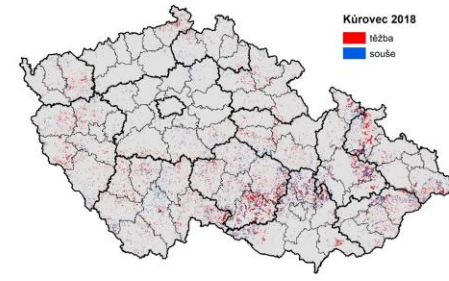
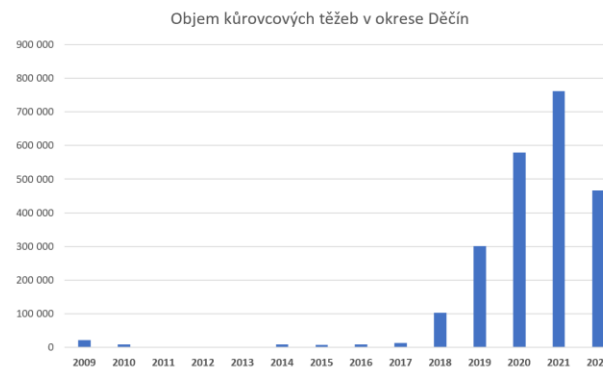
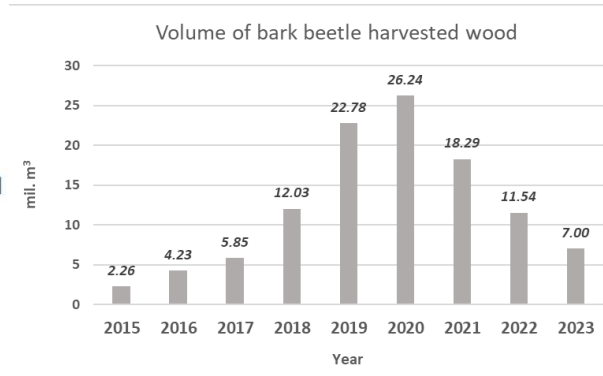
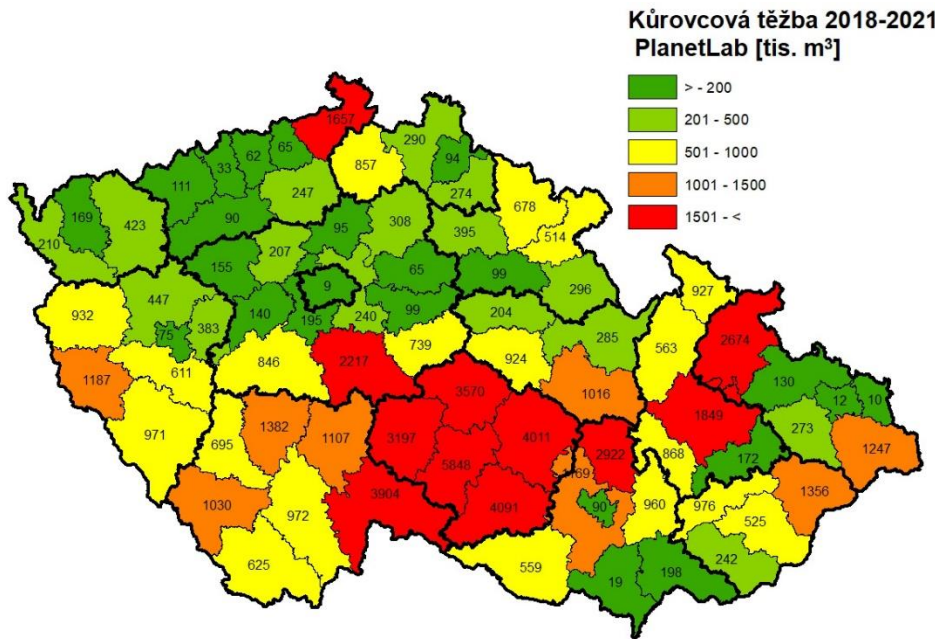
- Roční průměrné teploty nad  $> 9^{\circ}\text{C}$
- Podíl smrku %
- Rostoucí s věkem
- Polomy, menší polomy větší vliv
- Teplotní anomálie nad  $+1,5^{\circ}\text{C}$
- Nízký SPEI (Standardized Precipitation-Evapotranspiration Index) indikuje nedostupnost vody



# Šíření kůrovce z dat DPZ

Celkový objem kůrovcových těžeb 2015 – 2021

104 495 188 m<sup>3</sup> (data ČSÚ)



# NPČŠ

rok	výměra
2018	168
2019	514
2020	1 207
2021	1 019
2022	421

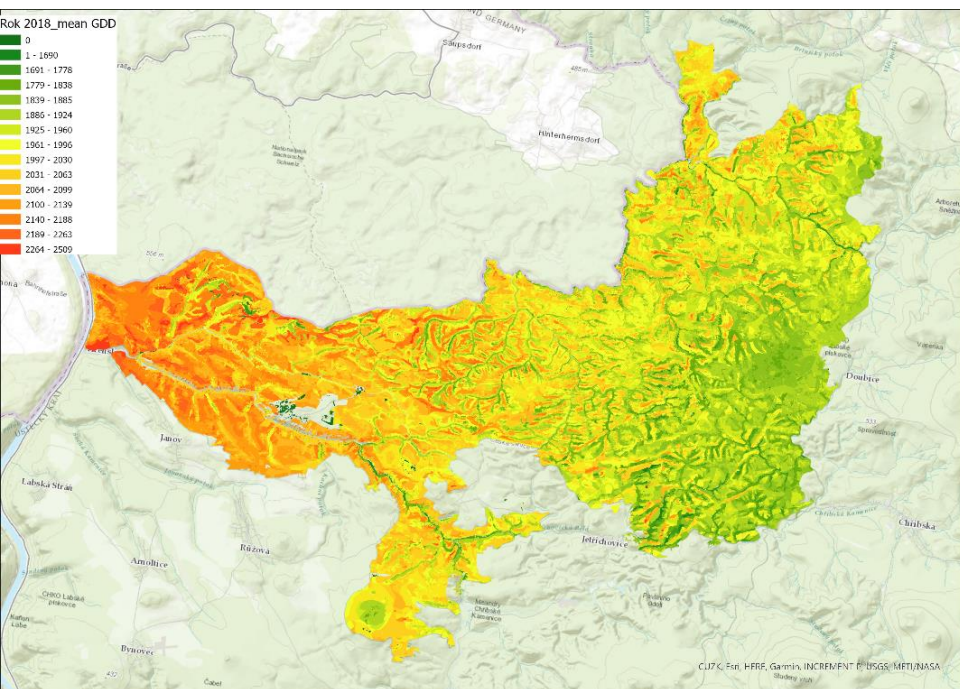
## Kůrovcové souše

Rok napadení

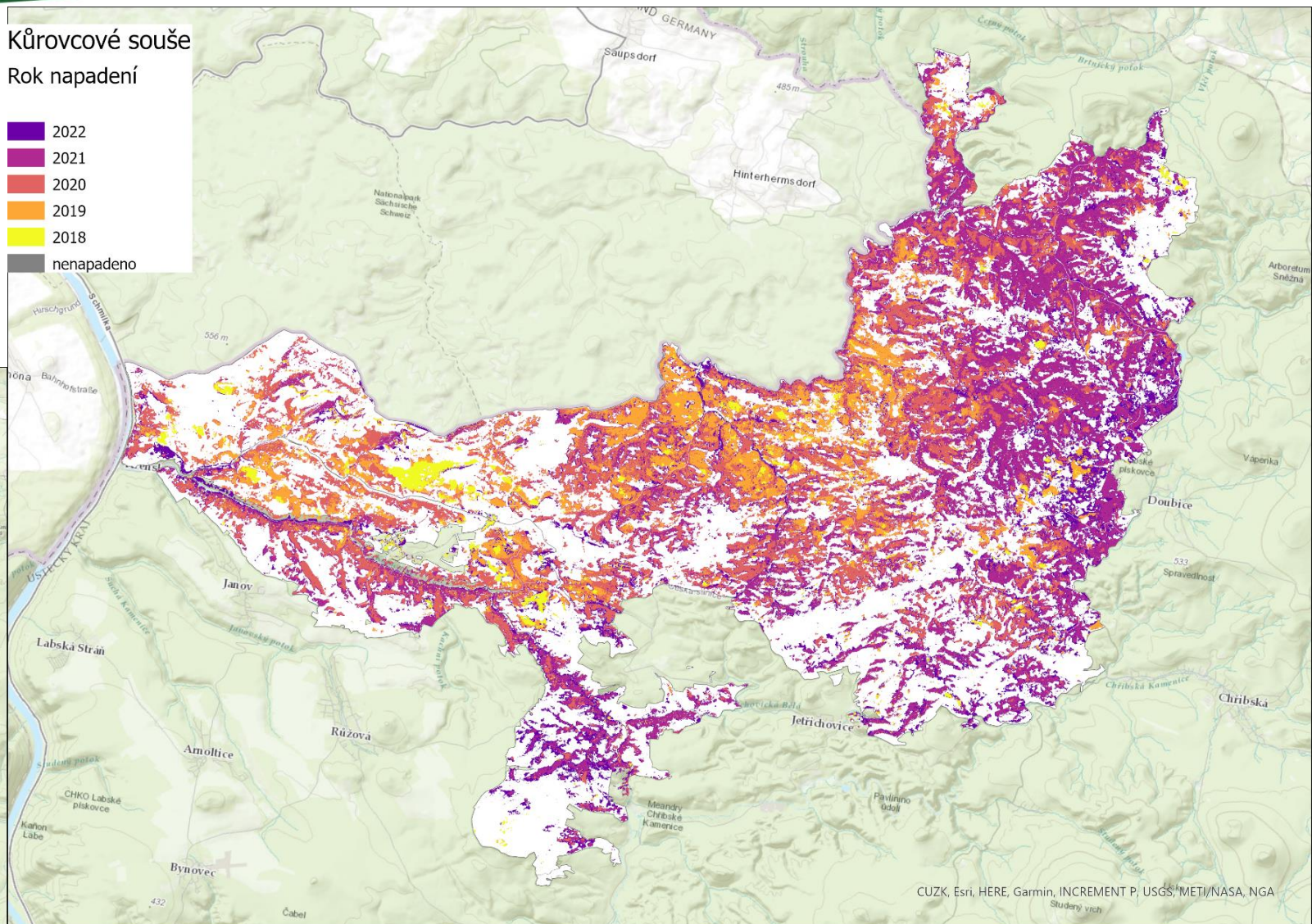
- 2022
- 2021
- 2020
- 20219
- 2018
- nenapadeno

Rok 2018\_mean GDD

- 0
- 1 - 1590
- 1601 - 1778
- 1779 - 1838
- 1839 - 1885
- 1886 - 1924
- 1925 - 1960
- 1961 - 1996
- 1997 - 2030
- 2031 - 2063
- 2064 - 2099
- 2100 - 2139
- 2140 - 2188
- 2189 - 2263
- 2264 - 2509



CUZK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, Swisstopo



CUZK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA





Faculty of Forestry  
and Wood Sciences



**Děkuji za pozornost**