

Climate Change and Forests

Perspectives from Bavaria & Tunisia

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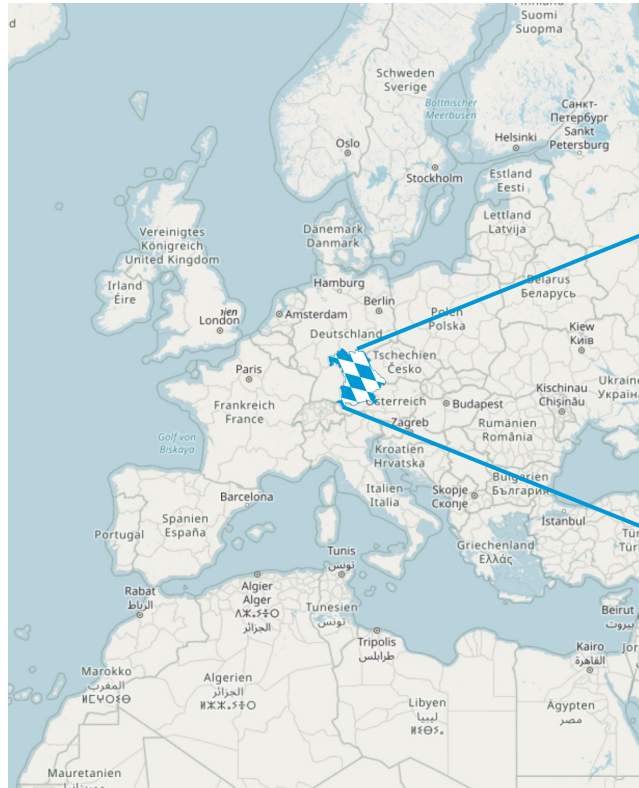
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African-Bavarian Academy: Climate Change Management

June 22nd 2023

Forests and Climate Change: **A Bavarian Perspective**

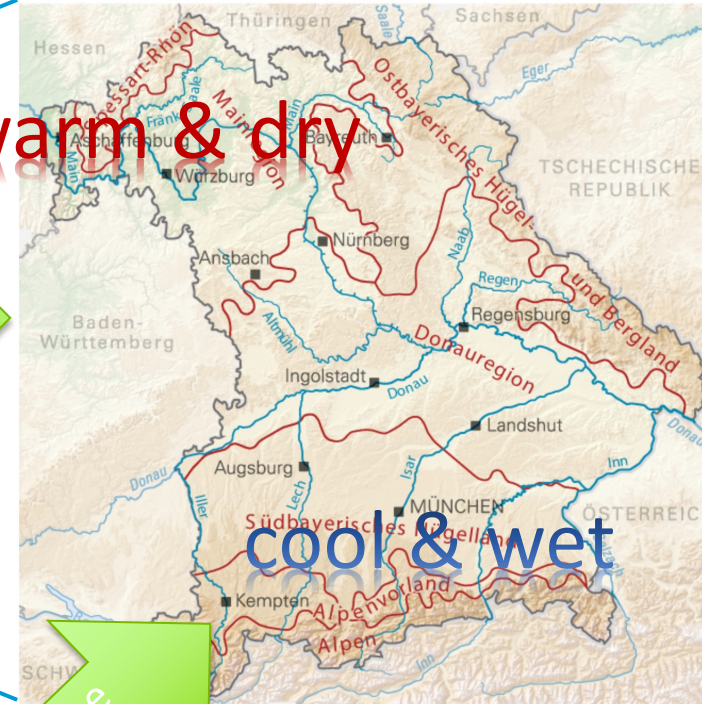
Bavaria is small, but climatologically diverse



maritime influence

warm & dry

alpine influence



continental influence

Bavaria is a „forest country“

2.6 Mha forests in Bavaria = 35.3% of area is covered by forests

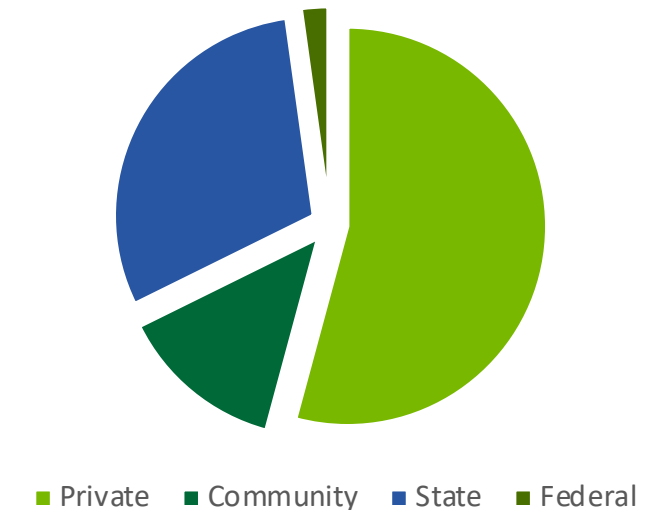
~ 24,000,000 m³ of wood grown each year (almost 1m³/s)

~ 22,300,000 m³ of wood are harvested each year

Forest and wood sector: 4th largest employer in Bavaria (after automotive and mechanical engineering, and electrical devices) with > 163,000 employees in 2020



Ownership



Natural vegetation versus management legacies



Geographical distribution of *F. sylvatica* (European beech)

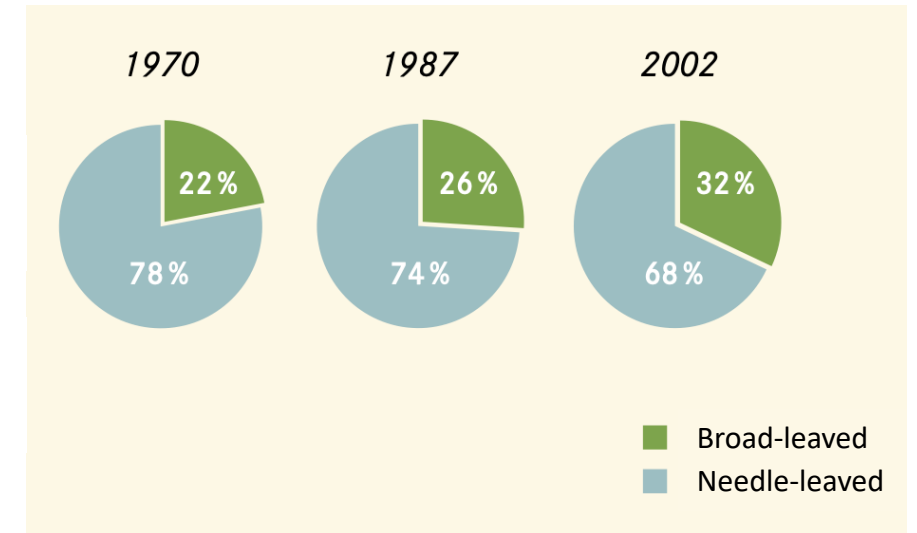
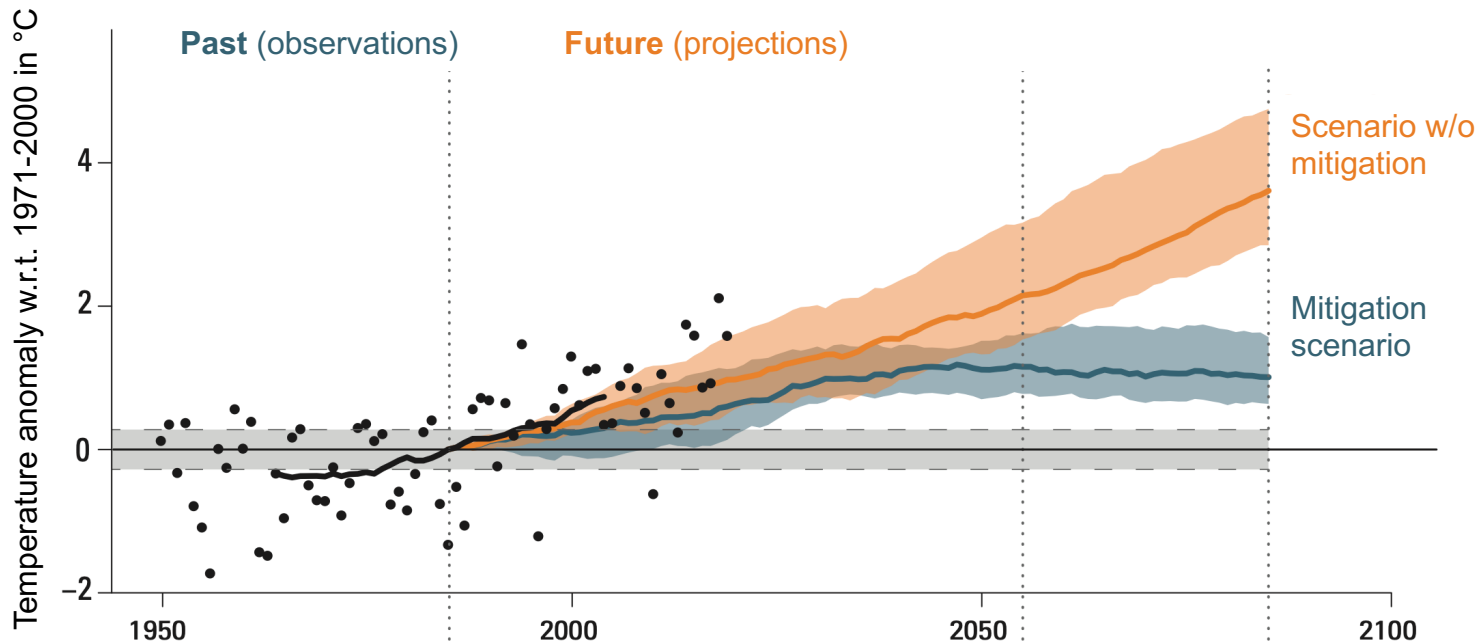
► Map from EUFORGEN;
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Natural vegetation versus management effects

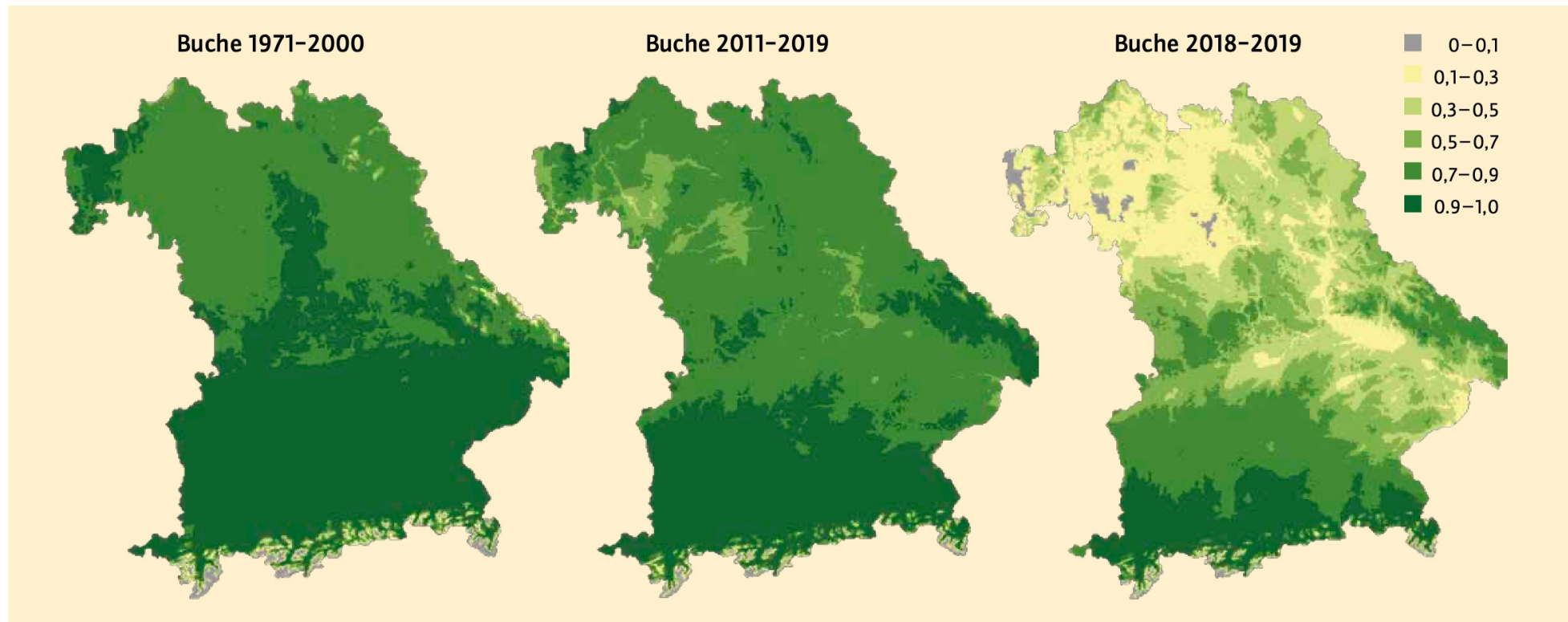


Climate change alters tree species suitability

Annual mean temperature w.r.t. to reference period 1971-2000 for the Main region (northern Bavaria)

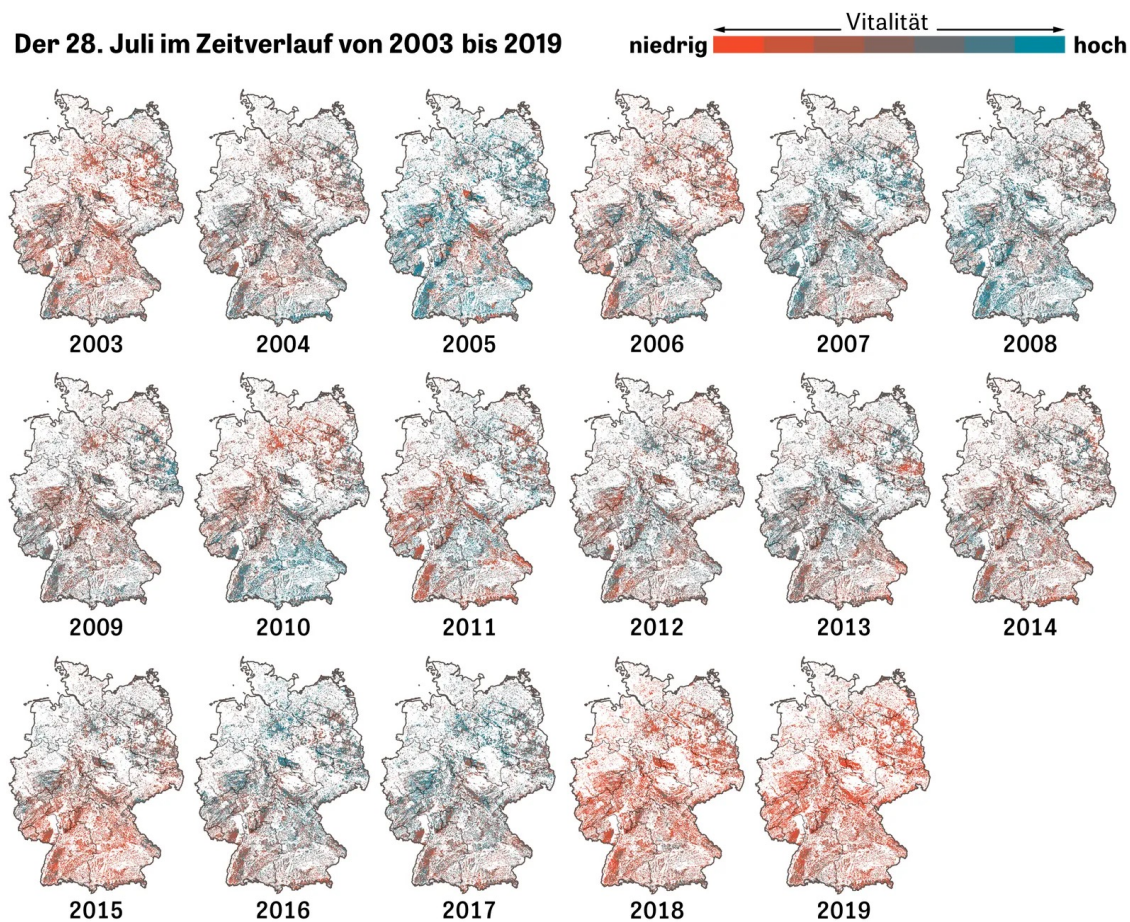


Extreme climatic events push species to their limits



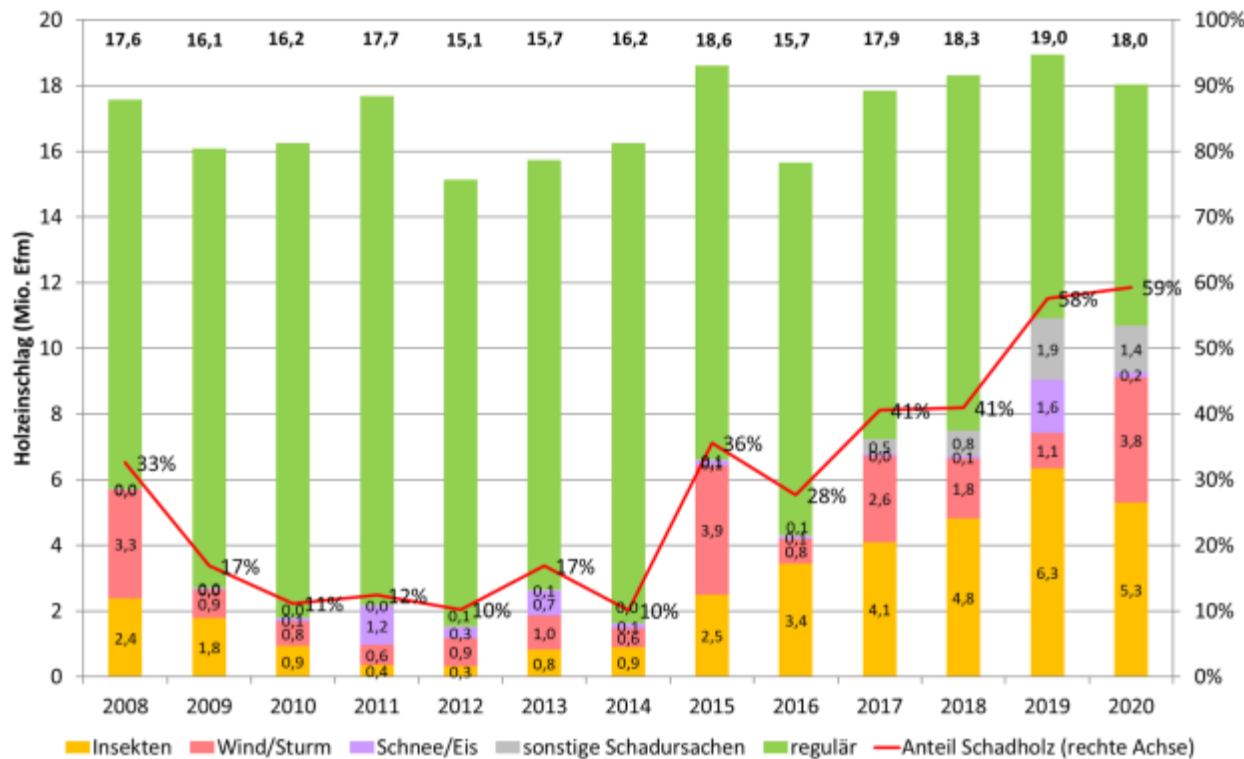
Probability of occurrence for *F. sylvatica* (European beech)

Extreme climatic events push species to their limits



Forest vitality (from remotely sensed NDVI) on **July 28th** from 2003 to 2019

Extreme climatic events push species to their limits

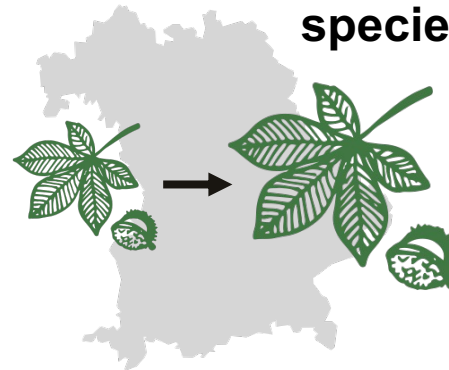


Percentages of unplanned harvesting (salvage logging) due to wind, snow, insects

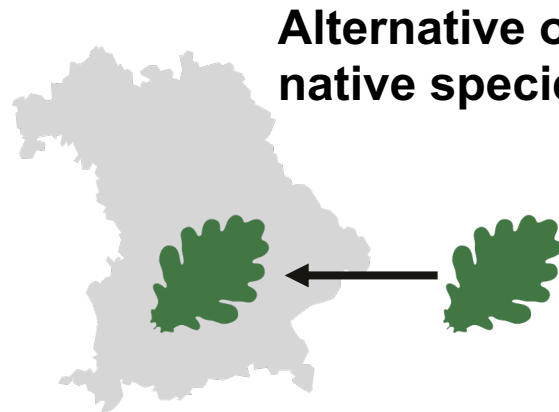
Adaptation strategies



Shifting the abundance of native species



Fostering rare native species



Alternative origins of native species



Alternative non-native species



Portfolio principle

➤ Summarised from BayStMELF:
Leitlinie "Baumarten für den Klimawald"

Forests and climate change: research at HSWT

- Tree and forest growth in response to climate change, especially:
climate extremes
- Focus on radial growth and major tree species in Bavaria,
especially: *European beech*
- Watering of forest cultures: how to *re-establish forests* on fully
destroyed sites when water is short?
- How does *management* affect climate change resilience of forests?
- Tree-line dynamics
- ...



Thanks for listening!
Questions?