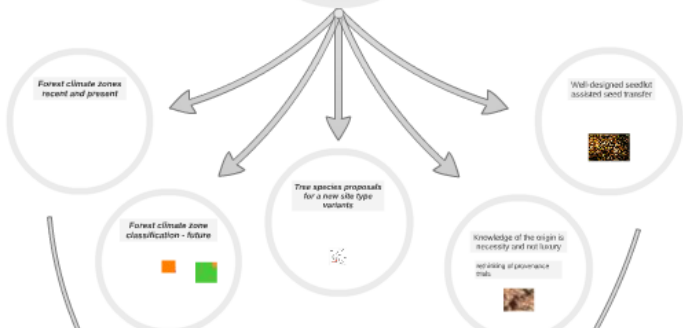


Data integration



forecast s



Decision Support System

Proactive human assistance needed

Instead of native species, other drought-tolerant exotic species should be planted immediately?

- It is not clear that they will all survive under the same conditions
- Impact
- Difficult to acquire for high quality
- Difficult to scale for the program
- Impact on native species

Site as a time-varying trait

seedlot selection support

solving the problems caused by climate change is the well-chosen plant itself

Impacts in forestry and agriculture are already visible

Conclusion

Adaptation to climate change is a complex task that requires a holistic approach. It involves understanding the underlying drivers of change, assessing the risks and opportunities, and developing strategies to manage these risks and opportunities. This requires a combination of scientific research, policy development, and stakeholder engagement. The goal is to build a resilient and sustainable system that can withstand the challenges of a changing climate.

Site consists largely stable factors as a soil type, depth, texture, water management conditions but climate has shown fast change in the last decades...

a new indicator (FAI) has been developed that characterizes the forest climate categories with meteorological variables and expected changed can be forecasted

$$FAI = 100 \cdot T_{VII-VIII} / (P_{V-VII} + P_{VII-VIII})$$

need of the rethink forest climate classification based on a more scientific, ecophysiological approach

the change is 10 to 100 times
faster than what the tree species
were able to follow in their
evolution

- fire frequency
- abiotic calamities
- pests and diseases
- production decline
- mass mortality effects
- change of distribution

Climate stress is a significant and effective selection agent on genetic resources

The loss of genetic diversity decreases the adaptive potential of the populations

Possible consequences:

- mass mortality effects
- loss of habitat
- changes of tree species distribution

Proactive human assistance needed

Instead of native species, other drought-tolerant exotic species should be planted immediately?

- It's good news that there are still enormous scope for indigenous tree species, which we have largely left untapped
- Solution: to determine drought tolerant provenances and to use their propagation material within the range of species

- Prediction the new site type variants
- Selection of tree species to the given planting site
- Selection appropriate propagation material within species

seedlot selection support

*solving the problems caused by
climate change is the well-chosen
plant itself*



Proactive reproductive material use

Moving of the seedlots is aimed to introduce pre-adapted populations to get prepared for the situations expected in 2050!

On line service helps to find sites with projected condition (2050) for the target species

The future already has begun

Additional support of appropriate provenances

4000 oak or beech seedling 871 Euro/ha

200 kg oak acorn 806 Euro/ha

200 kg turkey oak acorn 709 Euro/ha

100 kg beech acorn 1064 Euro/ha

currently available support in Hungary

Conclusion

Putting the right trees, in the right place, for the right purpose!

The prudent use of forest reproductive material increases long-term stability of agroforestry systems

ultimately the resilience of landscape depends on quality of forest reproductive material

ultimately the resilience of landscape depends on forest seed traders and tree nursery gardeners