

# THE ONGOING NORTHWARD MIGRATION OF THE EUROPEAN BEECH: SHOULD WE ACT PROACTIVE?



*The European beech (*Fagus sylvatica*) has an extensive, continuous range stretching from southern Scandinavia down to the Mediterranean. It often forms dense forests due to its ability to tolerate shade, enabling it to dominate many woodland areas across Europe.*



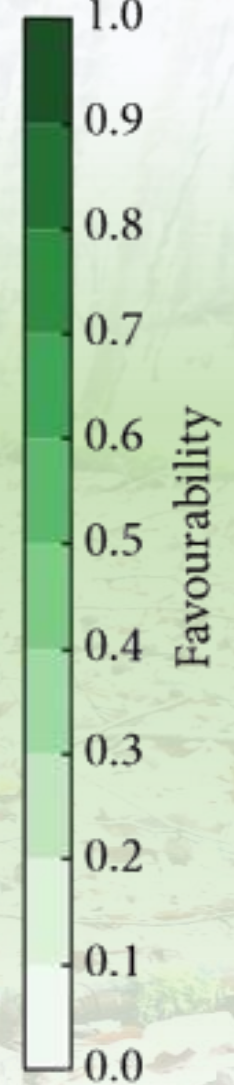
Source: EUFORGEN



60°N

50°N

40°N



*Projections suggest that the distribution range of beech trees in Europe could significantly change in the future.*

(e) Time period 2071–2100

Source: Falk & Hempelmann, 2013





### *PROS and CONS:*

- Valuable timber with a wide range of applications;
- Relatively plastic species that can grow in a variety of conditions;
- Effect on forest resilience;
- Biodiversity;
- Interactions with local tree species;
- Substitution of coniferous monocultures with broad-leaved trees;
- Landscape diversity.





European beech has been successfully introduced in Lithuania and Latvia by German foresters already in nineteenth century. The successful natural regeneration indicates that the species is very well adapted to the western regions of Latvia. Studies in Lithuania suggest that the origin of the beech is highly diverse (Bavarian Alps, Poland, Carpathian Mountains).

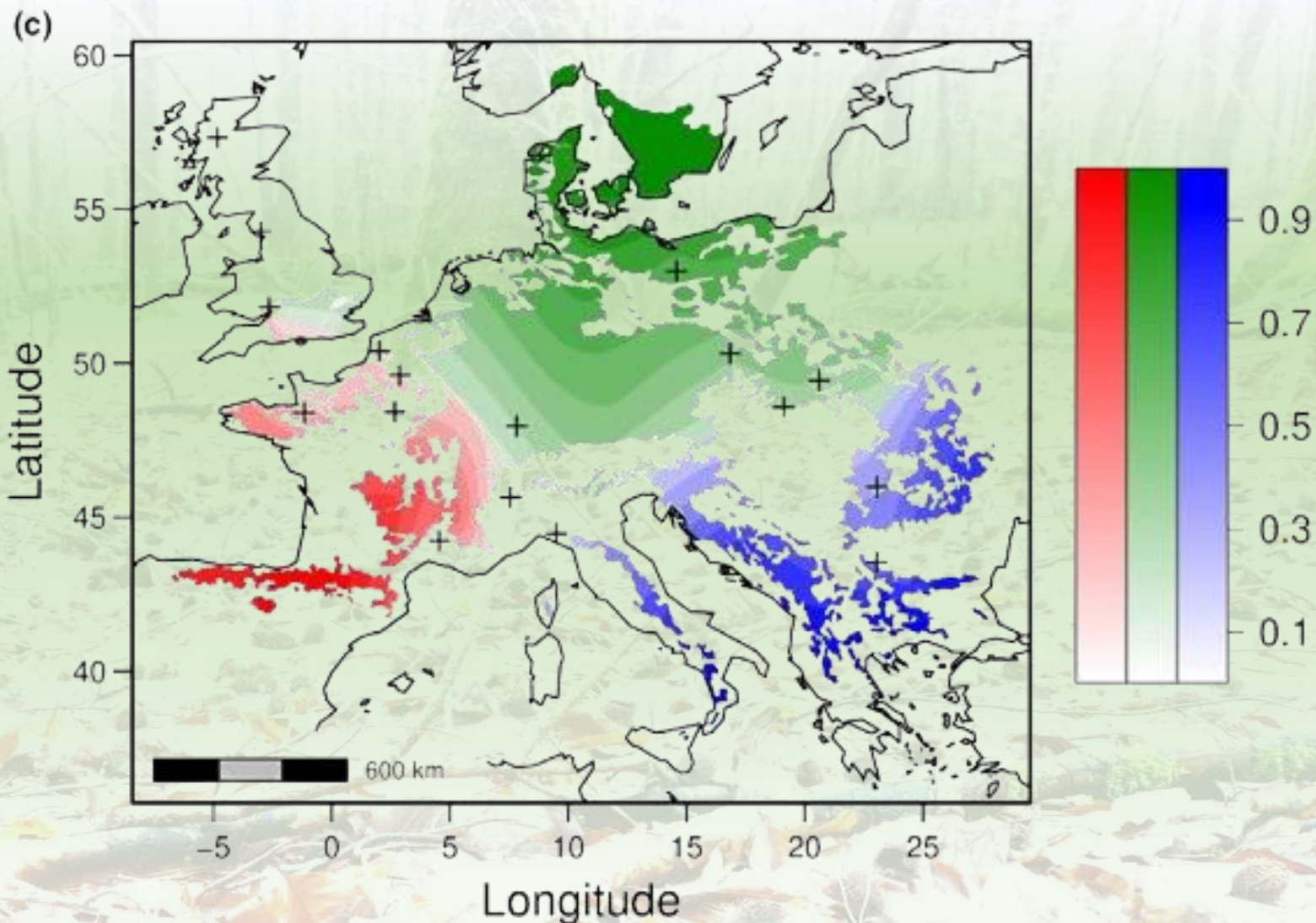


Beech forests are commonly regenerated using natural methods such as group selection cutting and the shelterwood system. To establish beech forests in Latvia, we need to plant new trees.





We need to identify the specific populations of European beech that would thrive best in our local conditions. The origin of beech to Baltic sea region is the Eastern Alps.



*Genetic clusters of European beech (Postolache et al. 2021)*



## Production of forest planting stock in Latvia

### Majority:

*containerized seedlings and plug+1 seedlings*



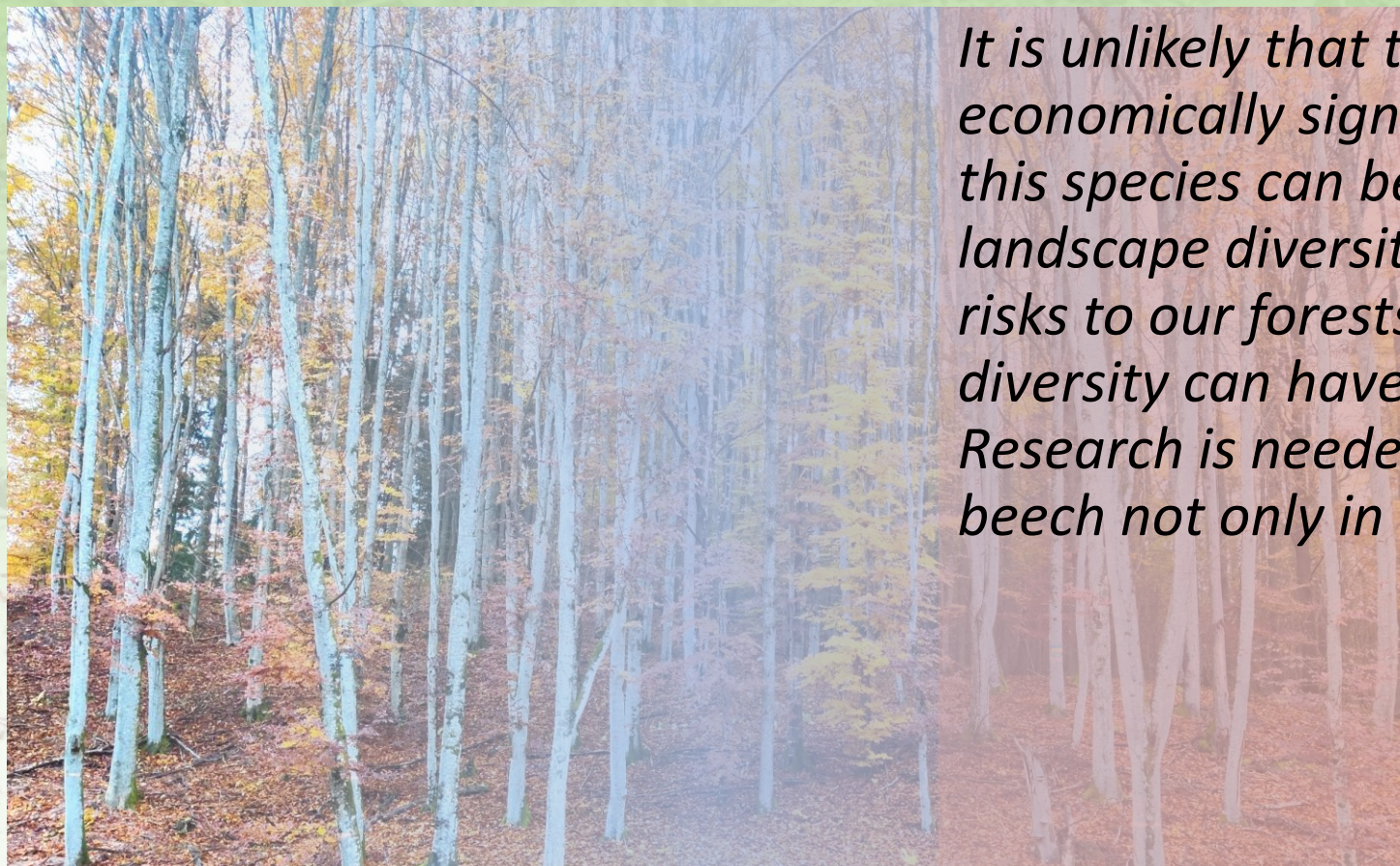
## Challenges with growing European beech seedlings:

- (a) irregular seed yields, limited access to seeds;
- (b) year-to-year variation in seed quality;
- (c) seeds are not suitable for long-term storage;
- (d) uneven germination;
- (e) seedlings are susceptible to spring frosts.





## Final thoughts...



*It is unlikely that the European beech will become an economically significant tree species in Latvia. However, this species can be cultivated to increase biodiversity and landscape diversity in our forests. Climate change-related risks to our forests remain unpredictable, and increasing diversity can have a positive impact under any scenario. Research is needed on the adaptive capacity of European beech not only in western Latvia but also elsewhere.*