



BIO250



Fig. 1. Bog in Lygra, location of field work



Hazelnuts and Pollen as Climate Evidence

How do the hazelnuts correlate with the pollen diagram and what does it say about the environmental conditions and biodiversity?

Abstract

Palaeoecological pollen records can tell us a lot about what kind of environment existed in the past. During our field work and after collecting and analyzing samples we found hazelnuts at different depths, which we found interesting to investigate. During this project, we tried to connect our evidence to the environmental conditions and biodiversity at the age of the samples.



Fig. 2. Core sample taken in Lygra



Fig. 3. Hazelnuts found in the core sample in Lygra

Methods

For our field work, we went to Lygra, a small island of 2.5 km² in western Norway. With a Russian Peat Corer, samples were taken from a bog at different points and different depths. After extracting the samples, we took and preserved some matter that contained pollen, a beetle and hazelnuts to analyze in the laboratory. Under the microscope, important pollen species were identified and counted. Afterwards, we transferred the data to an Excel file and made a pollen diagram using RStudio.

Climate Requirements of Corylus

- Temperate climate (humid);
- Does not tolerate temperatures lower than -10°C or above 37°C;
- To ensure pollination it needs at least three days above 21°C in early June;
- Usually most important limiting factor for hazelnut: flowers during the winter months; then extremely vulnerable to temperatures below 0°C.

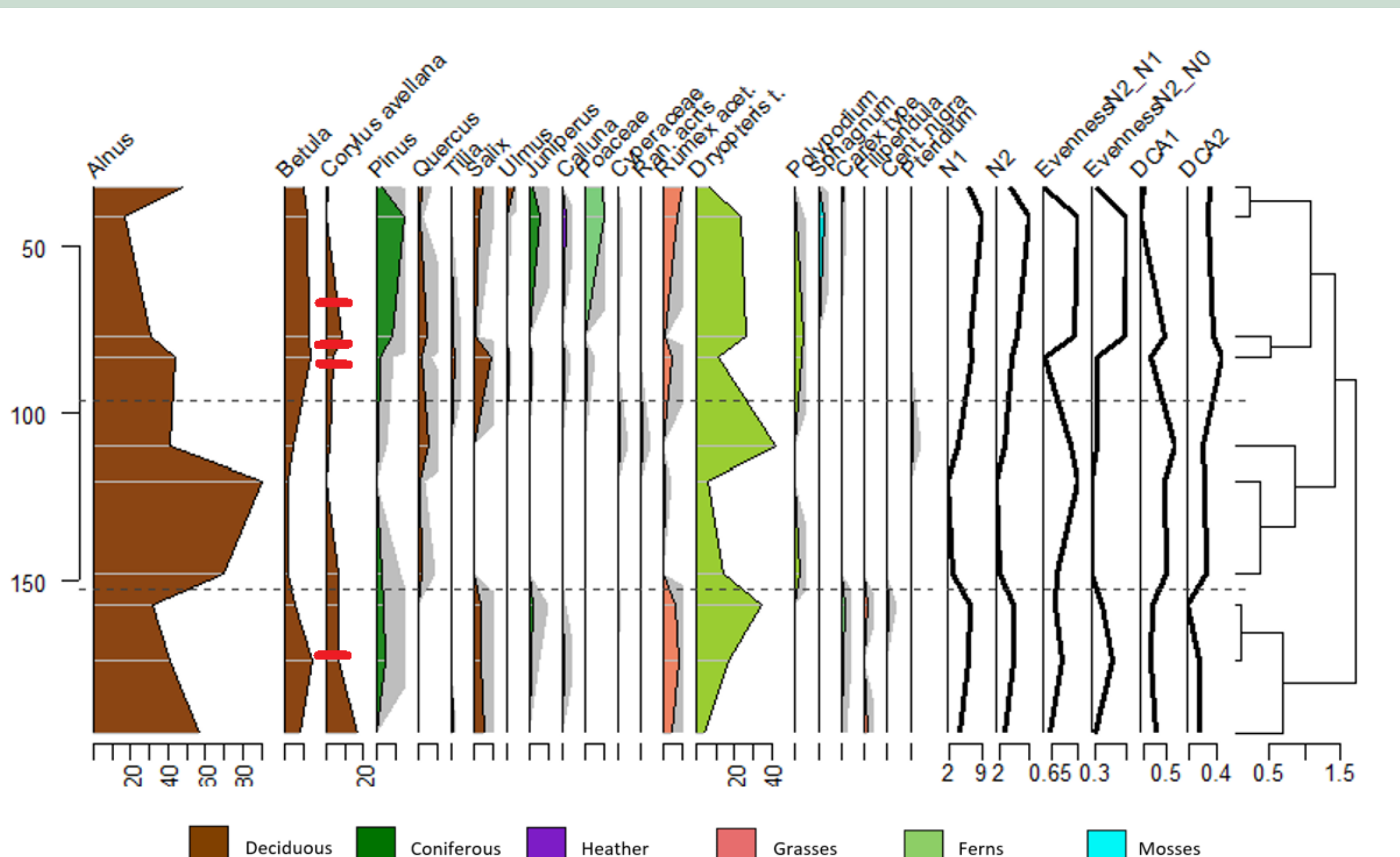


Fig. 4. Pollen diagram with pollen measures of 21 pollen species, (>1%) red lines = hazelnuts

Discussion & Conclusion

- We found pollen grains of *Corylus avellana* (Hazel tree) at the same depths we found the hazelnuts.
- The hazel's northern range is limited by too short growing seasons, as well as too long and cold winters. Its' presence (especially the nuts) indicates a favourable climate.
- But there is still pollen evidence at other times, suggesting that *Corylus* grew in the surroundings.
- Also at that time (about 3,000 years ago), human intervention in the landscape started.

References

- Yrd.Doç.Dr. Beyza USTAOĞLU (2012): The effect of climatic conditions on hazelnut (*Corylus avellana*) yield in Giresun (Turkey)
- Seppä et al. (2015): Trees tracking a warmer climate: The Holocene range shift of hazel (*Corylus avellana*) in northern Europe

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