Palaeoenvironmental changes during the Mesolithic to Neolithic transition: The palynological evidence from Lygra, western Norway

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How did the Mesolithic to Neolithic transition impact the landscape of Lygra?

The Mesolithic to Neolithic transition is marked by a shift in the subsistence strategies of human groups, from huntingfishing-gathering to the early stages of agriculture.

The present study uses palynological data from the small island of Lygra in western Norway, where the earliest evidence of agriculture dates back to the Middle Neolithic (4700 – 4100 BP) (Hjelle et al, 2006), in order to better understand the wider environmental context of this transition and its impact on the landscape of Lygra.

Research methods

Sediment sequences were collected from a peat bog on Lygra using a Russian corer.

Samples dating from 5505 – 2727 cal BP were analysed under microscope to extract the palynological data. The results were summarised on a pollen diagram (figure 2).



Fig. 1. Sediment core from Lygra (losifidi, 2021).



Landscape changes at Lygra between 5505 – 2727 cal BP

- At the beginning (5500 cal BP) the landscape is defined by forest.
- At around 5000 cal BP Alder declines severely, and there is an increase in Birch and Oak. For the following 1000 years several light demanding herbs, graminoids, and shrubs appear, indicating a more open forest.

The impact of early farming on Lygra

Our findings suggest that the **impact of agriculture** on the landscape of Lygra was **relatively small during the Mesolithic to Neolithic transition.**

The increase of **light-demanding species could indicate a less forested landscape**, potentially **related to human activity** and clearing of forests for grazing. However, this shift **could also be related to climate.**

- The period of Alder decline coincides with a transition from a warm and wet climate to a cooler drier one (Bjune et al., 2005). However the increase in Woodferns could indicate an increasingly wetter climate.
- At around 4250 BP Alder recovers somewhat and many light demanding species disappear.
- The first indication of fire management and observation of Calluna occurs at around 3700 BP.

Landscape management is more visible from 3700 BP, when the appearance of heather coincides with the appearance of charcoal. Coastal heathlands are valuable as winter fodder for grazing animals and its maintenance requires regular burning (Forgeard and Frenot, 1996). Its presence here suggests that early farmers of Lygra may have altered their landscape for agricultural purposes.

References

BJUNE, A. E., BAKKE, J., NESJE, A. & BIRKS, H. J. B. 2005. Holocene mean July temperature and winter precipitation in western Norway inferred from palynological and glaciological lake-sediment proxies. *The Holocene*, 15, 177-189.

FORGEARD, F. & FRENOT, Y. 1996. Effects of burning on heathland soil chemical properties: an experimental study on the effect of heating and ash deposits. *Journal of Applied Ecology*, 33(4), 803–811.

HJELLE, K. L., HUFTHAMMER, A. K., & BERGSVIK, K. A. 2006. Hesitant hunters: a review of the introduction of agriculture in western Norway. *Environmental Archaeology*, 11(2), 147-170.



