Past Burning Regime at Lygra, Norway

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Lyngheisenteret

In coastal heathlands such as Lygra, burning is vital for maintenance of the habitat and prevents succession occurring. Our group chose to study the past burning regime by looking at the charcoal in peat cores.

Methods

In the field

30m transect of bog

Took samples from the deepest point

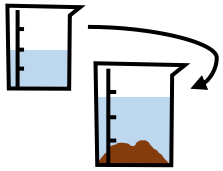
Took overlapping cores using the Russian corer - see figures 1, 3 and 5. Noted sediment descriptions of cores (Troels-Smith).

Wrapped samples in foil and plastic film. Stored at 4ºC.

In the lab

Cut 1m core into 2cm pieces for sampling.

See figures 2, 4 and 6.



Add to 50ml water to find sediment volume (all approx. 20ml).

Samples washed and sieved.

10ml of each sample tested for charcoal.

Result multiplied by whole sample to give estimated charcoal count for that depth.

See figure 7.

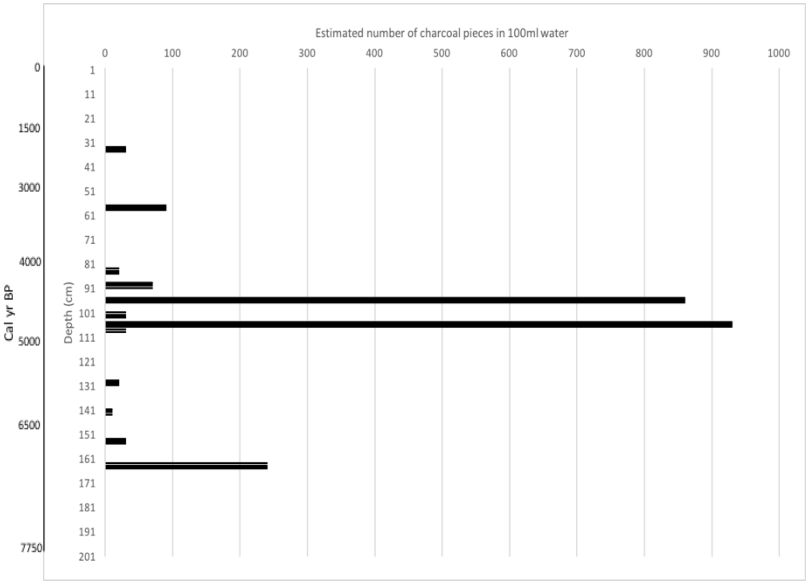


Figure 7.

Results

See figure 7. We used the 2013 paper by Bjune et al. to give estimate of dates. Huge charcoal deposit at 5000 yr BP may be from a large forest fire. At the same time humans were converting coastal forests into heathland by burning (Kaland, 1986). After Lygra's creation, we found four spikes at approx. 4,400, 4,300, 3,300 and 2,000 years BP. These smaller amounts of charcoal are more likely to show humans burning heather.

Discussion and Conclusions

Our results in figure 7 do not show evidence of the regular burning regime – gaps that long between burning would lead to biological succession and forest regrowth. We found some evidence of small-scale burning but not enough to give a clear past burning regime at Lygra.

In a future experiment we would:

- take more samples (Bjune et al. took 204!)
- sample more locations around Lygra
- count charcoal in whole sample
- give ourselves more time to analyse samples
- use radiocarbon dating to create a more accurate timeline

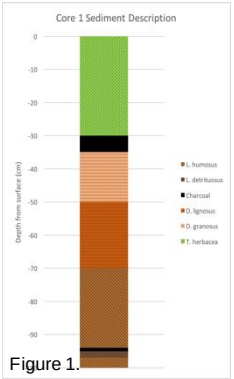


Figure 1.

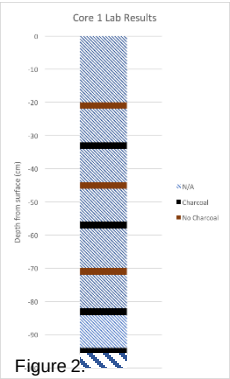


Figure 2.

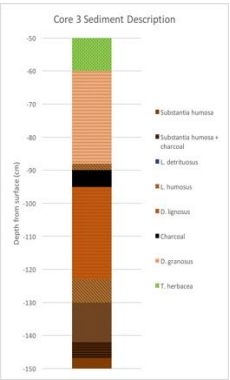


Figure 3.

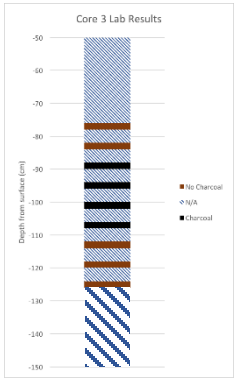


Figure 4.

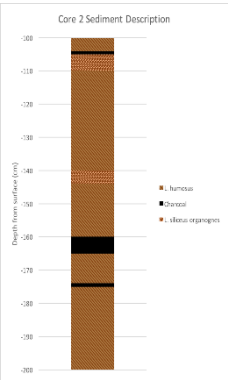


Figure 5.

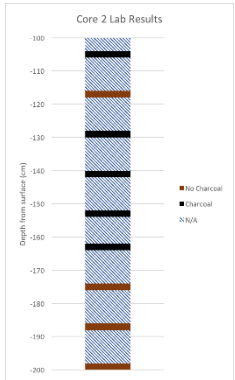


Figure 6.

References

Bjune, A., Ohlson, M., Kasin, I. & Wist, A. N., 2013. Size and spatial structure of the soil and lacustrine charcoal pool acr oss a boreal forest watershed. *Quaternary Research,* 80(3), pp. 417-424.

Kaland, P. E., 1986. The origin and management of Norwegian coastal heaths, as reflected by pollen analysis. *Anthropogenic Indicators in Pollen Diagrams,* pp. 19-36.