

# THE IMPACTS OF WOODLAND INVASION INTO MOORLAND: THE MOORCO EXPERIMENT

Colonisation of moorland by birch and pine is one of the main trends in land cover change in Scotland.

Semi-natural woodland cover is currently critically low and expansion is desirable, but where this happens needs to be carefully considered.

We need to balance our national requirements to protect both woodlands and moorlands to ensure their long term success - particularly in view of predicted changes in climate and land management (such as grazing).



*Natural birch and pine*



*Field work at a MOORCO site  
Experimental setup in collaboration with CEH*

## STUDY SYSTEM

We are combining studies of moorland colonisation by birch set up in the 1970s, with new long-term experiments on both birch and pine. We are exploring how different components of the system change and interact, and how the biodiversity can alter with environmental conditions and stage of tree colonisation.

We are looking at the role of important factors causing both soil and vegetation change during colonisation by trees. These include deer grazing, nitrogen deposition, tree species, tree grouping and climate.

## MEASUREMENTS

- vegetation growth and species composition
- root growth and dynamics
- soil and water chemistry
- soil animal community composition
- the fate of carbon compounds during soil decomposition processes



*Some soil animals  
(40 x magnification)*



*Peaty podzol profile*

## KEY FINDINGS TO DATE

Initial findings from this long term project are providing insights into this complex system.

Tree colonisation causes changes in vegetation and wildlife, but also changes the soil chemistry, soil physical properties and animal species below ground.

Several soil animal types increase in diversity in the change from moorland to woodland but some species persist in both vegetation types - they all play different roles which are important for ecosystem functioning.

Changes in grazing pressure can change the vegetation in different ways, e.g. formation of a grassy or shrubby understorey - this has knock-on effects for soils and wildlife (e.g. woodland grouse prefer a shrubby understorey).