Sky Room 9: 11:30 - 11:45

1.3.9 Processes of vegetation change following the hydrological restoration of blanket mire in South West England

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Peatland Restoration

Blanket mire, vegetation change, hydrological restoration, Sphagnum, peatland restoration, carbon sequestration

This paper presents an assessment of vegetation change in six hydrologically restored blanket mire sites that form the Dartmoor Mires Restoration Project (2010-2018). The project was led by Dartmoor National Park Authority in partnership with Natural England, the Duchy of Cornwall, Dartmoor Commoners' Council, the Environment Agency, and South West Water, which provided significant funding under its Upstream Thinking Initiative.

The aim of the Dartmoor Mires Project was to restore degraded blanket mire sites to deliver benefits for upland wildlife, improve water quality, provide buffering for water flow, and maintain or increase carbon storage.

The presentation provides an overview of the project, methods of restoration (ditch blocking and gully blocking) and main findings from 10 years of vegetation monitoring. The work reviews progress towards the restoration of Sphagnum rich 'active' blanket mire; defined by JNCC (2006) as "supporting a significant area of vegetation that is normally peat forming".

Hydrological restoration was successful in all restored sites, with elevated water tables local to the restoration features and significant water retention in associated pools. Four of the six hydrologically restored sites showed a significant reduction in the area of eroding bare peat within 2-3 years of hydrological restoration. Following hydrological restoration all restored sites showed a significant increase in the % cover of blanket mire species, compared with pre-restoration baseline vegetation. The aquatic Sphagna, in particular S. denticulatum and S. cuspidatum, were able to colonise pools and standing water within two years of hydrological restoration.

On sites where 3-5 years had elapsed since hydrological restoration, lawn and hummock Sphagnum mosses (S. papillosum) and mire herbs (Eriophorum angustifolium) were able to colonise grass-dominated areas following the successful establishment of a high and stable summer water table. In comparison to the Sphagna, no consistent pattern of recovery and spread was apparent in broad-leaved mire herbs.

Declines occurred in the percentage cover of those herb and pleurocarpus moss species that were intolerant of high water tables and surface flooding. Surface water inundation also caused localised declines in the percentage cover of lawn and hummock mires species such as Sphagnum capillifolium and S. tenellum, which showed high sensitive to changes in water table depth.

The findings of this work demonstrate that ditch and gully blocking can successfully restore localised areas of eroding bare peat and degraded blanket mire to fully functioning, water-retaining, peat-forming blanket mire within ten years of hydrological restoration. The suitability of the restoration techniques and the application of vegetation monitoring methodologies are discussed.

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