

Does the rewetting of peatland cause an increase in Bog Asphodel?

Anne Hand^{1,2,3}, Morag Angus¹, James Cresswell³, Jamie Stevens³ and Richard Brazier²

¹ Exmoor Mires Partnership
² Department of Geography
³ Department of Biosciences, University of Exeter

Background

The research presented here forms part of a MRes investigation into the role of Bog Asphodel (*Narthecium ossifragum*) in peatland restoration on Exmoor. Bog Asphodel favours wet, acidic and nutritionally poor conditions and is therefore a common component of the vegetation of wet heathlands and mires. The fleshy leaves and conspicuous inflorescences are readily grazed.



Left: Bog Asphodel inflorescence (Eskdale, July 2004. Copyright RWD);

However, ingestion of Bog Asphodel leaves and fruits can cause liver (sheep) and kidney (cattle) toxicity (Pollock et al. 2015), resulting in severe, even fatal, photosensitization. Lambs are particularly vulnerable.



Left: Cluster of Bog Asphodel inflorescences on ungrazed moorland (Aclands, Exmoor, July 2017)

The **Exmoor Mires Partnership**, as part of its peatland restoration programme, has been monitoring vegetation change at the restoration sites. The data set runs from 1998, and covers 46 sites across Exmoor where ditch blocking has been carried out on drained shallow peat sites.

Data comprise records of all plants present along 30-50m transects (4 sub-quadrats per m²) spanning blocked ditches. Each site is surveyed before restoration and every 3-5 years thereafter.

Bog Asphodel was present at 26 (57%) monitoring sites prior to rewetting. Data from 18 sites were analysed.

The analysis of distribution looks at the change in % of sub-quadrats occupied by Bog Asphodel since restoration.

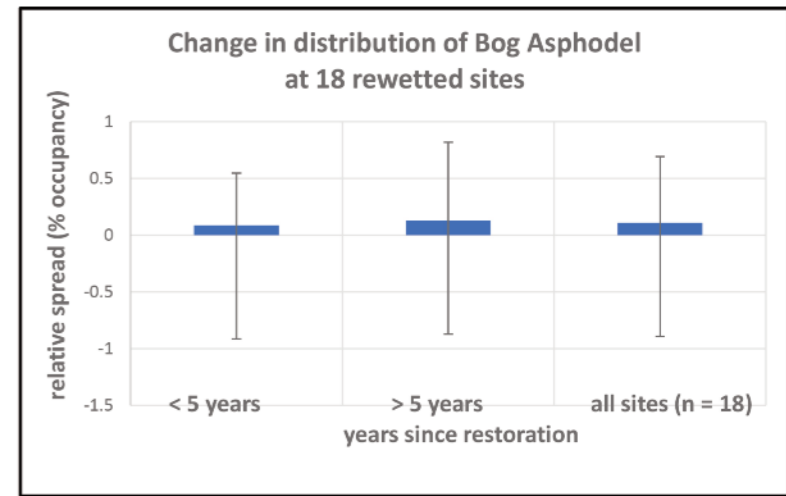
The analysis of abundance looks at the change in % cover per transect over time.

References
 Freeman, G. 2018 Assessing changes in the agricultural productivity of upland systems in the light of peatland restoration. PhD Thesis, University of Exeter.
 Hill, M.O.; Preston, C.D.; Roy, D.B. 2004 *PLANTATT* - attributes of British and Irish plants: status, size, life history, geography and habitats. Abbots Ripton, Centre for Ecology & Hydrology.
 Pollock, M.L., Wishart, H., Holland, J.P., Malone, F.E. and Waterhouse, A. 2015 Photosensitisation of livestock grazing *Narthecium ossifragum*: Current knowledge and future directions The Veterinary Journal 206, 275-283

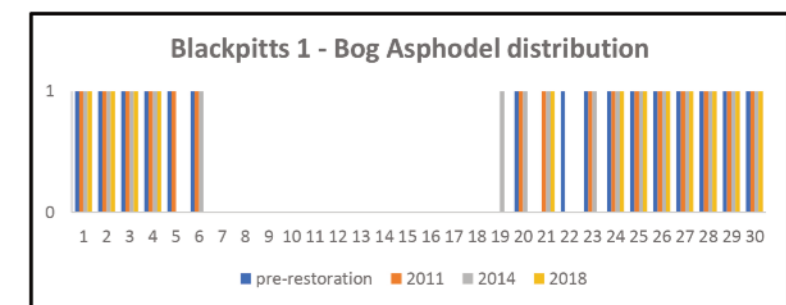
Acknowledgements
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Result 1

There is no significant change in the distribution of Bog Asphodel either in the short term (< 5 years from rewetting) or the longer term.

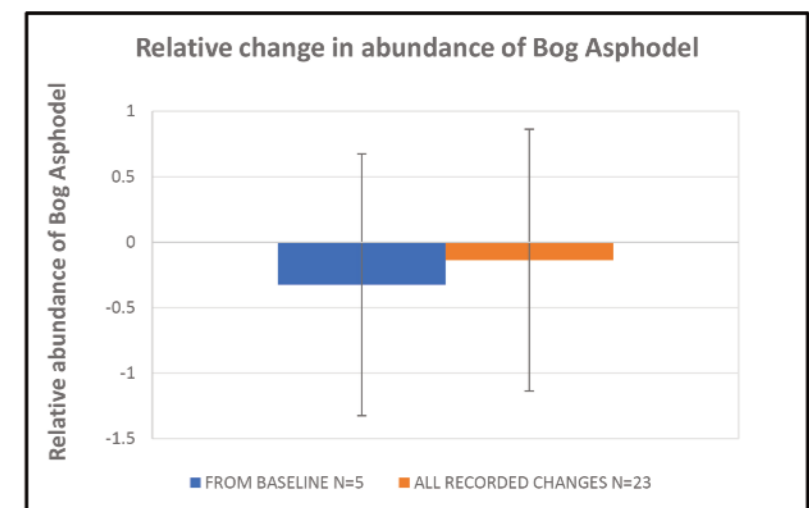


At site level Bog Asphodel patches do not spread significantly.

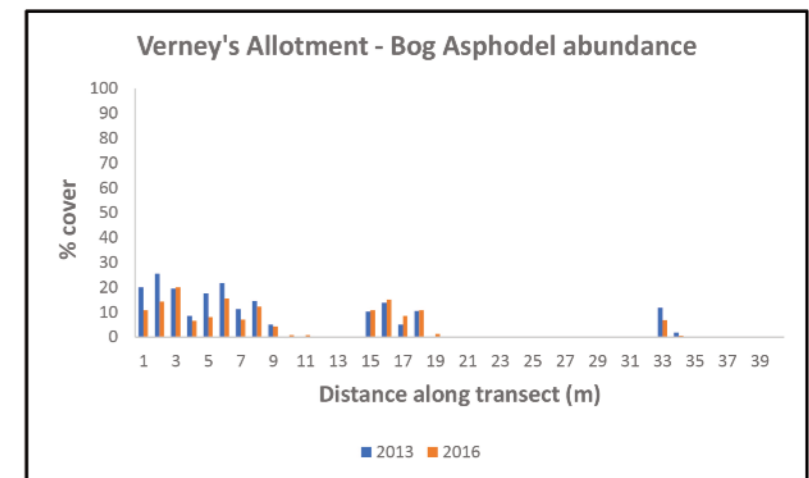


Result 2

There is no significant increase in the abundance of Bog Asphodel following rewetting.

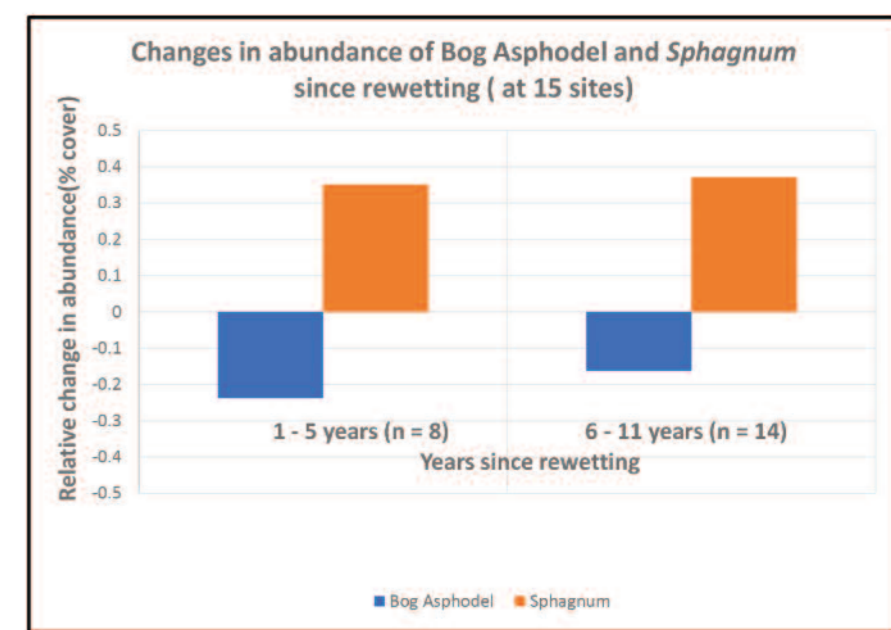


Distribution and % cover over time at site level



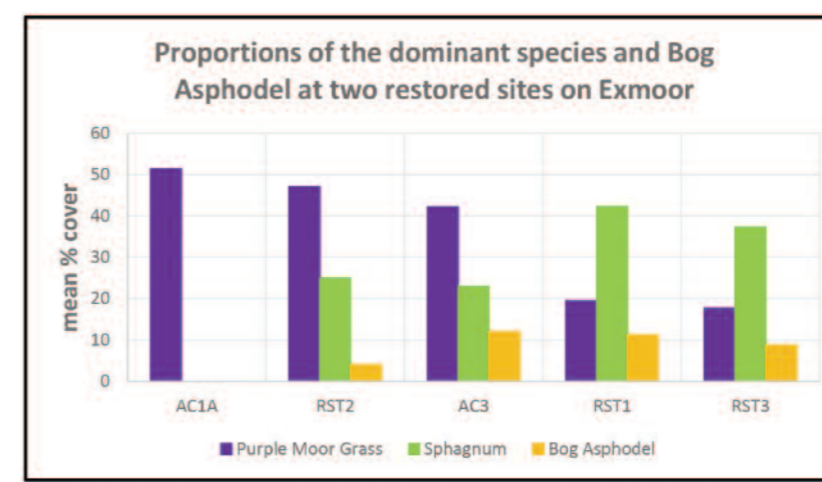
A relationship between Bog Asphodel and Sphagnum?

There is a tendency for Bog Asphodel growth to decrease as *Sphagnum* growth increases.



Bog Asphodel: sward composition and quality

Bog Asphodel: ≤ 12% sward
 Mean: 9% (if present)



Moorland species in Spring (Freeman, G. 2018)	crude protein (g/kg)	energy (MJ/kg)	digestibility (%)
Purple Moor Grass (AC)	155	10.6	67.3
Purple Moor Grass (RST)	130.5	10.05	64.15
Sphagnum spp (AC)	97	10.1	64.4
Bog Asphodel (AC)	178	10.9	69.2
Bog Asphodel (RST)	186	11.1	70.7

Discussion

1. Rewetting does not appear to increase either the distribution or the abundance of Bog Asphodel.
2. Bog Asphodel cover appears to decrease as Sphagnum cover increases following rewetting.
3. Peatland restoration does not therefore appear to increase the threat of Bog Asphodel poisoning for grazing livestock
4. Bog Asphodel makes a contribution to sward quality on shallow upland peatlands