

Insect Responses to Peatland Restoration

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Background

Peatland restoration is undertaken for multiple aims. One of these is biodiversity conservation. Monitoring has focussed especially on plants and birds. We are now employing a range of insect sampling techniques in the Flow Country. Our aim is to increase understanding of the processes driving insect community change through peatland restoration.



We use the chronosequence of felling plots on Forsinard RSPB reserve. Sampling is carried out in standing conifer plantations on former blanket bog, in areas undergoing restoration and on blanket bog that has not been subject to afforestation.

This work is ongoing. Data collection will continue for at least two further years. Future analyses will focus on species traits that drive community responses to restoration.



Acknowledgements:

Special thanks go to Lisa Becker, Kevin Van den Bulck and Luis Quinzo for assisting with fieldwork and to RSPB and Fountains Forestry for allowing site access.

Bug photograph (*Javesella discolor*) by Joseph Botting (www.britishbugs.org.uk). Beetle photograph (*Carabus glabratus*) by Gabor Pozsgai (www.photogabor.com). Moth photograph (Manchester Treble-bar) by Nick Littlewood.

Sampling Methods



Pitfall trap transects



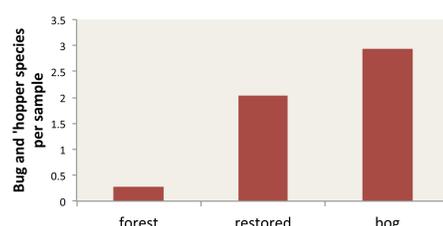
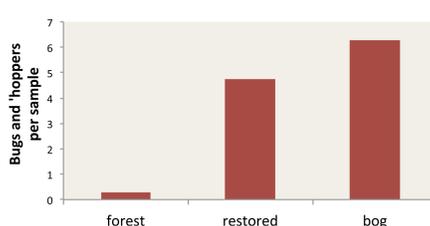
Sweep-netting and suction sampling



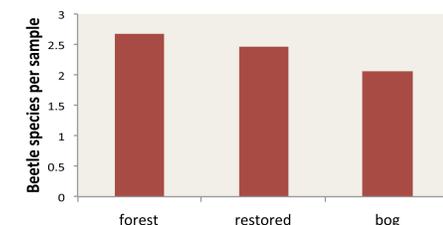
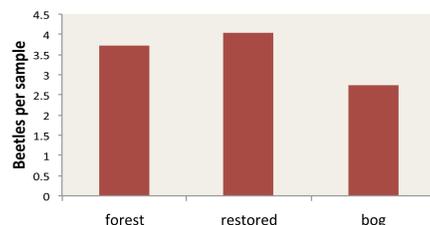
Moth trapping

Some Early Results

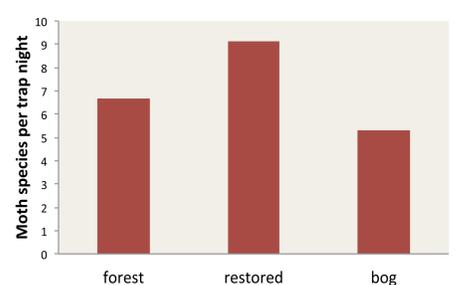
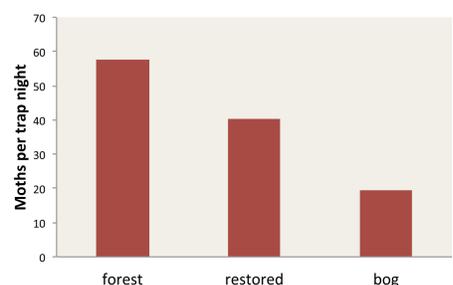
Different species groups show different responses to the “treatments”.



Plant bugs, leafhoppers and allies (Auchenorrhyncha) from the sweep net and suction sampling data show a trend to highest abundance in bog samples and are virtually absent from forest floor samples. Beetles show less difference between treatments but with marginally the highest species richness being in forest samples.



Light traps catch the highest number of moths in forest plots. Samples here are dominated by one species, Barred Red. Species richness was highest in restoration areas, boosted especially by species whose larvae feed on graminoids. Bog plots had lower species richness but may host a higher proportion of rare or specialised moths.



Pitfall trap data show a higher activity-density and species richness of ground beetles in forest and restoration areas than in bog. This pattern is likely being driven by the higher abundance of generalist species in these treatments.

Key Points

- The abundance and species richness of different focal insect groups respond differently to restoration management.
- Forest and bog insect communities differ markedly.
- Restoration areas host some typical bog species. They also host a range of other “mid-successional” species.
- Bog insect communities are not species-rich but they include a range of specialised, and often rare, species.

