

Wild winter...

It certainly was a bit wild up North over the winter months, with snow and hail and many days with gale force wind sweeping across the Flows! The days are getting longer now and it's time to update everyone on another winter of work and research in the Flows... Thanks to those who contributed with updates and pictures.



Left: A picture of the frozen natural pool system where flux and water samples are normally taken – but not this time, as the thick layer of ice was unbreakable. Right: Another one of the pools, also frozen, with a snowy Ben Griam Beg in the distance. The instrument that sticks out in the foreground is used to water depths and temperature in the pools. Photo credit: Rebecca McKenzie.

New faces at Forsinard

RSPB Science intern appointed at Forsinard Reserve



Shona Ruesch (second from left), new RSPB science intern, with some of the Forsinard team in summer 2014

The RSPB team at Forsinard will be joined by a new team member in summer 2015: Shona Ruesch, who was recently appointed as Freshwater and Peatland Science Intern. Shona has a Masters in Ecology and Evolution at the University of Berne in Switzerland and already knows the Flow Country, having spent last summer volunteering at Forsinard. Shona's main role will be to assist Paul Stagg with scoter research, but she will also be building up her range of scientific experience wherever possible, by assisting both RSPB and visiting researchers.

Project updates

The Forest-to-Bog Restoration Project

The restoration work which started last October continues in Dyke Forest and, since mid-February, has been extended to parts of Forsinain Forest. Tree felling and removal has been completed on most restoration plots with removal of brash well underway while mulching of the smaller trees is nearly finished. Dyke Forest and, to a lesser degree, Forsinain have already been dramatically changed with extensive open areas replacing dense plantations. This work continues at present. Meanwhile, in those areas not currently busy with contractors, limited dipwell monitoring is carried on. After 2.5 years of base-line monitoring, as access becomes possible again following completion of the restoration work, data on the level of the water-table will be collected over the next 2 years. Full monitoring of vegetation, birds and invertebrates is expected to re-commence in April 2017. *Trevor Smith RSPB.*

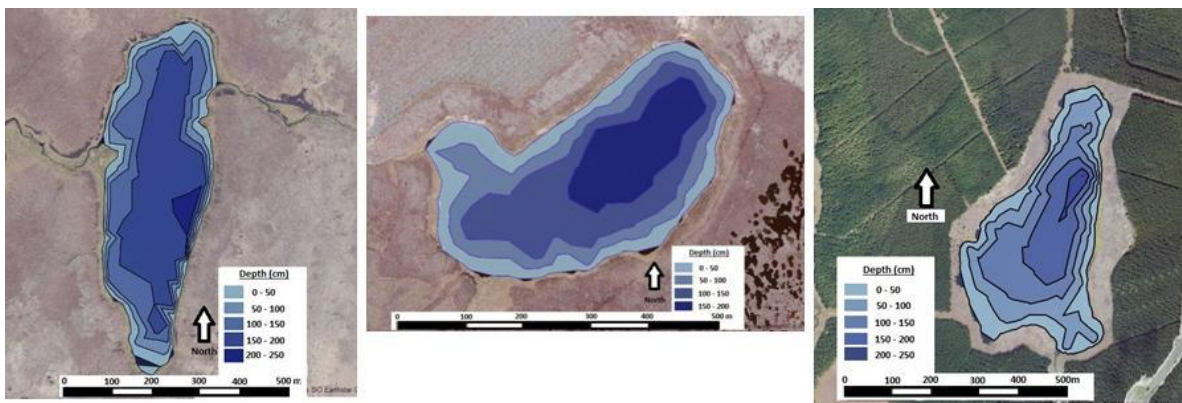


Causes of decline in the common scoter in the Flow country inferred from paleoecology

Hannah Robson from University College London spent much of the winter in the laboratory and analysing data from her PhD research that uses palaeolimnology to examine the decline of Common Scoter breeding in the Flow Country. Sediment cores were taken from 18 Flow Country lochs in October 2013, aquatic macrophyte surveys were also carried out at these lochs in August 2014. A comparison of the contemporary ecology at current and historic Scoter breeding lochs has demonstrated that current breeding lochs have a higher percentage cover of macrophytes and a greater depth of soft sediment than historic Scoter breeding lochs. Bathymetry maps were also produced from the data, although no significant difference was observed in water depth between current and historic breeding sites.

The stratigraphy of all 18 cores has been analysed using loss on ignition (LOI) analysis. This calculates dry weight and organic content of the all the slices in the core and provides a profile over time, initial examination of the LOI data shows that the sediment in the lochs is well stratified. X-ray fluorescence analysis allows quantitative determination of the geochemical composition of sediments. Determining the concentration of lead and other heavy metals (such as mercury and zinc) along the length of a sediment core can provide rough timescale estimation on recent sediments. Analysis of our cores show that the last 100-150 years of history of these lakes is stored in roughly the top 10-20cm of sediment.

Samples from the tops and bottoms of the 18 sediment cores have been analysed for diatom and chironomid fossil remains; patterns in community composition are beginning to emerge together with an indication of the degree of change that has taken place at each loch. To understand how changes at the lochs may be influencing breeding Scoter the next step is to analyse diatoms, chironomids and other plant/invertebrate fossils at a finer temporal resolution and relate this to annual monitoring records of Scoter at the lochs. This analysis will be based on wide bore cores that will be taken from a small sub-set of lochs in April 2015. *Hannah Robson, UCL*



Example bathymetry maps

25 year study of subsidence at Bad a' Cheo



Block 1 with weir - 1989

Forest Research started a replicated experiment in 1989 to see how planted conifer forest impacted on a peatland site. Three forest types were established in small plots and a fourth plot was left unplanted as a control. The set-up was replicated in four places across the Bad a' Cheo Research Reserve. Levels across the plots were surveyed twice a year for the first five years then once a year for another five years. Over the ten years the ground surface subsided by up to 22 cm as a result of afforestation. Subsidence was much less in the drained but not afforested control plots.

In January this year, Natural Talent apprentice, Richard Taylor (picture on the right), and Russell Anderson re-surveyed the levels across the 16 plots. The new measurements will show how subsidence has progressed during the 15 years since the last survey. Peat depth markers installed in 1989 will show how much of the subsidence is due to shrinkage in the upper layers of peat, some of which may be due to oxidation, compared to shrinkage of the lower layers, which is due to consolidation. *Russell Anderson, Forest Research*



Other news and announcements

FLOW COUNTRY RESEARCH CONFERENCE III

The third *Flow Country Research Conference* will be held in Thurso from the **27th-30th of October 2015**. The Thurso Cinema has once again accepted to team up with ERI to host the event. Partners from the University of Leeds, the University of Stirling and RSPB will also help with the organisation. A first call for abstracts and an outline of the programme will be sent out when registration will open on the 1st of May 2015. The conference will be focused once again on the science and the research that goes on in the Flow Country, and will be an excellent platform for PhD students looking to present their results or their project. The format will be similar to the previous conferences with oral and poster sessions, workshop discussions and an optional field trip, as well as a social programme. For any information, contact roxane.andersen@uhi.ac.uk.

The IPS Allan Robertson Grant

The International Peat Society has launched new Grants for Research Students and Young Professionals in Peatland Management, named after Allan Robertson, Honorary President of the IPS. The Grants are targeted towards all persons who have carried out or are still carrying out major research or practical work on behalf of peat and peatlands. Applicants will normally be younger than 30 on application deadline (30th of April 2015) and the grants amount a number of €500 bursaries annually.

For more information, see: <http://www.peatsociety.org/about-us/allan-robertson-grants>.

The next edition of the newsletter will come out in June, please email your contributions to Roxane Andersen (roxane.andersen@uhi.ac.uk) before the Friday 19th of June 2015.