



WET WOODS LIFE PROJECT

HYDROLOGICAL SURVEY CONTRACT BAT/PA18/99/00/37

PITMADUTHY

Final Report October 1999



Redgate/NDR (ES), 1999

Pitmaduthy Burn

Submitted to

**Neil M Wilkie, Project Manager
Scottish Natural Heritage
Fodderty Way
Dingwall Business Park
Dingwall IV15 9XB**

Produced by

**Alison E F Mackay
Egret Consultancy
East Cottage, Lettoch
North Kessock
Inverness IV1 3XB**

WET WOODS HYDROLOGICAL SURVEY

PITMADUTHY

1.0 SUMMARY

As part of the European Commission (EC) funded Wet Woods LIFE Project, on behalf of the Caledonian Partnership, a hydrological survey was commissioned by Scottish Natural Heritage (SNH) to assess the condition of the bog woodland habitat of Pitmaduthy. The site includes the Pitmaduthy candidate Special Area of Conservation (cSAC) and Site of Special Scientific Interest (SSSI). A range of management options were identified to preserve or improve site condition.

An initial survey was completed using both desk and field exercises. Desk work covered relevant literature on hydrological studies, interpretation of aerial photographs and examination of photomontages, previous NVC surveys, historical maps and estate records, current site management reports, analysis of maps looking at current land use, geomorphology, topography, soils, geology and water catchment analysis, limited meteorological data and current drainage management plans.

Field exercises consisted of gathering data on the physical attributes of each site, such as peat depths, watercourses, location and condition of drains, vegetation, forest physiognomy and condition, management operations, topography, mire status and surface water movement. Verification of the information found from the desk studies was ascertained, and any new data added.

Principal findings for Pitmaduthy were that the site has been drying out in the past, but now seems to be getting wetter. All the recorded changes indicate a rising water table with a corresponding change in the plant community along the hydrosere gradient. A cyclical pattern is emerging.

Influences on the site are a succession of *Pinus*, *Betula* and *Salix* spp. (pine, birch and willow species) becoming very prominent on the mire vegetation, and the presence of an old road and dyke affecting mire formation.

Several distinct hydrological units have been defined and identified on the Pitmaduthy site – two Topo-hydrological Units (THUs) – Garrick Burn and Pitmaduthy Burn, and three Bio-hydrological Units (BHUs) – Garrick Willow carr, Loch Buidhe and Pitmaduthy mire.

(These units are illustrated in the map appendices, p.30, in map 7 'Proposed Management Boundaries' and map 8 'Summary of Hydrological Management Features'.)

Recommended essential management to preserve the bog woodland habitat consists of planting a buffer zone of native woodland on the north side of the site to prevent nutrient enrichment from agricultural run-off.

Two additional small hydrological units of Loch Buidhe, south of the cSAC site, and the inland extension of the mire due west of the former Garrick pond were identified outwith the Pitmaduthy cSAC. Both are considered of sufficient conservation interest to merit conservation management.

Long-term management would include establishment of hydrological sampling procedures and monitoring programmes to gauge the ongoing effects of any restoration work.

Due to the rarity of this kind of raised bog system in Scotland, the protection of this mire is of prime conservation interest. The hydrological units as defined within this report can be used to give a flexible approach to the hydrological management of the site, and contribute towards maintaining the natural regeneration of the wooded bog community.

2.0 ACKNOWLEDGEMENTS

This report was co-authored with Neil Redgate and David Holmes, with the principal fieldwork undertaken by:

Philip James	Habitat Surveyor & Ecologist 25 Station Crescent, Fortrose IV10 8SZ <i>ph</i> 01381 620162, <i>email</i> philip.james@cali.co.uk
Neil D Redgate	NDR (Environmental Services) 24 Harland Road, Castletown, Caithness KW14 8UB <i>ph / fx</i> 01847 821495, <i>email</i> consultancy@ndres.co.uk
René ter Schiphorst	Ter Schiphorst Environmental Consultancy 6 Woodlands Farm Cottage, Dingwall IV15 9TT <i>ph</i> 01349 864407, <i>email</i> Rene.TerSchiphorst@cali.co.uk.

Data analysis, digitising and map production was completed by:

David W Holmes	Milton GIS Wellesbourne, Milton, Drumnadrochit IV63 6UA <i>ph</i> 01456 450264, <i>email</i> milton@netcomuk.co.uk
----------------	--

Thanks to Neil Wilkie, Wet Woods LIFE Project Manager for advice and liaison throughout the project, and the following staff at Scottish Natural Heritage (SNH) for their time and assistance: Simon Cohen, Andrew Coupar and the reception staff at SNH Dingwall.

For support with site equipment, thanks to Russell Anderson and Shaun Mochan of Forest Research, Edinburgh. And for loan of Ordnance Survey data for the project: Lachlan Rennick, Heather Shirra and Phillippa Vigano from SNH Edinburgh. For permission to use aerial photographs within this report, staff at the National Monuments Record of Scotland, Edinburgh.

For borrowed literature and their time, staff at the Royal Botanic Gardens Library, Edinburgh, Stuart Brooks of the Scottish Wildlife Trust, and James Ploughman and Norrie Russell of the Royal Society for the Protection of Birds (RSPB) Forsinard.

Finally, thanks to Estate staff for their help with locating historical information and also permission to go on site, in particular David Gwither of Balnagown Estate.