

The Tay catchment: a forestry perspective



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The Tay catchment comprises a substantial area of Scotland with a very diverse range of climates and geology. Approximately 18% of it is covered in woodland and forests, surprisingly close to the typical land cover of Scotland. The forests are diverse and span some of the widest contrasts achievable in Scotland – from the sand dune forests of Tentsmuir (stretching the definition of the Tay catchment right to the mouth of the estuary) to the mountain forests of Highland Perthshire – and some valued remnants of the Caledonian pine forest such as the Black Wood of Rannoch, an important Special Area of Conservation. One of the oldest known trees in Britain, the Fortingall Yew (estimated to be 2,000-3,000 years old), is present in Glen Lyon.

The region has a rich heritage of plant collecting and forest history, with the first example of a planted forest in Scotland (Drummond Hill by Sir Duncan Campbell in the 17th century), and the enduring legacy of David Douglas and Archibald Menzies, the famous plant explorers, visible for example in the Douglas fir



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(*Pseudotsuga menziesii*) trees of the Hermitage. The banks of the river at Dunkeld provided the first location where hybridisation between European and Japanese

larch was observed, providing a species hybrid used extensively in diversification of upland conifer forests.

Forests of the Tay (such as Allean, Faskally and Craigvinean) demonstrate the excellent growing conditions for many introduced species. These legacies have been celebrated in recent years through the tag for Perthshire of ‘Big Tree Country’. Many foresters responsible for the successful afforestation of the uplands learnt their craft at the forester training school at Faskally, set in the model forest established in the 19th century. These new forests have provided important habitat for some much-loved woodland species, including the red squirrel and the capercaillie (where Drummond forest provided the setting for its reintroduction following extinction in the 19th century).

Taken as a whole, the forests of the Tay exemplify the full gamut of sustainable forest management, from forests managed very much with timber production in mind, to those with multiple objectives, and those dedicated to specific non-market benefits including nature conservation, recreation, slope stabilisation and flood mitigation.

The catchment is one of 14 priority catchments targeted by the Scottish Environment Protection Agency (SEPA) for restoration and protection. The much-publicised issues of flooding and diffuse pollution, particularly in the lower reaches of the catchment, have driven the need for action to mitigate these and other impacts on the water environment associated with land use and management. Woodland expansion has a part to play by reducing and delaying flood waters, limiting pollution loading and retaining diffuse pollutants. Opportunity mapping conducted by Forest Research, in conjunction with Forestry Commission Scotland and SEPA, suggested there was considerable potential for woodland creation; whilst much of the catchment is subject to constraints (38% excluded from consideration plus a further 44% where sensitivities will impact scale and character of planting), nevertheless up to 2,851km² of land was identified where some

degree of flood mitigation might be achieved, and 284km² (6% of catchment) where a contribution might be made to alleviating both flood risk and pollution pressure.

The contribution of existing forests to flood regulation is also important and has recently been valued at £184 million for the Tay catchment on the basis of mean flood protection costs. The maintenance of this regulatory service is crucially dependent upon the appropriate management and continuing health of the forests. The forests of the Tay, along with many across Scotland as a whole, are threatened by a range of introduced pests and pathogens – most notably in recent years, the arrival of ash dieback and the widespread mortality of larch due to *Phytophthora ramorum*. Many more threats exist overseas (the UK Plant Health Risk Register lists more than 900 undesirable organisms) and may arrive through a variety of trade pathways and possibly also by unwitting introductions by movement of plants and soil by visitors. Some of these threats, such as the bacteria *Xylella fastidiosa*, can affect a very broad host range, spanning not just forest species but many important horticultural and agricultural crops. The recently established Plant Health Centre (PHC, www.planthealthcentre.scot), funded by the Scottish Government, is providing expertise to consider and counter such multi-sectoral threats which in worst case scenarios could impact whole catchments such as the Tay. The PHC combines expertise from leading Scottish research institutes (SEFARI and beyond) and links knowledge and understanding from the forestry, natural environment, agriculture, and horticulture sectors. It is to be hoped it can contribute to maintaining healthy habitats and cropping systems in the Tay and beyond.

Prof Chris Quine is a long-standing RSGS member who works for Forest Research and is sector lead for forestry within the Plant Health Centre.

FURTHER READING

Broadmeadow S, Thomas H, Shah N, Nisbet T (2013) *Opportunity mapping for woodland creation to improve water quality and reduce flood risk in the River Tay catchment (Scotland)*. forestry.gov.uk/images/corporate/pdf/Tay_OM_Report_June13.pdf