

A dendrochronological analysis of living trees, South Loch Rannoch, Perthshire

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Executive summary

This project set out to age selected trees at two sites which may be able to contribute more widely in understanding the age structure of woods at South Rannoch, east of the Dall burn, in relation to a development proposal in this area which the Woodland Trust opposes. Using core samples, it has provided precise, dendrochronologically determined date spans for all of the sampled oak and pine, and a close estimate of the date spans of the downy birch. The oldest trees analysed are Scots pines originating in the 1680s-1690s; a later generation of pine emerged around them in the 19th century, apparently in two phases, in the 1820s-40s and 1850s-60s, and from the 1840s onwards there is evidence of birch regeneration at the same site. This pine site is quite high above the loch, at about 320m OD, on a bend in the Allt na Bogair. Oaks down by the shore of Loch Rannoch, near Carie, originate in the early 19th Century, before this wave of pine regeneration on the higher slopes, and they may be planted. All of the oak and pine sampled originate in periods when the Robertsons of Struan controlled the estate, either before or after forfeiture, and although much has been written in favour of the silvicultural practices under the government administration of the latter half of the 18th century, it would appear from these results that the Robertsons of Struan have also contributed to the diverse historic wooded landscape which survives at South Rannoch.

The late 17th Century pines, just outside the proposed development area, point to the potential survival of veteran pines within the development area, between the area now regarded as the core of the Black Wood of Rannoch and the study site. It is recommended that age determinations are undertaken on the old natural-origin pines which have survived the plantation phase between the Dall Burn and the Allt na Bogair. It appears that these have not yet been the subject of any scientific ageing study. Leslie's estate map of 1756 seems to show a more extensive area of pinewood, extending east of the Dall Burn, into the proposed development area. Leslie's map also points to the potential survival of older deciduous trees on the lower ground, in the north eastern part of the development area, towards Carie, where he shows open deciduous woodland; thus, ageing the oaks in the recently cleared PAWS area here, and also the wood pasture forms of oak nearer Carie, is recommended. There is a strong possibility that some of these oaks are 18th Century or earlier.

This study has allowed construction of the kernels of two useful new tree-ring chronologies, one for Rannoch oak (RAOAKMNx3: AD 1836-2009) and one for Rannoch pine (RBSPMNx12: AD1703-2009). Further work to strengthen and lengthen them would assist in climatic, conservation and heritage dating objectives (Crone & Mills 2002). A well-replicated pine chronology from Rannoch trees would make possible the dating and dendro-provenancing of historic building timbers cut from Rannoch in the past; documentary evidence shows these are likely to survive in older buildings in this part of rural Perthshire and also downstream along the Tummel and Tay, in Dunkeld and Perth especially. The study has also obtained reasonably precise age estimates on old downy birch, allowing them to be compared with those of old pine in the same stand. This signals a way forward for investigating stand dynamics in areas where birch co-exists or competes with natural-origin pine.

South Rannoch has a rich documented history of exploitation and management, alongside remarkably intact survival of a cultural wooded landscape. However, little work has yet been done to survey the physical remains of the historic woodland exploitation in this landscape, or to relate them to the documented history. The proposed development could result in considerable loss of unrecorded woodland archaeological remains as well as impacting on the remnants of ancient semi-natural woodland east of the Dall burn, which as yet have been subject to little scientific investigation.