The evidence of tree forms, tree-rings and documented history around Bealach nam Bo, Loch Katrine

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Executive summary

This project aims to provide a foundation for the interpretation and presentation of the cultural dimension of woodland history in the south-east part of the Loch Katrine catchment. The research covers three inter-connected fields which together provide a basis for interpretation; (1) tree form survey, (2) dendrochronology and (3) historical documentary research. Other relevant aspects, such as archaeological, cartographic and place-name evidence are considered along the way. Synthesis was outside the agreed scope at this stage. The authors have not yet had an opportunity to consider fully the significance of each others' results, especially the implications of (3) for the outcomes of (1) and (2). Support for synthesis is a strong recommendation to obtain the holistic view of the woodland history made possible by such an inter-disciplinary collaboration. Publication is also highly desirable. In the meantime, the separate reports provide plentiful information for interpretation.

The preliminary study of historic documents (Report 3) has revealed a rich history for the woodlands in the study area, one which certainly merits more intensive research. The study area has long been suited to, and therefore used for grazing and pasture, for both deer and livestock. Ben Venue was probably part of the more extensive hunting forest of Menteith which dates back to the 12th century and which was a favoured hunting area of Scottish kings. Further research of medieval sources would be helpful in uncovering more of that important history. That this forest continued to be regarded as such - in name at least - well into the 18th century is significant and may have affected the historic management of the area, just like Glenfinglas. It is not yet possible to say when this area was first farmed, but there are plentiful remains of pre-improvement settlement in this area. The lands of Glasahoile are referred to from at least the early 17th century and therefore we can assume that from at least that time, specialist livestock farming took place, probably with a small proportion of arable. Cheese was an important product at 17th Century Glasahoile farm, indicating the use of the area for grazing. Evidence for the industrial exploitation of the woods is also considered, including the Montrose coppice regime and the Achray furnace. Previously unrecorded archaeological evidence of industrial exploitation of the woods was noted in the survey work. The documentary evidence for changes wrought by sheep farming, the waterworks and tourism are also considered in Report 3.

The woodlands of the study area are diverse in species composition, age and structure. The tree survey (Report 1) revealed a diverse range of tree forms including maidens, coppice, natural multi-stems, pollards of various forms and phoenix trees. The survey largely focussed on the pollard forms of ash, oak and alder, to inform the sampling approach for the tree-ring analysis (Report 2). Together, these two aspects have made progress in understanding ages and formation processes, although the sample size was small and a wider study would be more informative. Nevertheless, the ash woodland near Bealach nam Bo provides convincing tree-ring evidence for pollarding in the 18th Century, as well as a 17th Century origin for some trees, now the oldest known dendro-dated ash trees in Scotland. The pollarding dates tie in with the occupation of the nearby pre-improvement farm, tentatively identified as Murlagan. A period of ash regeneration in the late 18th century could have occurred between the abandonment of Murlagan and the advent of sheep farming. There is no tree-ring evidence for the formal pollarding of this generation of ash, but this does not rule out *ad hoc* harvesting.

The samples from the low oak and alder pollard-type trees revealed nothing earlier than 19th century dates of origin, and no clear tree-ring evidence for pollarding. However, the complex forms together with rot and fragmentation limited the interpretive quality of some core samples. There was good evidence of many of the sampled trees being fused multiple stems and having very complex formation processes. Initial coppicing and/or grazing damage could have created multi stems, and browsing may well have continued to influence their form. The low leaning stems of some trees could have allowed access to the canopy by goats, given their climbing abilities. A strong recommendation of this study is to undertake slice sample tree-ring analysis at different heights of the main stem and branches for some examples of low 'pollards', if their age and formation processes are to be understood properly. Another recommendation is to survey and sample the overgrown oak coppice near Glasahoile, to discover whether the oaks inside and outside that enclosure are the same age, and whether the lack of enclosure contributed to the pollard form of the low stubby oaks.

In summary the key recommendations are: synthesis and publication of this work; more in-depth documentary research especially in the Montrose estate papers; a forensic slice-study analysis of some of the complex fused multi-stem alders and oaks; a comparative study with the oaks of the Glasahoile plantation; pollen analysis of the catchment; and encouragement of a community woodland archaeology project to further the study of the rich archaeology and history of the woods. A number of other recommendations are made in the individual reports.