

Making hardwoods work harder for us

By contrast with their distinguished history on lowland estates in Britain, hardwoods have traditionally played a minor role for timber in the uplands. Many argue this is due to climatic and soil limitations. However, oak has proven capable of producing valuable timber, when managed appropriately on suitable upland sites. Some estates have also succeeded with alder, ash, beech, birch, elm and sycamore. Since 1985, upland hardwood plantings have predominantly been for biodiversity and amenity, with limited aspiration to timber. Many have been stocked at 1100-1600 stems/ ha, making tending for timber difficult and expensive.

Reasons to emphasise productive upland hardwoods

I argue that we should now change our approach to upland hardwoods, viewing them as a valuable, productive resource. With ongoing processes of plantation restructuring, native and riparian woodland expansion and PAWS restoration over thirty years, we are allocating an increasing proportion of upland growing space to hardwoods - 10-15% in most forest plans, frequently 20-30%. Grant scheme vicissitudes (including likely consequences of Brexit), beleave us to create and manage financially self-sustaining woodlands along the lines of traditional estate forestry. With careful attention to establishment and silviculture we can produce valuable hardwood timber, while also delivering habitats for biodiversity, enhancing landscape amenity, protecting soil and freshwater or mitigating floods. It is a myth that active hardwood management is impractical or compromises non-timber benefits of woodlands.

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DR. SCOTT MCG. WILSON ARGUES IN SUPPORT OF QUALITY HARDWOODS IN THE UPLANDS

Hardwood establishment under birch canopy, Aberdeenshire

Fine upland beech stand, Moray

Future Trees Trust breeding orchard of silver birch, Northern Research Station





CONTEXTS FOR PRODUCTIVE HARDWOODS IN THE UPLANDS

Opportunities arise for production of hardwood timber in several upland forest management contexts:

Mature hardwood stands - including ancient semi-natural woodlands and longer-established plantations, where selective silviculture can be applied to standing crops, allowing subsequent natural regeneration. On designated sites, practices will need to be agreed with conservation authorities, but this should not become an “obstacle to progress”. Few woodlands benefit ecologically from lack of proper management!

Recently established hardwood stands - particularly on better, more accessible sites, where initial stocking exceeds 3000 stems/ ha or can be raised toward that level by reinforcement planting or infill regeneration. This applies even where initial objectives of establishment were habitat restoration, biodiversity, landscape, carbon sequestration or flood mitigation - we need to view these as “multi-purpose” forestry. While the “first crop” may be mainly of woodfuels, later crops can be of good timber.

PAWS restoration sites - these form part of many maturing plantation forests and frequently occupy much better ground where natural hardwoods persisted. One only need consider Loch Lomondside and the Great Glen, where sites once supported good oak coppice and fine Douglas fir has grown since the 1920's. Withdrawing these areas from the “production working circle” is unnecessary. Retention of a minority of premium conifers should be an option, alongside well-managed new hardwood crops.

Plantation restructuring restocks - these include “non-PAWS” areas within upland plantations where hardwoods are planted or naturally regenerated as part of planned coupe-wise restructuring. Many examples are along watercourses, forest margins, wayleaves or access routes. While some pose challenges for timber production - eg exposure, steep slopes or soft soils - none should defeat skilled professional foresters. In future, areas for hardwood restocks should be selected with quality timber in mind.



ESSENTIAL CONSIDERATIONS FOR PRODUCTIVE HARDWOOD ESTABLISHMENT AND SILVICULTURE

To grow productive hardwoods successfully in the uplands, several aspects are essential:

Choice of suitable sites - these will generally lie below 300m asl, with reasonable terrain, access for timber extraction and upland brown earth, surface water gley or mildly podzolic soils. Hardwood options on peaty soils are typically more restricted.

Choice of tree species suited to the site, as determined by site classification (eg FC Ecological Site Classification (ESC) or Prof. Mark Anderson's “The Selection of Tree Species”). Where timber is the main objective, site suitability, rather than nativeness, is the priority. Current marketability of their timbers should be considered, but should not dictate species selection - good timber usually finds a future market. Hardwood mixtures often prove more resilient than extensive single species plantations.

Choice of provenances suited to ecological site conditions, having the proven potential to produce stems of superior timber form (eg outputs of well-planned scientific tree improvement such as the FR and Future Trees Trust programmes). Again, where timber is the objective, selected provenance, rather than localness, is the priority, unless work is in or

adjacent to ancient semi-natural woodlands. Planting stock may have to be contract-ordered from nurseries several years prior to planting.

Determination of initial stocking density capable of producing a crop of hardwood trees with valuable stem form. This typically lies in the range 3000-5000 stems/ ha. This can frequently be formed by a combination of planting and natural regeneration.

Implementation of effective site preparation and protection including drainage, control of competing vegetation, fertilisation and herbivore exclusion/ control. Where timber production is the priority, methods should be sufficient to establish the crop, rather than placing excessive emphasis on low impacts. In terms of deer protection, culling or fencing are relevant methods for larger schemes aiming at quality timber.

Implementation of appropriate young growth tending and thinning for species involved. Formative pruning may be unavoidable where initial stocking has been inadequate, but is a poor substitute for competition. Respacing and selective thinning should be carried out regularly to form a final crop of desirable stems. Inspection for pests and diseases, with appropriate replacement, should also be a regular operation.

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ENABLING MEASURES TO PROMOTE PRODUCTIVE HARDWOOD FORESTRY

Three wider sectoral activities are required to release potential for productive hardwoods:

Forestry skills development and retention

– we need to re-emphasise training and skills development in traditional forestry, such as site/soil appraisal, species selection, establishment practice and selection silviculture. This should take its proper place both in the academic setting and “on the job”, and needs to return to its former status as the primary consideration when recruiting field forestry staff across the sector.

Tree improvement and silvicultural research

– these traditional aspects need to have a secure long-term place within our research portfolio, and need to be protected against the vagaries of “policy fashion” and short to medium-term funding allocations. This is likely to be best accomplished by fostering sectoral diversity of research activities.

Vertically-integrated harvesting, processing and market development

– especially for quality hardwoods, but also for specialist/higher value conifers, there needs to be a move away from commodity processing at industrial sawmills towards an artisanal approach, more akin to traditional estate sawmilling and timber marketing. This is facilitated by rapid innovation in flexible/portable harvesting and milling equipment.

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For information about the work of the Future Trees Trust on traditional hardwood species see: www.futuretrees.org.

Articles on novel hardwood species will be appearing in the Quarterly Journal of Forestry, with the present author serving as either lead or co-author.

The Institute of Chartered Foresters is planning a seminar on quality hardwood growing in northern Scotland. For details and a reading list, please contact the author on scottmcgwilson@hotmail.com.



Upland aspen (left) and oak (above) in Aberdeenshire and Galloway respectively