

Living with ash dieback - Silviculture systems for Irish ash

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ABSTRACT

Ash (*Fraxinus excelsior*) is the most common broadleaf high forest species in Ireland. It is also one of the most important native woodland species and forms a key component in the wider cultural landscape. Ash accounts for over 3.2% of the forest estate in Ireland (approx. 21,000 ha). Over 17,000 ha of ash plantation has been established, on open-field sites, since 1990. This represents a major investment both from a landowner and state perspective. These plantations are almost exclusively monoculture ash and, being relatively young, are very susceptible to ash dieback (*Hymenoscyphus fraxineus*). It was first confirmed in Ireland in 2012. Initially an all-Ireland eradication policy was instigated in an attempt to control the spread of the disease. However, given the experience in neighbouring countries and the latest scientific advice, eradication in Ireland is no longer considered feasible. Policy reviews in Ireland broadly propose a move toward trying to manage and minimise the impacts of the disease. This will require support and advice to forest owners regarding appropriate silvicultural interventions. The general experience and research findings from Great Britain and continental Europe would broadly suggest a twofold approach to managing the silvicultural and ecological impacts of the disease. Management interventions should aim to promote: 1.) The general health, vigour and therefore longevity of the existing ash stand; and 2.) Greater species diversity with a view to building increased resilience. Where feasible, conventional thinning may promote the health and vigour of selected trees, which over time may secure a greater timber income for the forest owner. It may also preserve the ecological integrity of the woodland during the transition to a more mixed species stand. Retaining relatively healthy trees for as long as possible may also promote the species natural resistance to the pathogen. Proactively developing species diversity, particularly in Ireland's relatively young, monocultural and structurally homogenous ash plantation resource, is likely to require adapted thinning interventions whereby group and other shelterwood systems facilitate admixing. This paper presents some case-studies of possible silvicultural options for the management of ash dominated woodlands in Ireland. The majority of the Irish forest industry utilises the clearfell system with subsequent replanting. Until recently, the eradication policy for ash dieback included the clearfelling of any plantation confirmed to have the disease and then subsequent replanting with alternative species (Fig. 1A). The recently established Irish ash plantation resource has recognised thinning guidelines (see SHORT AND RADFORD 2008) that are generally a combination of rack and selection thinning, designed to provide permanent access to the plantation and to promote rapid growth of approx. 300 selected trees ha⁻¹. Some of the proposed silvicultural options below are intended to be superimposed with the rack and selection thinning. All of the proposed systems aim to take advantage of the nursing effect provided by the ash to be replaced, rather than planting into an open-field situation following a clearfell operation if restocking is required. The following systems will be outlined and case-studies of their use in Ireland presented.

Free-growth / Halo thinning

Free-growth, or halo thinning, entails the selection of vigorous, healthy trees and the removal of all surrounding crown competitors (Fig. 1B). A case-study from Ireland will be presented.

Systematic thinning with underplanting

This involves the felling of two or three lines and replanting with alternative species (Fig. 1C). A case-study from Ireland with replanting with alder (*Alnus glutinosa*) will be presented.

Selection with small coupe felling

This involves conducting a rack and selection thinning but also felling small coupes (0.025 – 0.045 ha in size) and replanting with alternative species (Fig. 1D). A case-study from Northern Ireland with replanting with native oak (*Quercus robur*), birch (*Betula pubescens*) and hazel (*Corylus avellana*) will be presented.

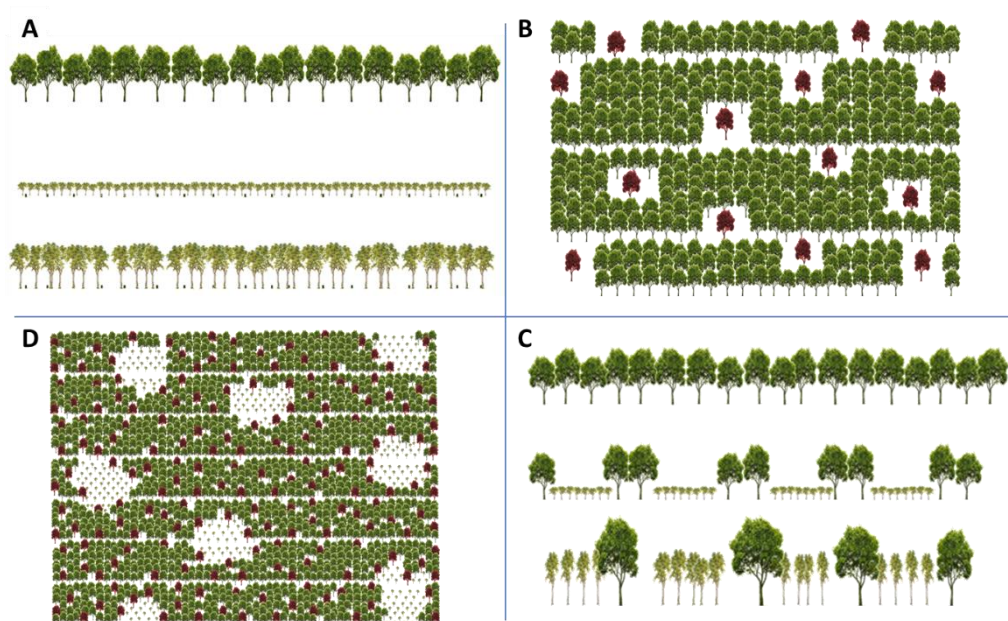


Figure 1: Silvicultural systems for management of ash in Ireland. Clockwise from top left: A) Clearfell and restock; B) Free-growth; C) Systematic thinning with underplanting; D) Small coupe felling

Potential positives from ash dieback?

The advent of ash dieback in Ireland will likely have severe consequences to the Irish landscape and implications for a developing native hardwood industry, but some positives may also occur. Improved, site specific, silviculture may develop and become more prevalent, replacing the currently predominant monoculture / clearfell practices, and thereby increase species and structural diversity and resilience to pests, diseases and changing climatic conditions. In contrast to open-field afforestation, the growth of broadleaves in uneven-aged woodland based systems may have positive implications for future hardwood stem quality.

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Peter Rademacher, Miklós Bak*

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Now, the 8th Hardwood Conference has the pleasure to be linked with one of the current COST Actions, **FP1407**: Understanding wood modification through an integrated scientific and environmental impact approach (ModWoodLife).

As part of the interaction between this Action and Hardwood Conference, the following presenters have been provided with assistance for their involvement at this conference:

Pavlo Bekhta (Ukraine), Fatima Bouchama (Belgium), Lukas Emmerich (Germany), René Alexander Herrera Diaz (Spain), Edo Kegel (Netherlands), Edgars Kuka (Latvia), Andreja Kutnar, (Slovenia), Rastislav Lagana (Slovakia), Jaka Pečnik (Slovenia), Luigi Todaro (Italy), Nebojša Todorović (Republic of Serbia), Aleš Zeidler (Czech Republic)



ModWoodLife

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