

# **Close To Nature Forest Management**

## **The Way Forward for Irish Forests**

**Patrick Purser M.Agr.Sc. (Forestry) MSIF**

Irish forests are popular places. There are over 8.5 million visits to them by the public each year (Clinch, 1999). Forests are also places of economic activity. There are over 6,000 jobs dependent on Irish forests and the timber industry turns over more than €500 million annually (Bacon, 2003). Forests are also ecologically important. They regulate run-off, provide shelter and habitat for fauna and flora and sequester carbon.

However, in Ireland, most people visit the more diverse woodlands contained in forest parks and national parks. Most of the timber production comes from purely commercial plantations typical of Irish forestry. Most of the native and protected woodlands are segregated from the commercial ones and are not managed by foresters but by botanists and ecologists.

But why should these forest functions be segregated? It is recognised that truly sustainable forests serve economic, social and ecological functions equally. So how can we manage our forests in a truly sustainable way without separating these functions?

The answer is through what has become known in Europe as “close to nature” forest management. This is a forest management system where forest managers and owners work hand in hand with the natural processes and dynamics that occur in forests to the benefit of the forest owner, the environment and society in general.

Of course, such practice is not new but was common all over the world with different cultures at different times. However, the modern European concept of “close to nature” silviculture was developed by foresters such as Karl Gayer, Adolph Gurnaud and Henry Biolley at the end of the 19<sup>th</sup> century, notably in Switzerland and Slovenia. Indeed, it was Biolley who perfected the “Jardinage” single tree selection system in Couvet in the Swiss Jura where it is still practiced today. The system was so-named because Biolley was considered to be a tree gardener. The impetus for this re-invention of forest management came from the failure of plantation forests to sustain their social, economic and environmental functions, characterized by catastrophic landslides, avalanches, wind damage, insect damage and loss of soil fertility and structure.

Over the last century, Ireland has developed a forest industry based around plantation forests. These forests have been grown as agricultural crops on a rotation system. Questions are now being raised, primarily by our European partners who have been through this process, as to how sustainable these plantations are. While it is appropriate to acknowledge Ireland’s tremendous achievement in implementing an afforestation programme that has restored forest cover from 1% to 10%, it is also pertinent to ask how these new forests are now to be managed.



**Fig. 1: Unstable, unattractive and unsustainable? Various stages of forest crops under conventional clearfell and replant systems (Photo: Jan Alexander)**

One view is that these new forests be regarded as pioneer crops, artificially established in order to quickly reclaim forest land that had been lost to agriculture over the past number of millennia (Otto, 2001). This is a different view than conventionally held in the Irish forest industry which regards these crops (generally Sitka spruce and other conifers) as a commercial venture to be repeated again and again using a clearfell and replant system. However, if the European experience is transposed to Ireland, then it would be more prudent to take the former view and find ways of transforming these plantation forests to permanent forests of mixed species and age classes. This conclusion has already been reached in other countries that have a similar afforestation history to Ireland's. In Denmark it is now part of national forest policy that all forests be managed using a close to nature silvicultural system. In Wales, the national policy is that 50% of all forests are to be similarly transformed.

Transforming even aged mono-cultural forests into woodlands of mixed species and age-class will take many years but there are some simple steps that can be taken that will achieve relatively quick results. These can be summarized as follows (Morgan, 2006):

- The forest owner and forester must make the decision that this is both desirable and possible.
- Thin early and often in the plantation cycle to ensure that individual trees become wind firm with a low centre of gravity.
- Maintain and improve the growing stock, never thinning more than the increment.

- At first, selectively thin poor trees, regardless of size so that good quality trees of varying sizes remain.
- Pay no regard to spacing – gaps created will create opportunities for natural regeneration and diversity of tree size.
- When repeated qualitative thinnings have resulted in a stand of trees of consistent quality, change the thinning system to remove the largest trees. These trees are the most valuable and therefore thinning becomes very profitable while smaller trees are grown on till they reach an optimal market size.
- Use natural disturbances as opportunities for increased diversity (age and species) through regeneration.
- Control browsing mammals to a level where naturally regenerating trees have the opportunity to develop.



**Fig. 2: Regenerating Japanese larch, oak and Douglas fir about 9 years into the transformation process (Photo: Philippe Morgan)**

Close to nature forests are indisputably more pleasing to the public and are by definition more ecologically sustainable. Trees perform better in this system, benefiting from the microclimate created by permanent forest conditions. In particular the woodland under storey plays an important role in maintaining moisture levels and keeping temperatures constant within a stand. In particular, conifers in a broadleaved mix will provide early spring and late autumn shelter, thus extending the growing season (Kalnars, 2004).

Foresters throughout Europe testify that this system stands proud on its economic merits. The forest “capital” is retained and only the “interest” in the

form of volume increment is removed at any time. Once the system is up and running, harvests consist of valuable timber only while smaller, less valuable timber is left to grow on to a more economic size. Although the valuable clearfell revenue which would normally be reaped in a single year is foregone, the expensive reforestation costs are also avoided and the forest continues to provide regular income which, following clearfell, would not re-commence for another 20 years.

The close to nature system also constitutes a better risk management strategy for the forest owner. Notwithstanding the fact that such forests are more stable, in the event of a catastrophic wind blow there is an immediate replacement under storey available at no cost. Also, with a store of different tree species and sizes the forest owner is at less risk and better prepared for market fluctuations and exploitation of niche markets. Europeans often refer to the “forest supermarket”, meaning that the system allows them to stock many products at the one time.



**Fig. 3: Regenerating beech in a nearly fully transformed close to nature system (Photo: Philippe Morgan)**

Irish forest policy makers are frequently torn between the demands of the forest industry at home and European Union policy on forest and land-use management. On the one hand the Europeans, who have paid much of the capital and current cost of establishing Ireland’s new forests, would like Irish forests to evolve away from the clearfell and replant system towards a close to nature system. On the other hand, the Irish forest industry has developed a capacity for processing large volumes of low value forest products such as pulp wood and pallet wood which are produced from plantation forests.

However, pioneering private sector forest owners and foresters with mature or semi-mature forests faced with expensive reforestation costs and long future periods of no forest income are turning to close to nature forestry as a potential solution to their problems. They have been joined by small forest owners who, because of a lack of scale, find their forests are not attractive for conventional industry practice, in seeking alternative management systems. In 2000, Pro Silva Ireland ([www.prosilvairreland.org](http://www.prosilvairreland.org)) was formed to encourage and promote practice in close to nature forestry in Ireland. Pro Silva Ireland has approximately 90 members and is part of Pro Silva Europe, a European federation of like minded foresters and forest owners.

**Patrick Purser M.Agr.Sc. (Forestry) MSIF**

**November 2006**

Patrick Purser is a director of Purser Tarleton Russell Ltd., forest managers and industry consultants and a co-founder of Pro Silva Ireland.

**References:**

Bacon, P. (2003). Forestry: A Growth Industry in Ireland. Peter Bacon & Associates, Economic Consultants.

Clinch, J. Peter (1999). Economics of Irish Forestry: Evaluating the Returns to Economy and Society, Dublin: COFORD

Kalnars, T. (2004). The Art of Forest Management. Proceedings from a Pro Silva Ireland Workshop in Wales. Pro Silva Ireland.

Morgan, P. (2006). Why is Close to Nature Forest Management an Attractive Choice for Farmers? Presentation to the Irish Farmers Association at their Farm Forestry Conference. Pro Silva Ireland.

Otto, Hans J. (2001). Approaches to Continuous Cover Silviculture in Sitka Spruce Pioneer Plantations. Pro Silva Ireland.