

Continuous cover forestry

– sustainable silviculture or fantasy forestry?



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Eight years ago a group of foresters, woodland owners and like-minded people formed Pro Silva Ireland to promote an alternative forest management system known as continuous cover forestry (CCF), also referred to as close to nature forestry. Alternative, that is for Ireland, because CCF has been an accepted silvicultural practice in many European countries for generations.

CCF maintains continuous woodland conditions as opposed to the practice of clearcutting at maturity followed by reforestation. There are a number of variations of continuous cover including shelterwood systems, low impact silvicultural systems, and *dauerwald* the German term for continuous forestry (see panel).

Ireland practices a silvicultural system which is based on clearcutting and reforestation whereby plantations are thinned, usually at three to five year intervals from the age of production until the crop is clearfelled and the forest cycle begins again. The clearcut system provides no income for the first 15-25 years (depending on yield and species) while a forest managed according to CCF provides continuous income once converted to continuous cover.

Proponents of the clearfell system maintain that it provides ecological and economic benefits culminating in high income at clearfell which can be up to €20,000 per hectare. This they maintain will financially support

reforestation and the following non-productive years. Those who advocate CCF argue that the clearcut system is not sustainable economically or ecologically.

In Ireland, while CCF critics accept that the system has ecological and aesthetic benefits, they maintain that it is economically and operationally unrealistic. Many acknowledge that while CCF may be an alternative system for some broadleaf plantations it is not an economic proposition for fast growing highly productive conifer forests.

CCF IN CONIFERS

Pro Silva, conscious of this criticism, organised a forest tour last year in the French Alps, which examined CCF in productive conifer as well as broadleaf forests. As expected the system ticked all the right boxes in the cherry, poplar and oak woodlands that the group visited in the Chautagne and Thonon areas.

However, many in the group were interested in how the system fared in the coniferous forests of the Belledonne mountain range southeast of Grenoble. Here, the forests mainly comprise Norway spruce and silver fir.

The first culture — or silviculture — shock to Irish foresters is that their Alpine counterparts remove not hundreds of trees per hectare during thinning as we do in Ireland, but as few as 10. They harvest the biggest, best and most valuable trees all the time encouraging the smaller trees to rapidly fill the space of the removed trees.

Each tree to be harvested is hand picked and despite the large size of many forests, units of management are as small as a few hectares. The inventory system is also based on individual tree measurement so that the forester knows exactly what the growing stock is in terms of tree sizes, species mix and forecasts.

The forest manager for the area, Francois Leforestier, demonstrated that selection



Pictured at the Pro Silva field trip to the Belledonne mountain range of the French Alps last year: Robert Scott, Chairman Pro Silva; Pdraig O'Tuama, Coillte; Francois Leforestier, Forest Manager; Paddy Purser, Purser Tarleton Russell Ltd; Br. Anthony Keane, Glenstal Abbey.

of trees to be harvested is part science, part art and — in the tradition of Henry Biolley who perfected the *jardinage* single tree selection system — part gardening. Each tree harvested is valuable with a volume of up to 7m³ which is a good reason why selection is carried out only by a forester. There is no room for mistakes as Francois Leforestier explained: “Take too many trees out and the area will be vulnerable to overexploitation and windblow; take too few and the understorey species won't have sufficient light and root area to grow to their full potential.”

In one 7.7 ha stand in the Belledonne mountains there were 3,045 standing trees with a total volume of 2245m³ (Table 1) This equates to just under 400 trees and 292m³ per ha. However 17% of the volume (618 m³) is contained in less than 5% of the trees (139). These are all over 60cm diameter. So the forester handpicks almost all of his trees from the 65cm + range.

Foresters who practice the system are not only convinced about its ecological benefits but also its economic viability. Francois Leforestier quickly dispelled the notion that CCF is a system with emphasis only on environmental benefits. He pointed out that it is financially viable which it needs to be because the forests under his management are owned by an investment group of shareholders of the Credit Lyonnais Bank for whom profit and return on investment are a priority.

CCF – THE FUTURE

While the Danes and Welsh are moving away from clearcut systems to CCF, Irish foresters are unlikely to follow in great numbers. Ireland's forests provide logs to a processing sector that is based on producing a range of products that reflect log sizes — small to medium logs

for wood energy, pulp, fencing, pallet and large logs for construction.

CCF has huge advantages for Irish growers because once the forest is converted to CCF, growers need only handpick as few as 10 large volume trees per hectare every four or five years to provide sufficient production volume. It requires intensive management. CCF foresters stress the word ‘continuous’: continuous tree cover; continuous conservation; continuous high landscape values; and continuous income. It also needs continuous management. The current Pro Silva chairperson, Jan Alexander stresses the word ‘close’ or ‘close to nature’ forestry, her preferred name for CCF.

PRO SILVA FIELD TRIP

Growers who wish to know more about CCF or ‘close to nature forestry’ should attend the next field day organised by Pro Silva, scheduled to take place in the woodlands of the Walsh family, Ballykilcavan, Stradbally, Co. Laois on Saturday April 26 beginning at 11.00am. Meeting point at the entrance to Ballykilcavan House, 2 km on the left hand side of the R428 coming from Stradbally - 9km from Athy.

The woodlands here have been managed by the Walsh

What's in a name – CCF or CNF?

Continuous cover forestry (CCF) is probably the term that best describes a silvicultural system that ensures permanent tree cover, thus avoiding clearfells. However in recent years, Pro Silva Ireland, the proponents of this forest management system have been using the term ‘close to nature forestry’ (CNF). With apologies to Jan Alexander, we will use the term CCF because — to use advertising parlance — it does exactly what it says on the tin.

The system is not new as Paddy Purser, Pro Silva Ireland says: “It is 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 19th century, notably in Switzerland and Slovenia. Biolley perfected the *jardinage* single tree selection system in Couvet in the Swiss Jura where it is still practiced today.”

The *jardinage* or garden reference is a key to the system, which requires attention to detail whereby individual trees are selected almost with the same familiarity, as a gardener would know his or her trees. Biolley believed that single tree selection was required because as Paddy Purser points out: “The impetus for this reinvention of forest management came from the failure of plantation forests to sustain their social, economic and environmental functions, characterised by catastrophic landslides, avalanches, wind damage, insect damage and loss of soil fertility and structure.”

family since 1639. The field visit will involve a day-long walk with stops and discussion along the way. The main themes for the day will be:

- Single management approach — integration of exotic and native woodlands.
- Acceptability of exotic species in native woodlands.
- Timber production in native woodlands using continuous cover.
- Transformation of even-aged conifer plantations to continuous cover.
- Stand improvement in young broadleaved plantations.

Participants are advised to bring appropriate rainwear and footwear along with food and drink for lunch. The current chairperson of Pro-Silva, Jan Alexander, thanks the Walsh family for agreeing to host the event. All interested in forestry are welcome especially growers with woods approaching the production phase, because they are ideally suited to transfer their plantations from a thin and clearcut system to CCF.

Table 1: Typical species and volume distribution in high altitude French Alps forest (Belledonne mountain range, southeast of Grenoble). Total area of this stand: 7.7ha

Diameter (cm)	SILVER FIR		CONIFERS		BROADLEAVES			
	Silver fir	Norway Spruce	No. trees.	Volume	Beech	Other	No. trees	Volume
15	385	290	675	56.0	4	36	40	2.6
20	391	254	645	140.6	6	12	18	2.4
25	295	157	452	137.0	6	10	16	3.9
30	234	130	364	186.4	7	4	11	3.9
35	170	70	240	215.5	5	1	6	3.3
40	113	42	155	255.6	4		4	3.2
45	78	24	102	181.5	3		3	3.2
50	57	32	89	194.1	2		2	2.8
55	52	30	82	232.2	2		2	3.3
60	53	16	69	281.8				0
65	23	12	35	146.3				0
70	20	6	26	128.7				0
75	5	0	5	32.8				0
80	4	0	4	28.0				0
TOTAL	1880	1063	2943	2216.5	39	63	102	28.6