



Thirty years of ProSilva Europe: challenges for the future

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1. Setting the scene



The Proclamation of Robanov Kot – September 22 1989

‘[...] foresters from 10 European countries [AT, BE, SVK, FR, GE, GR, HU, NOR, CH, SLO, CR] founded a European Union of foresters who believed in Close-to-Nature Management. The Union adopted the name "PRO SILVA".’

PRO SILVA wishes to promote an European movement for stable and healthy forests.

PRO SILVA believes that it is necessary for forestry to adopt a more holistic approach to the management of forest ecosystems, in order to ensure their continuing productivity and to provide the optimal and sustainable range of benefits from the forest.

Silviculture which is based on patience and respect for natural processes will encourage diversity, structural variety, natural regeneration, and the formation of forests of site corresponding (*adapted*) tree species.



The Declaration of Apeldoorn – May 1997

III. Ecological forest management

1. [...] the use and adaptation of ecological processes in forest management are essential [...]. Forest treatment should reflect natural forest processes. [...] The structure and dynamics of natural forests should be imitated [...] to ensure sustainable and profitable production.
2. Treatment of forests as crops [...] must be rejected [...].
- 3[...] close-to-nature management is applicable to all tree species and [...] all stages of stand development.

Forest (1000 ha)



- Undisturbed by man
- Semi-natural
- Plantations

Naturalness of forests across Europe in 2010:

Forest Europe, 2011



Structure of European forests in 2010.

[Analysis of] the composition of European forests in 2010 [shows that] **even-aged forests dominate**. For Europe as a whole, slightly less than 70% of forests are reported as even-aged: [...]. Uneven-aged forests appear to be fairly common in all parts of Europe [...].

Forest Europe, 2015, p 78.

Extent of mixed forests in Europe.

Forest Europe, 2015, figure 57



- 1 tree species
- 2 - 3 tree species
- 4 - 5 tree species
- 6 or more tree species

PRO SILVA PRINCIPLES



English - Français - Deutsch

Conclusions:

1. European forests have been heavily influenced by man and are (at best) semi-natural;
2. They are mainly subject to even-aged management;
3. The forests are mostly composed of mixed species;
4. Most forest management in Europe does not follow ProSilva (close-to-nature) principles.



2. The main questions:

- 1. How much Continuous Cover Forestry (CCF) management occurs in Europe? Does this agree with Forest Europe?**
- 2. What challenges and/or knowledge gaps need to be overcome to increase the use of CCF?**

Methods

1. Questionnaire circulated to all ProSilva member organizations in Europe. Also to personal contacts in other countries;
2. 11 questions covering: silvicultural systems compatible with CCF, definition of clear felling, extent of CCF, challenges, knowledge gaps, etc.
3. Replies received from (22): CH, PT, FI, IRE, GR, SVK, BE, FR, IT, PL, PT, CR, DK, GB, ALB, HU, SLO, EST, GE, CZ, AUT, RO, NOR



3. Selected results

Silvicultural Systems compatible with CCF?

Silvicultural system	Percent of countries accepting system under CCF	Notes
Single stem selection	100	
Group selection	100	
Irregular shelterwood	90	
Group shelterwood	62	Often accepted as part of a transformation to irregular stands
Uniform shelterwood	52	

Silvicultural system terminology follows Matthews, 1989.

Transition from CCF to clear felling

1. Six countries have no formal definition of the threshold size of area which determines whether a felled gap is classed as a clear fell or CCF;
2. Remainder have threshold sizes defined which are mostly in the range of 0.1 to 0.5 ha;
3. Size definition is often related to height of surrounding trees, e.g. gap \geq two tree heights in width is a clear-fell.

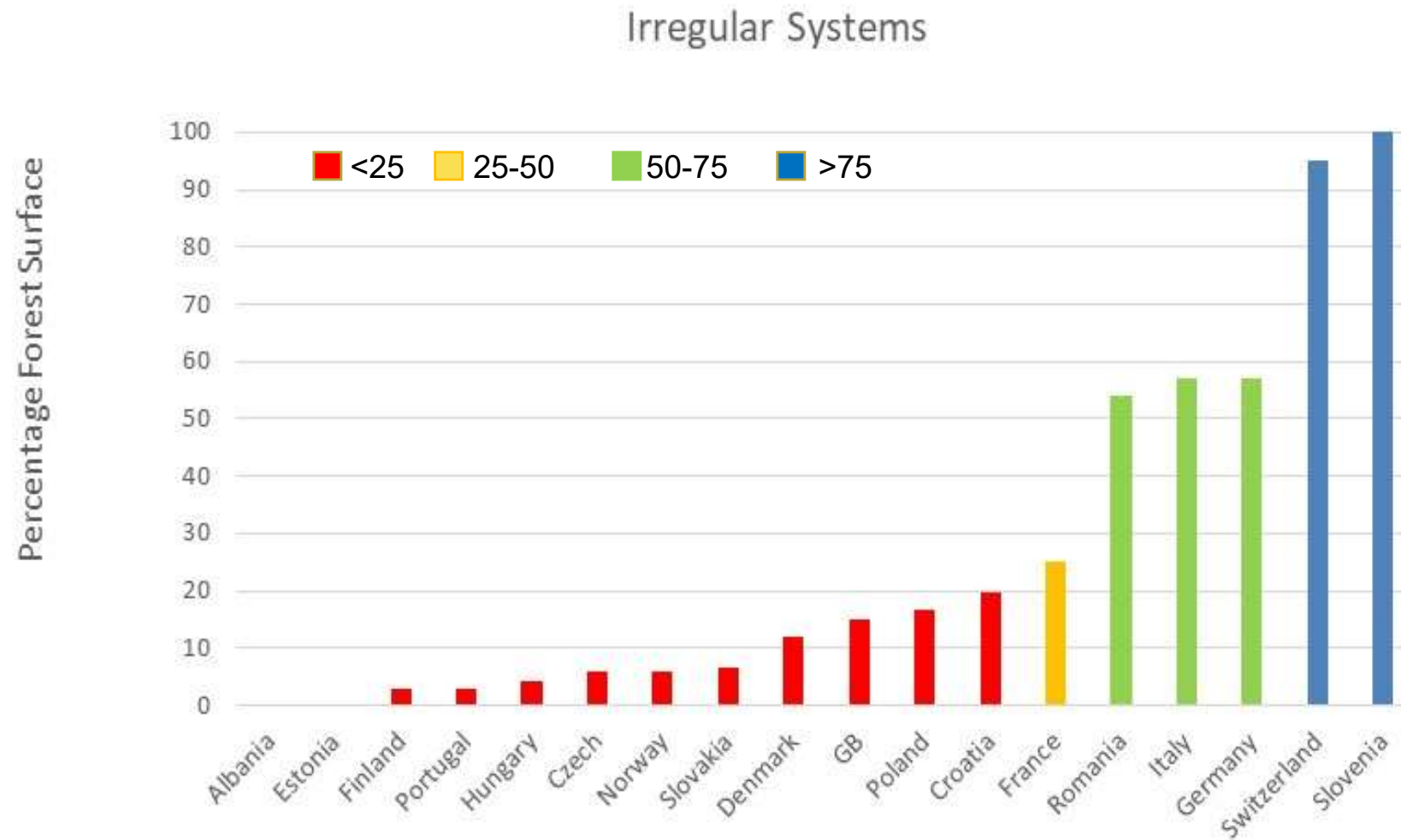
Proportion of forests managed by CCF: by country

1. CCF more common than even-aged systems in: CH, IT, SLO, GE, RO
2. Even-aged systems dominate in: PT, FI, SVK, PO, CR, DK, GB, ALB, HU, EST, CZ, FR, NOR
3. Four countries had no data or proportion was difficult to estimate
- 4. Data about proportion of silvicultural systems used were generally difficult to obtain and there are appreciable regional differences within countries.**

Proportion of forests managed by CCF: Europe

1. 27 per cent of European forests managed by CCF (based on replies received);
2. This rises to 35 per cent if Finland (where CCF only allowed very recently) is excluded;
3. Figures are broadly in line with Forest Europe;
4. Trends suggests a general increase in the amount of CCF over the last 30 years, **but data are very limited.**

Proportion of forests managed by CCF: Europe





4. Implementing CCF across a range of biomes and forest types

Mediterranean region – Cork oak production in Portugal



**Atlantic region: Sitka spruce
dominated plantations in
central Scotland**





Atlantic region:

**90 years old
Douglas-fir with a
developing CCF
structure in north
Scotland**

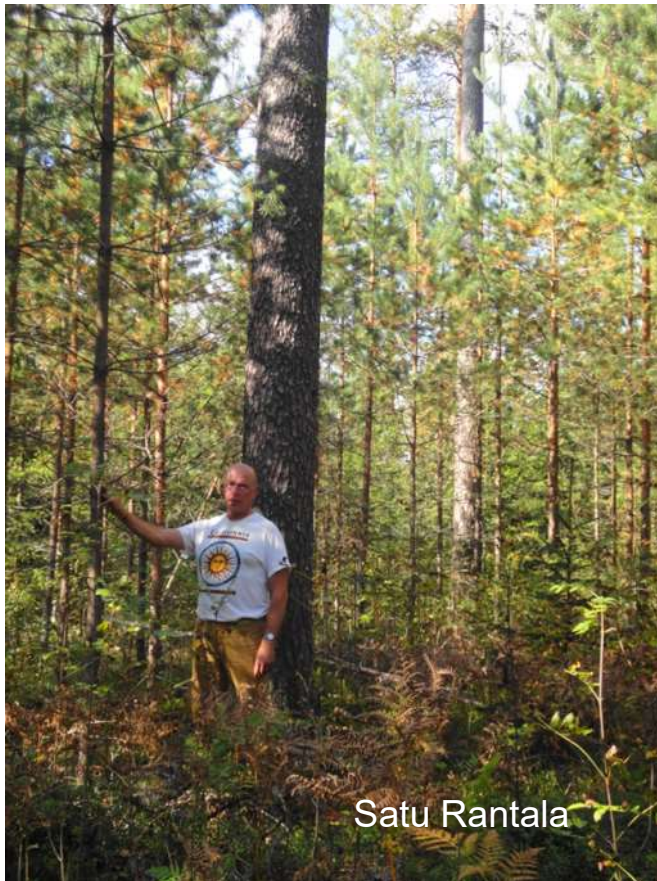
Boreal region - CCF in Finland

Single-tree selection in Norway spruce dominated stands



Boreal Region - CCF in Finland

Continuous cover can be combined with the production of top quality timber by using two-storied management with Scots pine (see <https://forest.fi/article/continuous-cover-silviculture-produces-top-quality-pine-profitability-requires-more-study/>)



Continental region – CCF in Slovenia



Irregular shelterwood in broadleaved forest in Dolenjska region of Slovenia



Continental Region (and others) – deer browsing pressure in Slovenia



5. What do we need to do to increase the uptake of CCF?

REVIEW

Open Access

Silvicultural alternatives to conventional even-aged forest management - what limits global adoption?

Klaus J Puettmann^{1*}, Scott McG Wilson², Susan C Baker³, Pablo J Donoso⁴, Lars Drössler⁵, Girma Amente⁶, Brian D Harvey⁷, Thomas Knoke⁸, Yuanchang Lu⁹, Susanna Nocentini¹⁰, Francis E Putz¹¹, Toshiya Yoshida¹² and Jürgen Bauhus¹³

Challenges to adoption:

1. Ecological (ECOL);
2. Economic (ECON);
3. Logistical/administrative (LOGAD);
4. Informational/educational(INFOED);
5. Cultural/historical (CULTHIST)

Main challenges

1. Browsing pressure from deer (*Ecol* and ***Logad***);
2. Lack of skilled forest workers (***Logad***);
3. Subsidy schemes for private owners that are not sympathetic to CCF (***Logad***);
4. Poor mechanisms of knowledge transfer about CCF to (small) private owners (***Infoed***);
5. A forestry culture that regards CCF with suspicion (***Culthist***);
6. Lack of professional training in CCF (***Infoed***);
7. Etc. (33 in total)

Main knowledge gaps

1. Resistance and resilience of CCF stands compared with even-aged ones (***Ecol***);
2. Tree species for use in future climates (***Ecol***);
3. Implementing CCF with mechanised harvesting (***Logad***);
4. Better information on economic outturn from CCF (***Econ***);
5. Understanding the motivation of private owners in order to increase CCF uptake (***Culthist***);
6. Applying CCF with light demanding species (***Ecol***);
7. Etc. (26 in total)



6. Conclusions

We conclude:

1. 25-35 percent of Europe's forests are managed by CCF and this proportion seems to be increasing;
2. Lack of good data about silvicultural practices;
3. Need to widen applicability of CCF to all European forest types (e.g. including Mediterranean and boreal zones);
4. Require better understanding of resilience benefits from CCF in an era of climate emergency;
5. Must overcome infrastructural, cultural and policy obstacles (e.g. grant schemes) to greater use of CCF;
6. Develop a pan European research (COST) action to summarise knowledge of CCF (e.g. the examples recently provided by EUMixFor and EuroCoppice).



Native pinewoods in northern Scotland

Thank you for your attention