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Objectives and principles
of Continuous Cover Forestry

Continuous Cover Forestry (CCF), also referred to as irregular forestry or «close to nature» forestry, is represented in a number of ways, to varying degrees of accuracy.

This document lays out the Objectives, principles and specific measures underlying CCF. It has been produced with a view to building a reference-base of core knowledge and skills for all forest managers wishing to steer their practices to CCF.

General objectives

Multi-functionality

Continuous Cover Forestry (CCF) aligns squarely with the principle of forests fulfilling multiple functions, and of a single forest stand's ability to develop responses to myriad expectations: not only the owner's and society's, but also to meet ecological, economic and/or social needs. A key feature of this kind of forestry is that it seeks a synergy between economy and ecology.

A nature-based solution¹

CCF draws first and foremost on the natural dynamics of forest ecosystems, while guiding these natural forces towards long-term maintenance of a forest that can yield a range of ecosystem services and support for these services: wood production, preservation of biodiversity and species, protection of wetlands and water resources, provision of a welcoming space for people, carbon storage, soil protection and more.

Added value and saving on resources

CCF seeks to produce trees of the highest possible quality, to supply the timber industry with a renewable material that has recognised technological qualities for use in construction, woodworking, thermal insulation and soundproofing, among others. Leaning toward the production of high-value wood in this way enables the forest owner to optimise their revenue while also reducing the necessary investments in production, because this kind of management chiefly relies on the forests' natural dynamics.

It is therefore crucial to ensure the continuity and improvement of the “productive wood capital” that the stands represent, which entails constant effort to maintain a healthy, functioning forest ecosystem.

Resilience and adaptability in the face of a changing climate

CCF relies on the qualities (ecological, economic, landscape, etc.) of each tree in a stand, which means that

throughout the forest, preference is given to the varieties and trees most likely to withstand climate-related hazards (such as droughts, extremely strong winds or frost damage). Similarly, the renewal that is intrinsic to CCF – natural or assisted, continuous over time and applied all over the forest – enables forest actors to choose which varieties or sources to favour or to plant in multiple gaps. This gradual evolution, over time, of the proportion of varieties that are more resistant to hazards or to attackers, enables the forest owner to construct a stand “with options” in the face of uncertainties and depending on their own objectives and means.

Forest owner and forestry producer at the heart of decisions

It may sound like CCF involves no checks or monitoring, but this is far from the truth; its implementation relies on observations and refined, global diagnostics that prompt forest management action (felling or other works) depending on the owner's objectives. It is forestry based on observation and adjustments, applied at individual tree scale, and avoids – except where constraints leave little choice – sudden shocks like those that can leave big gaps in the forest cover (such as clear-cutting or the final cut of an area). Based on continuous steering, in turn founded on monitoring of precise indicators (ecological, dendrometric, economic and social), CCF enables the forestry producer to adjust their trajectory of forestry practices over time, depending on the dynamics in play and other unforeseen aspects. It also means they can apply a reasoned, tailored response to the possibilities offered by the natural environment.

CCF also attributes importance to the permanent nature of a forest atmosphere that has meaning for the owner or other people. For example, by making it easier to highlight – for many years and all over the forest – the precious nature of trees with aesthetic, monumental, historical or heritage value.

¹ in the sense expressed by the IUCN in *Resolution 069, World Conservation Congress, 2016*



Continuous cover forestry is an example of “tree-scale forestry”: the major management decisions are taken at individual tree scale, not stand scale.

Each tree represents a potential benefit by fulfilling one or more functions: wood production, conservation of the forest microclimate, training young stems in the understorey, aiding biodiversity, landscape, seed dispersal, holding the soil in place, protecting banks, etc.

CCF enables each tree’s role to be optimised by virtue of its own characteristics and its interactions with its surrounding area. During forestry operations, the utility of each tree in the stand is carefully evaluated; the tree will be harvested if it is considered mature, or if the role it occupies in the ecosystem no longer meets the management objectives. If the tree still meets these objectives, it will usually be left in place, regardless of its age or diameter. The forestry producer is careful and attentive in all the development phases of the tree, for as long as the functions it fulfils are deemed worthwhile.

The result of this individual approach is the creation of heterogeneous forests that are irregular and mixed in height, diameter, age and/or variety, etc.

Management principles

In order to satisfy the above-mentioned objectives, CCF draws on the following management principles, applicable everywhere and at all times² – and compliance with regulations is a prerequisite.

1. Maintaining or restoring permanent tree cover

and seeking a balance between producing wood and regenerating the stand. The forest cover is effectively lost if the stand’s remaining trees cannot maintain a forest microclimate. By contrast, an overly “tight” or dense cover might restrict diversity of the varieties. Managing the forest cover is therefore crucial for this system in which, over the long term, the extracted wood quantity approaches

the natural annual increment of the forest (harvesting “interest” on the capital).

2. Working towards a diversified stand and encouraging minority varieties, especially native ones. The full diversity of the tree varieties naturally present on the site is maintained, including pioneer species or relatively unproductive ones. Another option, with a view to minimising risk in the face of a changing climate, is the prudent introduction – as seedlings or small communities – of non-native varieties suited to the site. Mixed stands are more adaptable, and more resilient to climate-related changes and to disturbances (e.g. bark beetles...).

3. Harnessing natural dynamics as far as possible, and saving money on investments by steering these dynamics if necessary, using light yet frequent interventions, to encourage the processes that help select the varieties and individual trees that are most successful and best suited to changes in the site’s characteristics; and by helping this along, if needed, with support varieties – the forestry producer’s precious ally, including in post-crisis reconstructions.

4. Looking to produce lumber of the highest possible quality.

Felling trees that have not attained economical maturity – especially ones that are small relative to the potential of their soil – means sacrificing yield capacity, something that continuous cover forestry strives to avoid. Sustained production of wood with high added value allows carbon to be stored in durable wood products.

5. Preserving, as early as possible, trees that provide micro-habitats and deadwood in the stand, because they help to maintain a functional ecosystem. These trees provide shelter, and places to feed or reproduce, for a multitude of forest species communi-

² In the event of a major crisis (e.g. high mortality of trees after a drought, storm or disease) or conversion from a previous management method (such as regular forest management, or a coppice-with-standards system), certain principles could be adapted temporarily to help the stand reach the desired structure.

ties. When maintained within the permanent forest microclimate – resulting from the continuous cover – they reinforce the natural state and framework of biodiversity, as well as conserving remarkable natural places.

6. Ensuring quality in logging operations for example by having dedicated tracks for plant machinery movements (felling tracks), in order to preserve all the functions of the stand after work is complete, by showing consideration for the ecosystem (particularly the soil, water bodies and other natural environments within the forest) and also for all the individual stems – whether trees, poles or seedlings – that help the stand to function economically and/or ecologically.

7. Promoting the special qualities of trees that stand out for their beauty, size and/or age, plus landscape aspects (e.g. viewpoints, built structures, relics and so on) that are remarkable to behold

The emphasis placed on each economic, ecological or social function is adjusted according to the challenges of the stand and the objectives of each forest owner.

Specific measures

Forest management aligned with these principles results in productive, diverse and long-lived stands. If stepped up to a much larger scale, often bigger than the forest owner's area, continuous cover forestry makes it easier to integrate specific measures (e.g. environmental protection or providing a space for people) into a large forest tract managed for timber production:

Creating “islands” of ancient woodland at local scale, or even forest reserves, is a way of establishing study areas for comparing and drawing inspiration from forestry practices. In addition, they help to improve the continuity of the forest habitats.

Conserving special natural environments within forests, plus the functionality of the associated ecosystems which deliver many ecological services. For example, the healthy ecological and morphological state of wetlands, water bodies etc. (that form the hydrosystems) helps to regulate the quantity and quality of the water, minimising the consequences of summer droughts on all our activities, as well as flood risks downstream of large forest tracts. Similarly, conservation of open areas within forests also helps to safeguard species that are specific to these places (such as butterflies, birds of prey and bats).



Most of the time, this conservation requires no major investment, just a simple local adjustment to the forestry.

Participation in developing walking trails and public recreation infrastructure, with stands that – thanks to CCF – lend themselves particularly well to relaxation and leisure activities, which are compatible with production-oriented forestry with no need to separate the spaces for their particular function, and taking care to leave some quiet areas for wildlife.

Prerequisites

Beyond its application in a given stand, continuous cover forestry can only be implemented on a long-term basis in a large forest tract if **there is a firm commitment to attain a forest-game balance** in order to ensure contin-

ual renewal of the mixed stands with a view to producing high-quality trees. Varieties that regenerate naturally, including in small communities, must be able to develop without protection against gnawing by cervids (deer, moose or elk). In a context where creating mixed and tiered stands has become necessary in order to adapt to the changing climate, overpopulation by large herbivores poses a risk to the longevity of the forest cover and the associated ecosystem services.

The search for this balance requires a commitment from the forest owner, who maintains or restores it by deploying the resources they have available; however, support from institutional bodies and key figures in the hunting sector is also needed.

Implementation of continuous cover forestry is beneficial for forest owners while also encouraging, from a collective viewpoint, the creation of forests that can provide a long-term response to the demands of many sectors of society.

« Repository » - CCF objectives and fundamental principles

