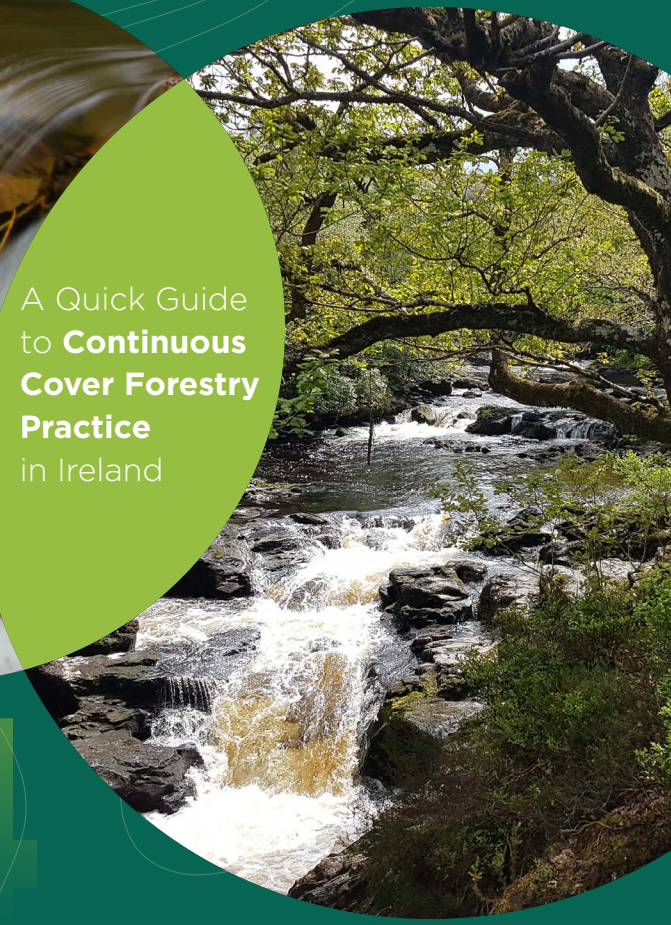
A Quick Guide to **Continuous Cover Forestry Practice** in Ireland



04

CCF forests for water

PRO SILVA IRELAND

www.prosilvaireland.com

Forests and Water

Trees and forests have an essential role in protecting Ireland's streams, rivers, lakes, drinking water sources and seas.

Forests can reduce flood risk, protect against soil erosion and contribute to climate regulation. They also maintain water quality, support functioning aquatic habitats and protect riparian waterside edge zones.

However, forest design and forest management practices heavily influence how much forests benefit water.

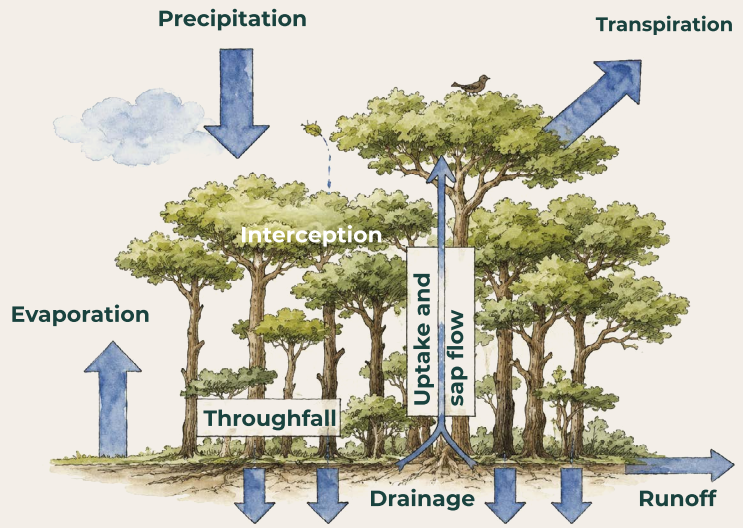
For forests to best protect water they should be permanent, feature a diversity of tree species, contain at least a proportion of native tree species and have a more natural, multi-level canopy structure.

Continuous cover forestry practice promotes all these attributes, making CCF forests and management the perfect partner for Irish water.

Forests and the water cycle

Forests are an important part of the natural water cycle, influencing how water is stored, filtered and released.

- Trees draw water from the soil and release it into the atmosphere through transpiration, increasing humidity and triggering rainfall.
- Forest soils absorb rainfall, reducing fast runoff and storing water, which is then released through transpiration, retained until taken up by forest plant species or slowly filtered downslope.
- Roots and leaf litter trap sediments and filter pollutants, helping to maintain high water quality.



Adapted from:

Centritto, M., Tognetti, R., Leitgeb, E., Střelcová, K. & Cohen, S. (2011). Chapter 3. Above Ground Processes: Anticipating Climate Change Influences, doi:10.1007/978-90-481-9834-4_3.

Protective functions of forests

- Forest cover slows the passage of water across the landscape, reducing the risk of flash flooding.
- Tree roots and ground vegetation stabilise the soil, reducing erosion and the amount of sediment that is washed into waterways.
- The right trees can help maintain optimal temperatures and conditions in waterways for aquatic species.

Key CCF features that support water

Continuous cover forestry (CCF) is a way of sustainably managing forests for timber production in balance with other forest benefits.

For forests that are managed with a strong emphasis on timber production, Because the forest canopy, soils and ecosystem are retained with CCF management, natural water processes continue. This makes CCF a particularly effective forest management approach for protecting and regulating water.

Permanent forest cover

A CCF forest is never removed in its entirety. This protects soils from erosion, maintains forest microclimates and allows water regulation processes to continue with minimal disruption.

Multi-layered forest structure

A multi-layered and irregular canopy, composed of mature trees, younger trees, permanent veteran and seed trees, along with a shrub layer and ground vegetation, intercepts and slows rainfall, reducing surface runoff.

Healthy soils

Soils of mixed-species forests are rich in roots and organic matter, which absorb and store water, releasing it gradually over time.

Continuous root systems

Interlocking root networks stabilise soil and reduce the movement of sediment into streams and rivers.

Native tree species

Native flora, fauna and aquatic biodiversity has evolved together. The incorporation of native tree species into new CCF forests, or encouragement of native tree species in existing forests, supports native insect, animal and aquatic species.

Wildlife corridors

CCF forests contribute to expanding habitat along riparian wildlife corridors, supporting unique plant and animal communities and minimising disturbance, reducing sedimentation and maintaining canopy shade.

Environmentally sensitive operations

As CCF forests are replenished by natural regeneration or selective enrichment planting, there is no need for chemicals or fertilisation, which can greatly impact aquatic environments.

Benefits of CCF for water

By maintaining continuous forest conditions, these features provide long-term benefits for water systems.

Improved water quality

Permanent ground cover and natural filtration reduce sedimentation and nutrient loss, helping to keep water clean.

Reduced flood risk

Rainfall is intercepted, absorbed and released more slowly, reducing rapid runoff during heavy rain events and reducing the risk of flash flooding.

Stable aquatic environments

Light shading from native tree species maintains water temperature and optimal conditions in waterways inhabited by native fish and insect species.

Protection of riparian habitats

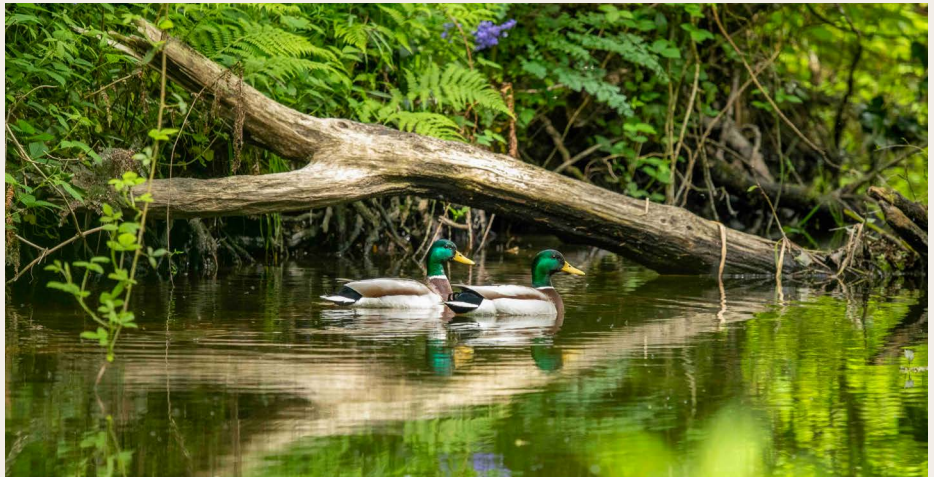
Continuous forest cover along waterways creates stable edge habitats and wildlife corridors, supporting unique plant and animal communities.

Greater climate resilience

CCF forests help buffer both extremes—retaining water during dry periods and slowing water movement during intense rainfall.

Continuous protection

Because CCF forests are not clear-felled, these benefits are maintained over time, making them a reliable and long-term approach to protecting water.



Forest management and water

Forest management greatly influences how effectively forests can protect water.

In Ireland, forestry has predominantly been based on even-aged conifer plantations managed on a clear-fell rotation. This approach has provided a reliable supply of timber, but involves periods where forest cover is temporarily removed.

During these periods, soils are exposed to erosion, and the movement of water across the landscape can change. In some locations, particularly near waterways or in sensitive catchments, this can increase the risk of sediment movement into streams and rivers during rain events.

Water quality data indicate that impacts are most likely to occur during key forestry operations, such as afforestation, clear-felling and thinning.

All forestry operations are governed by a set of standards designed to protect instream and riparian habitats. By maintaining permanent forest cover, CCF management goes much further to support water regulation and quality.

CCF in practice for water

CCF can be applied in both new and existing forests to improve water protection.

CCF forests can be designed from the outset to support water systems by:

- Using a mix of tree species suited to site conditions
- Including native species, particularly near waterways
- Maintaining permanent forest cover across the site

CCF can also be used to gradually transform existing forests by:

- Introducing structural diversity over time
- Increasing the proportion of suitable and native species
- Reducing soil disturbance and exposure through selective felling

This gradual approach allows forests to develop into stable, diverse systems while continuing to protect water.

Supports for forests for water

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Department of Agriculture, Food and the Marine

Through the Department of Agriculture, Food and the Marine (DAFM) Forestry Programme 2023–2027, a range of supports are available to encourage the establishment and management of forests that protect water.

These include financial incentives for forest creation on appropriate sites with suitable species and management approaches.

FT2: Forests for water*	Rate
Planting grant (excluding fencing)	€6,744/Ha
Annual Premium	€1,142/Ha
Duration	20 years (farmers)/15 years (non-farmers)

*Additional payment of €1,000 per hectare will be paid to the landowner on completion of planting.

Native Tree Area Scheme 2 (NTA 2)*	Rate
Planting grant (excluding fencing)	€6,744/Ha
Annual Premium	€2,284/Ha
Duration	10 years

*The tree planting area must be between 0.1 and 1 hectare.

Further supports

Afforestation

- FT1 Native Forests
- FT3 Forests on Public Lands
- FT4 NeighbourWoods
- FT10 Continuous Cover Forestry

Reforestation

- Climate Resilient Reforestation Scheme

Transformation and management

- Woodland Improvement Scheme–Continuous Cover Forestry (WIS-CCF)

For more information on these schemes, go to gov.ie/forestry

Pro Silva Ireland is a registered charity founded in 2000 to advocate for, and educate on, continuous cover forestry. Part of the wider Pro Silva Europe network, Pro Silva Ireland is an all-Ireland organisation, embracing membership from both Northern Ireland and the Irish Republic.

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An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Other guides in this series:

- What is CCF?
- Benefits of CCF
- CCF and biodiversity
- Understanding CCF transformation
- Tree selection and marking in CCF
- Enrichment planting in CCF
- Light forest operations
- Guidelines for CCF harvest operations
- Supports for CCF

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