Twenty-Five Years of Research into CCF in Ireland: The Good, the Bad and the Ugly

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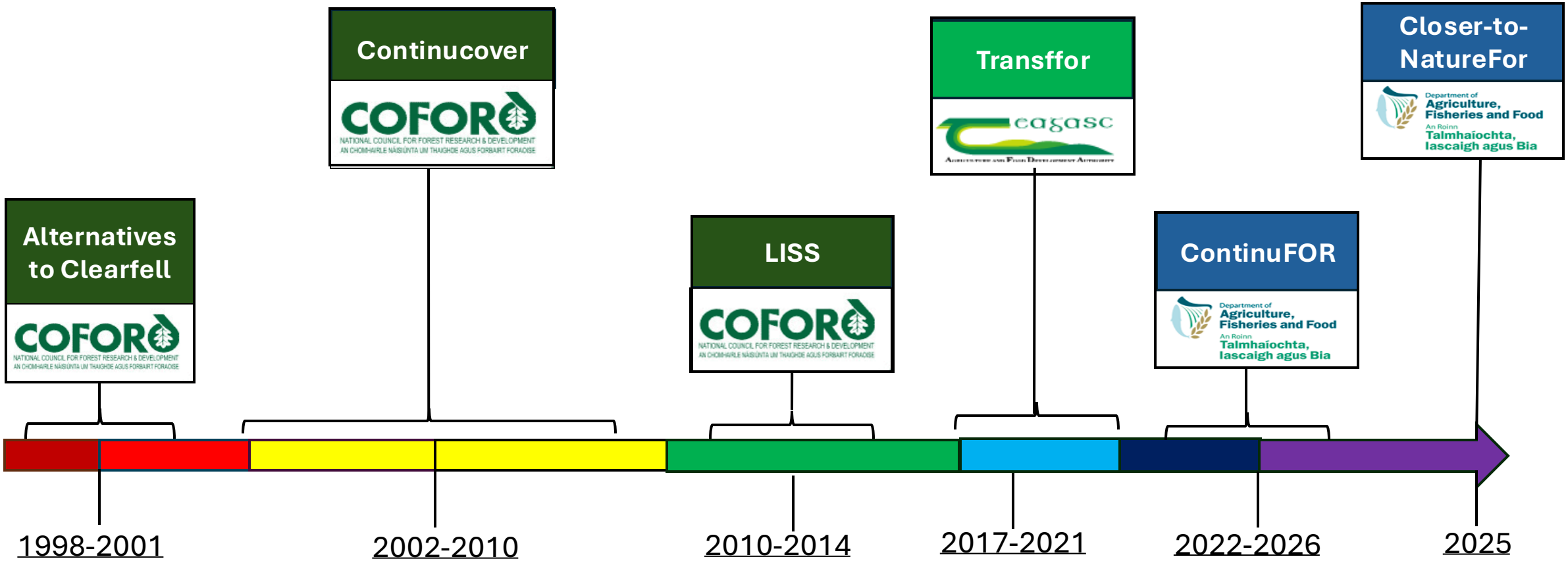
UCD Forestry

Timeline


Alternatives to Clearfell
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Department of Agriculture, Fisheries and Food
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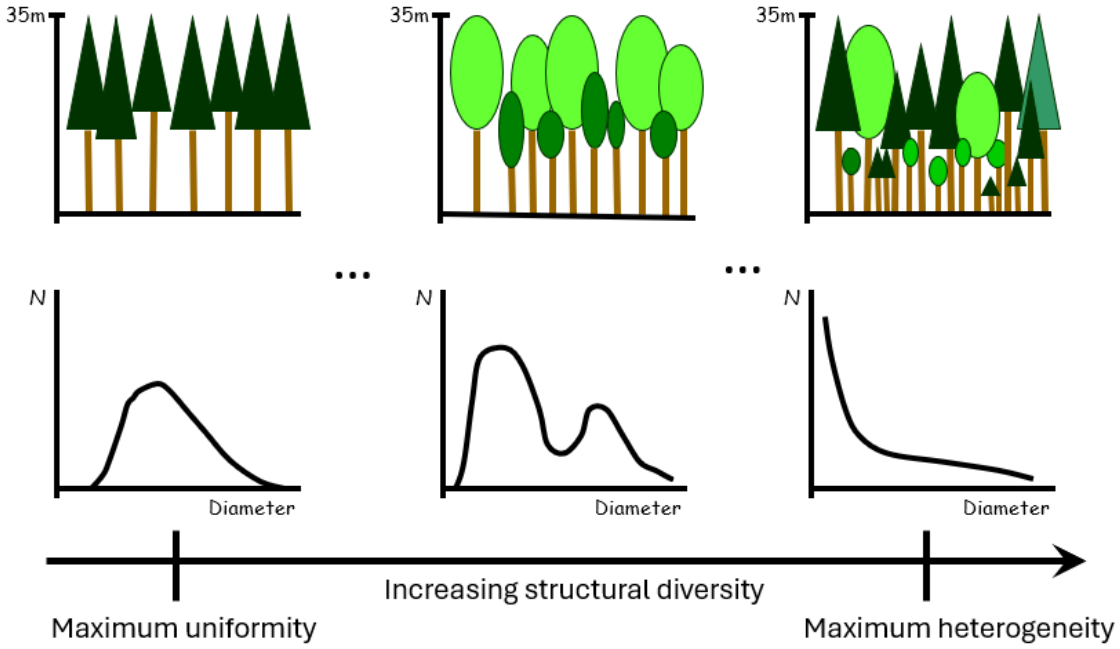
1998-2001
2002-2010
2010-2014
2017-2021
2022-2026
2025

Research Focus

Transformation: process whereby a regular stand structure, such as an even-aged plantation, is changed to an irregular structure characterised by a range of tree sizes and where some tree cover is maintained in perpetuity



- Need to develop an understory beneath existing canopy under underplanting and/or natural regeneration
- Use silvicultural systems/thinnings to achieve

Alternatives to Clearcutting

- Natural regeneration
  - Extent in Coillte's estate
  - Key crop and site factors associated with successful regeneration

- Shelterwood
  - Underplanted 42 year-old Sitka spruce stand
    - Clearfell
    - 150 stems per hectare left standing – **61% reduction** in basal area -27 m^2/ha
    - 300 stems per hectare left standing – **28%**
    - **reduction** in basal area -14 m^2/ha

Lessons learnt?

Extensive windsnap

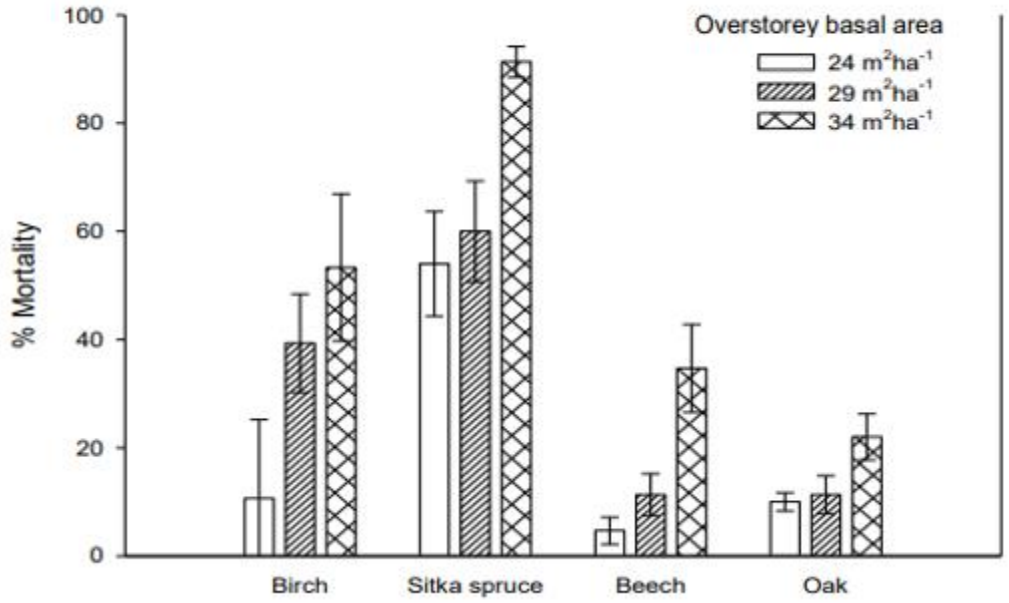
"Transformations of plantations to CCF can go wrong, particularly when the first interventions are too heavy and trees have not been previously prepared – this happens and this is not a shame" (Pommerening, 2023)

Don't go in so hard

Continucover: An evaluation of CCF in Ireland

- Underplanting seedlings (6 species) in a 40-year old Sitka spruce stand:
  - Plots unthinned 34 m^2/ha
  - Plots thinned to 29 m^2/ha
  - Plots thinned to 24 m^2/ha

Continucover: An evaluation of CCF in Ireland



Seedling mortality after two growing seasons

Canopy openness 2% to 12% - ↑ 17%

Two years following thinning, basal area increased to 28 m^2/ha, 33 m^2/ha, 39 m^2/ha

Bad & Ugly:

- Poor planting stock, drought, hare damage – year 1
- Thinning in 2008 stopped re felling licence concerns
- Gates in deer fence robbed

2010 – 100% mortality

Lessons learnt?

Low light levels in Sitka spruce stands- even after thinning

Canopy closes very quickly

Need to open stand more without compromising stability

LISS: Low Impact Silvicultural Systems

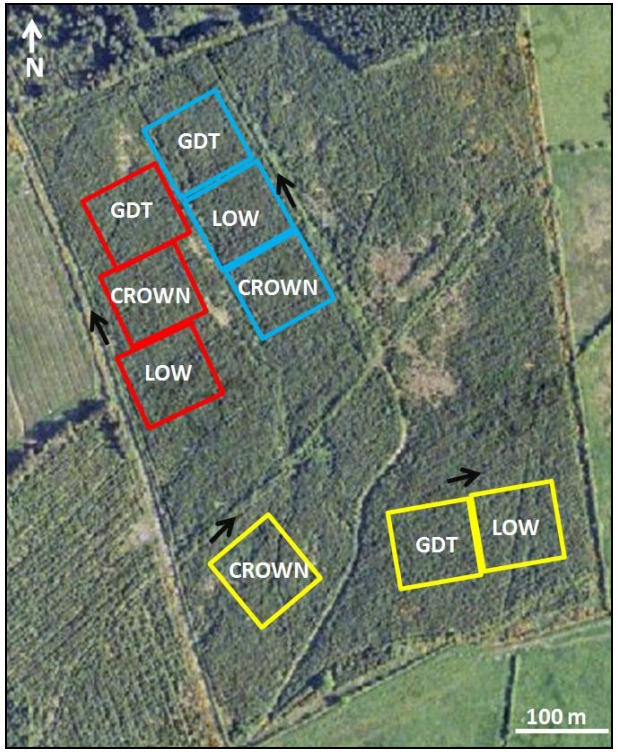
Transforming young Sitka spruce

Extent of CCF

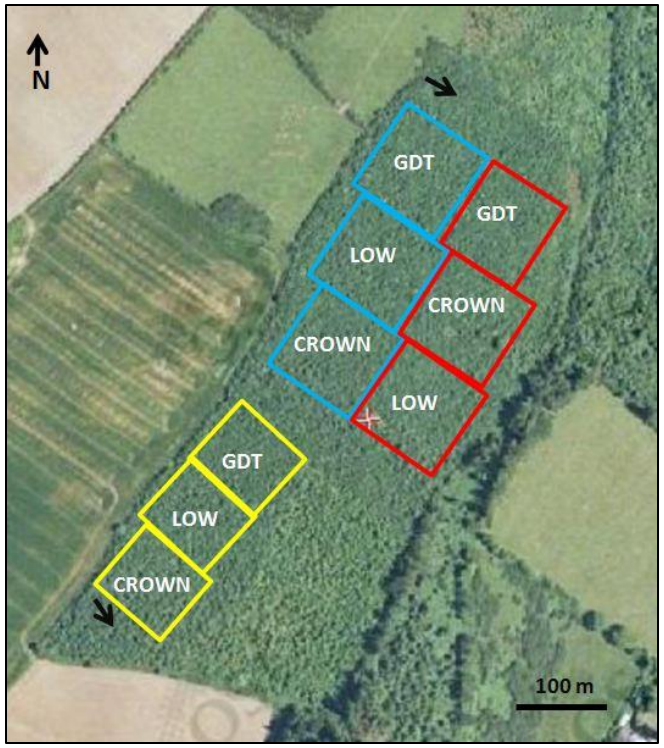
?

Attitudes towards CCF

LISS: Thinning experiment



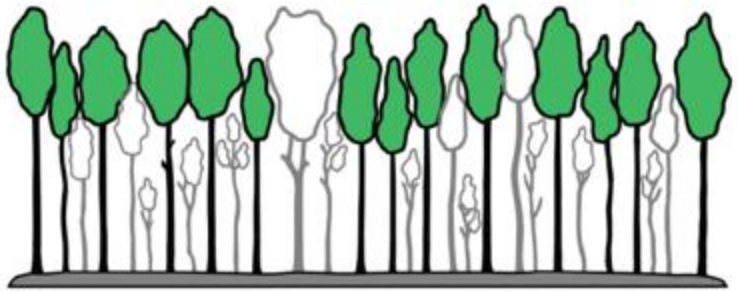
Fossyhill (Co. Laois)
-18 ha
-PY 1992
-Coillte management
-Thinned:
- -2011
- -2014
- -2018
- -2022



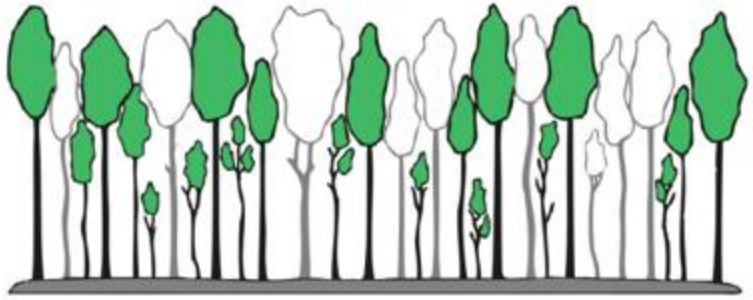
Ballycullen (Co.Wicklow)
-6.2 ha
-PY 1995
- PTR Ltd management
- Thinned:
  - 2011
  - 2014
  - 2019
  - 2023

Thinnings can be very effective in diversifying forest structure

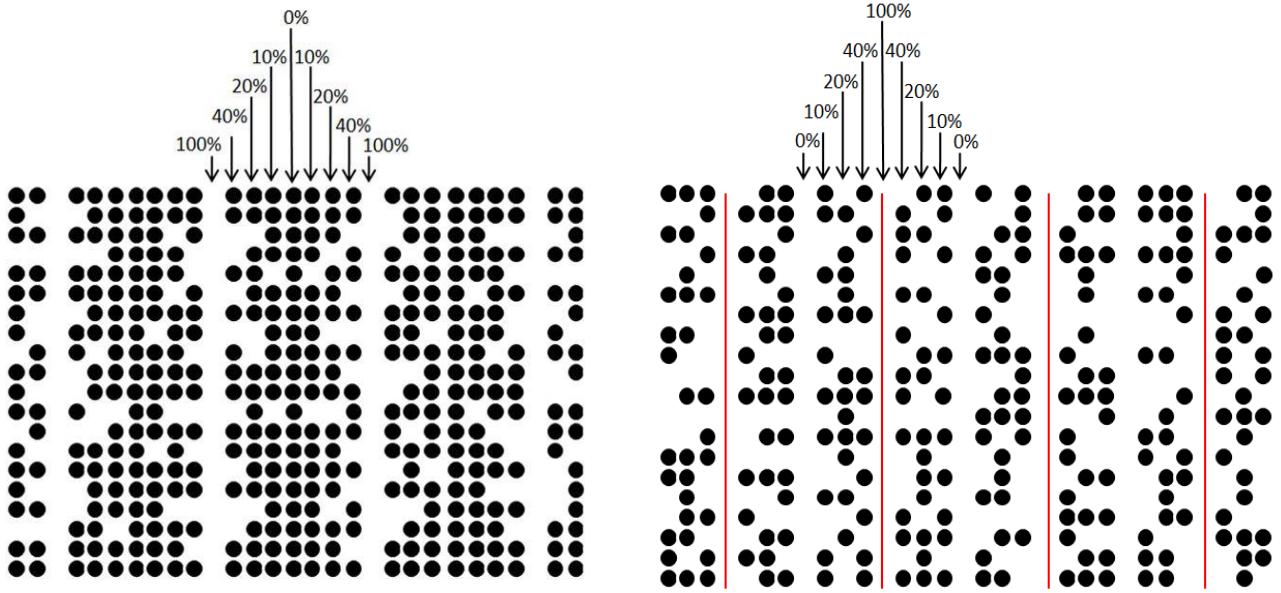
LISS: Three thinning patterns



Low thinning



Crown thinning



Graduated density thinning

Images: Kerr and Haufe, 2011. Thinning practice: A silvicultural guide. Forestry Commission. UK

Extent & Attitudes

? 10,603 ha

Many sites – CCF aspiration rather than a reality

Constraints

- Foresters' knowledge (lack of)
- Wind/stability

CCF users

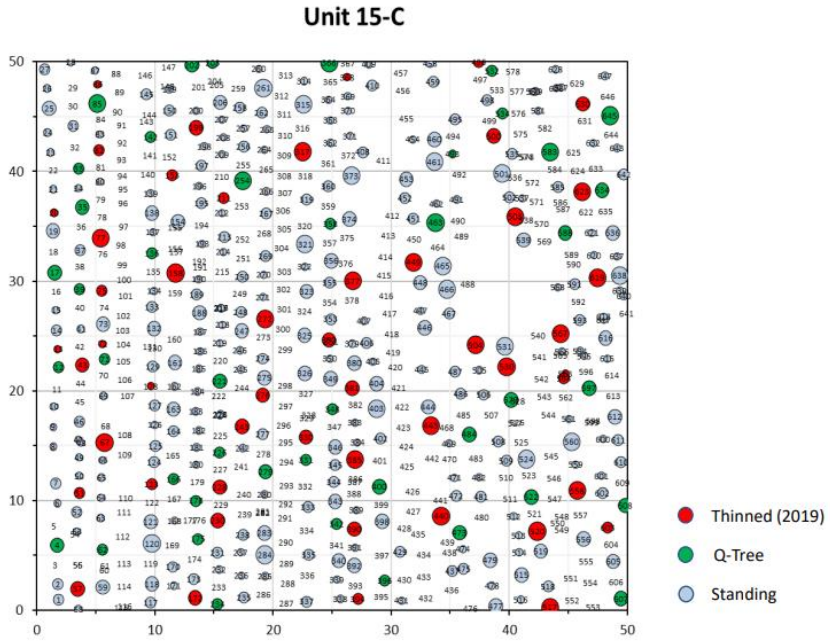
- Economic benefit
- Broadleaved species management
- Management for amenity and recreation
- Certification

Non-users

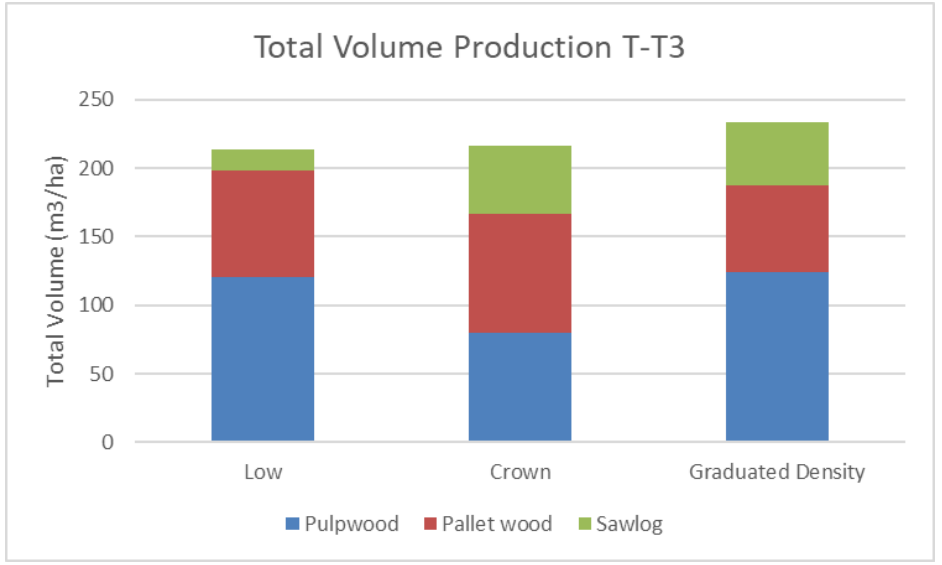
- '… not convinced of CCF, especially with regards to economics…'
- '… CCF is not a part of conventional systems in Ireland at present…'
- '… the forest blocks are too small and the species of trees growing are not suitable to CCF…'
- '… private forest owners want a 'fast' return but CCF has a 'stigma' of long term…'

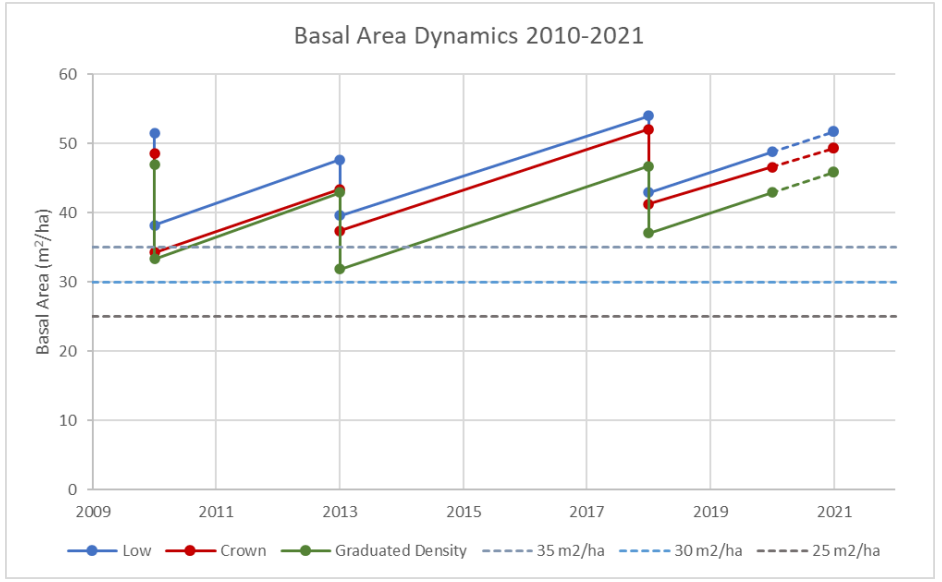
TranSSfor

- Fossyhill and Ballycullen thinned in 2018



Images: Ted Wilson





Lessons learnt?

Hard to balance basal area reduction with maintaining stability

Natural disturbances – wind – natural regeneration

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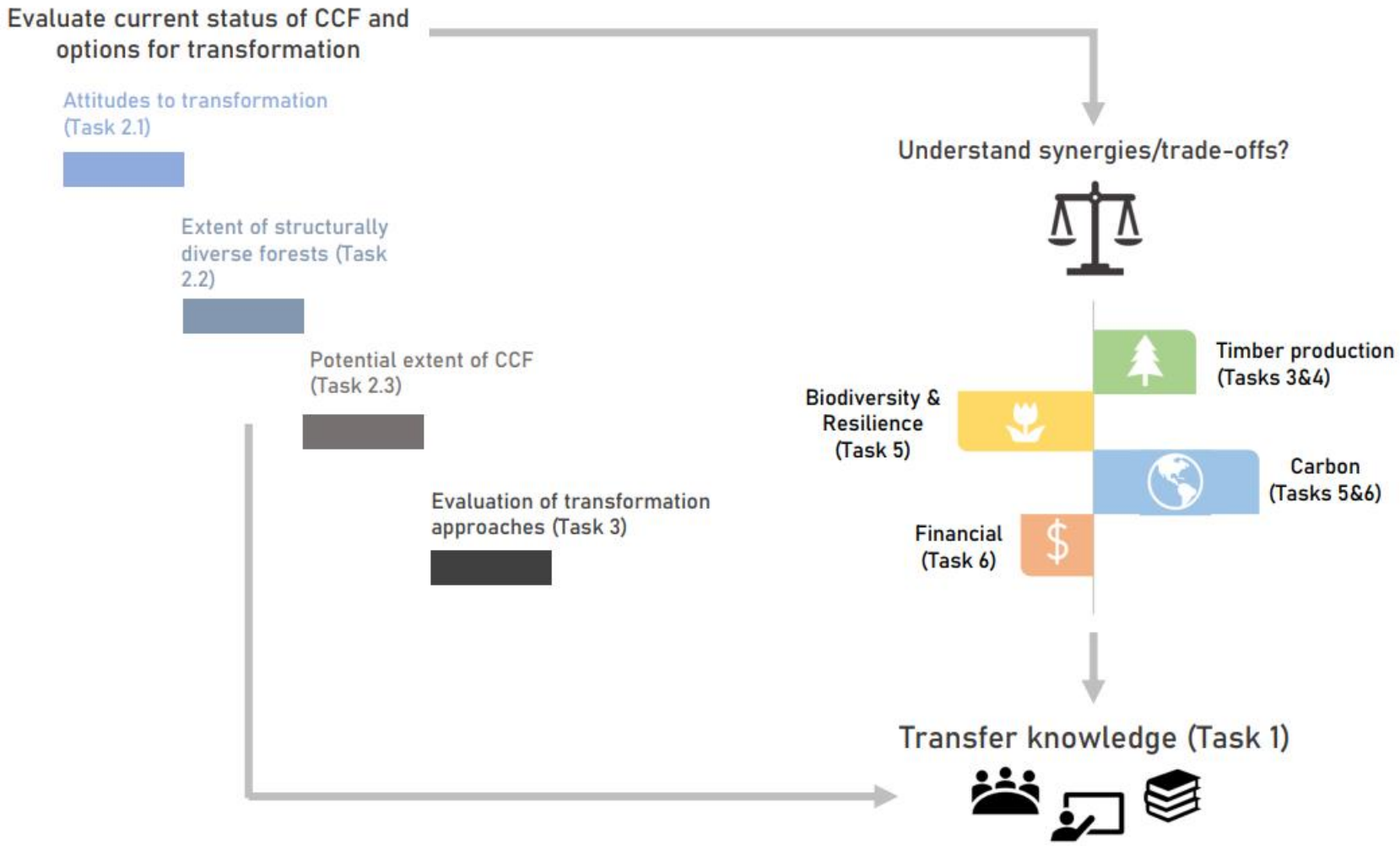
ContinuFor: Transformation to Continuous Cover Forestry: Synergies and Tradeoffs



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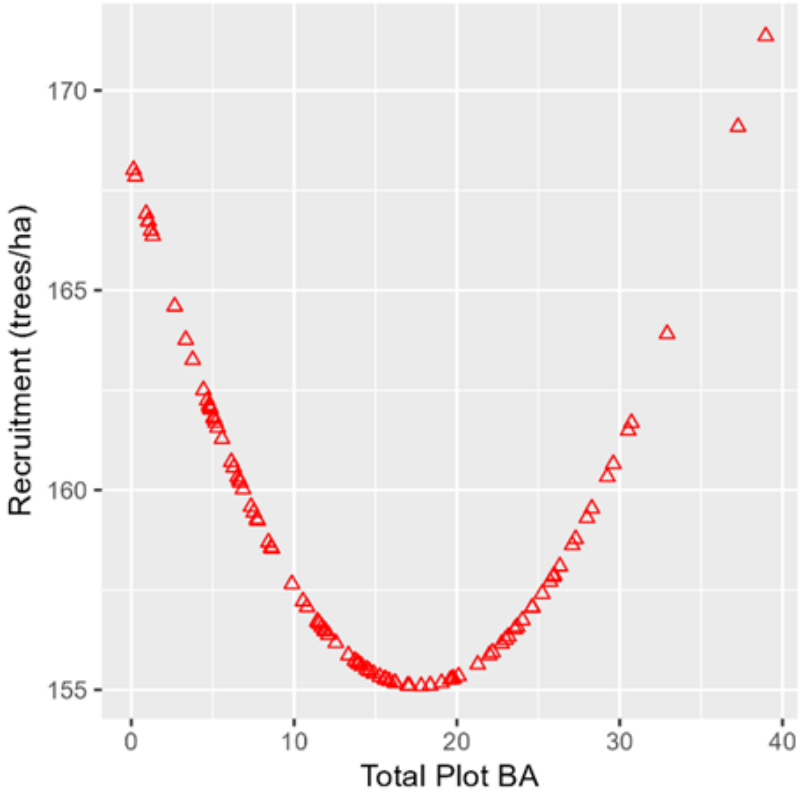
Volumes harvested

Modelling:

- *stand development during transformation*
- *regeneration & recruitment*



Timber quality

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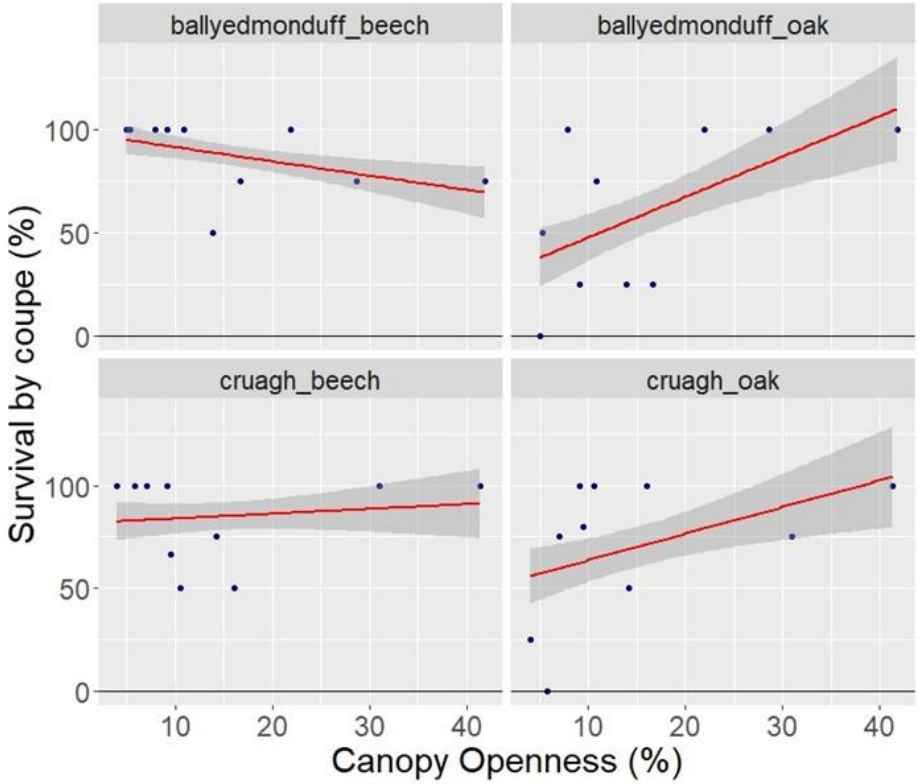
Broadleaf sapling survival (%)

Species	Site	%
Beech	Ballyed.	88
Beech	Cruagh	85
Oak	Ballyed.	60
Oak	Cruagh	70



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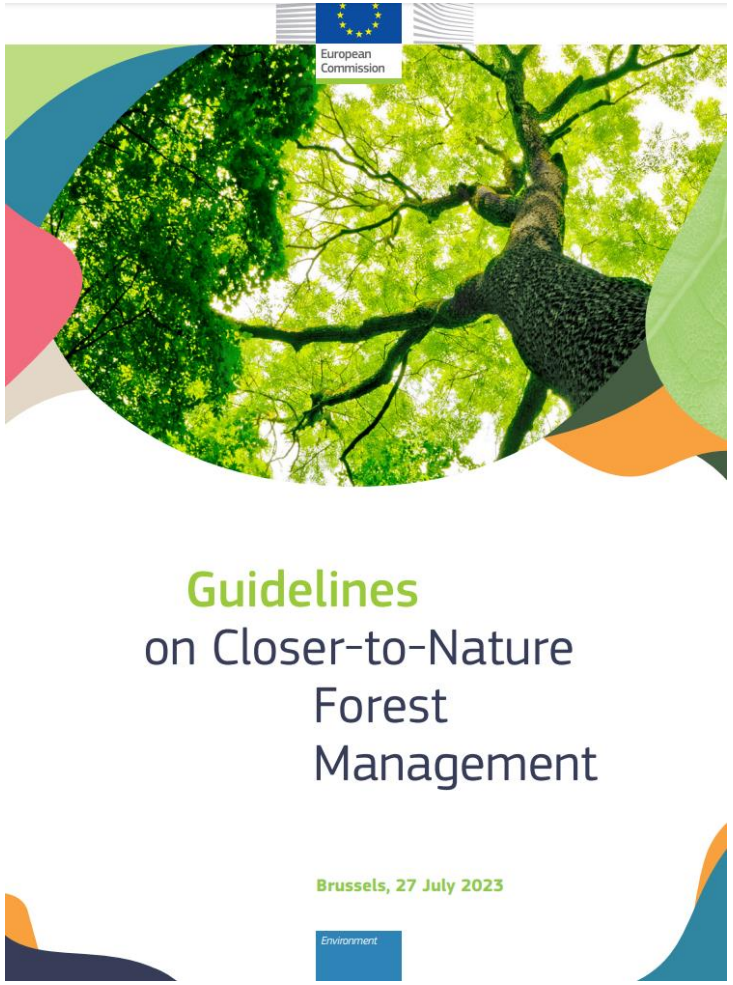
COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

New EU Forest Strategy for 2030

{SWD(2021) 651 final} - {SWD(2021) 652 final}

Objectives:

- what forest types/management practices in Ireland that could be considered to align with the EU guidelines on Closer-to-Nature Forest Management
- estimate the area of forest in Ireland that could be considered as managed in alignment with the principles of Closer-to-Nature Forest Management



Overall Lessons Learnt

"You can't teach an old dog a new trick"! – Start transformation early!

Work with the forest – experiments can change!

Transformation – a very long process!

Important to continue the research

Thanks to the project teams!

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- Kevin Black

PLEASE COMPLETE THIS SURVEY