



Additions and Refinements to the Irish Forest Carbon Accounting and Reporting Tool

CForRep

A spatial framework will improve estimates of soil emission reductions for offset against national targets. Characterising disturbance effects will inform management to optimise carbon sequestration after fire/storm events. A forest monitoring system using remote sensing techniques will greatly benefit national & international policy makers.

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Description:

Removal of atmospheric CO₂ by forests is a significant contribution towards national compliance with Kyoto Protocol emission reduction targets. Reporting of GHG emissions follows international criteria, with national systems designed for incorporation of new research and improved reporting mechanisms. Development of the Irish national forest GHG reporting system (CARBWARE), in response to the international review process, requires improvements to three areas:

- a) Refinement of a spatially explicit soil carbon reporting framework;
- b) Development of system to track aerial change associated with deforestation/disturbance;
- c) Improved characterisation of changes in forest carbon stocks associated with disturbance & management interventions.

A multidisciplinary collaboration will:

- apply improved CO₂ emission factors to afforested soils
- refine modelling of mineral soil carbon with a spatial framework
- detect deforestation/disturbance events from medium resolution hypertime optical satellite imagery & characterise with higher spatial resolution optical & microwave images
- develop methodologies to investigate fate and management of deadwood pools after disturbance events
- construct algorithms to quantify changes to post harvest residue.



Objectives:

- Refine national soil carbon reporting system;
- Deliver aerial tracking system for deforestation & disturbance with latest remote sensing products;
- Characterise disturbance carbon flows/emission profiles to support national reporting;
- Incorporate research outputs into national reporting system.

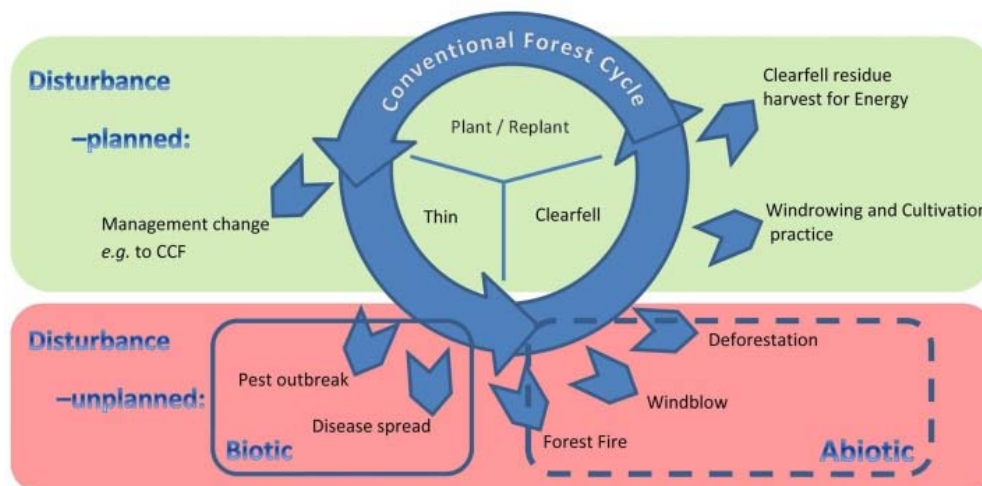
Proposed impact:

A monitoring framework for assessment of annual changes due to disturbance will improve current NFI capacity & reporting of GHG emission reductions.

Development of a mineral soil reporting framework, by integrating existing soil & spatial databases, could develop a reporting system to increase accountable soil emission removals. Similarly improved organic soil emission factors are likely to increase the net forest sink.

The spatial monitoring framework could provide a mechanism for Forest Service to ensure compliance to the Forestry Act and other legislation.

An internalised national carbon trading or tax scheme if introduced, would require a monitoring framework to certify and verify forest carbon credits. Research outputs from CForRep would make such a framework easily realisable.



A schematic representing various types of disturbance which affect the fate of forest deadwood carbon stocks and dynamics.

For more information, see the project website: www.ucd.ie/cforrep