

Evaluating the impacts of logging on forest carbon

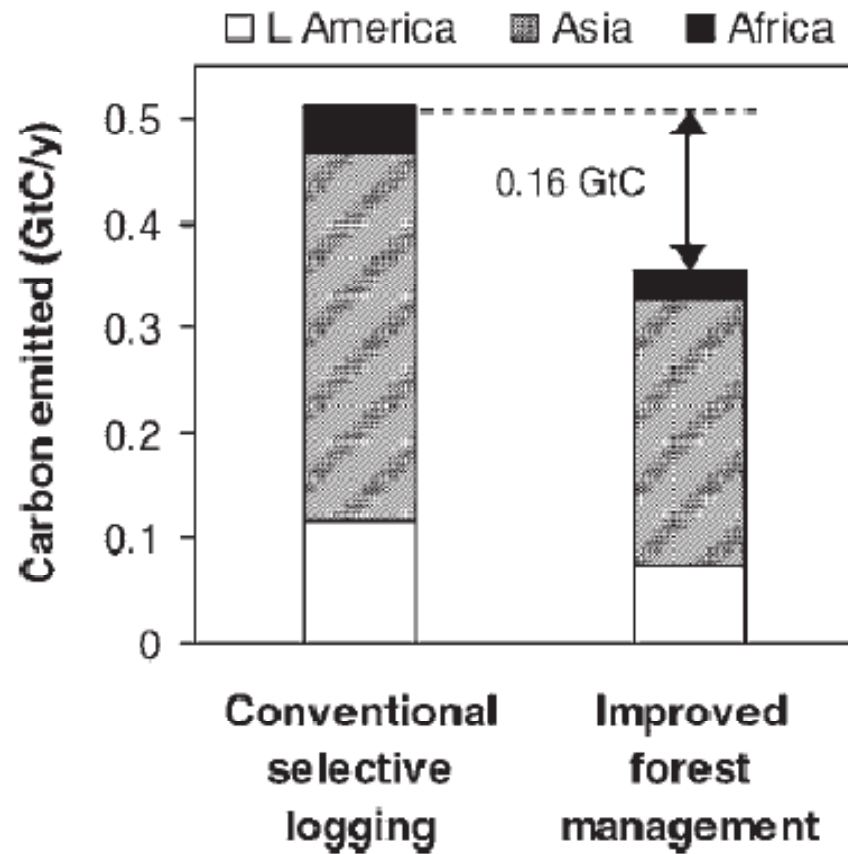
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+

Malcolm Starkey (WCS)



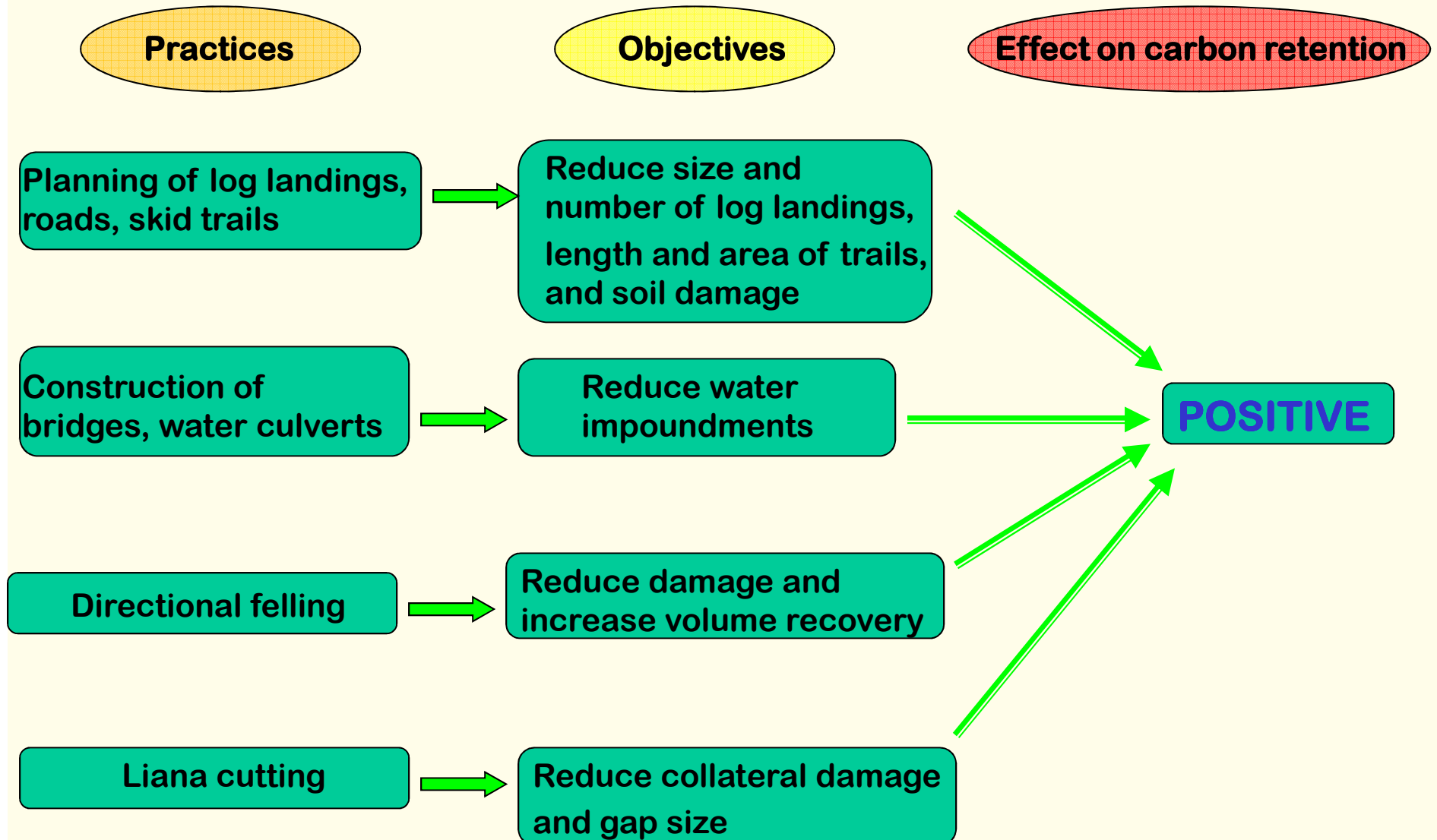
Logging and forest carbon: the stakes



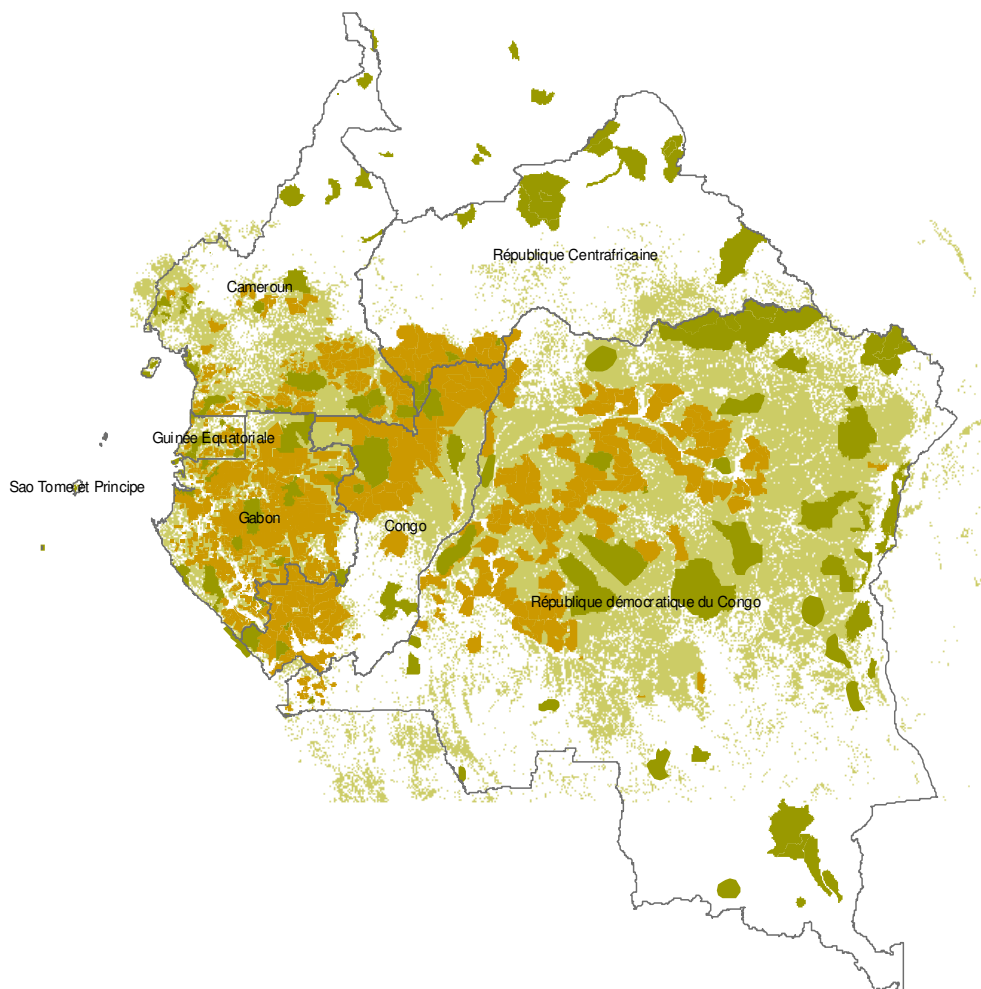
Graphs from Putz *et al* 2008



RIL practices and their effects on carbon retention



Importance for the COMIFAC countries



Map: WRI, 2008

40-50m ha of production forest in the COMIFAC countries (SOF, 2008)

Logging largest rural employer in many landscapes

Logging intensity mostly low, but cumulative impact high due to large area

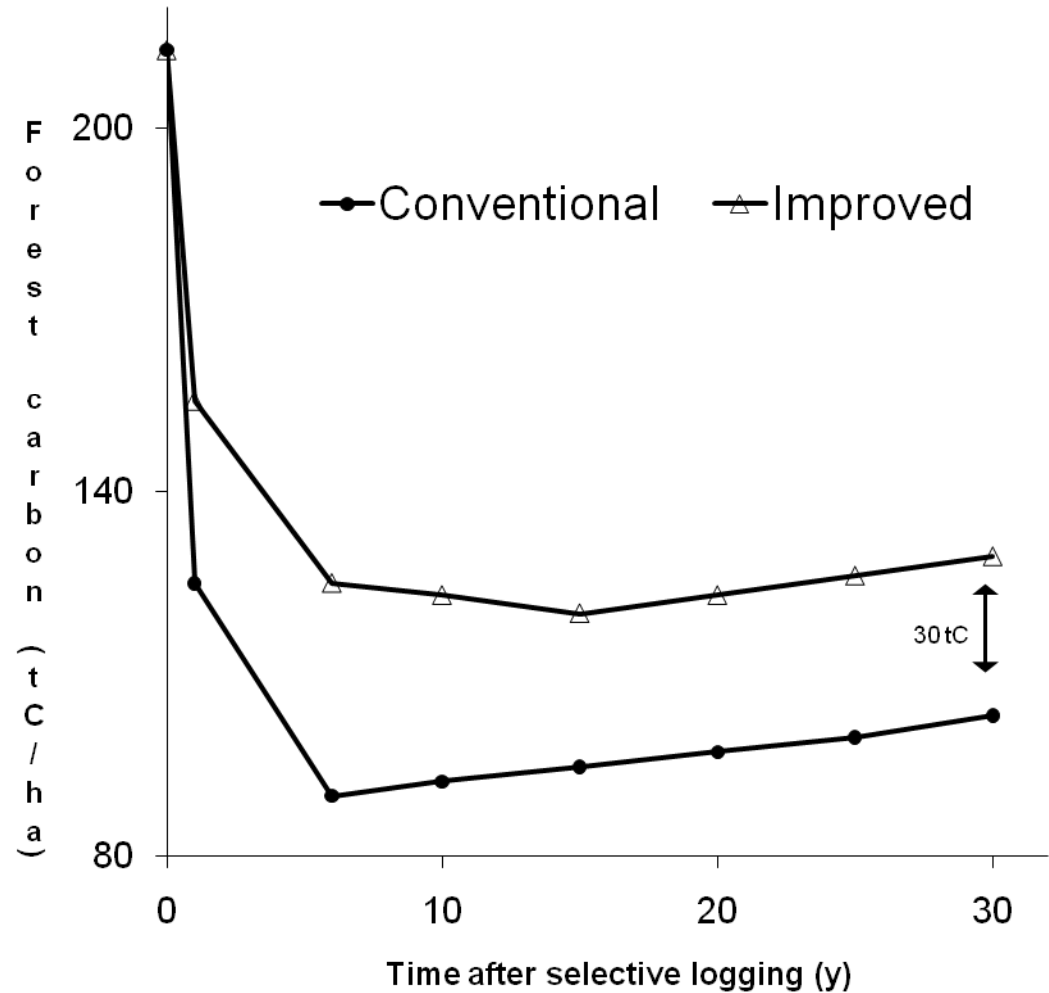
Reduced Impact Logging:

- => potentially positive climate change impact
- => more sustainable livelihoods through employment
- => positive economic and environmental impacts
- => Can be a component of REDD+?

But: Very little data from CA region

=> Need reliable system of evaluating impact of logging

- Change small compared to total biomass
 - Remote sensing not yet up to the task
 - Significant challenge for field sampling – intensive effort required
 - Existing forest management inventories insufficient
 - **Poor georeferencing = impossible to repeat measures**
 - **Incomplete sampling**



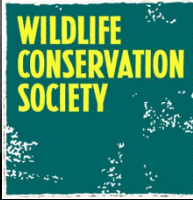
Putz *et al* 2008

Field study in Gabon: pilot phase

Objective: Compare the impacts of RIL vs conventional logging (CL) on carbon stocks



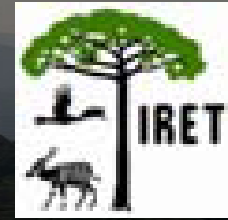
- Establish permanent plots in forests to be logged using RIL and CL practices
 - 10 x 1 ha nested plots in 50ha logging pocket
 - dbh + height of all trees ≥ 50 cm in 50ha pocket
 - geo-reference all measured trees
- Evaluate above-ground dead wood and leaf-litter carbon pools before and after logging
- Control plots in similar unlogged forest at each site



Relevance and looking forward

- Pilot study will provide basis for long-term monitoring
- Field data allows evaluation of other aspects of forest management
 - Assess logging damage to residual forest stands;
 - Investigate stand recovery and future timber yields;
 - Assess environmental and financial benefits of different forest harvesting practices relative to no logging.
 - Evaluate biodiversity and forest processes





Evaluating the impacts of logging on forest carbon: key questions

- Can we identify simplified indicators to evaluate impacts more rapidly?
- Can we scale up using CO₂e/m³ timber extracted?
- Feedback on methods welcome!

