Concerns about reported harvests in European forests

Verify General Assembly, 29 Apr 2021

Dr Marc Palahí

European Forest Institute

Dr Rubén Valbuena

Bangor University, UK

Prof. Gert-Jan Nabuurs

University of Wageningen, Netherlands

Agenda

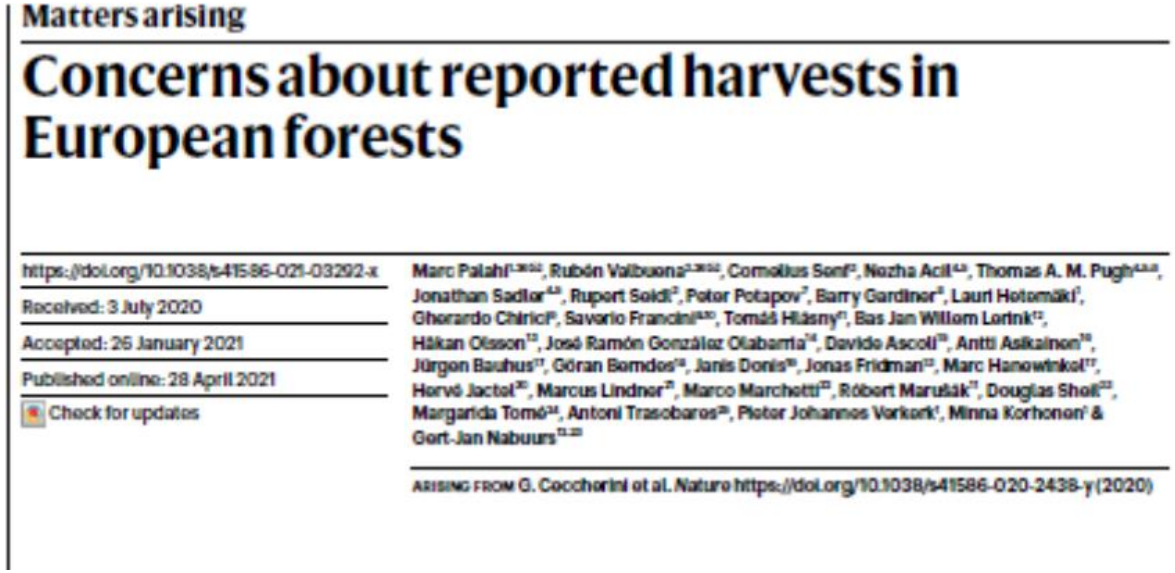
10.00-10.10. A ‘Matters arising’ to Ceccherini et al. Gert-Jan

10.10-10.20. A reply Giacomo and Alessandro

10.20-10.40: discussion

1. What was in the Nature article ‘Ceccherini’

2. What we argue is wrong in their assessment



Matters arising

Concerns about reported harvests in European forests

https://doi.org/10.1038/s41586-021-03292-x
Received: 3 July 2020
Accepted: 26 January 2021
Published online: 28 April 2021
Check for updates

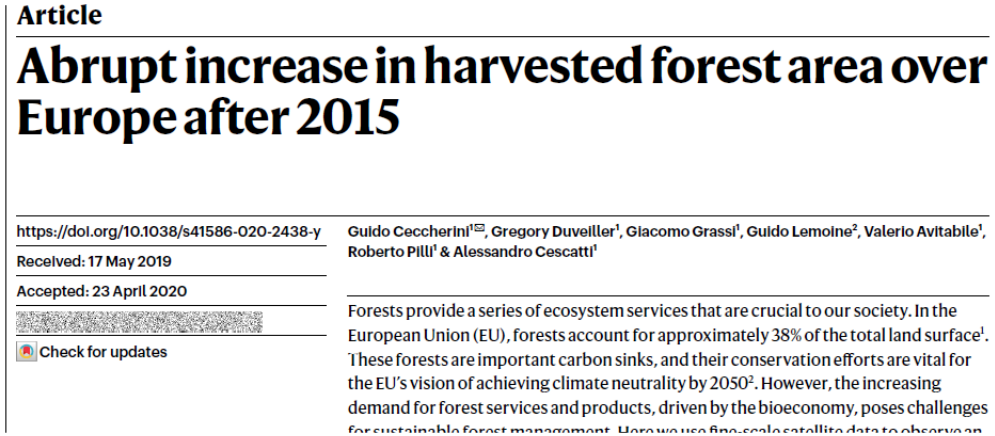
Marc Palahí, Rubén Valbuena, Cornelius Senf, Nezha Acil, Thomas A. M. Pugh, Jonathan Sadler, Rupert Seidl, Peter Potapov, Barry Gardiner, Lauri Hetemäki, Gherardo Chirici, Saverio Francini, Tomáš Hlásny, Bas Jan Willem Lerink, Håkan Olsson, José Ramón González Olabarria, Davide Ascoli, Antti Asikainen, Jürgen Bauhus, Göran Berndes, Janis Donis, Jonas Fridman, Marc Hanewinkel, Hervé Jactel, Marcus Lindner, Marco Marchetti, Róbert Marušák, Douglas Sheil, Margarida Tomé, Antoni Trasobares, Pieter Johannes Verkerk, Minna Korhonen & Gert-Jan Nabuurs

ARISING FROM G. Ceccherini et al. Nature https://doi.org/10.1038/s41586-020-2438-y (2020)

Matters arising,
Published yesterday 5 pm

All authors:
Marc Palahí; Ruben Valbuena, Cornelius Senf, Nezha Acil, Thomas A. M. Pugh, Jonathan Sadler, Rupert Seidl, Peter Potapov, Barry Gardiner, Lauri Hetemäki, Gherardo Chirici, Saverio Francini, Tomáš Hlásny, Bas Jan Willem Lerink, Håkan Olsson, José Ramón González Olabarria, Davide Ascoli, Antti Asikainen, Jürgen Bauhus, Göran Berndes, Janis Donis, Jonas Fridman, Marc Hanewinkel, Hervé Jactel, Marcus Lindner, Marco Marchetti, Róbert Marušák, Douglas Sheil, Margarida Tomé, Antoni Trasobares, Pieter Johannes Verkerk, Minna Korhonen, Gert-Jan Nabuurs

Nature, 2 July 2020



Article

Abrupt increase in harvested forest area over Europe after 2015

https://doi.org/10.1038/s41586-020-2438-y

Received: 17 May 2019

Accepted: 23 April 2020

Check for updates

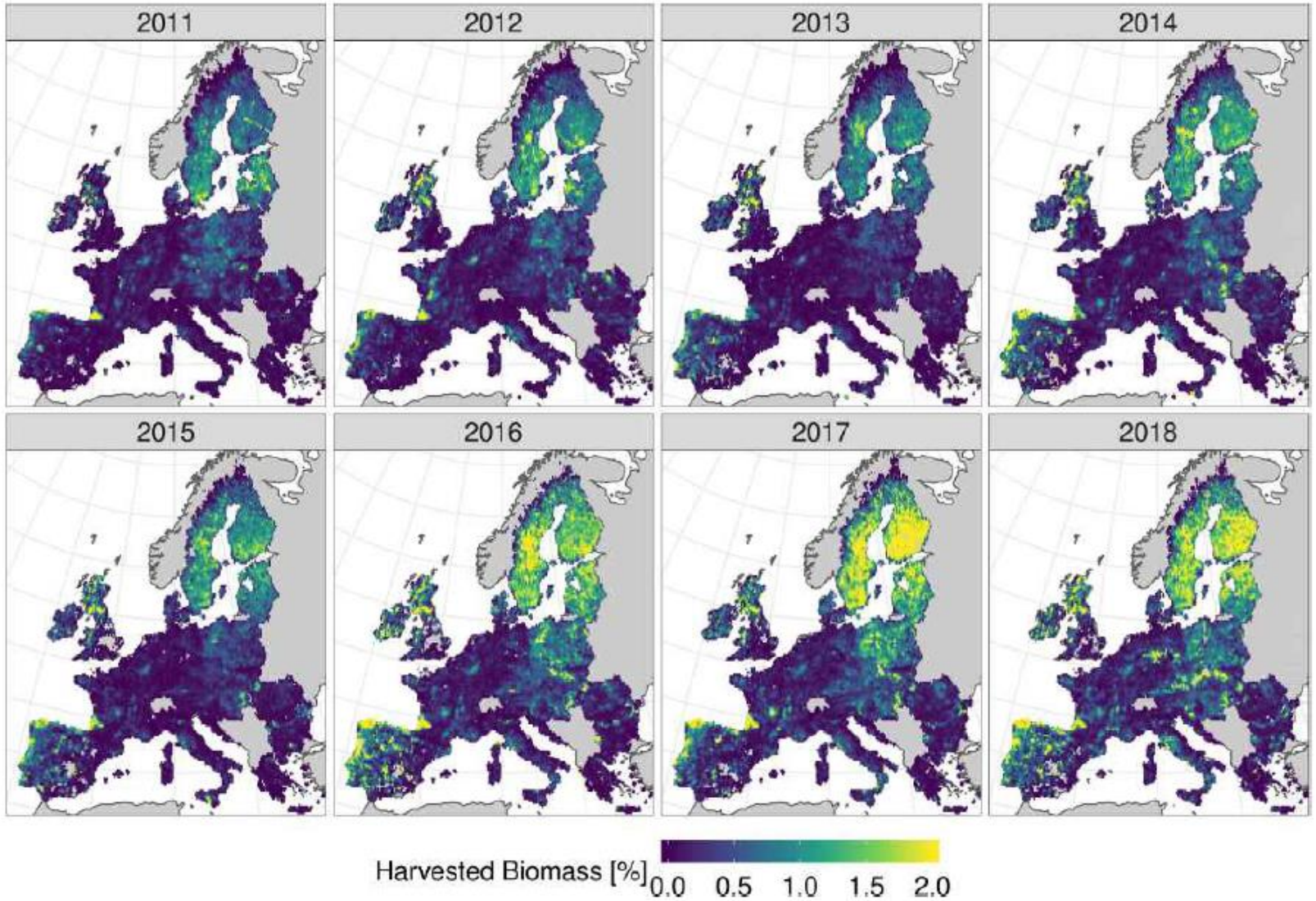
Guido Ceccherini[1], Gregory Duveiller[1], Giacomo Grassi[1], Guido Lemoine[2], Valerio Avitabile[1], Roberto Pilli[1] & Alessandro Cescatti[1]

Forests provide a series of ecosystem services that are crucial to our society. In the European Union (EU), forests account for approximately 38% of the total land surface[1]. These forests are important carbon sinks, and their conservation efforts are vital for the EU's vision of achieving climate neutrality by 2050[2]. However, the increasing demand for forest services and products, driven by the bioeconomy, poses challenges for sustainable forest management. Here we use fine-scale satellite data to observe an

They claim:

- There is an increasing need for independent and consistent assessments of wood harvest across Europe
- These assessments need to be more timely
    - OK, fully agreed

- They find based on solely remote sensing data: a 69% increase in harvest for 2016-2018 relative to 2011-2015.
- They claim they factored out natural disturbances
- Majority of increase due to large clearcuts >7.2 ha
- They state the increase may be due to bioeconomy & bioenergy



From Ceccherini: the brighter yellow, the more harvesting.

Our response: Main flaws in Ceccherini et al

a. They used a **remote sensing product that is not consistent** over time and cannot be used for temporal analyses.

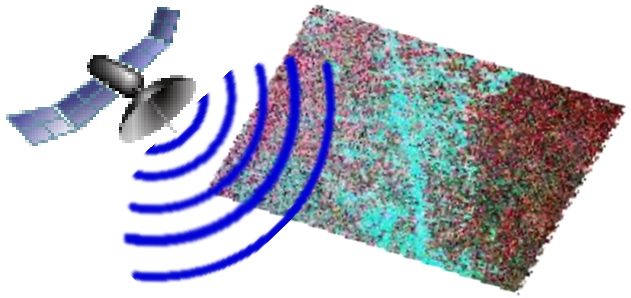
b. They did not factor out the **natural disturbances**. We identified several areas of natural disturbances claimed to be wood harvest.

c. Claims **that harvest increase is due to bioeconomy growth**. This is not supported by their shown data.

A. Is the data employed reliable?

Ceccherini et al.:
“We **acknowledge the uncertainty and the potential bias of the GFC maps**, and in particular variations in the availability of observational data before and after 2012, owing to the frequency of Landsat acquisitions (see Methods section ‘Forest mapping’). Nonetheless, we **consider our findings reliable because abrupt changes in harvested forest area occurred in 2016–2018**.*”.*

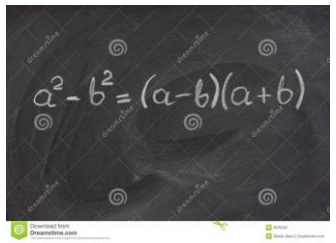
Ceccherini et al use a ready remote sensing product (GFW)



Satellite image

Improving over time

Data processing and modelling

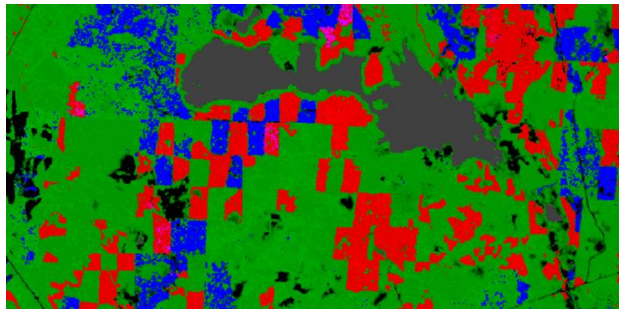


Improving over time

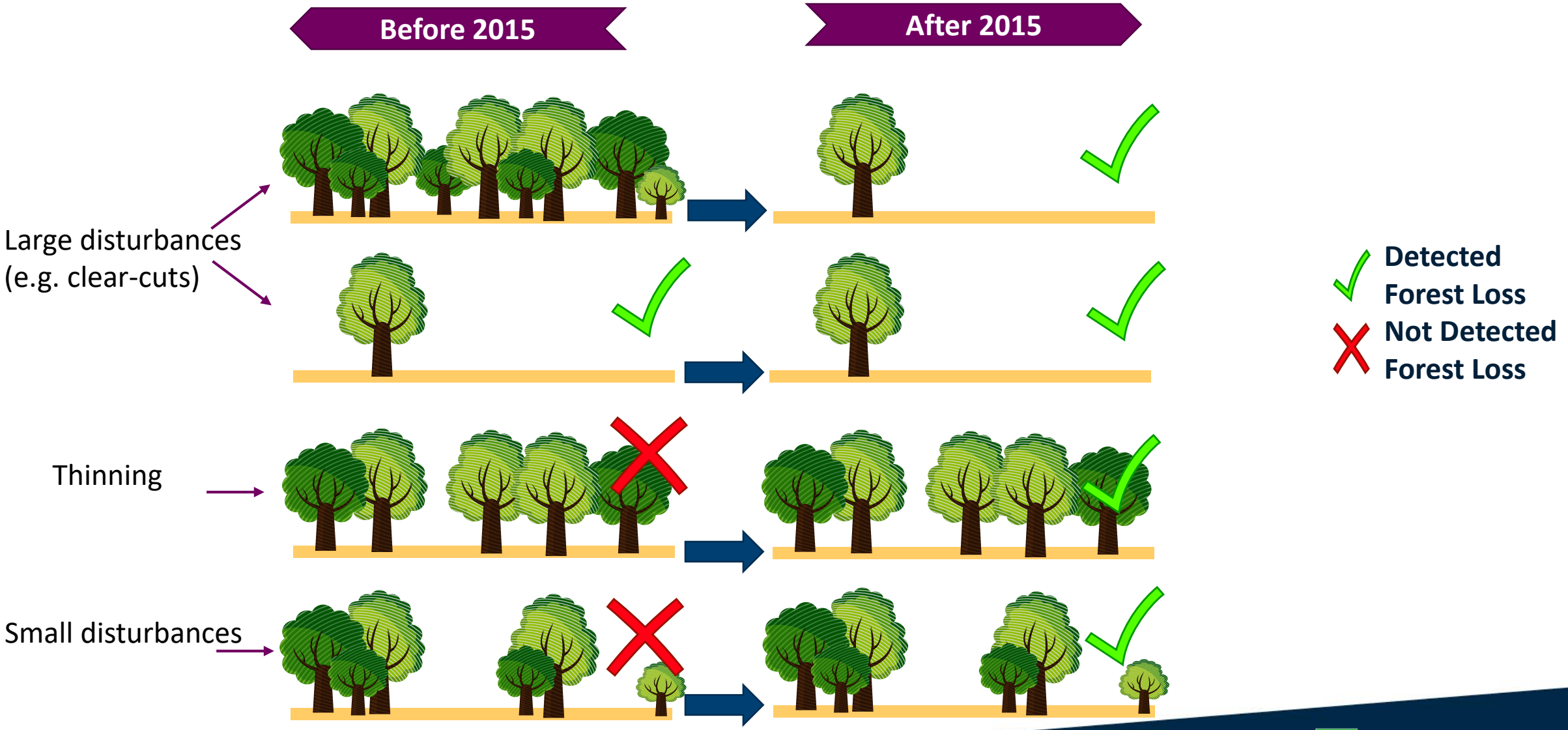
Estimate of forest area loss

GLOBAL FOREST WATCH

GFW

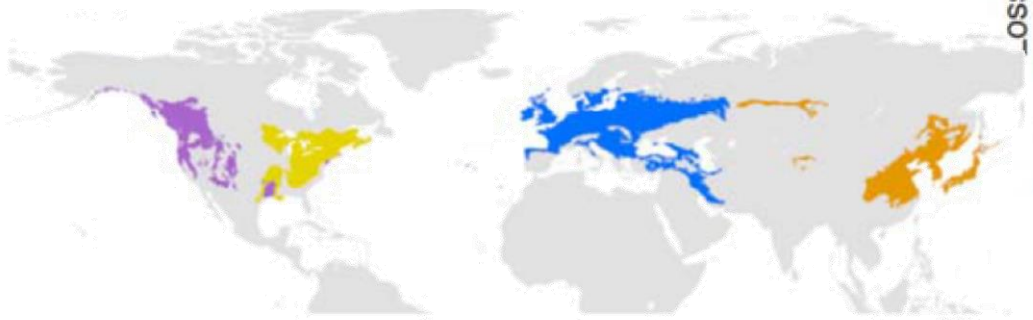


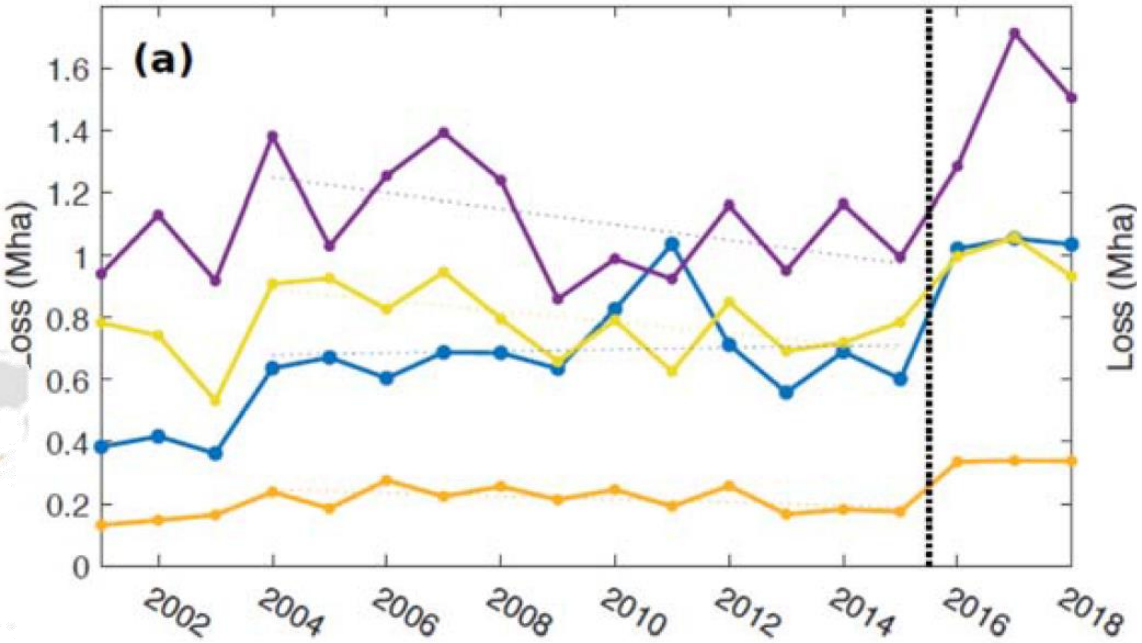
GFW has small disturbance omission in earlier years



The problem with Global Forest Watch

- The spike after 2015 is an **artefact** of the Global Forest Watch product
- In their website, The Global Forest Watch product is described by its developers as **unsuited for time-series analyses**.





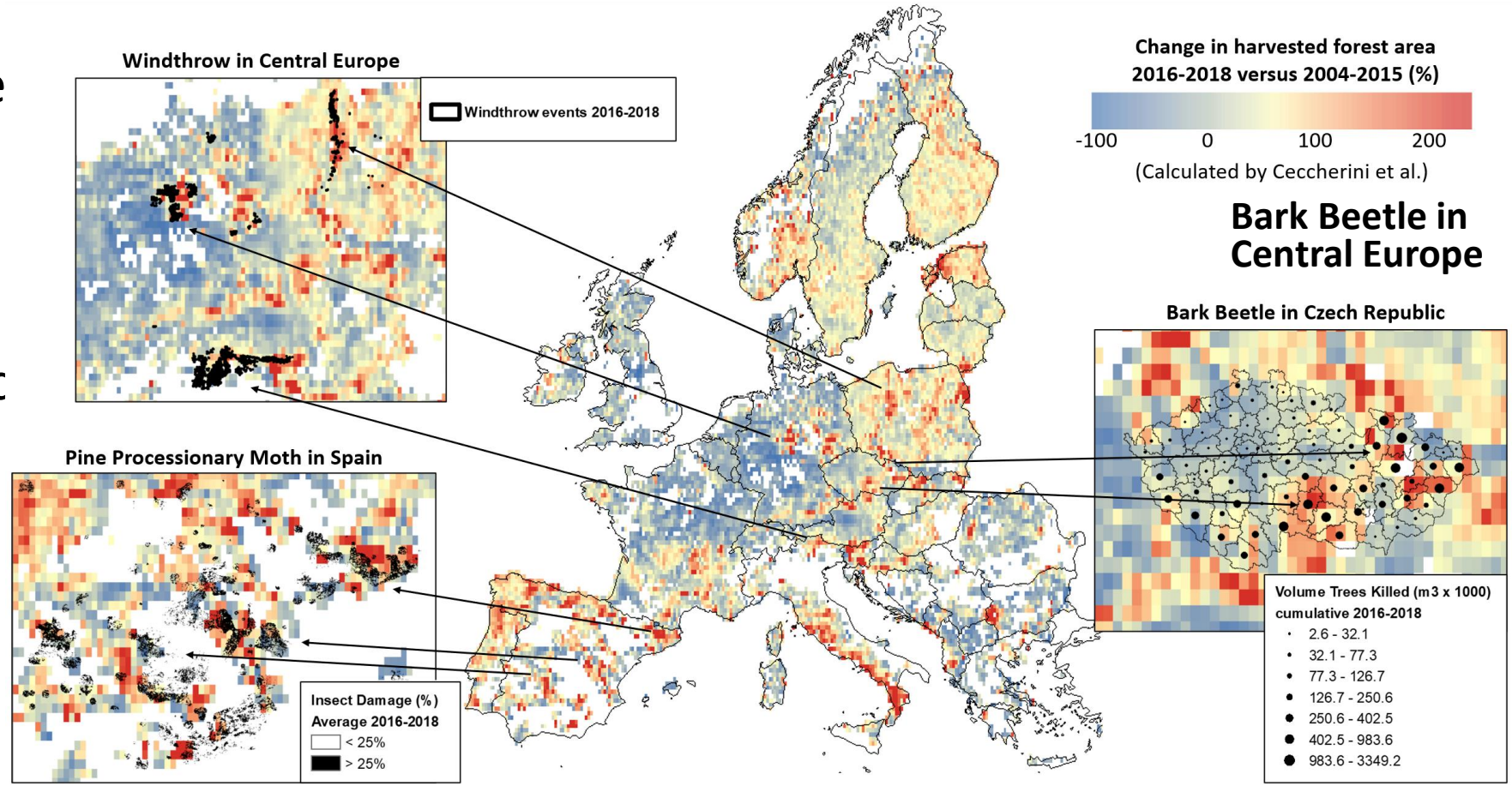
WAGENINGEN UNIVERSITY & RESEARCH

B. Can the estimated forest loss be attributed to increased wood harvest?

Ceccherini et al.:
“ although **natural disturbances (such as forest fires, salvage logging after major windstorms and insect outbreaks)** have affected inter-annual variations and trends, they **have been factored out** from the analysis, ... ”.

Misattribution of natural disturbances as being harvest

- Ceccherini et al. blame much of the increased forest loss detected to forest harvest.
- We found that they have not been factorec out (many red parcels on map are natural disturbances)



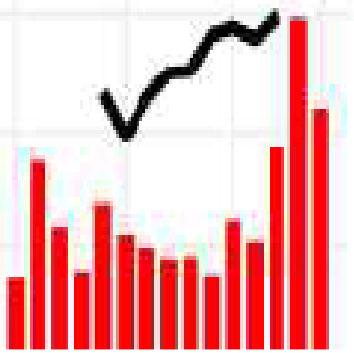
WAGENINGEN UNIVERSITY & RESEARCH

C. Is the link to bioeconomy proven?

Ceccherini et al.:

*“ Thus the socio-economic context and **policy framework** are most probably the **most important drivers of harvest** area increase, even if a **causal connection is difficult** to prove and quantify ”.*

Ceccherini, Ext data Fig 7.

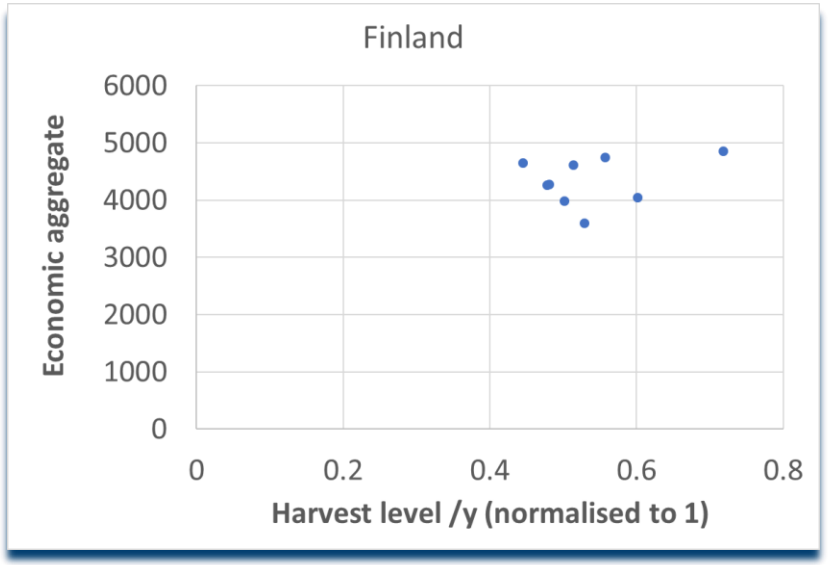


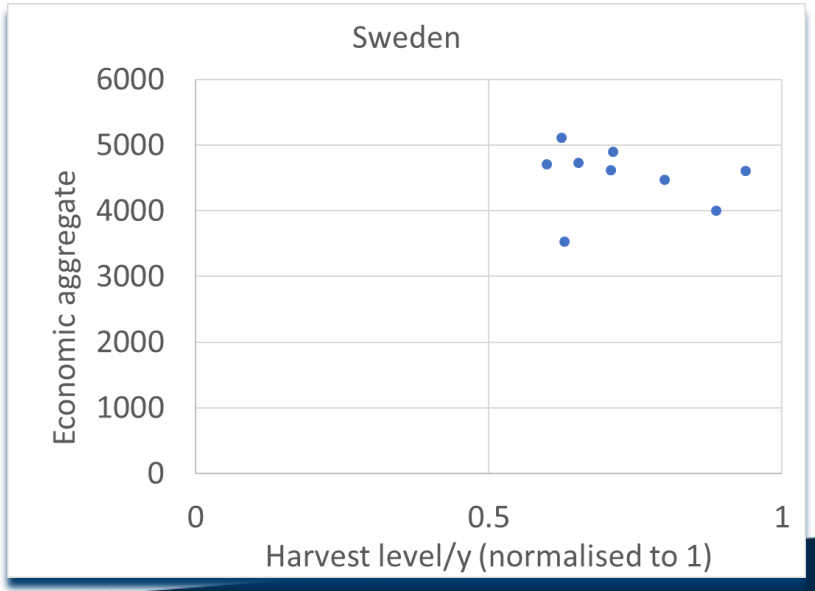
Finland in Ext data Fig 7.

Sweden in Ext data Fig 7.

Red bar: harvest according to remote sensing (Ceccherini)
Line: economic aggregate

Our analysis





Conclusion: no relation between harvest level and economic aggregate.

(in none of the countries)

From practical perspective:

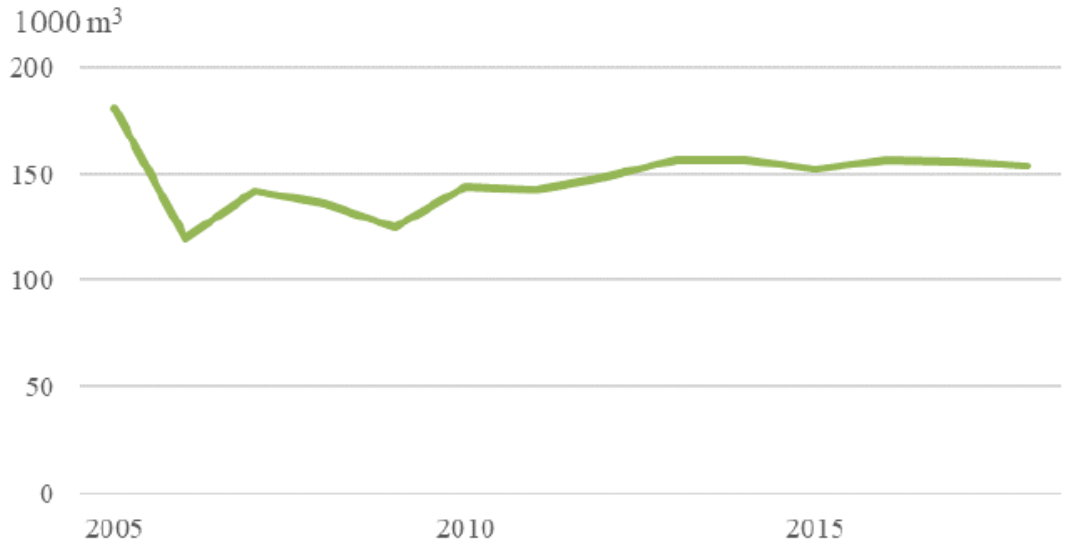
How could harvest go up from 470 Mm3/y to 790 Mm3 (= 69% increase) in just a few years ?

There is no harvesting capacity or personnel to do that.

In practice it is very difficult to raise harvesting (small owners, lack personnel, steep slopes, regulations etc) (Simwood project)

e.g. Swedish data do not indicate any increase in use of diesel in forestry operations.

Figure 11. Consumption of diesel in forestry operations 2005–2018. 1000 m^3



Source: Swedish Energy Agency

Conclusions

- Our analysis shows that **neither the claimed changes nor their supposed causes can be supported**
- What we believe **is striking is the increasing impact of natural disturbances** in Europe which require special attention and improved forest management
- To inform policy makers, there is an increasing need for **a collective European effort** to obtain data at different spatial and temporal levels as well as from different disciplines, countries and sources.

Today, GFW put updated documentation

https://blog.globalforestwatch.org/data-and-research/tree-cover-loss-satellite-data-trend-analysis/