

„Zerstören EU - Direktiven den Europäischen Wald?“

Winter-Sommerkolloquium 2021/22

Prof. Dr. Marc Hanewinkel
University of Freiburg
Chair of Forestry Economics and Planning
Tennenbacher Straße 4
79106 Freiburg, Germany



vested forest area over



<https://doi.org/10>

Received: 17 May

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European Commission > EU Science Hub > JRC site

Category D
Andro Ces

The JRC in Ispra (Italy)

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ies of ecosystem services that are crucial to our society. In the European Union (EU), forests account for approximately 38% of the total land surface¹. These forests are important carbon sinks, and their conservation efforts are vital for the EU's vision of achieving climate neutrality by 2050². 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 increase in the harvested forest area (49 per cent) and an increase in biomass loss (69 per cent) over Europe for the period of 2016–2018 relative to 2011–2015, with large



Baltic countries. harvested area on biodiversity, soil harvest is the result of metric indicators on with a high rate of forest nate mitigation may be d require extra neutrality by 2050³.

¹Bio-Economy Unit, European Commission Joint Research Centre, Ispra, Italy. ²Food Security Unit, European Commission Joint Research Centre, Ispra, Italy.

³e-mail: guido.ceccherini@ec.europa.eu

Abrupt increase in harvested forest area over Europe after 2015

72 | Nature | Vol 583 | 2 July 2020

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

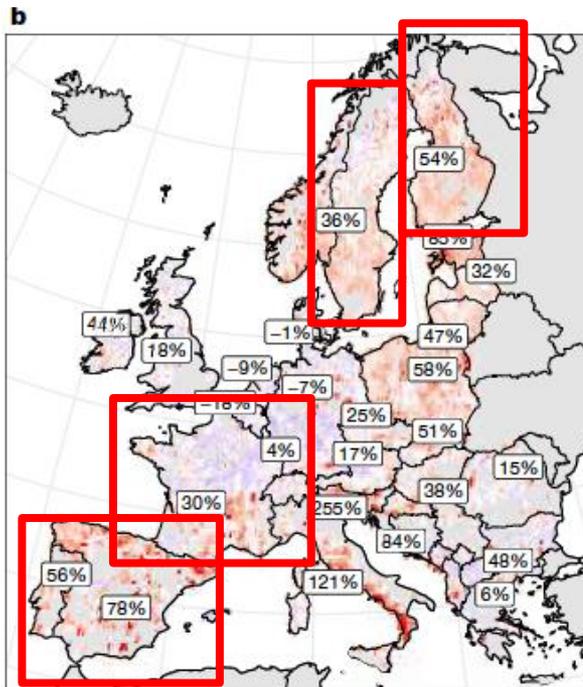
Received: 17 May 2019

Accepted: 23 April 2020

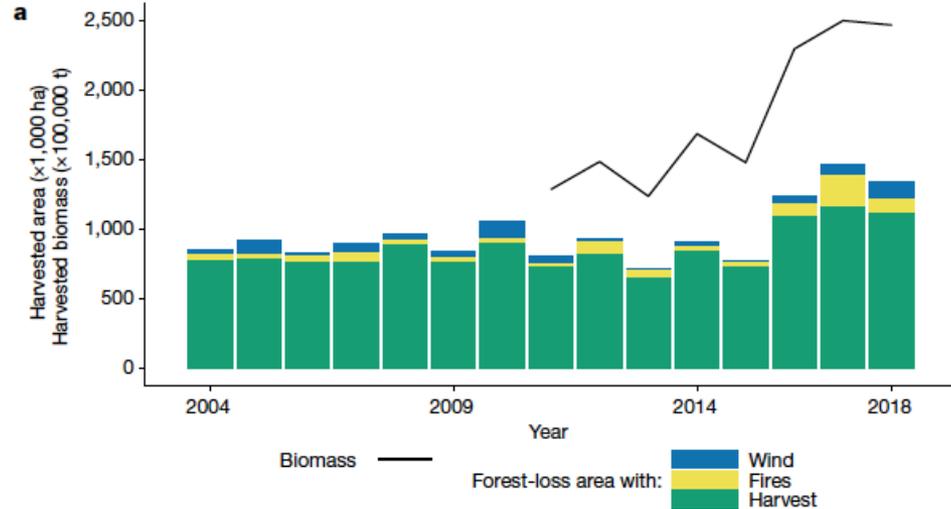
Published online: 1 July 2020

Guido Ceccherini^{1,2}, Gregory Duveiller¹, Giacomo Grassi¹, Guido Lemoine², Valerio Avitabile¹, Roberto Pilli¹ & Alessandro Cescatti¹

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 surface¹



Change in harvested forest area 2016–2018 versus 2004–2015 (%)



Biomass — Harvested area (x1,000 ha)
Harvested biomass (x100,000 t)
Year
Forest-loss area with: Wind, Fires, Harvest

Abrupt increase in harvested forest area over Europe after 2015

72 | Nature | Vol 583 | 2 July 2020

<https://doi.org/10.1038/s41586-020-2428-y> Guido Coccherini¹, Gregory Duvellet¹, Giacomo Grassi¹, Guido Lomolino², Valerio Avitabile¹

Received: 17 May 2019 | [nature](#) > [editorials](#) > [article](#)

Accepted: 23 April 2020

Published online: 1 July 2020

EDITORIAL | 01 July 2020

How Europe can fix its forests data gap

The European Union's ambitions in biodiversity

Europäisches Parlament
2019-2024

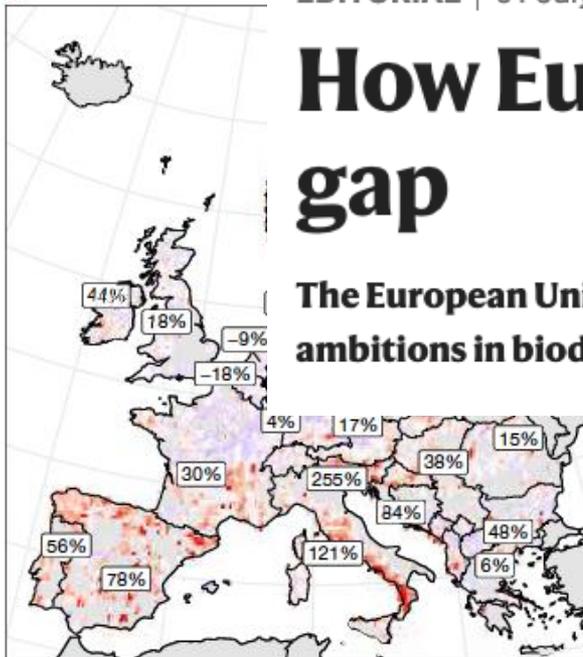


ANGENOMMENE TEXTE

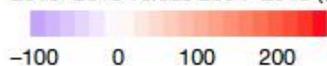
P9_TA(2020)0257

Europäische Forststrategie – künftiges Vorgehen

Entschließung des Europäischen Parlaments vom 8. Oktober 2020 zu dem Thema „Europäische Forststrategie – künftiges Vorgehen“ (2019/2157(INI))



Change in harvested forest area 2016–2018 versus 2004–2015 (%)



Abrupt increase in harvested forest area over Europe after 2015

72 | Nature | Vol 583 | 2 July 2020

nature > editorials > article

<https://doi.org/10.1038/s41586-020-2020-0>

Received: 17 November 2019

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Baumfällungen in der EU haben stark zugenommen

BZ-medien

Badische Zeitung

Wetter | Kontakt | Meine BZ | Anmelden

BZ-eZeitung | BZ-App | BZ-Smart | Abonnieren

Start Lokales Nachrichten Sport Meinung Freizeit Ratgeber Abo & Service Jobs Anzeigen

Reise Geld & Finanzen Computer & Medien Natur & Umwelt Bildung & Wissen Auto & Mobilität Gesundheit & Ernährung Beruf & Karriere Liebe & Familie Haus & Garten Zisch Zischup

Schlechte Klimabilanz

In Europa wird jährlich immer mehr Holz geschlagen



Von Roland Knauer
Sa, 11. Juli 2020 um 16:24 Uhr
Bildung & Wissen

Eine Studie im renommierten Fachmagazin Nature belegt: Seit 2016 wird in Europa jedes Jahr mehr Waldfläche abgeholzt – gut für die Klimabilanz der EU ist das nicht.



Natürliche Waldverjüngung sieht anders aus: Durch Maschineneinsatz beim Holzeinschlag und Aufforsten setzt der Waldboden mehr CO2 frei, sagen Wissenschaftler. Foto: --

Le M

Consulter le journal

ACTUALITÉS ÉLECTIONS 2022 ÉCONOMIE VIDÉO

PLANÈTE

L'exploitation des forêts européennes depuis 2016

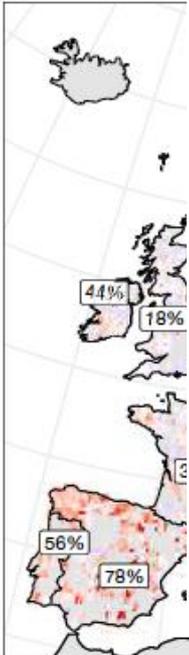
Une étude d'un centre de recherche de la Commission « abrupte » de la récolte du bois dans l'Union européenne

Par Martine Valo

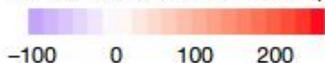
In der EU werden

Auswirkungen auf

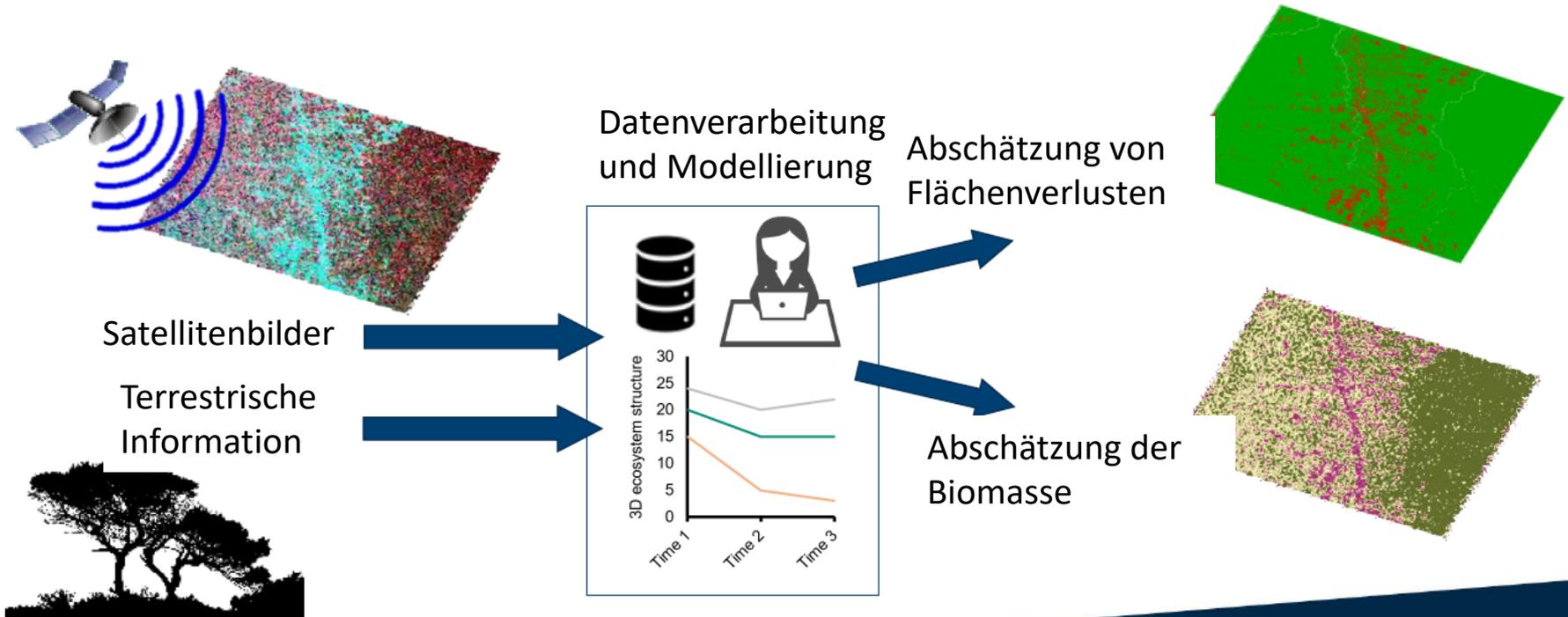
A Swedish forest at sunset. The loss of forest biomass is most pronounced in the EU, which accounted for 29% of the increase in harvesting. Photograph: Alamy Stock Photo



Change in harvested forest area 2016–2018 versus 2004–2015 (%)

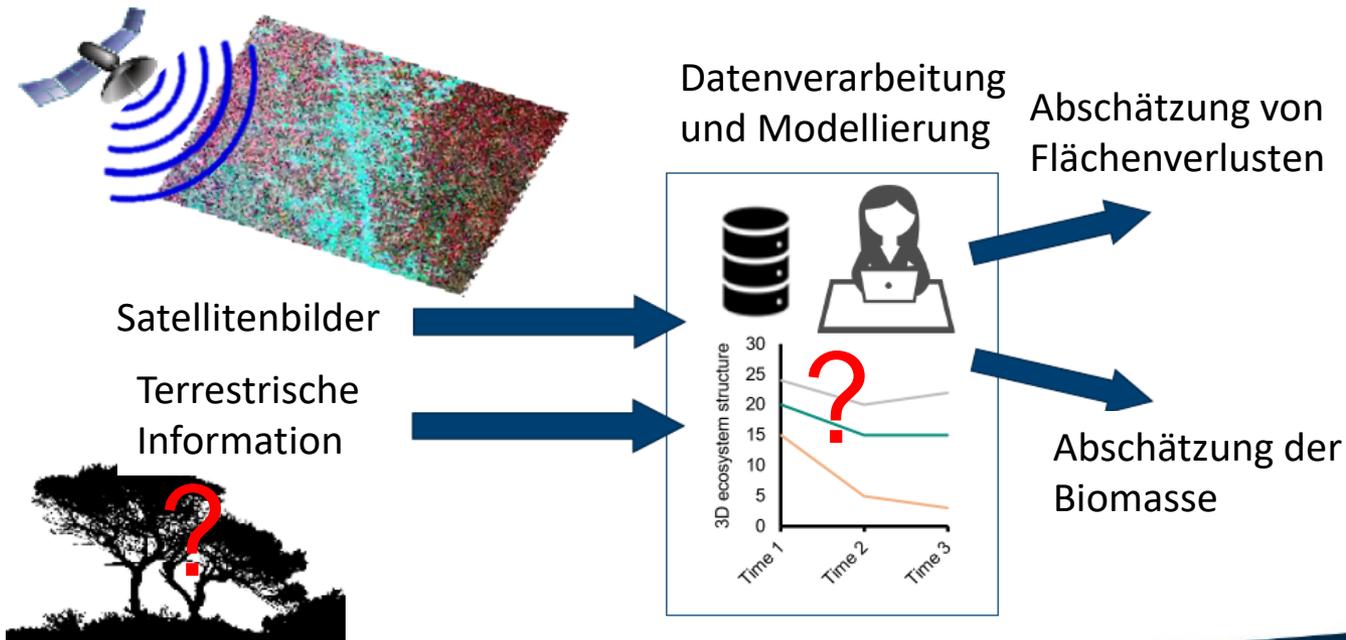


Abschätzungen für Wälder mit Fernerkundungsdaten



Abschätzungen für Wälder mit Fernerkundungsdaten

Hansen maps of Global Forest Change
Hansen et al. 2013 Science



17.10.2020 | WWW.EFI.INT

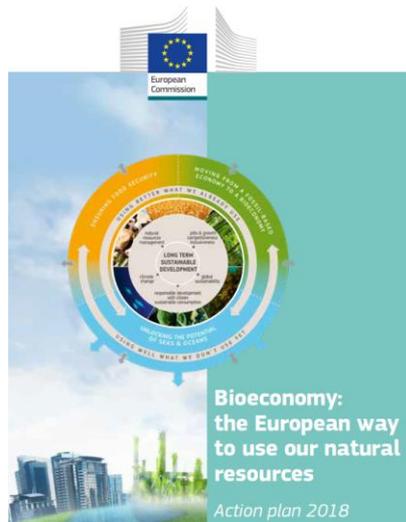
Intro by Dr Marc Palahí

Hansen, M. C. et al. High-resolution global maps of 21st-century forest cover change. Science 342, 850–853 (2013).

Ursachenforschung

Mögliche Gründe für den Anstieg:

- Altersentwicklung der Wälder in Europa – **ausgeschlossen**
- Anstieg der zufälligen Nutzungen durch Störungen (Feuer, Stürme, Insekten...) - „**factored out**“ - $\text{Threshold}_{\text{wind}} = \text{median}(x) + 3 \times \text{MAD}(x)$
- Veränderung der sozio-ökonomischen Rahmenbedingungen
 - Gestiegene Nachfrage auf den Holzmärkten
 - Änderung der politischen Rahmenbedingungen – Anreize durch neue Direktiven



 An official website of the European Union



DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 11 December 2018

on the promotion of the use of energy from renewable sources

(recast)

(Text with EEA relevance)

(OJ L 328 21.12.2018, p. 82)

Concerns about reported harvests in European forests

r

Nature | Vol 592 | 29 April 2021 | E15

<https://doi.org/10.1038/s41586-021-03292-x>

Received: 3 July 2020

Accepted: 26 January 2021

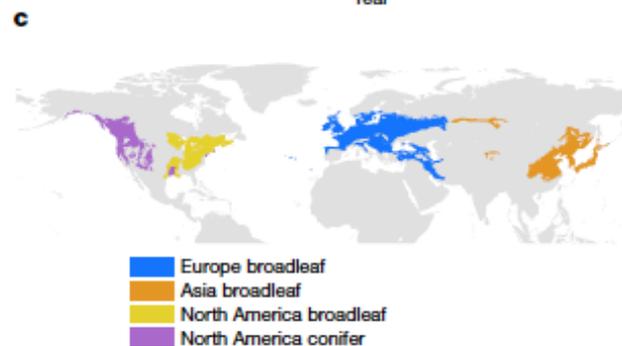
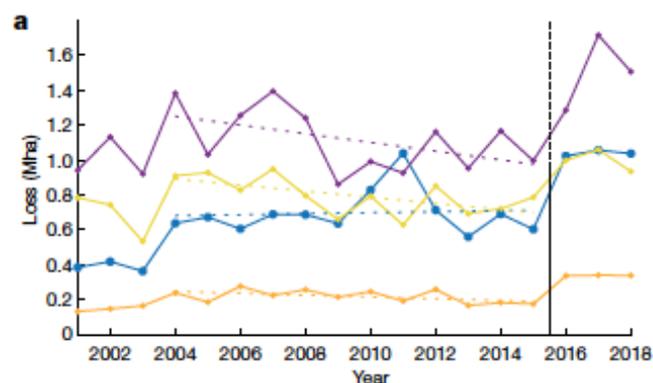
Published online: 28 April 2021

 Check for updates

Marc Palahi^{1,2,6}✉, Rubén Valbuena^{2,26}✉, Cornelius Senf³, Nezha Acil^{4,5}, Thomas A. M. Pugh^{4,5,6}, Jonathan Sadler^{4,5}, Rupert Seidl³, Peter Potapov⁷, Barry Gardiner⁸, Lauri Hetemäki¹, Gherardo Chirici⁹, Saverio Francini^{9,10}, Tomáš Hlásny¹¹, Bas Jan Willem Lerink¹², Håkan Olsson¹³, José Ramón González Olabarria¹⁴, Davide Ascoli¹⁵, Antti Asikainen¹⁶, Jürgen Bauhus¹⁷, Göran Berndes¹⁸, Janis Donis¹⁹, Jonas Fridman¹³, Marc Hanewinkel¹⁷, Hervé Jactel²⁰, Marcus Lindner²¹, Marco Marchetti²², Róbert Marušák¹¹, Douglas Shel²³, Margarida Tomé²⁴, Antoni Trasobares²⁵, Pieter Johannes Verkerk¹, Minna Korhonen¹ & Gert-Jan Nabuurs^{12,23}

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

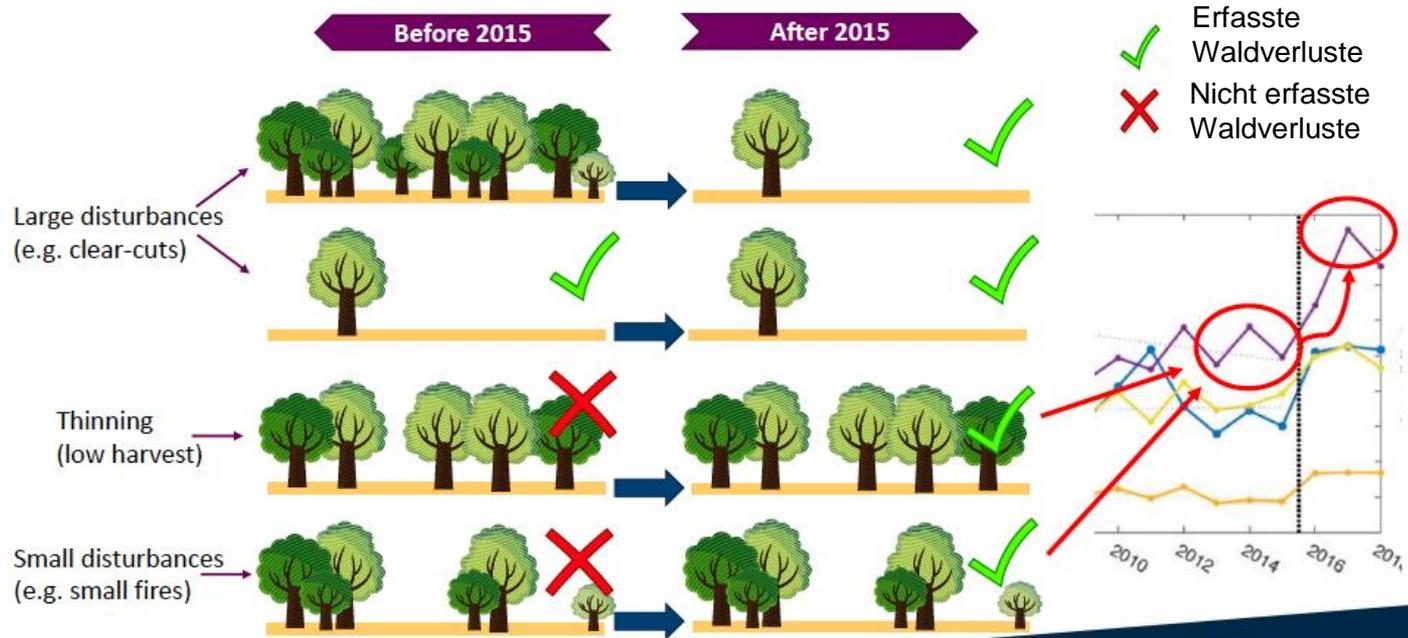
Matters arising



Änderung des Algorithmus in GFW



Kleinere Störungen in früheren Jahren nicht erfasst



Concerns about reported harvests in European forests

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

Received: 3 July 2020

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[Check for updates](#)

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

E16 | Nature | Vol 592 | 29 April 2021

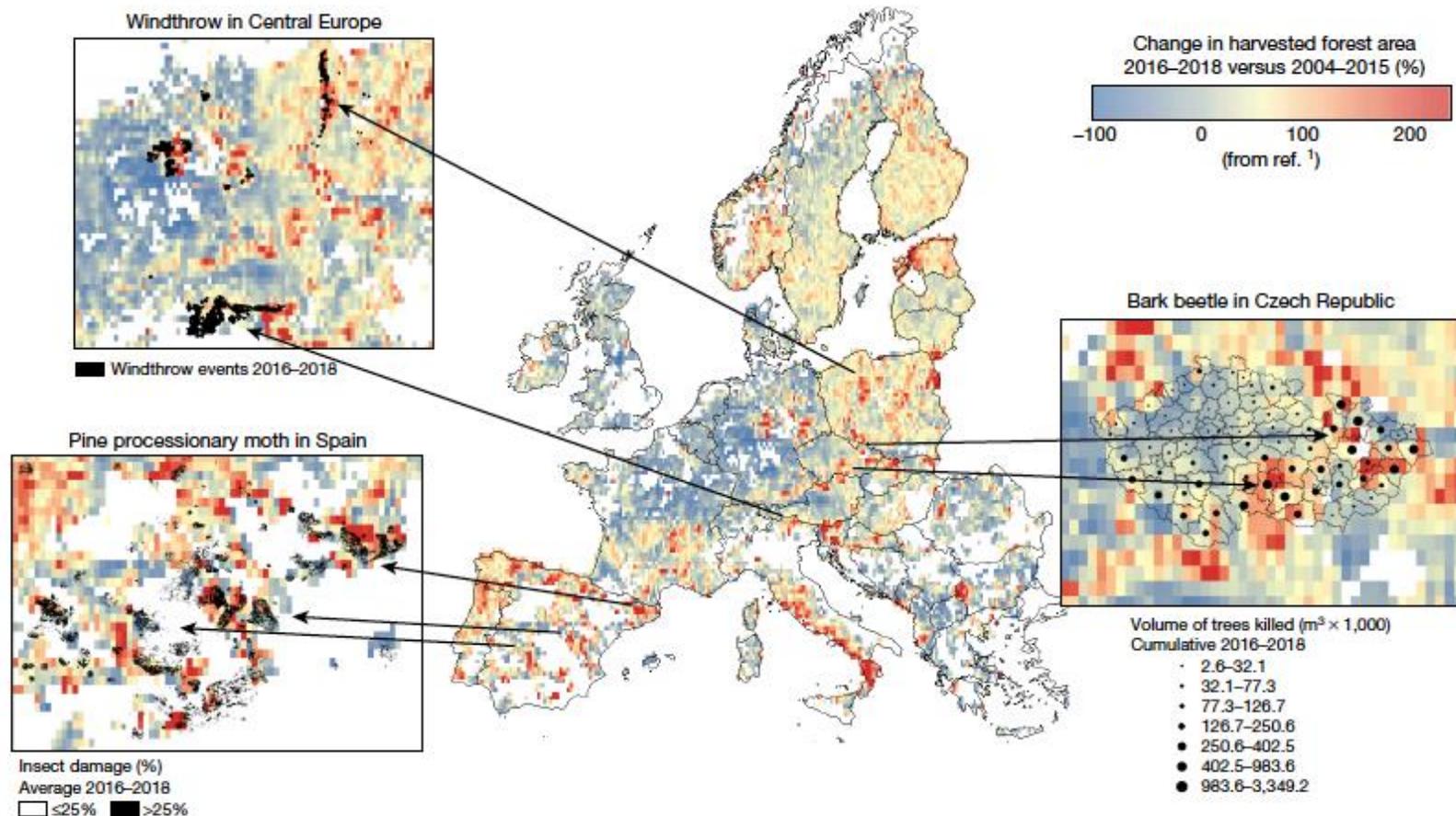


Fig. 2 | Areas identified as natural disturbances. The spatial distribution of

disturbance information sources (all in black). Top left, 2016–2018 windthrow

Concerns about reported harvests in European forests

Nature | Vol 592 | 29 April 2021 | E15

<https://doi.org/10.1038/s41586-021-03292-x>

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Timber harvest in Europe lower than claimed

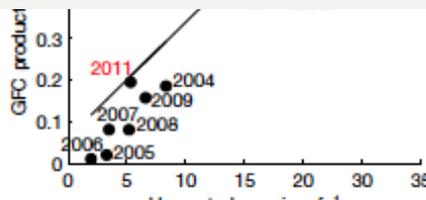
New study outlines the erroneous data analysis in a previous publication

Freiburg, Apr 29, 2021

Has timber harvesting in Europe increased in recent years? Yes, say researchers from various countries, but nowhere near as much as a study on "Abrupt increase in harvested forest area in Europe after 2015" published in *Nature* in the summer of 2020 claims. In a new study, a European team including Prof. Dr. **Jürgen Bauhus**, [Chair of Silviculture](#) and Prof. Dr. **Marc Hanewinkel**, [Chair of Forest Economics and Forest Planning](#) at the University of Freiburg, Germany, shows that the timber harvest has increased by only 6 percent in recent years, not 69 percent as previously postulated. The erroneous analysis was due to an increase in the sensitivity of the underlying satellite data. In addition, the earlier publication had mistakenly classified some forest areas affected by natural disturbances as timber harvest, explain the authors of the current study, which has now also appeared in *Nature*.



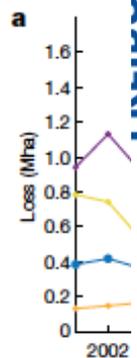
- Europe broadleaf
- Asia broadleaf
- North America broadleaf
- North America conifer



GFC product

Harvested area in ref. ¹

Matte



c

Nationale Analysen

Annals of Forest Science (2021) 78:9
<https://doi.org/10.1007/s13595-021-01030-x>

OPINION PAPER

Recent increase in European forest harvests as based on area estimates (Ceccherini et al. 2020a) not confirmed in the French case

Nicolas Picard¹ · Jean-Michel Leban² · Jean-Marc Guehl³ · Erwin Dreyer³ · Olivier Bouriaud⁴ · Jean-Daniel Bontemps⁴ · Guy Landmann¹ · Antoine Colin⁵ · Jean-Luc Peyron⁶ · Pascal Marty⁷

Received: 31 August 2020 / Accepted: 10 January 2021
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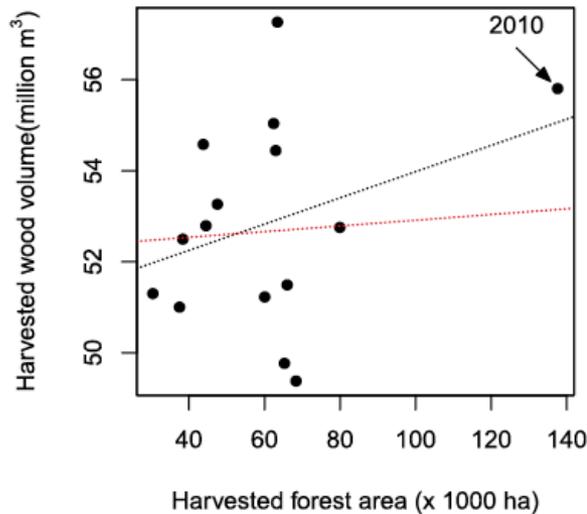


Fig. 2 Harvested wood volume (data from FAOSTAT) versus harvested forest area (as reported by Ceccherini et al. 2020b) in France between 2004 and 2018. Each dot corresponds to a year, with year 2010 following storm Klaus marked by an arrow. Dotted lines are the regression lines with (black line) or without (red line) year 2010

Breidenbach et al. *Annals of Forest Science* (2022) 79:2
<https://doi.org/10.1186/s13595-022-01120-4>

INRAE



Annals of Forest Science

OPINION PAPER

Open Access

Harvested area did not increase abruptly—how advancements in satellite-based mapping led to erroneous conclusions



Johannes Breidenbach^{1*} · David Ellison^{2,3,4} · Hans Pettersson² · Kari T. Korhonen⁵ · Helena M. Henttonen⁵ · Jörgen Wallerman² · Jonas Fridman² · Terje Gobakken⁶ · Rasmus Astrup¹ and Erik Næsset⁶

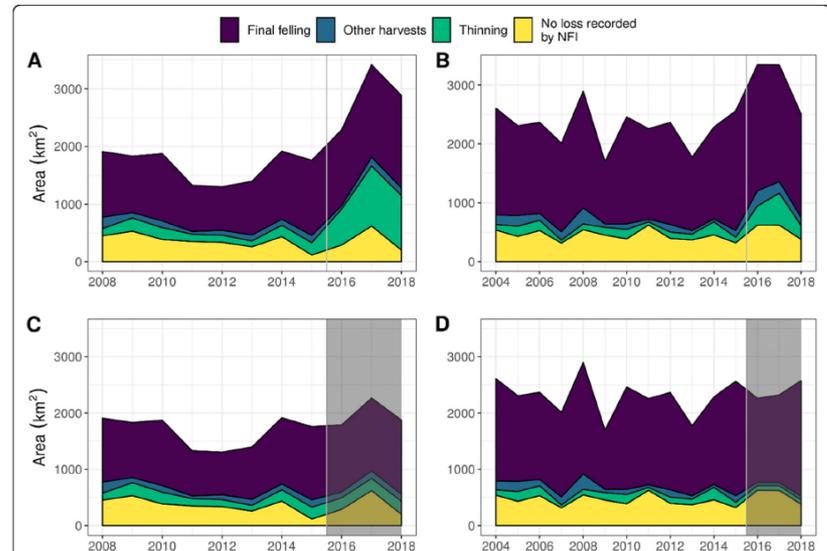


Fig. 2 GFC harvested area estimate based on NFI plots with and without correction for an increase in GFC's detection ability after 2015. The two top figures provide the uncorrected timeseries of GFC harvested area for **A** Finland and **B** Sweden along with their field-observed management outcomes (final fellings, other harvest, thinnings, no loss recorded in the field = commission error). The area with final fellings is relatively stable while the area with detected thinnings increases considerably after 2015. The two bottom figures provide the timeseries of GFC harvested area corrected for GFC's increased detection ability after 2015 for **C** Finland and **D** Sweden. For the period 2016–2018, the area is estimated assuming the correct detection proportion would have stayed the same as before. Based on these corrected area estimates, there is no abrupt increase in the harvested area after 2015. See Tables 1 and 2 in the Appendix for standard errors of estimates

Reply to Wernick, I. K. et al.; Palahí, M. et al.

<https://doi.org/10.1038/s41586-021-03294-9>

Published online: 28 April 2021

 Check for updates

Guido Ceccherini¹✉, Gregory Duveiller¹, Giacomo Grassi¹, Guido Lemoine², Valerio Avitabile¹, Roberto Pilli¹ & Alessandro Cescatti¹

REPLYING TO I. K. Wernick et al. *Nature* <https://doi.org/10.1038/s41586-021-03293-w> (2021)

REPLYING TO M. Palahí et al. *Nature* <https://doi.org/10.1038/s41586-021-03292-x> (2021)

covering 2011–2018⁷. As a consequence, contrary to the statement of Palahí et al.², the technical note to the Global Forest Change data⁴ does not warn against the generic use of the GFC product for trend analysis, but only against “the integrated use of version 1.0 2000–2012 data and updated version 1.7 2011–2019”. In our Article³, we followed this recom-

ral disturbances than did the Global Forest Watch. This already suggests that the change in algorithm per se is unlikely to explain the majority of the increase in harvested area that was observed in our study.

Overall, although we acknowledge that most of the issues raised by Palahí et al.² are relevant and worthy of consideration, they do not undermine the value of our study. The temporal inconsistency of

an inconsistency of the time series after 2015; to our knowledge, this enhancement to the detection algorithm in 2015 was not reported. The effect of this change on tree cover statistics remains to be seen. Following the arguments of Palahí et al.², below we discuss the likelihood of a large influence of this algorithm change on our results.

JRC study on harvested forest area: resolving key misunderstandings

Giacomo Grassi,
Alessandro Cescatti,
Guido Ceccherini

Received: May 05, 2021 - Accepted: May 07, 2021

Original study used in a scientifically correct way the best information available at that time. After the study was published, a previously undocumented inconsistency in the time series emerged in the original dataset used. After correcting for this inconsistency, updated results confirm an increase in clear-cut harvested area, but not as abrupt as originally reported. Contrary to what

than in the original study. When approximately extrapolated at EU level, these new findings would reduce the original increase in clear-cut area from about 50% to about 30% for the same periods. All ev-

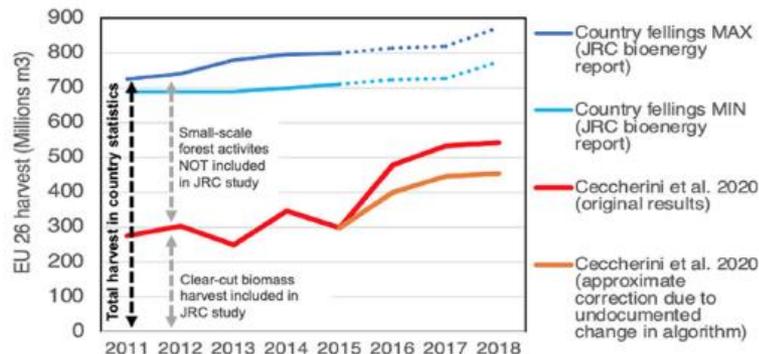
GFC dataset (see section 1) and that the change in results is entirely due to the undocumented change in algorithm occurred in 2015 in the GFC dataset, which affected its time series consistency. The first documentation of this inconsistency is in Palahí et al. (2021), and the first attempt to quantify its impact is in our reply. This undocumented change in algorithm is a glaring error in the GFC documentation, not a “methodological error” by the JRC. It is very unfortunate that the inconsistency of the GFC dataset for the year 2015 was undocumented, as it affected our paper and dozens of other

JRC study on harvested forest area: resolving key misunderstandings

many EU countries. As it can be evinced from the main figure in the original paper, the biomass corresponding to the

harvested clear-cut areas observed in our study is less than 50% of the total harvested biomass reported in country statistics at EU level. While this was unfortunately

not adequately highlighted in the original abstract (a communication error from our side), it would be expected that



Overall, since it is now abundantly clear that the change in algorithm was totally undocumented when our study was published,

we do not think that it can be presented as a “methodological error” by the

JRC. If nobody knew about this problem, how could the JRC? This change partially

misled not only our paper, but dozens of other high-level analyses, similar in scope

to the JRC paper. This may have repercussions that go well beyond our paper.

Retrospectively, the JRC original study could have made a stronger validation of results, something largely addressed in the

rebuttal. However, it is like to say “we should have worn masks in January 2020”.

If we knew of how serious COVID was, we would have worn masks before. But nobody

knew it. All the scientific literature used the GFC data for years without knowing

of the 2015 problem.

Statistiken zur Validierung

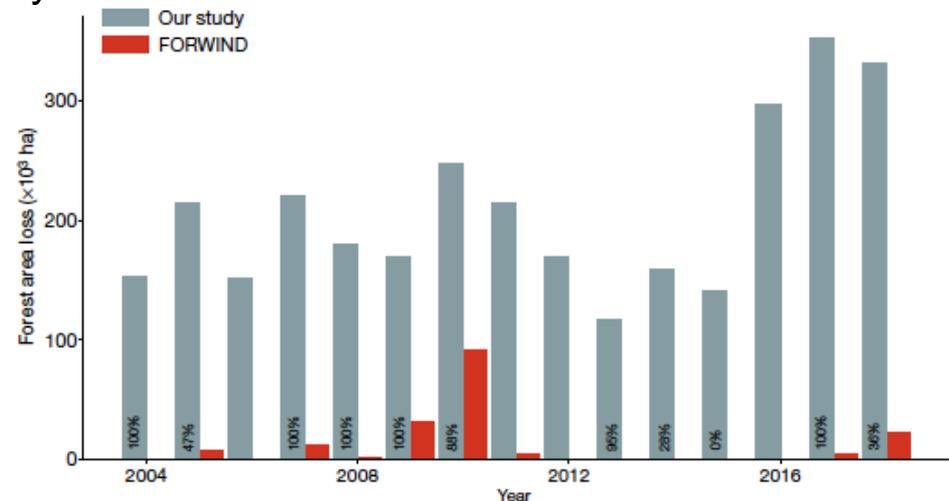
FAOSTAT: Forest Land (Food and Agriculture Organization of the United Nations, 2019); <http://www.fao.org/faostat/en/#data/GF>.

Eurostat: Economic Aggregates of Forestry
https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=for_eco_cp&lang=en
 (2019).

Forestry and Timber – **UNECE**. Forest Products Annual Market Review, 2017–2018
 (United Nations, 2018); <https://www.unece.org/forests/fpamr2018.html>.

EFFIS European Forest Fire Information System dataset. EFFIS. Statistics Portal
<https://effis.jrc.ec.europa.eu/static/effis.st>

ForWind Forzieri, G. et al. A spatially explicit dataset of forest fire losses in
 European forests over the period 2000–2017



6. Institutional Mandate

6.1. Institutional Mandate - legal acts and other agreements

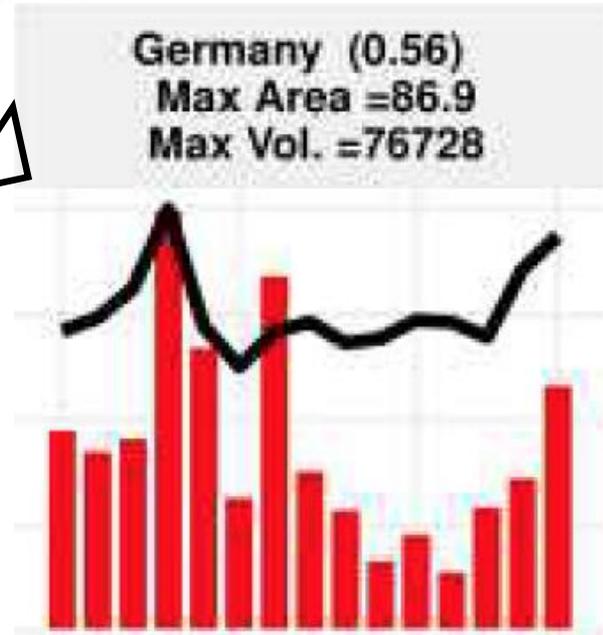
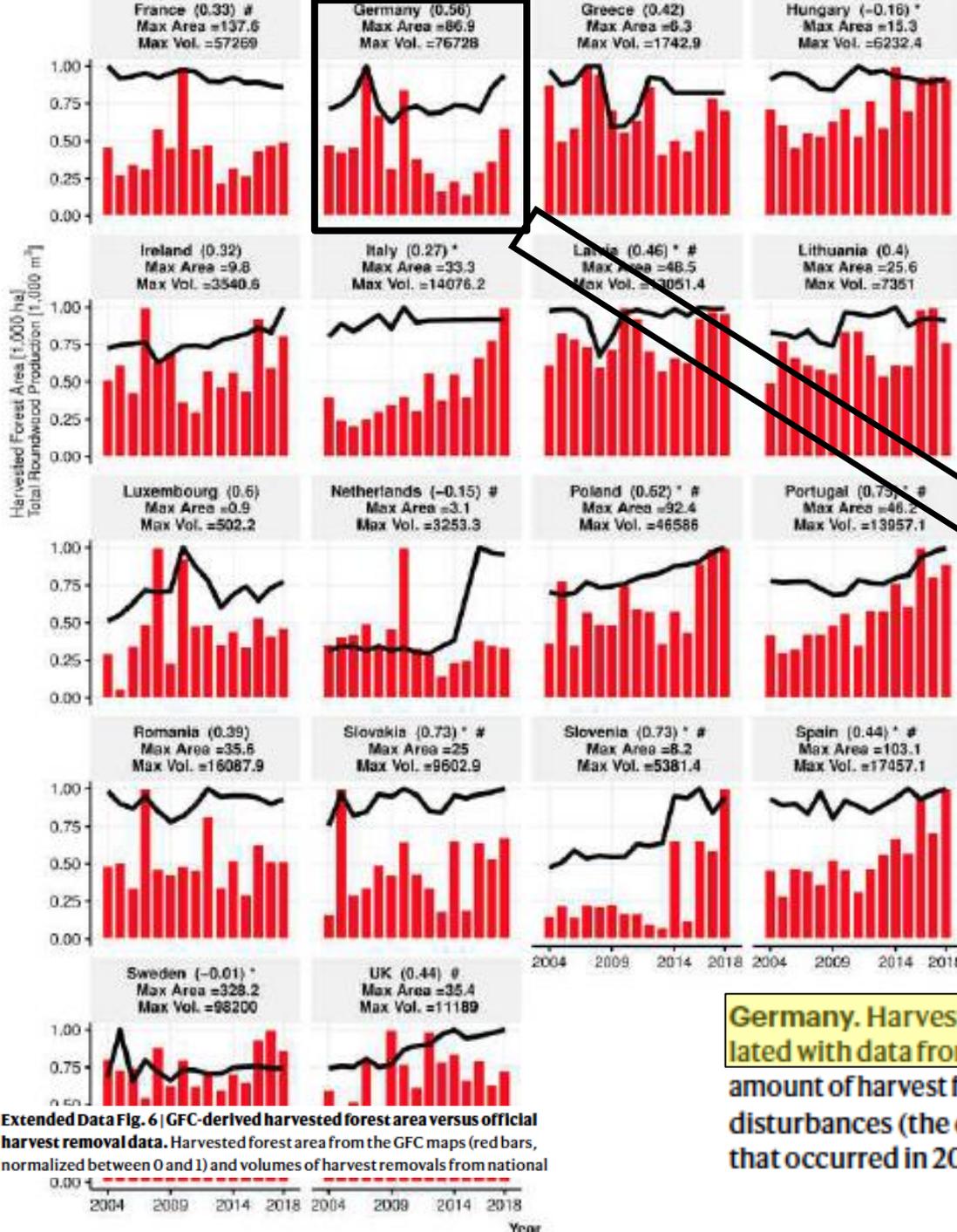
No legal base - only gentlemen's agreement.

6.2. Institutional Mandate - data sharing

Not applicable

Statistiken FAOSTAT

Total Roundwood prod.
(1,000m3, normalized)



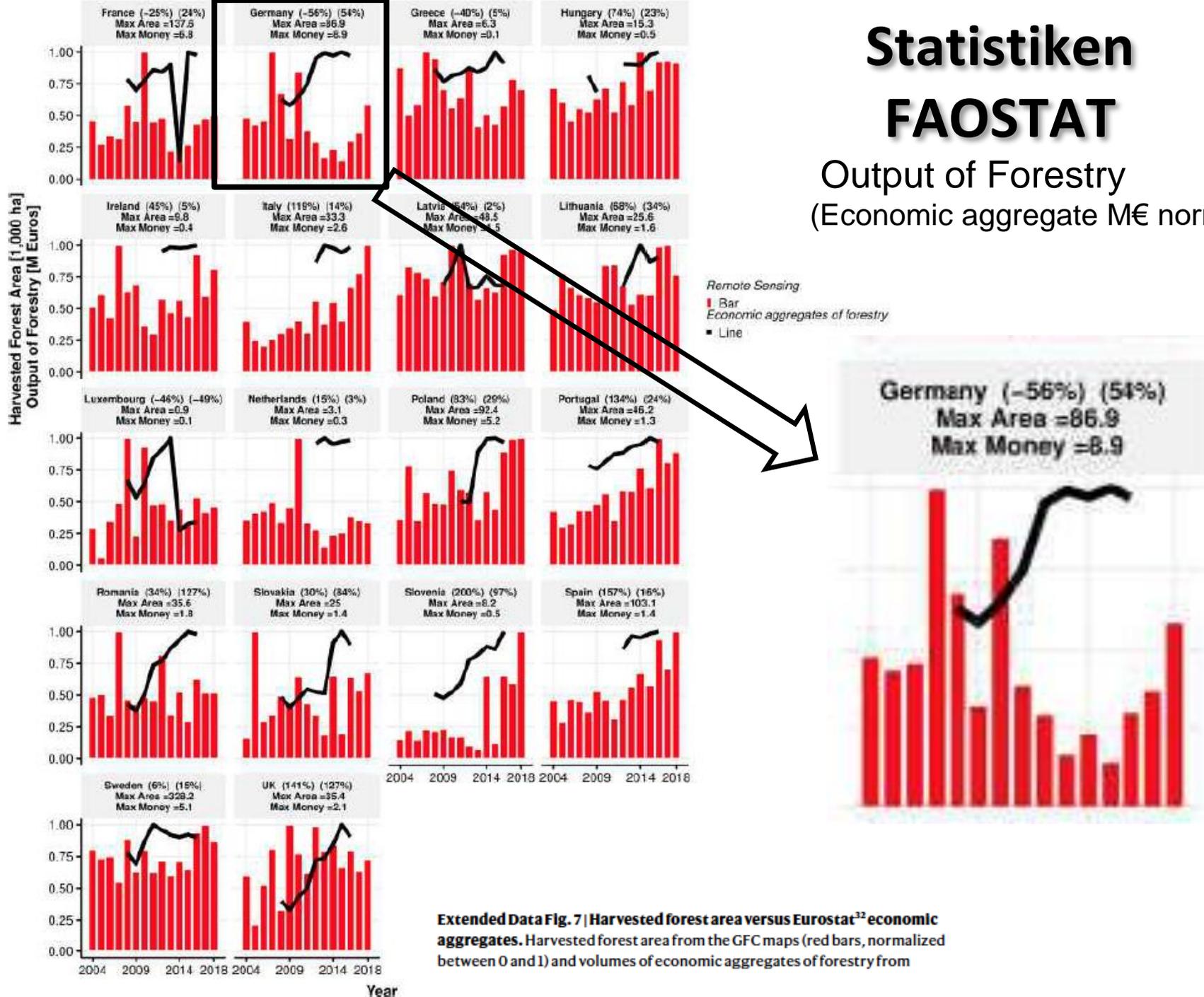
Germany. Harvest data reported by official statistics is well correlated with data from the GFC ($r = 0.56$), and can be compared with the amount of harvest from final cut and salvage logging after major natural disturbances (the data clearly highlight the effect of the windstorms that occurred in 2007 and 2010).

Extended Data Fig. 6 | GFC-derived harvested forest area versus official harvest removal data. Harvested forest area from the GFC maps (red bars, normalized between 0 and 1) and volumes of harvest removals from national



Statistiken FAOSTAT

Output of Forestry
(Economic aggregate M€ norm.)



Extended Data Fig. 7 | Harvested forest area versus Eurostat³² economic aggregates. Harvested forest area from the GFC maps (red bars, normalized between 0 and 1) and volumes of economic aggregates of forestry from

Statistiken zur Validierung

Annals of Forest Science (2021) 78:9
<https://doi.org/10.1007/s13595-021-01030-x>

OPINION PAPER

Recent increase in European forest harvests as bas estimates (Ceccherini et al. 2020a) not confirmed i

Nicolas Picard¹ · Jean-Michel Leban² · Jean-Marc Guehl³ · Erwin Dreyer³ · Jean-Daniel Bontemps⁴ · Guy Landmann¹ · Antoine Colin⁵ · Jean-Luc Peyrot

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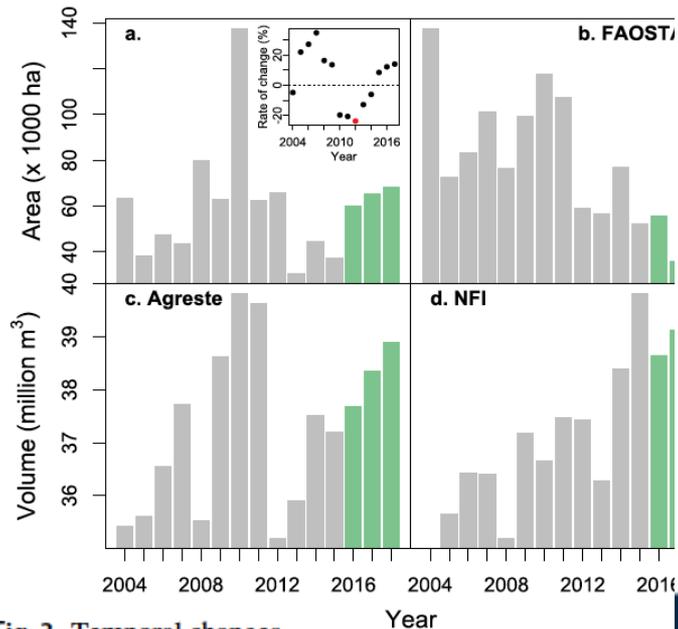
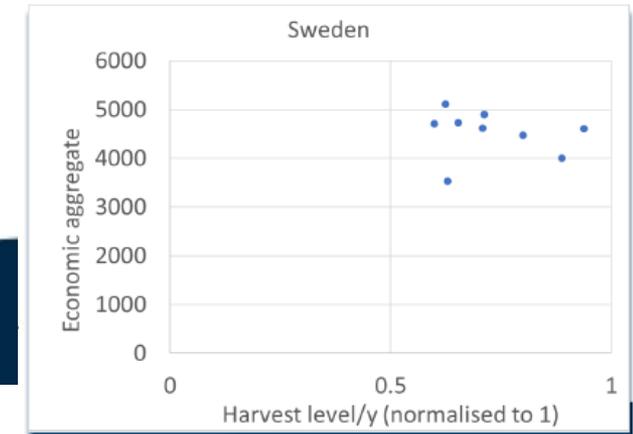
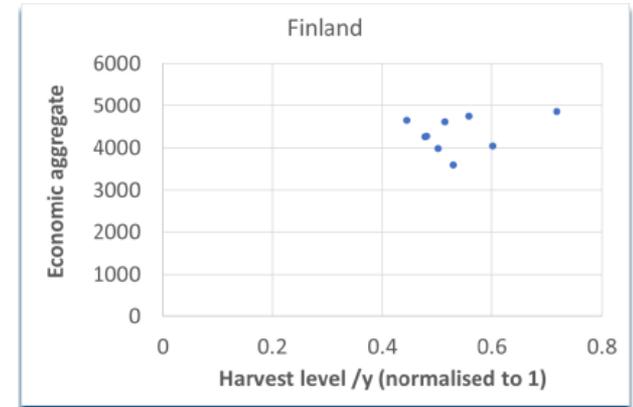


Fig. 3 Temporal changes across 2004–2018 in harvested forest area (a, data from Ceccherini et al. 2020b) and harvested wood volumes (b–d) from different data sources: b FAOSTAT, c Agreste, and d National Forest Inven-

Conclusion: no relation between harvest level and economic aggregate.

(in none of the countries)

Output of Forestry (Economic aggregate M€ norm.)

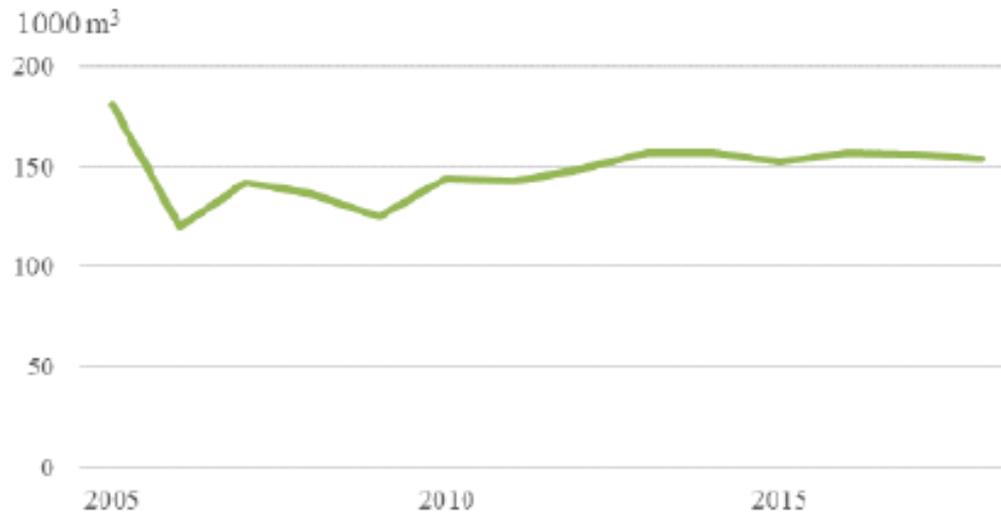


17.10.2020 | WWW.EFI.INT

Palahì 2020

Statistiken zur Validierung

Figure 11. Consumption of diesel in forestry operations 2005–2018. 1000 m³



Source: Swedish Energy Agency

Intro by Dr Marc Palahí

Probleme

Wissenschaftsbetrieb

- Globale Relevanz und „steile These“ statt methodischer Sorgfalt
- Persistenz fehlerhafter Artikel ab einem bestimmten Level der Journals hoch („Unfehlbarkeitsdogma“)
- Viele fehlerhafte Artikel bleiben unentdeckt
- In der Politikberatung gehen die „leisen Töne“ unter

Big Data

- Unsere Fähigkeiten, riesige Datenmengen zu interpretieren und zu validieren halten nicht Schritt mit dem technischen Fortschritt
- Feststellung des „Ground Truth“ sowie der Evidenz der erzielten Ergebnisse wird immer schwieriger bis unmöglich
- Notwendigkeit terrestrischer Inventuren und Statistiken

Probleme

EU-Waldpolitik

- Quadratur des Kreises – Biodiversität, Bioenergie, Green Deal, Bioeconomy
- Vorhandene Statistiken sind offensichtlich unzureichend, die eigenen Rohstoffströme in Bezug auf Wald zu kontrollieren
- Legitimationsproblem in Bezug auf z.B, FLEGT, REDD+ ...

- Thema des Kolloquiums ...