Old-growth forests in Europe: research, progress and gaps

Francesco Maria Sabatini

Old-growth forests in the context of climate policy: what is and what is not an old-growth forest?

12/12/2023

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High Tatras Mountains
Slovakia
William Keeton

Fraktos. Rodope National Park, Greece
Francesco Sabatini

Holm oak, Aspromonte National Park. Gianluca Piovesan

Old beech forest
Bulgaria
Tzevtan Zlatanov

Old forest
Tichá valley
Slovakia
Jeňýk Hofmeister

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The exceptional value of primary forests

Social value – Perception of Wilderness and cultural identity

A Jungle of Words

Primary forests:
Naturally regenerated forests composed of native species, where signs of past human use are minimal and ecological processes […] operate […] with little impairment by anthropogenic influences

A 'Primary' is not (necessarily) an 'old-growth' or a 'Virgin' Forest!

From: Mansourian et al. 2013. Ancient Forests in the Northern Mediterranean: Neglected High Conservation Value Areas

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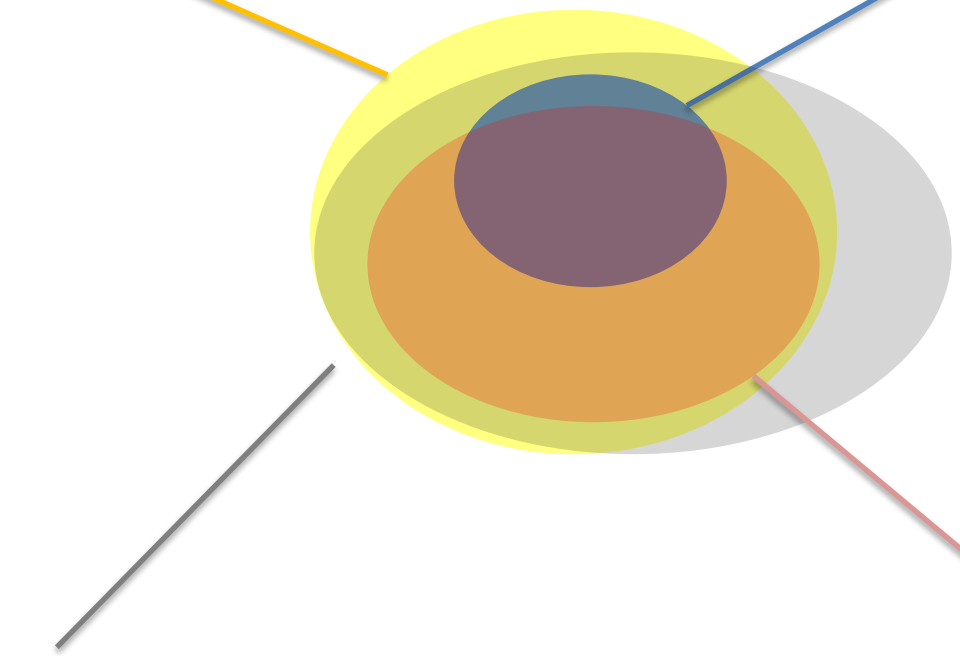
A Jungle of Words

Ancient
Continuously wooded since ~1600
Never converted to other land uses

Old-growth
Late stage of stand development (old trees, deadwood…)



Natural
Naturally regenerated (self-sown)

Primary
'never' logged, developed under natural disturbances and processes

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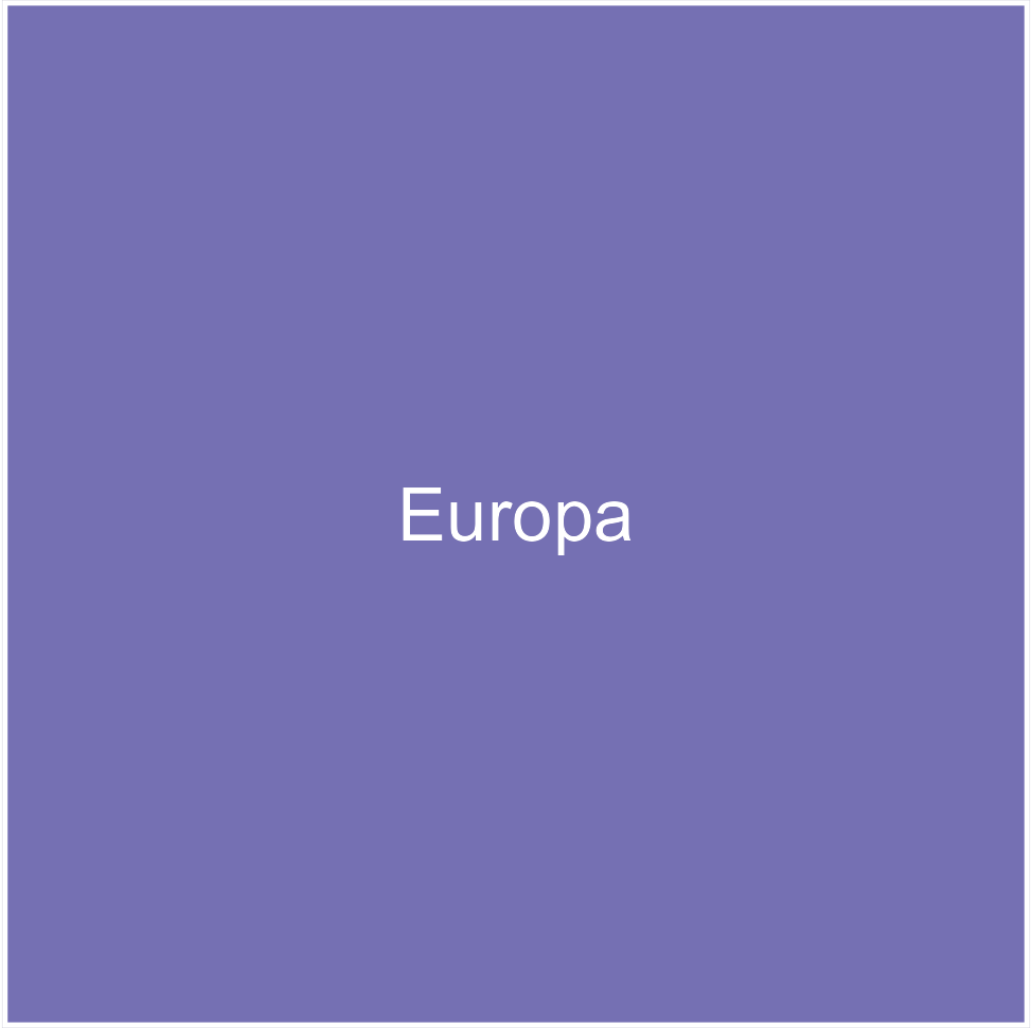
Primary and old-growth forest in Europe: in perspective

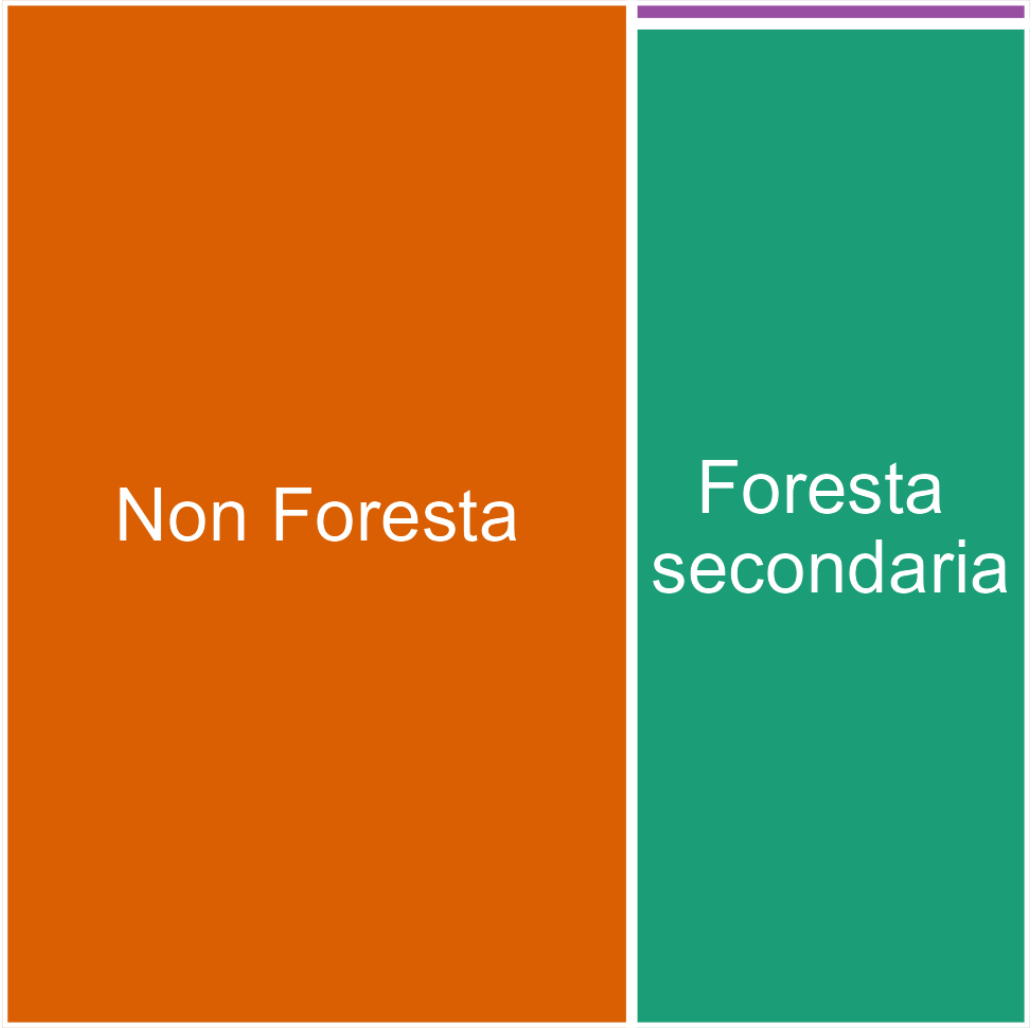


Total Surface
4,103,987 Km^2
(EU29-1)
Source: EUROSTAT

Primary and old-growth forest in Europe: in perspective

Forested area
1,590,000 Km^2
39% of total surface
Source: EUROSTAT 2020

Primary and old-growth forest in Europe: in perspective



Primary forest (Estimated)
36,550 Km^2
2,4% of forested area
0,9% of Europe's surface
Source: Forest Europe 2020*

*Forest Undisturbed by man

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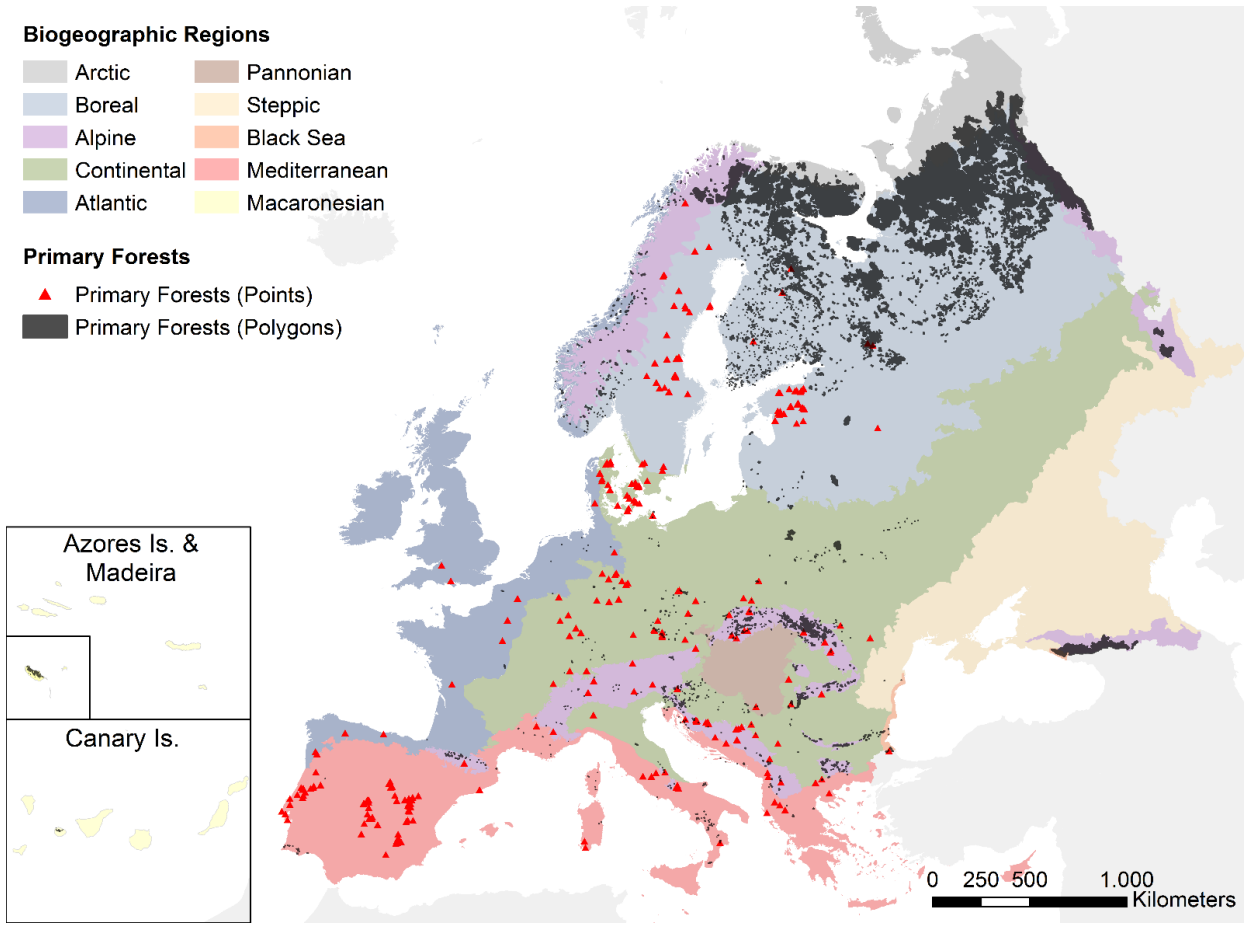
European Primary Forest Database (EPFD) v2.0



Hendrik Bluhm

Zoltán Kun

Tobias Kuemmerle

- 48 datasets
- 18,411 polygons + 299 points
- 41.1 Mha across 33 countries (but larger polygons also include land not covered by trees)
- 1.35 Mha in EU 28

dataset open-access
doi.org/10.6084/m9.figshare.13194095.v1

Sabatini et al. 2020 Sci. Data

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 658876

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European Primary Forest Database (EPFD) v2.0

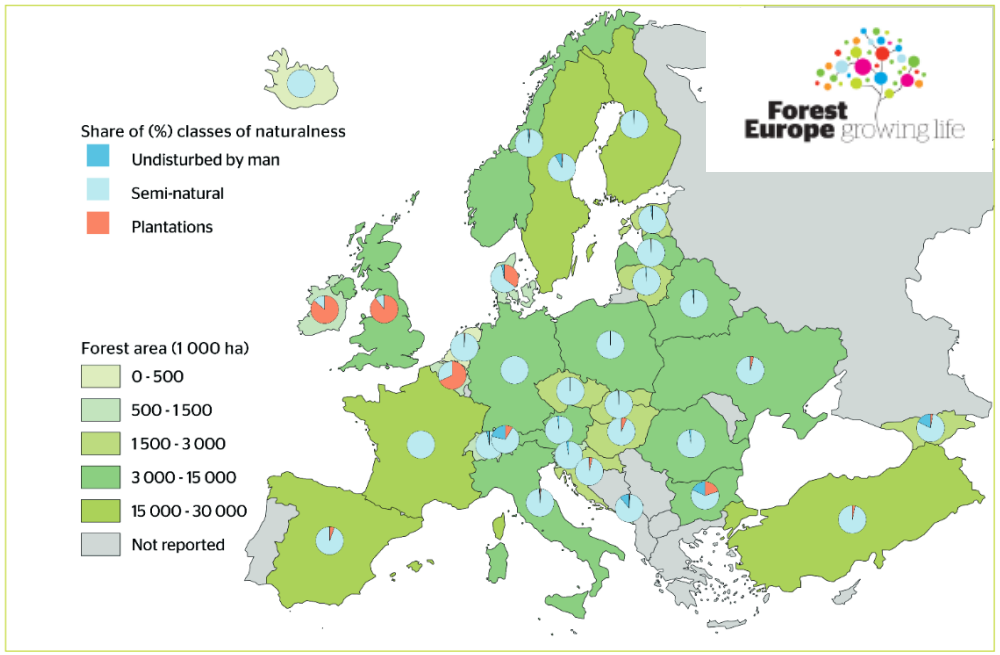
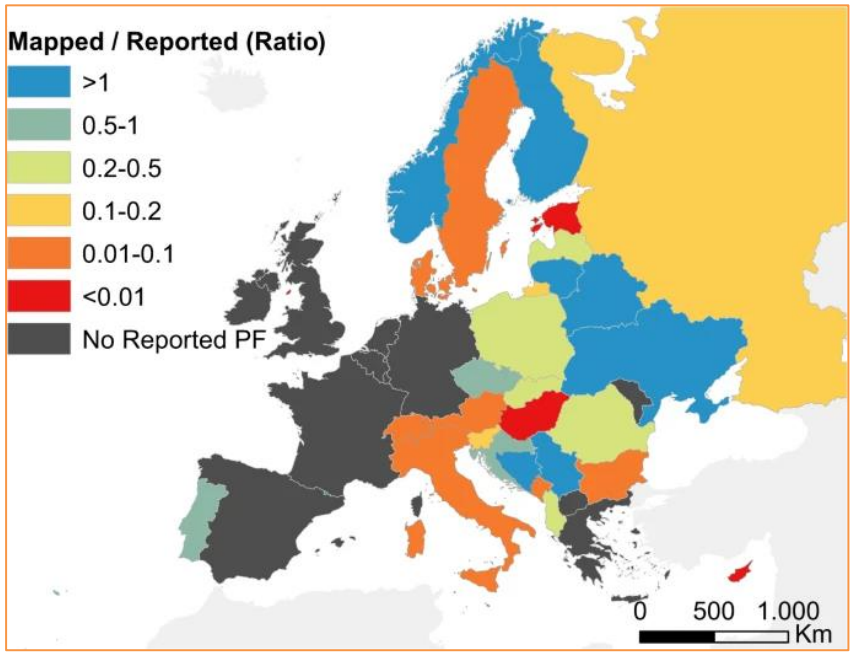


Figure 4.3-1: Forest area by classes of naturalness, by country, 2020

Note: Based on available data.



In most EU countries the share of mapped primary and old-growth forest is much lower compared to what reported in the latest Forest Europe report

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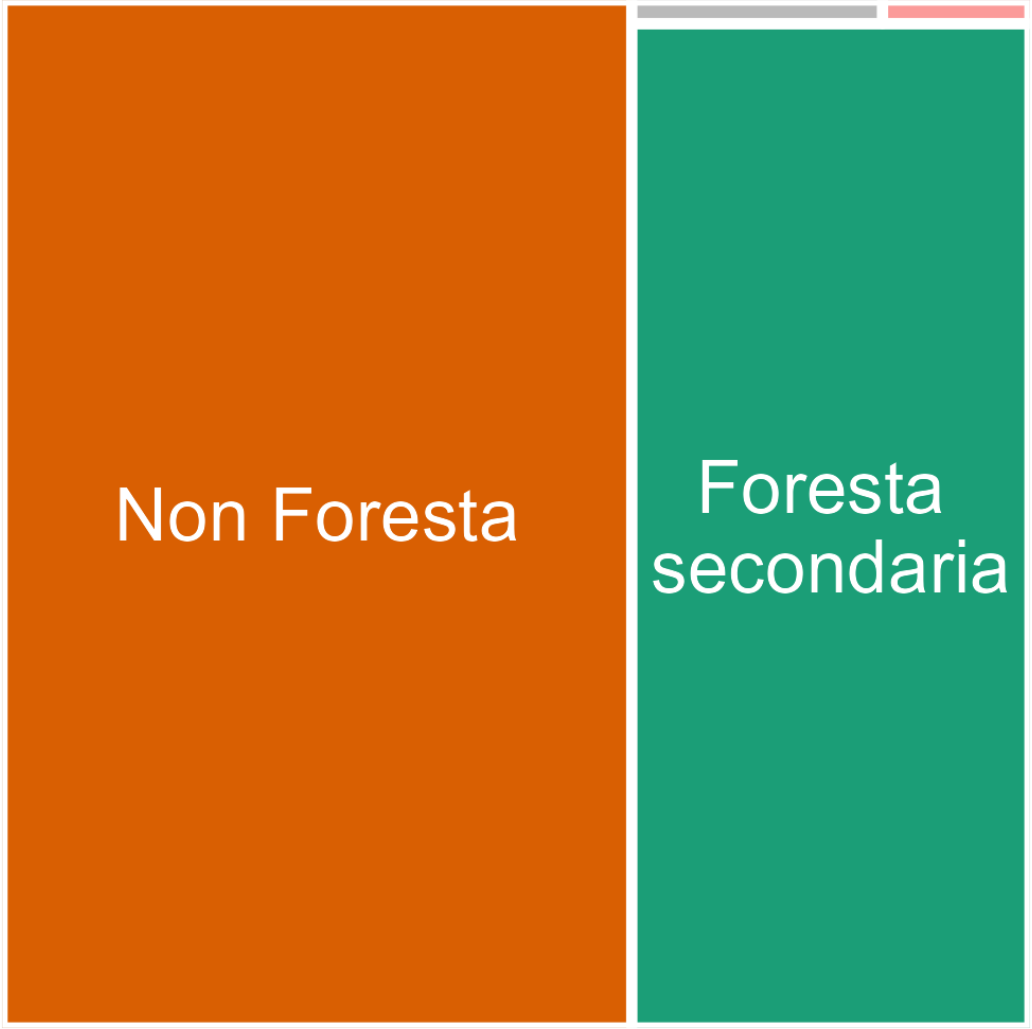
Primary and old-growth forest in Europe: in perspective



Two thirds of European primary forests haven't been map, and if they were this data isn't generally available

Primary forest currently mapped:
13,500 Km^2
37% of estimated primary forest
Fonte: JRC / Sabatini et al. 2020

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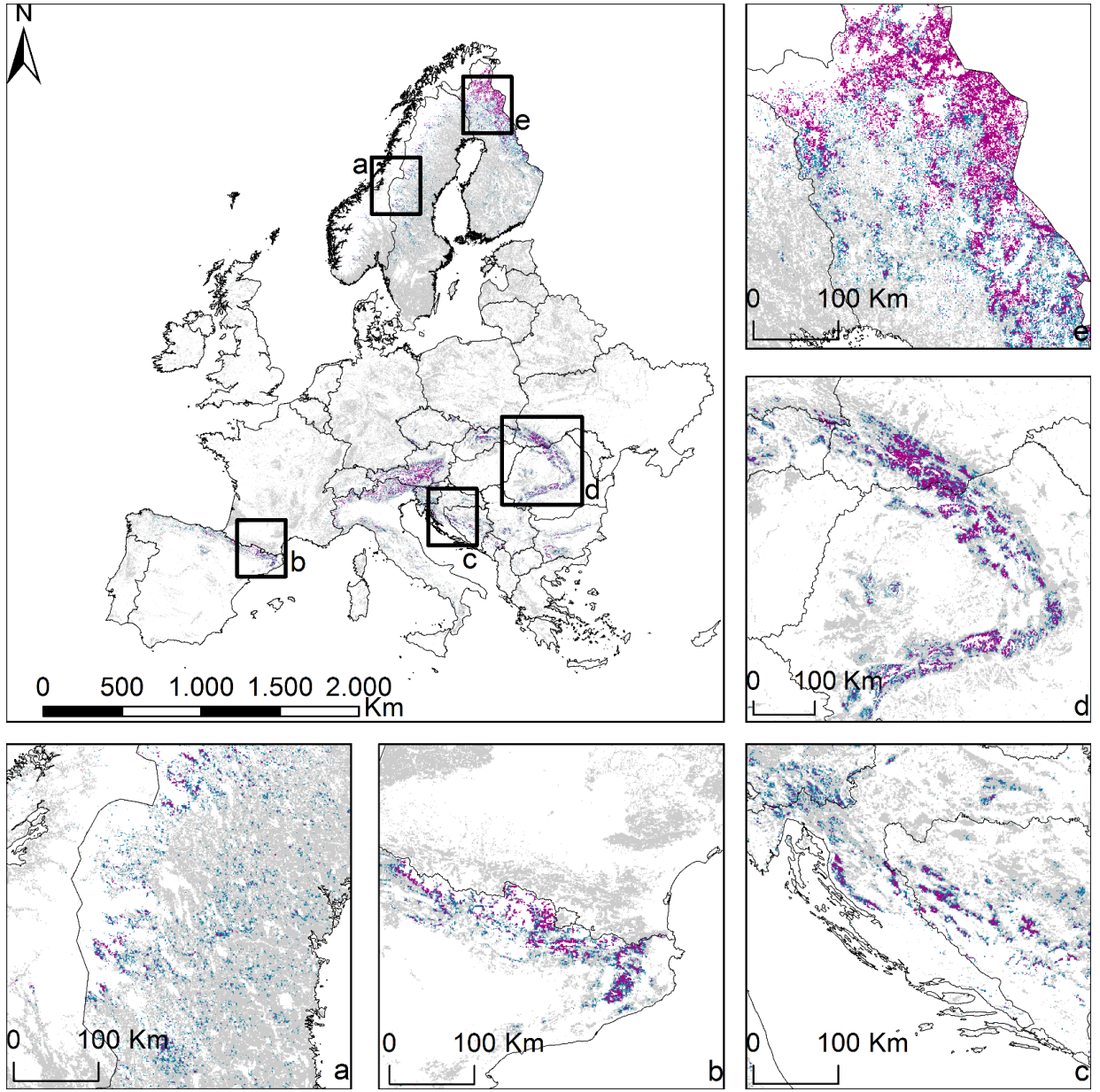
Model of primary forest distribution

Areas with the highest likelihood of hosting primary forest



95th percentile
90th percentile
Forest mask

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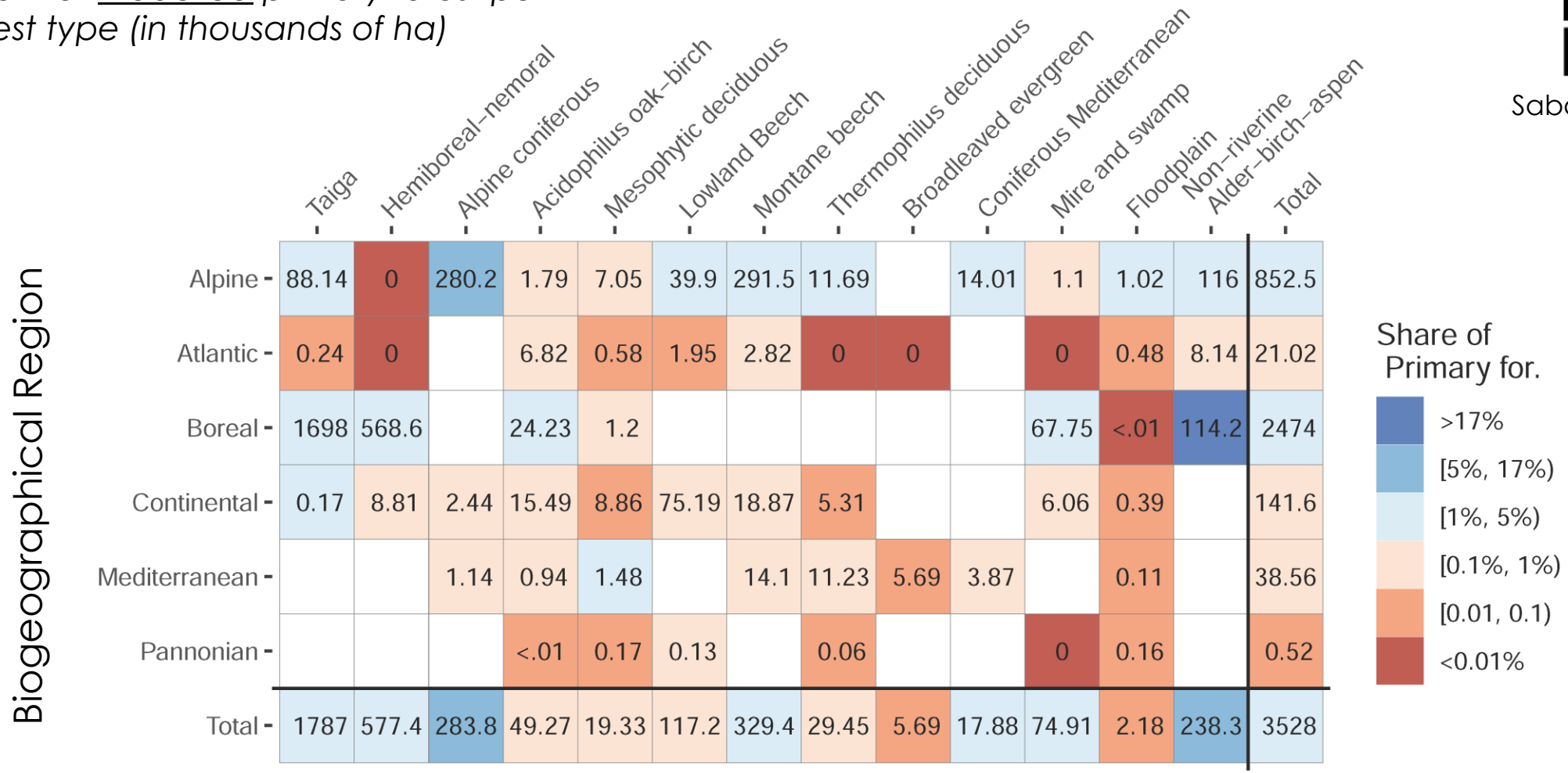
Conservation of primary forests in Europe

Extent of <u>modelled</u> primary forest per forest type (in thousands of ha)

Sabatini et al. 2020 DDI



- 70% of all forest types (39/53) have less than 1% of primary forest – **Restoration gaps**

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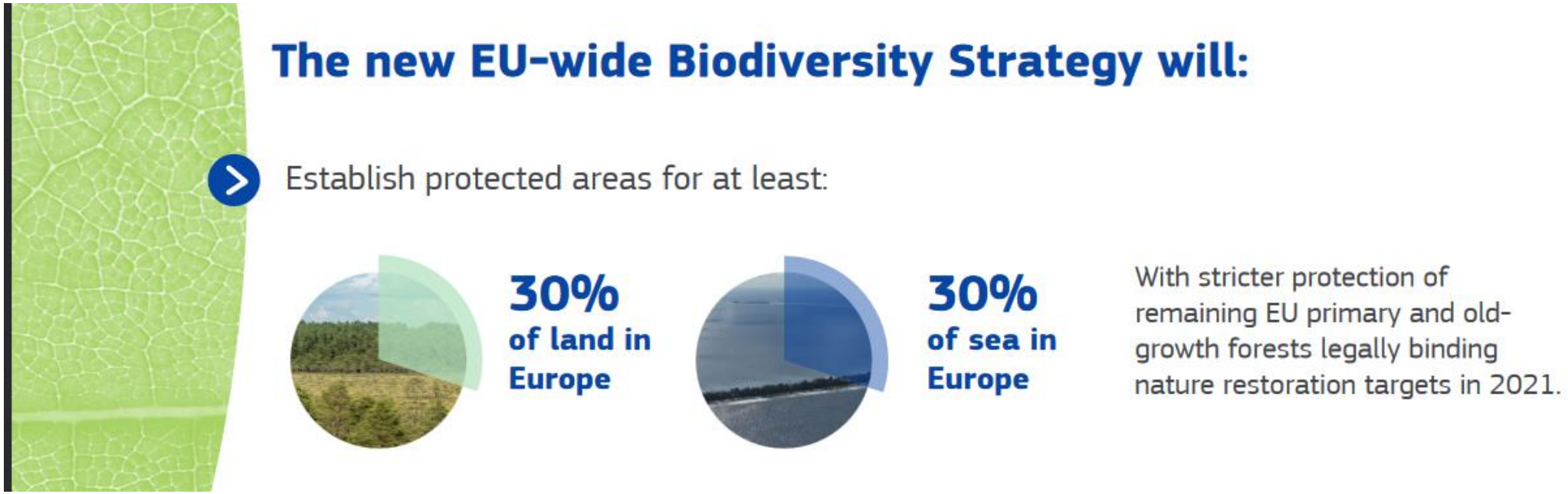
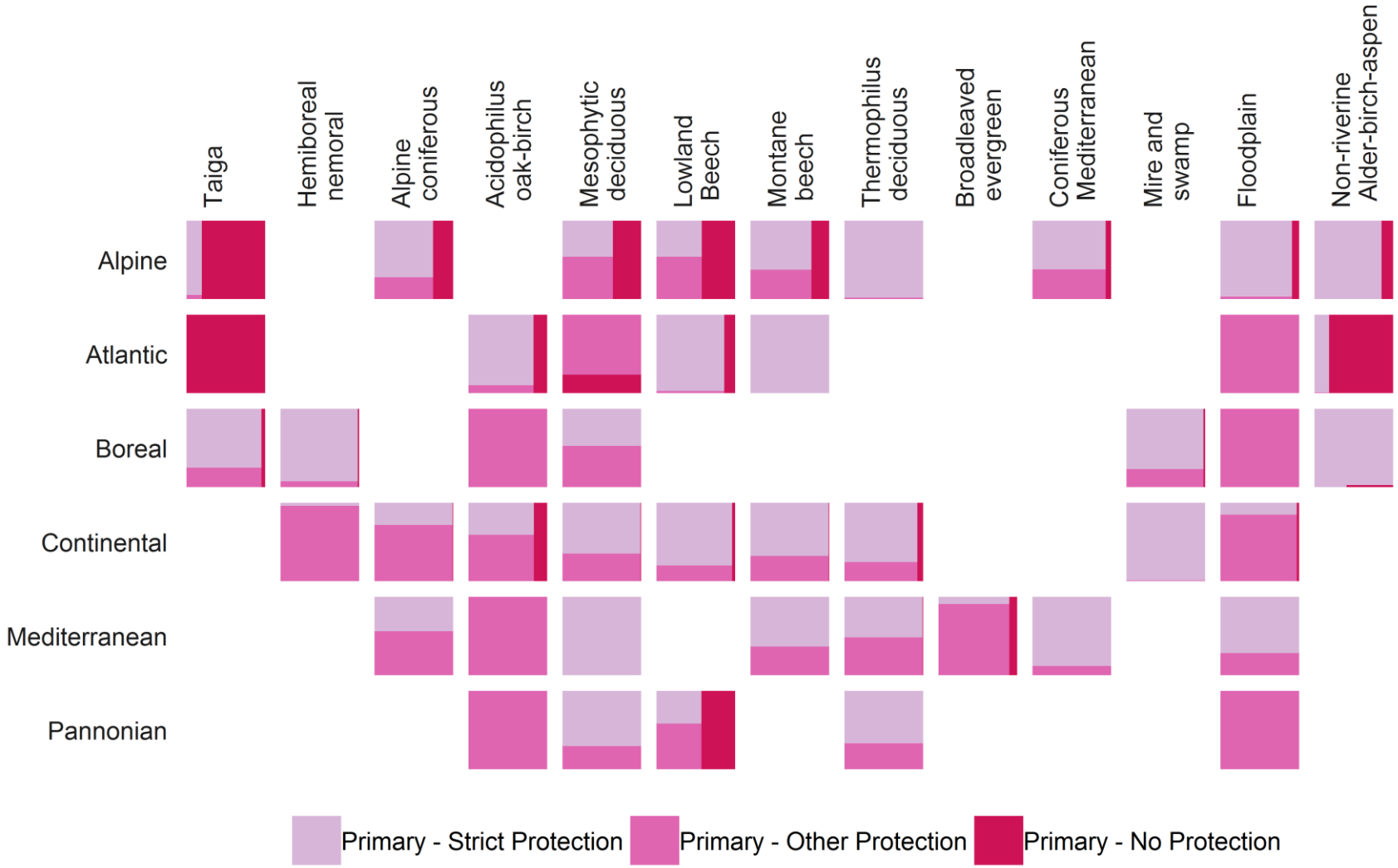
Conservation of primary forests in Europe



With stricter protection of remaining EU primary and old-growth forests

Conservation of primary forests in Europe

Share of primary forest under different levels of protection



Sabatini et al. 2020 DDI

Protecting all primary and old-growth forest would require 19,194 km^2 of additional protected areas (0.33% of land area)

Ensuring these are under **strict protection** requires upgrading the protection status of 5,588 Km^2 of existing protected areas (0.1% of land area)

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Commission guidelines for defining, mapping, monitoring and stricty protecting EU Primary and Old-Growth Forests

EUROPEAN
COMMISSION

Brussels, 20.3.2023
SWD(2023) 62 final

COMMISSION STAFF WORKING DOCUMENT

Commission Guidelines for Defining, Mapping, Monitoring and Strictly Protecting EU Primary and Old-Growth Forests

https://ec.europa.eu/transparency/documents-register/detail?ref=SWD(2023)62&lang=en

8. INDICATIVE TIMETABLE FOR IMPLEMENTATION

Step	Latest date
Member States to submit their pledges to the Commission on protected areas (under NADEG), including on strict protection. In line with the precautionary principle, Member States should without delay strictly protect those forest areas for which there is a strong probability, on the basis of the currently available information, that they meet definitions and criteria set out in this document.	Beginning 2023
Develop an identification and mapping methodology.	End 2023
Finalise the mapping of public primary and old-growth forests.	Mid 2025
Finalise the mapping of private primary and old-growth forests.	End 2025
Strictly protect identified and mapped primary and old-growth forests.	End 2029

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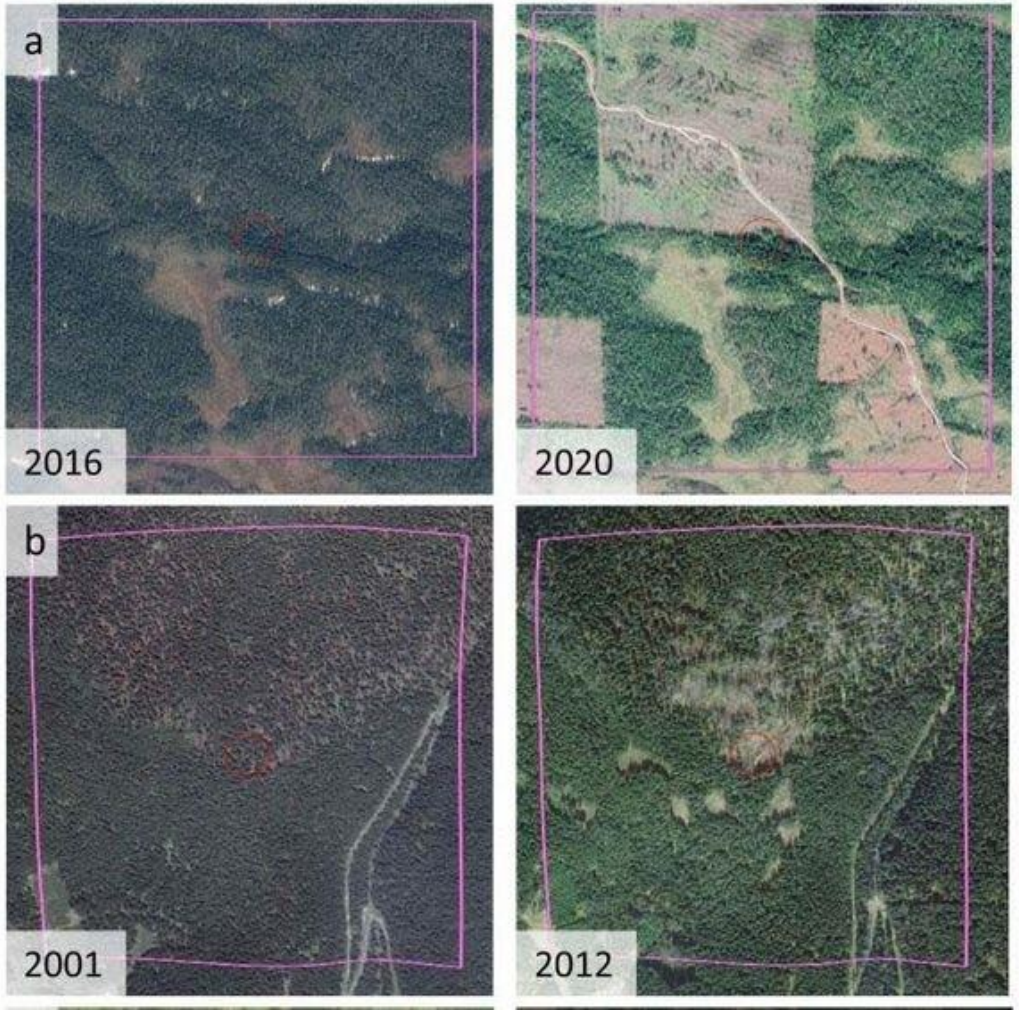
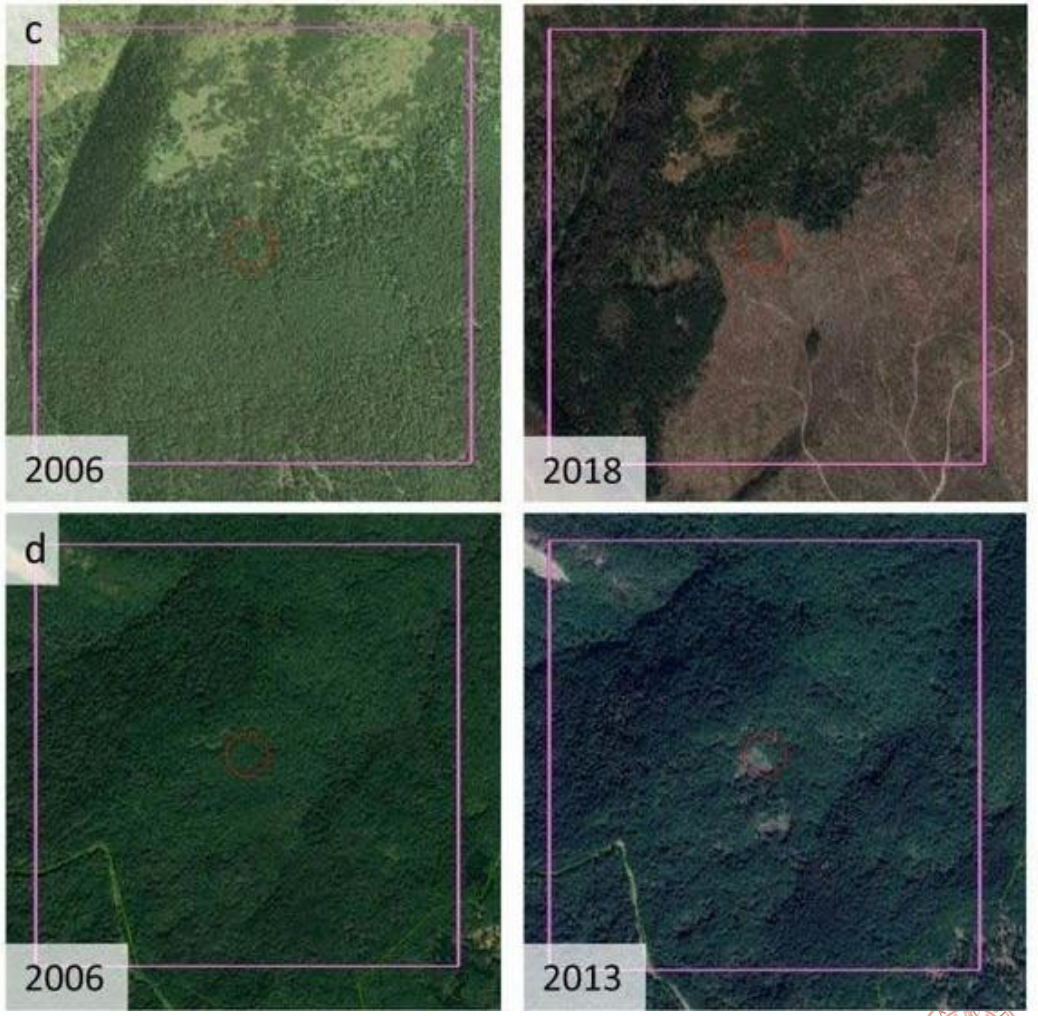
Threats

Examples of disturbed polygons





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Google Earth

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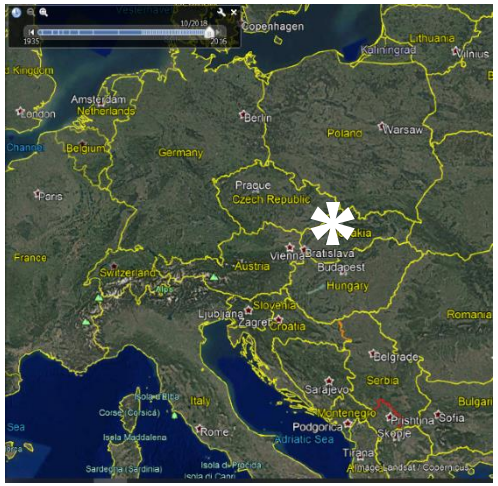
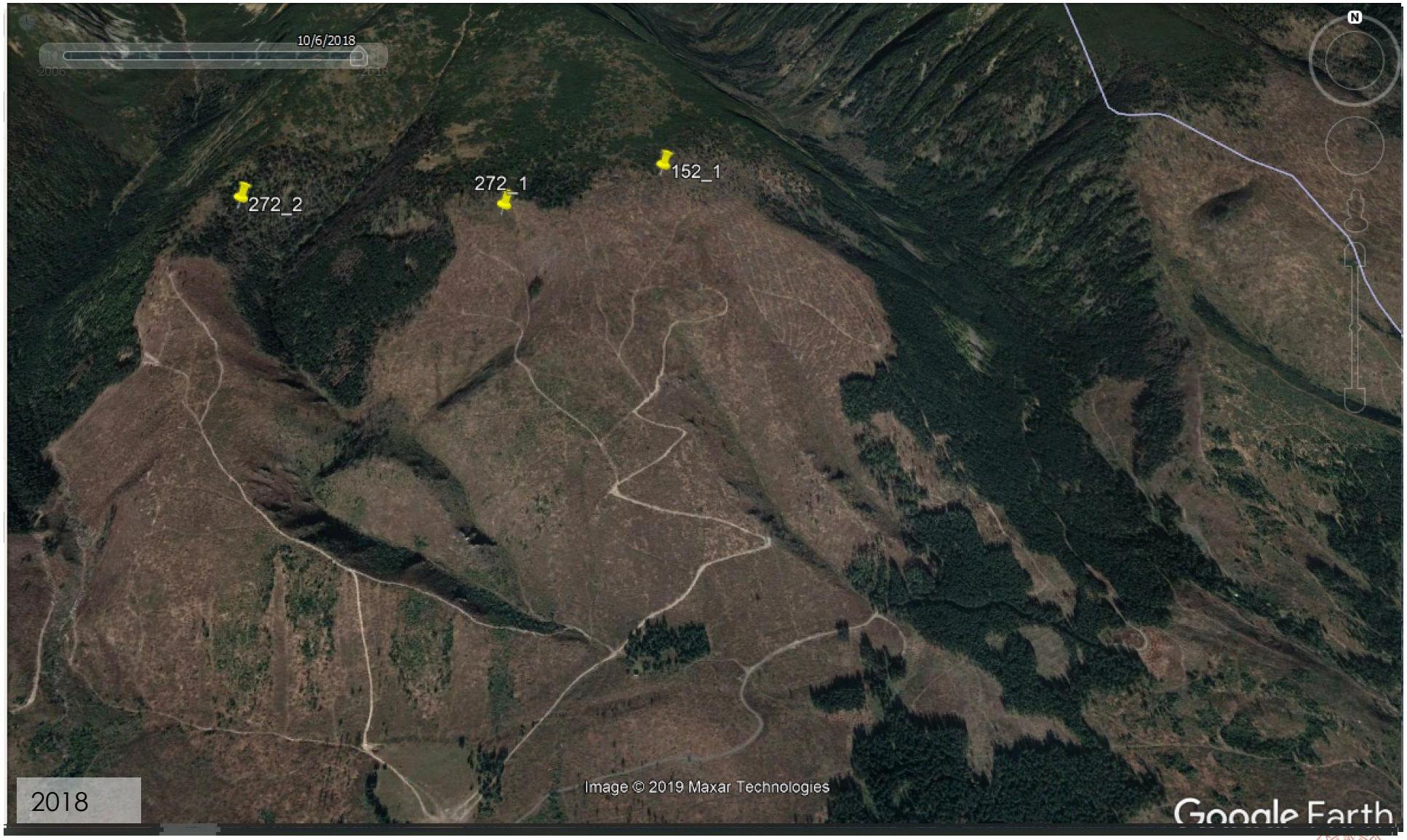
Threats





Bystrá Mt

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Threats

Calimani National Park © Agent Green / Andrei Ciurcanu

b

Salvage logging in Low Tatra National Park. Mikoláš et al. 2019. For Ecol Man.

Fagaras Mts. Photo: Martin Mikoláš

Protests agains logging in Białowieża. Photo AFP

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Protect old-growth forests in Europe now

Europe's old-growth forests, such this one in Romania's Fagaras Mountains, lack sufficient protection.

Edited by **Jennifer Sills**

Protect old-growth forests in Europe now

Old-growth forests harbor high and unique biodiversity, store vast amounts of carbon, are important for water and nutrient cycling, and constitute a unique element of natural heritage (*1*). In the European Union, old-growth forest protection is now mandated by the EU Biodiversity Strategy for 2030. However, almost 3 years after the strategy's adoption, stakeholders and policymakers are still discussing definitions and legislative mechanisms, while old-growth forests continue to decline at alarming rates (*2*–*4*).

Many old-growth forests are logged before their identification and protection. In Sweden, for example, unprotected boreal old-growth forests have been cut at a rate that could lead to their disappearance within the next 50 years (*2*). Similarly, Romania harbors up to 738,000 ha of potential old-growth forest, but more than 90% of this area lacks strict protection (*5*). In Romania and elsewhere in Eastern Europe, logging continues across some of the continent's few remaining large landscapes dominated by temperate old-growth forests (*4*). Even protected old-growth forests are often salvage logged after natural disturbances (*6*).

In March, the European Commission suggested guidelines to map and protect old-growth forests by the end of 2029 (*7*). However, these guidelines are neither binding nor prescriptive. Given current widespread logging of old-growth stands, the EU is on track to fail its 2030 goals.

Pressure on Europe's biomass-rich old-growth forests is high and rising. Timber prices have increased (*8*). Compensation would encourage forest owners to adopt strict protection, but there are insufficient resources and tools to provide financial incentives (*9*). Because landowners anticipate that forest protection will increase in the future, and forest monitoring is sparse, they are motivated to log as much as possible before regulation tightens.

To improve protection, the EU should immediately implement a logging moratorium on areas potentially harboring old-growth forests, make resources available to detect old-growth forests, require member states to include old-growth protection in their national strategies, and provide equitable financial tools to ensure their effective protection (*10*). Exemptions from strict conservation could be considered only for stands managed by well-documented practices that support biodiversity. Without bold and swift action, Europe risks irreparable loss to its natural heritage.

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10.1126/science.adh2303

1) **Complete the inventory** of old-growth and primary forest

2) Once we know where it is, **protect it**!

3) Enforce a **temporary moratorium on logging** in those areas predicted to host old-growth forests until ground truthing

Mikolas et al. 2023 - Science

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