

#EUSpace 

EU SPACE WEEK 2023

7 - 9 November - Sevilla, Spain

Beyond Boundaries: Satellite Imagery and Its Role in Global Biodiversity Monitoring and Conservation

Mike Harfoot, Elena Palao, Ane Lizariturry

vizzuality.



European
Commission



UE23
PRESIDENCIA ESPAÑOLA
CONSEJO DE LA UNIÓN EUROPEA

We are vizzuality.



Our purpose.

To reach a **fair and sustainable planet** by creating tools that radically empower people to make positive changes **now**.



Our purpose.

Informed **by science.**

Inspired **by nature.**

Delivered **with impact.**

We empower people with **data, insights**
and **compassionate communication**
that's tailored to their needs.

We use data and human
understanding to develop the
products, services and strategies of
the future.

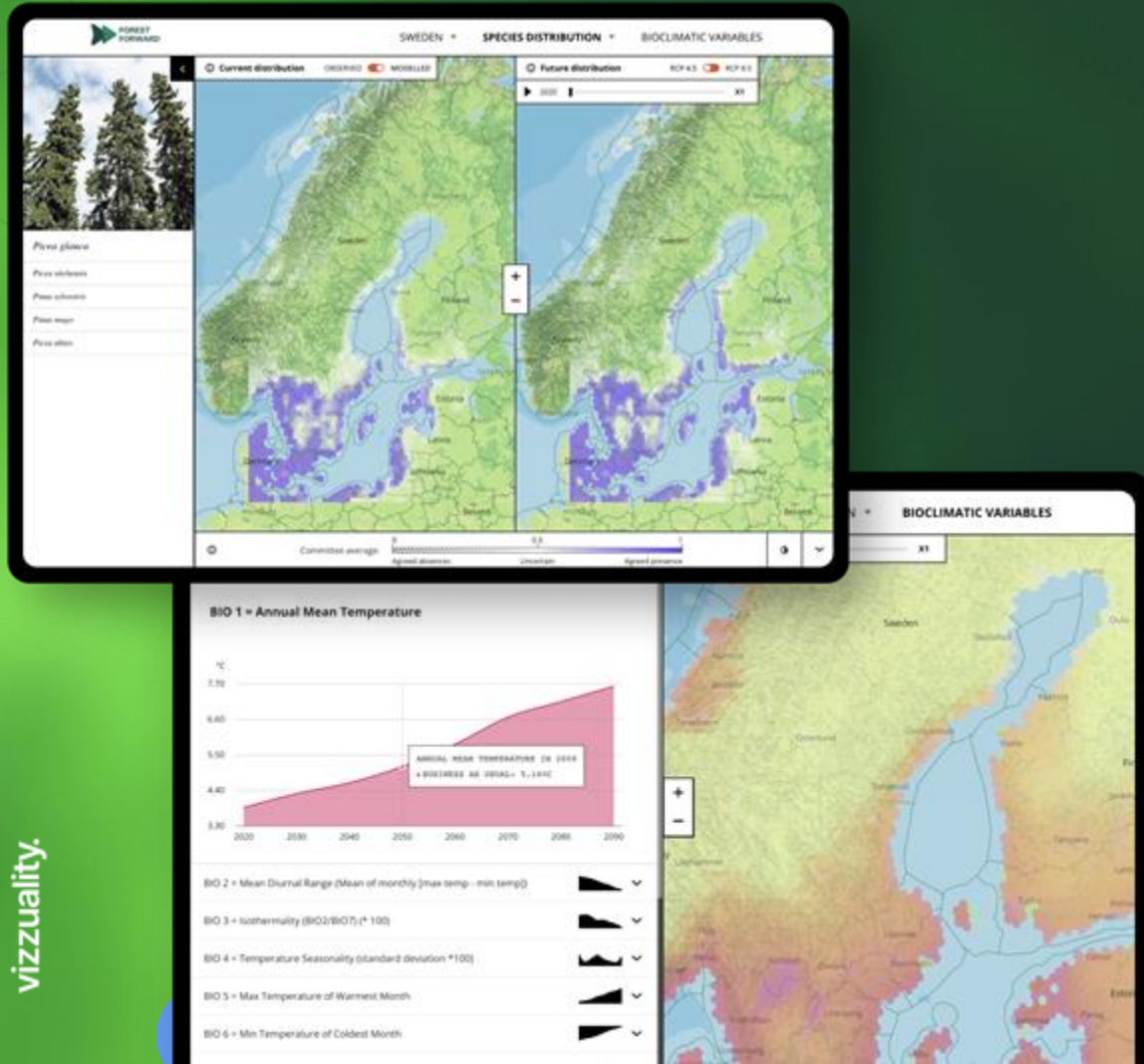


Experience



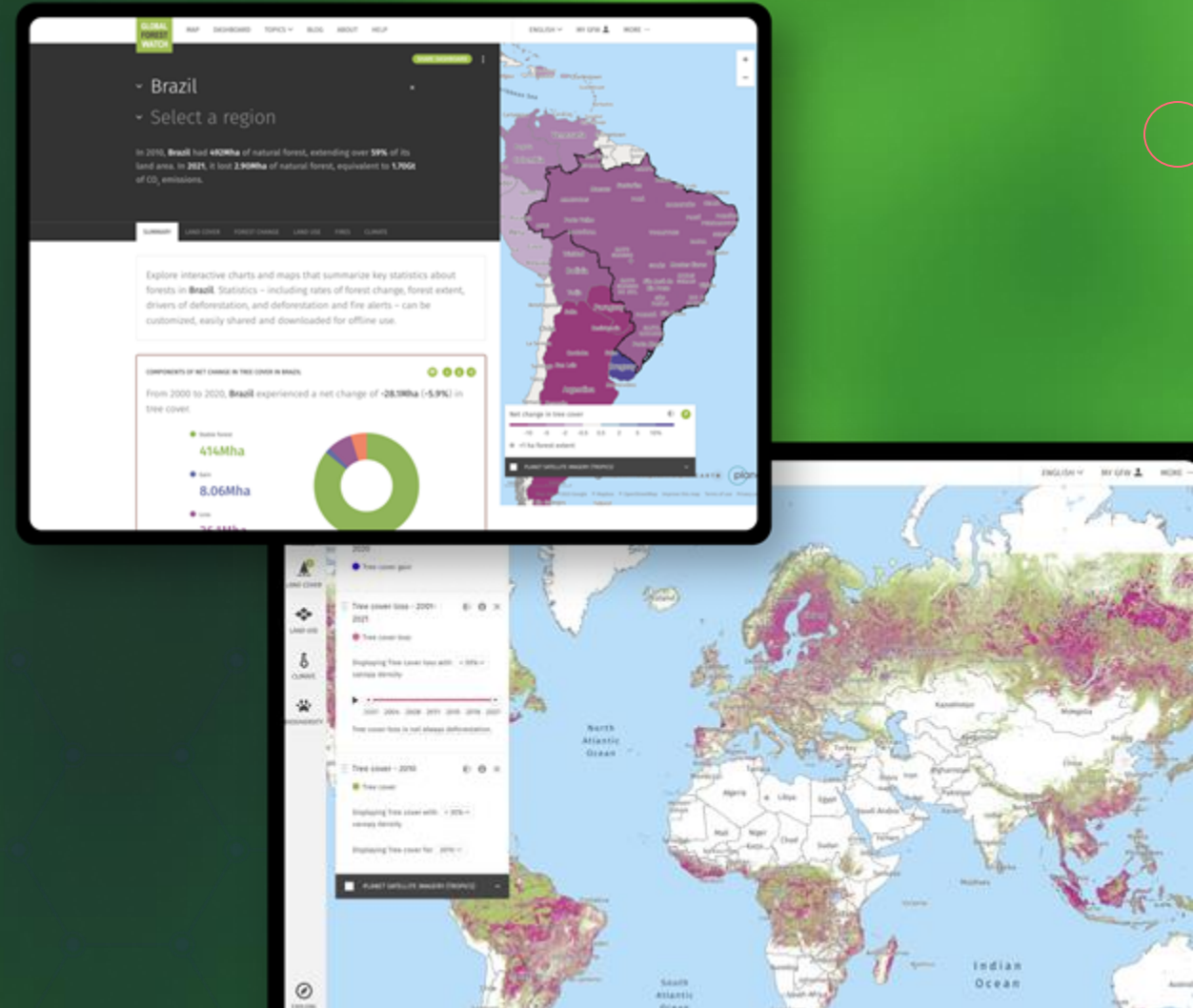
Restoration.

Forest Forward.



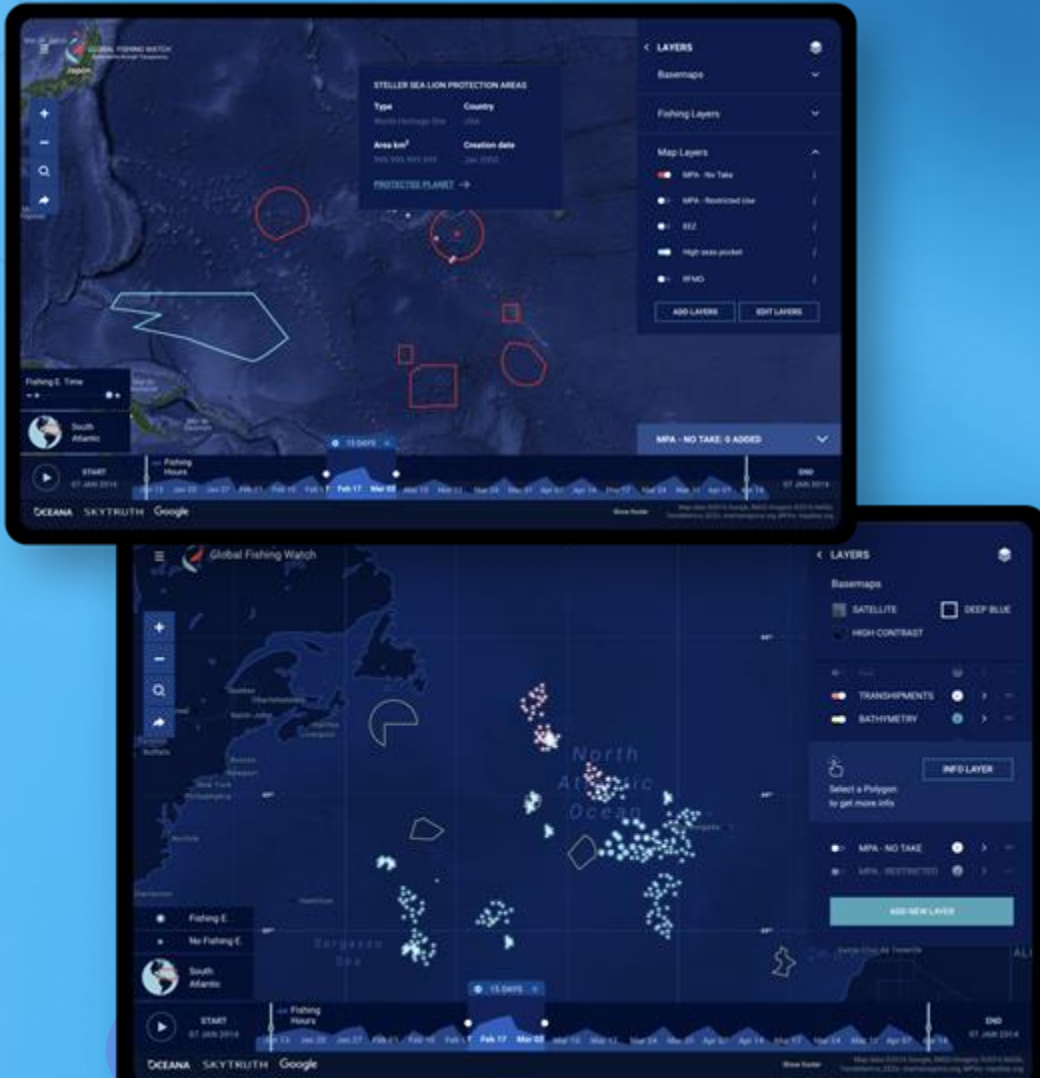
Deforestation.

Global Forest Watch.



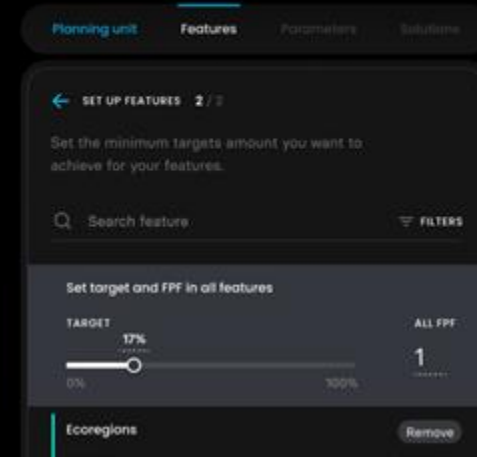
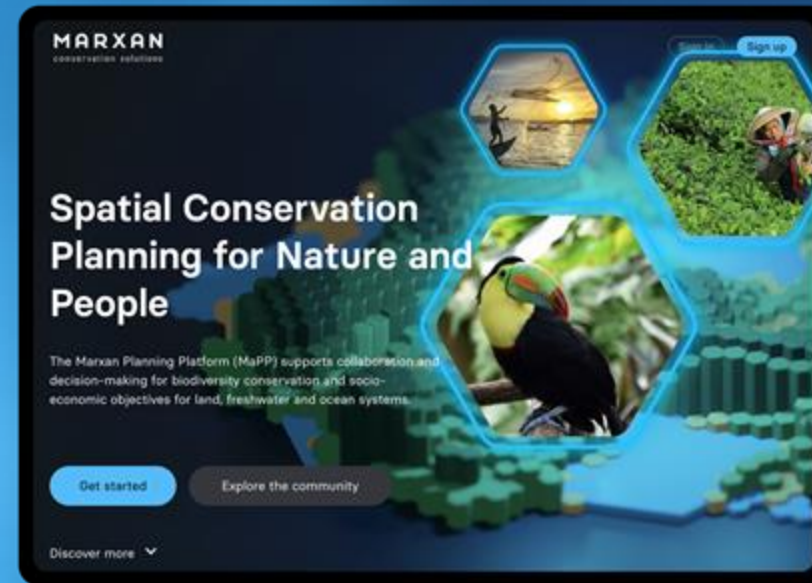
Sea monitoring.

Global Fishing Watch.



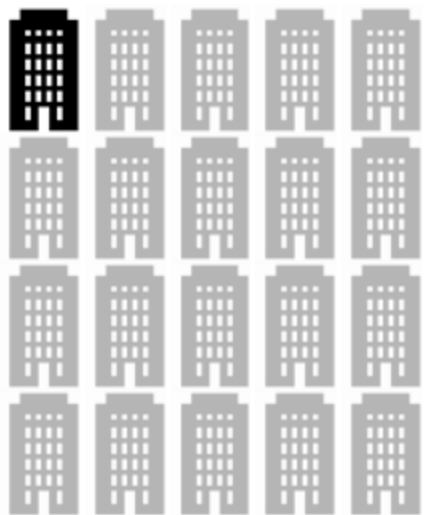
Conservation planning.

Marxan.

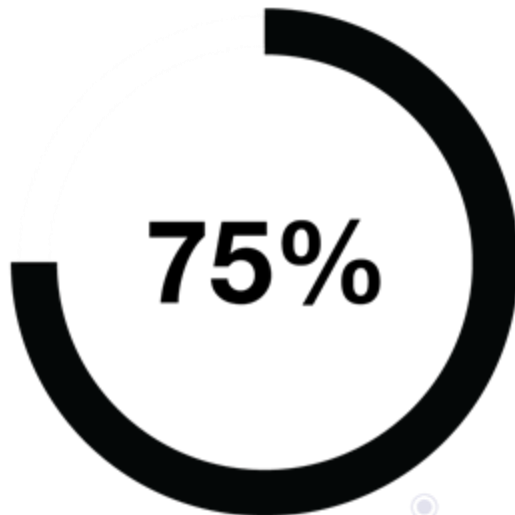


We need a brave-new biodiversity data world.

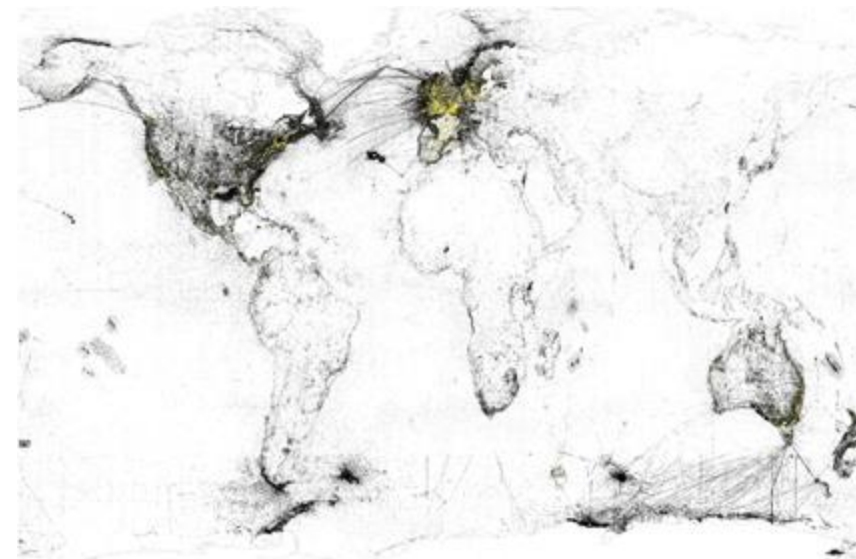
The need.



Companies with biodiversity targets
(85% for climate targets)



GBF Headline indicators
unavailable



Below potential data use

We need action.

Why now?



6 years

to halt & reverse biodiversity loss

75% of headline GBF indicators are **unavailable**



Convention on Biological Diversity



EU Corporate Sustainability Reporting Standards



SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE



Taskforce on Nature-related Financial Disclosures



Regulatory and voluntary frameworks coming into effect

Proprietary data-products are expanding

“Make more,
better data
available to more
people”.



T21 - radically different.

Catalysing **partnerships**.

Accelerating **and inspiring**.

Embracing **technology**.

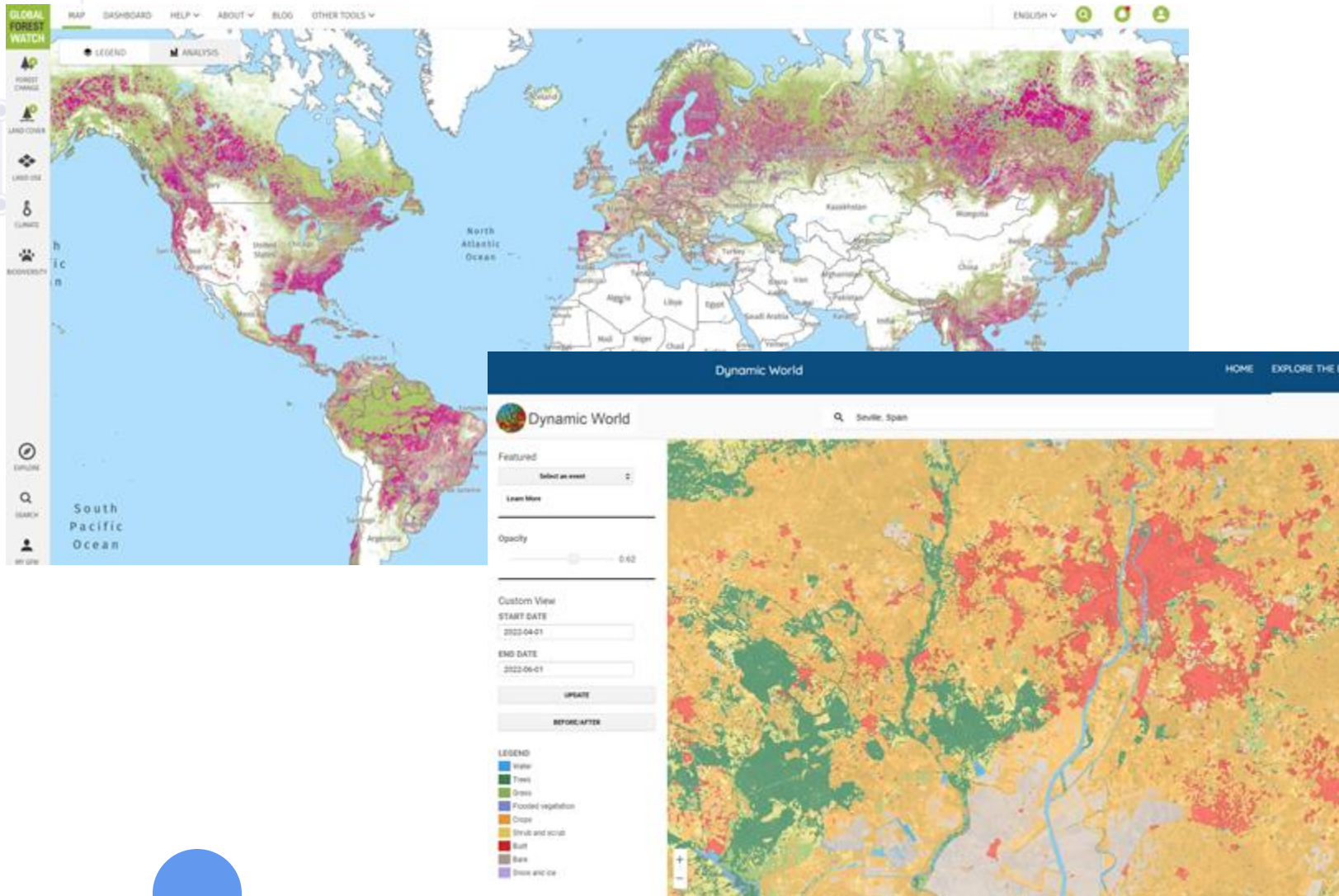
Existing **only whilst needed.**

We partner the best scientists and engineers and we move fast to build best-available, **impactful and open data-products** and to inspire change

We use emerging technologies (such as AI) to scale-up methodologies, unlock data and facilitate knowledge access and use. **We exist only as long as we are needed.**



Satellite imagery for biodiversity

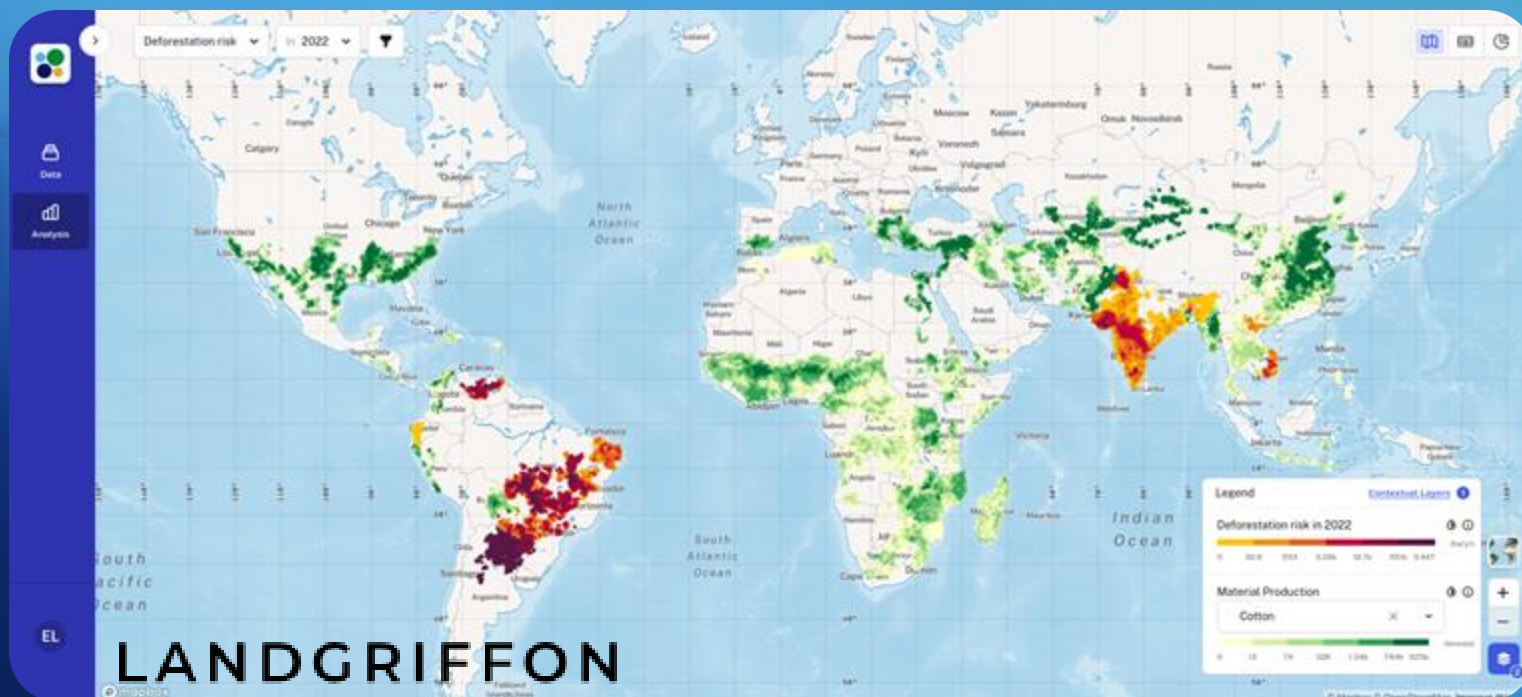


Drivers of biodiversity patterns/change:

- physical characteristics
- land cover
- human footprint

Supply chain mapping.

Enhance transparency in agricultural supply chains.

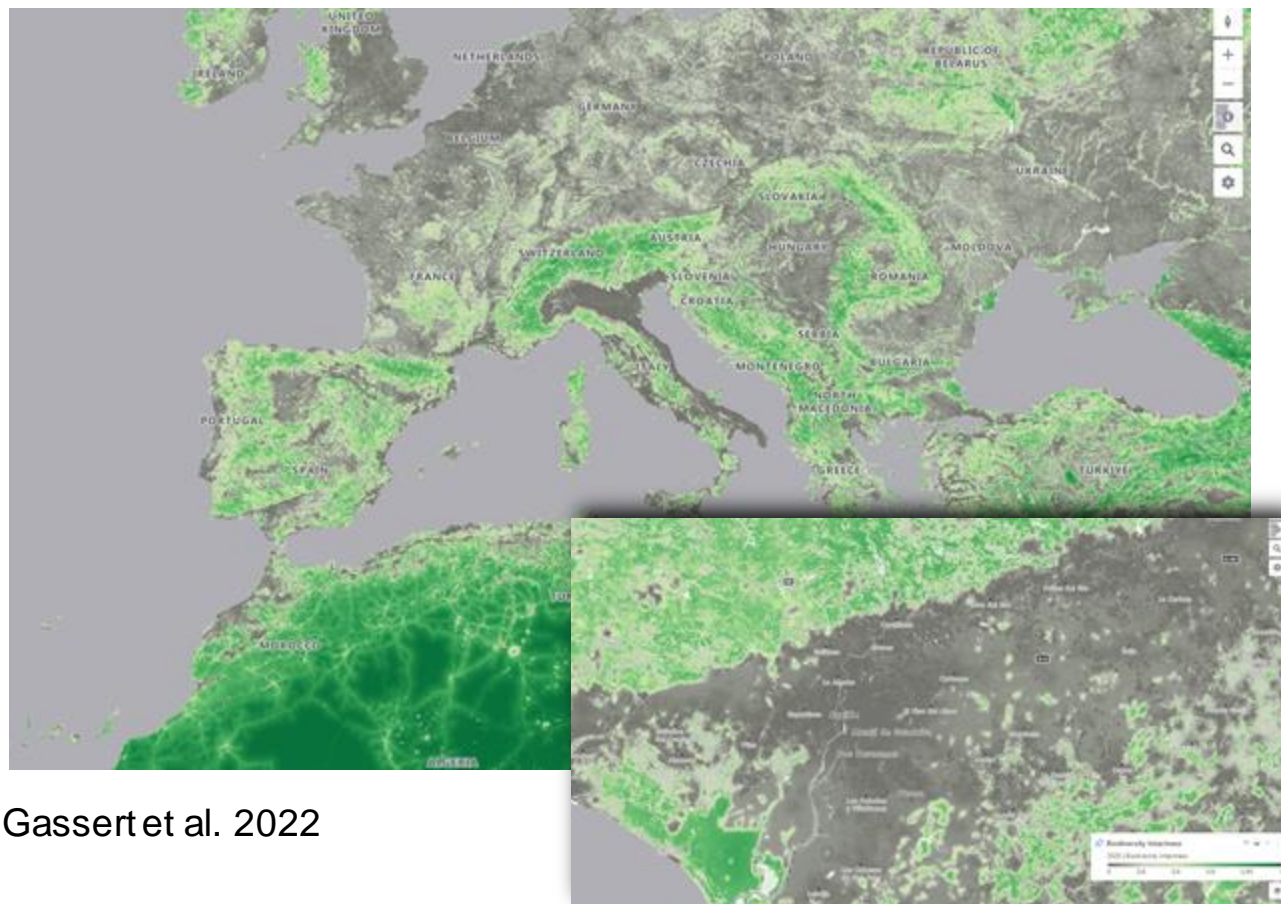


Satellite imagery is used in Landgriffon to determine:

- deforestation risk
- climate risk
- natural ecosystems conversion risk
- Biodiversity value of ecosystem conversion

within commodity supply chains.

Dynamic biodiversity intactness.



Gassert et al. 2022

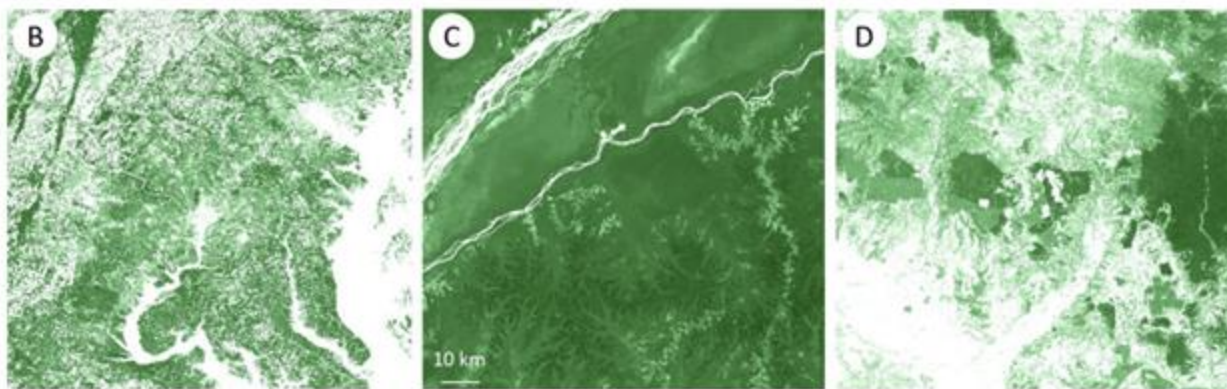
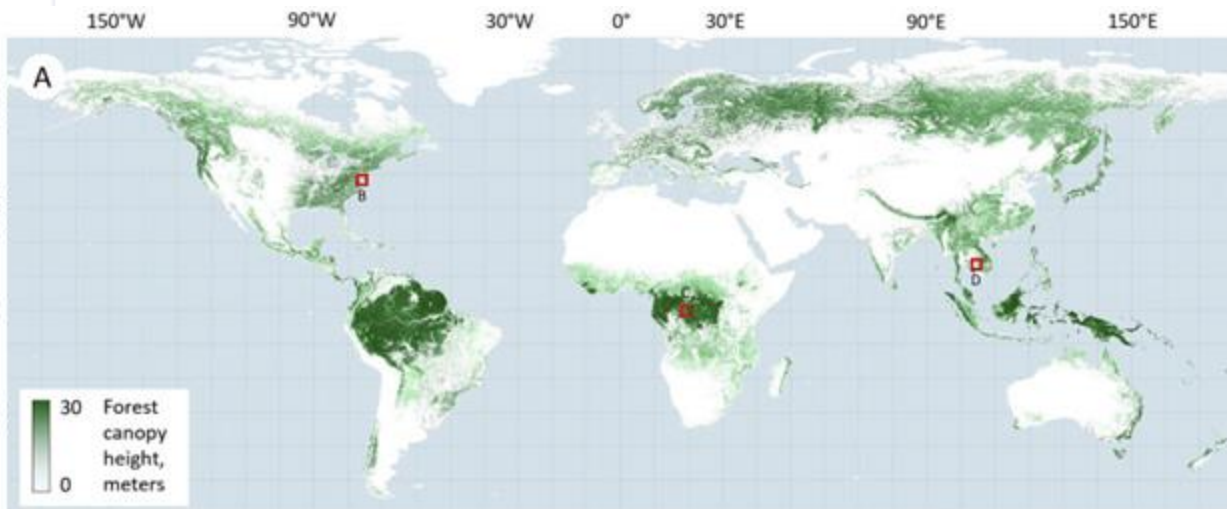
100 m resolution, combining:

- Biodiversity responses to land use (PREDICTS)
- Sentinel-2 derived land cover (Impact Observatory)

Microsoft Planetary
Computer

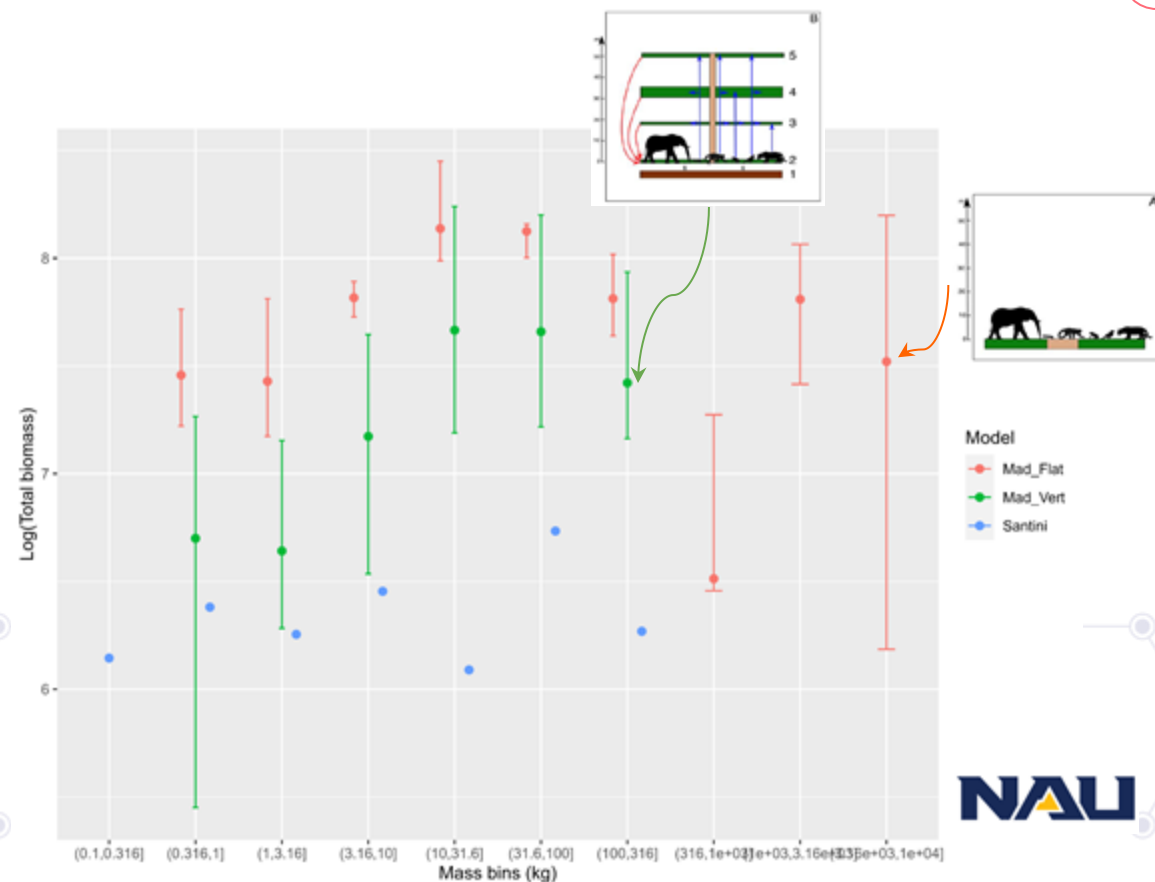


Ecosystem structure



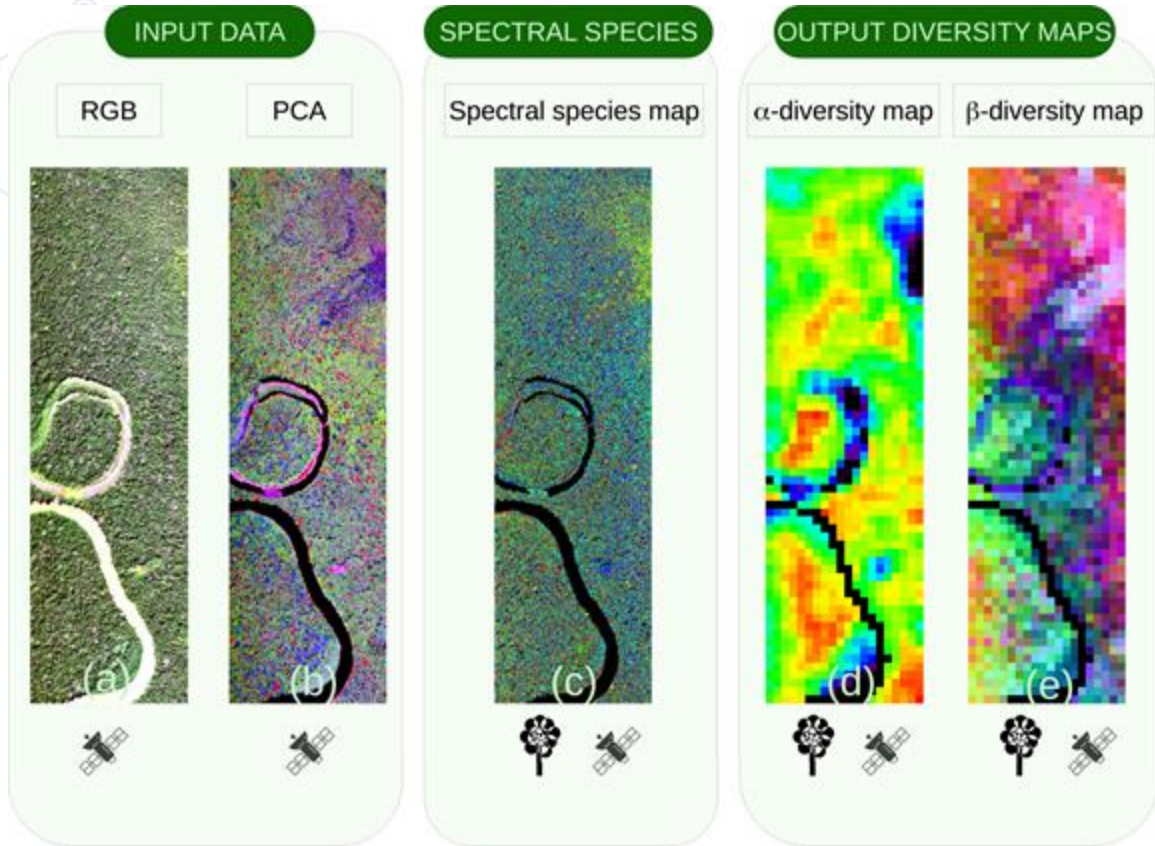
GEDI relative vegetation height
Potapov et al. 2021, *Rem. Sens. of Environment*

Active sensors (Lidar, Radar) provide information on ecosystem physical structure



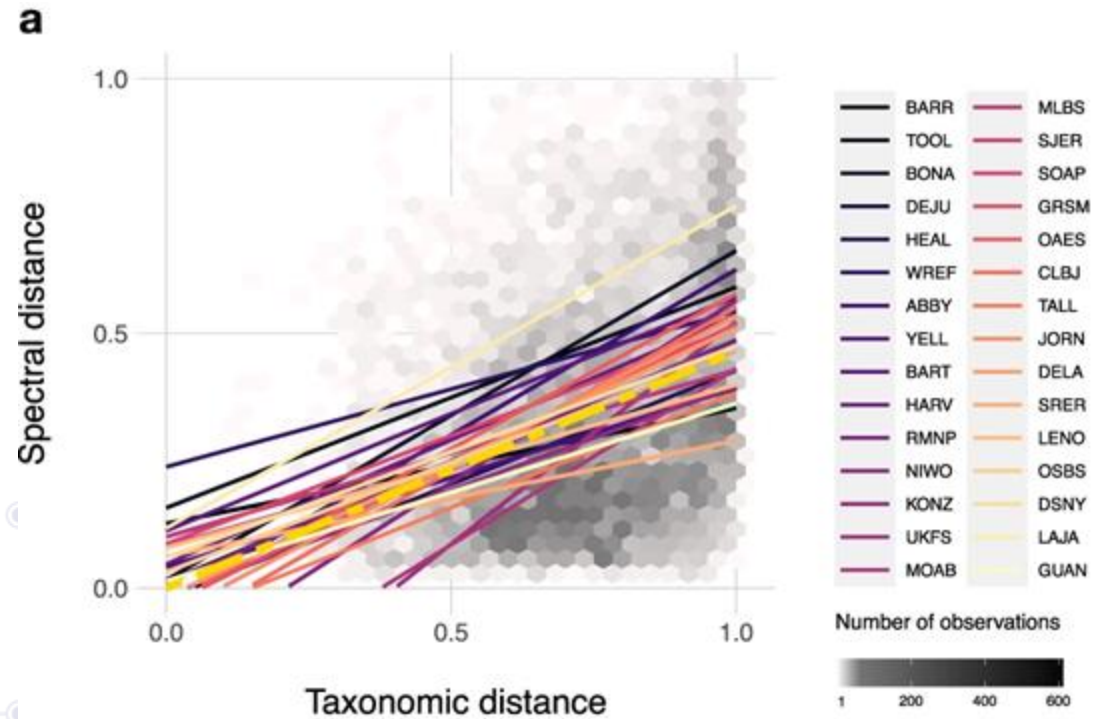
Imaging spectroscopy.

Towards near-real time vegetation diversity.



Rochinni et al. 2022 *JGR Biogeosci.*

Spectral distance relates to taxonomic distance across space



Schweiger & Laliberte 2022 *Nature Comms.*



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