EO, EBVs and Indicators to Facilitate Reporting and progress on International Biodiversity Targets

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February 2025

Kunming - Montreal

GLOBAL BIODIVERSITY FRAMEWORK

- The Convention on Biological Diversity is the main legal instrument guiding biodiversity governance globally.
- Countries that have signed the convention are committed to translating its goals into national policies and actions.
- Implementation of the convention happens at the national level
- The EU and its Member States are Parties to the Convention
- A major milestone was the adoption of the Kunming-Montreal Global Biodiversity Framework and its monitoring framework.
- The Kunming-Montreal Global Biodiversity Framework provides a roadmap toward the 2050 Vision for Biodiversity, structured around four long-term goals and 23 action-oriented targets for 2030.
- Parties are in process of aligning their national biodiversity strategies and action plans (NBSAPs) with the Global Biodiversity Framework

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GLOBAL BIODIVERSITY FRAMEWORK

However, commitments alone are not enough, accountability and measurable progress are essential and therefore the adoption of the monitoring framework built around several different groups of indicators:

- **Headline indicators:** high-level, globally, regional and nationally relevant metrics that capture overall progress and are used for communication.
- **Global level indicators:** based on binary yes/no responses in national reports, measuring how many countries are implementing specific actions.
- **Component indicators:** optional indicators that track specific aspects of the goals and targets at multiple levels.
- **Complementary indicators:** for in-depth, thematic analysis of biodiversity trends.
- **National and subnational indicators:** tailored to individual countries' needs.

- EU BDS 2030: EU's response to the Kunming-Montreal Global Biodiversity Framework defining biodiversity targets for 2030 under the CBD.
- Central policy framework for biodiversity in the EU ensures coordination and alignment of biodiversity-related policies and legislation to achieve both EU and global biodiversity objectives.
- The overarching objective is to "put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet".
- To achieve this objective, the EU and its Member States committed to implementing a set of 104 actions and sub-actions, grouped under four pillars, alongside meeting 16 targets by 2030.

- Indicators for the KMGBF alongside the EU BDS 2030 set of actions and targets take a pragmatic approach to quantify, monitor a report on the status of biodiversity.
- Essential Biodiversity Variables (EBVs) framework: a standardized set of measurements that can help policymakers track biodiversity changes and prioritize interventions effectively.
- OBSGESSION: we are exploring how EBVs can support the implementation, reporting, and review of various policies. Our goal is monitor and predict biodiversity change in terrestrial and freshwater ecosystems by integrating cutting-edge Earth Observation (EO) data, in-situ monitoring (including citizen science) and next-generation ecological models.

WAGENINGEN UNIVERSITY & RESEARCH | UN environment programme WCMC | BROCKMANN CONSULT | LUNDS UNIVERSITET | UNIVERSITY OF TWENTE. | BROCKMANN GEOMATICS SWEDEN AB | Universität Zürich[UZH] | Suomen ympäristökeskus Finlands miljöcentral Finnish Environment Institute

1992

Convention on Biological Diversity

KM GBF CBD

esa

- Revised in 2022 (‘Kunming-Montreal’)
- Global Biodiversity Frameworks contain
  - Goals
  - Targets
  - **Indicators**
  - **Monitoring** requirements

Genes from Space

2022

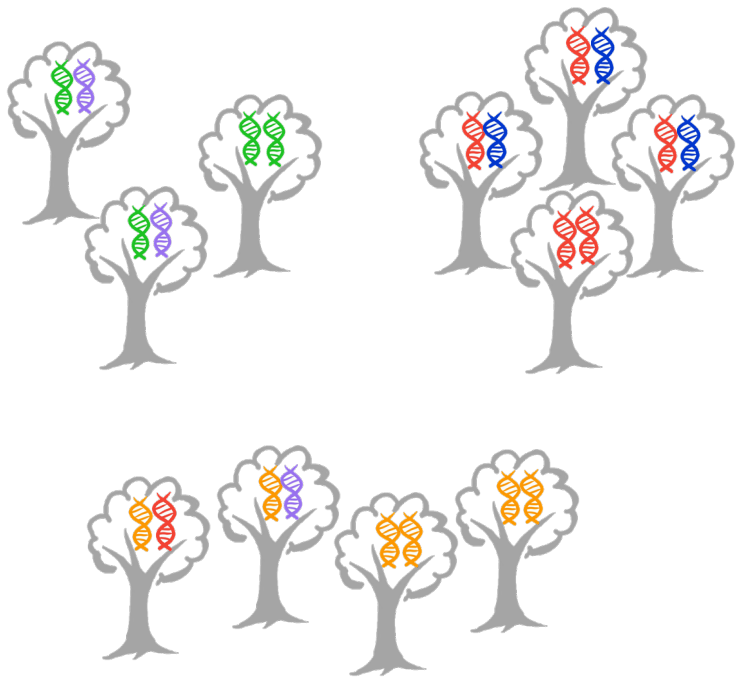
INTERNATIONAL SPACE SCIENCE INSTITUTE

GENES FROM SPACE

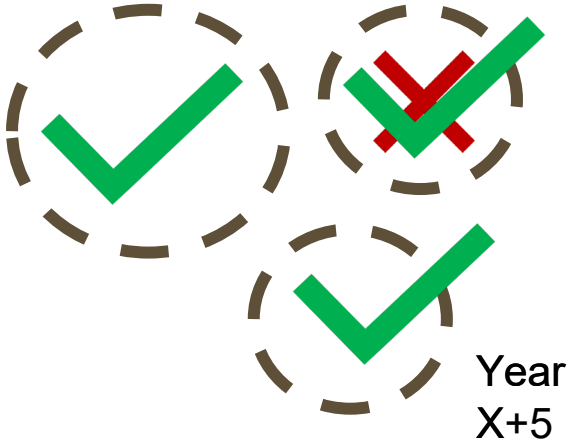
https://teams.issibern.ch/genesfromspa

Genetic Diversity Indicator

Populations



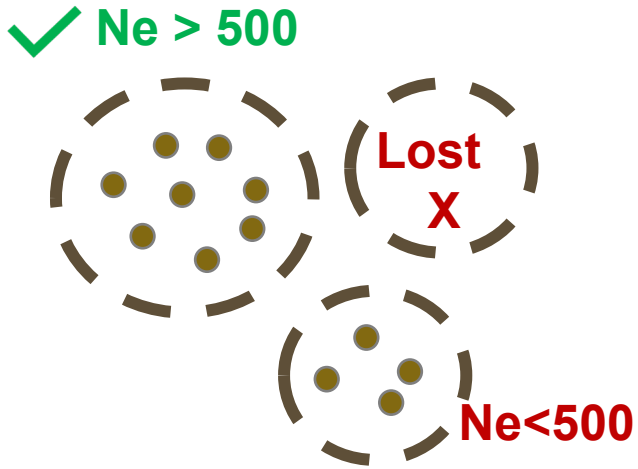
Does it exist anymore?



maintained populations = 2/3

The number of populations that existed vs. number of populations that still exist.

Is it self-sustainable?

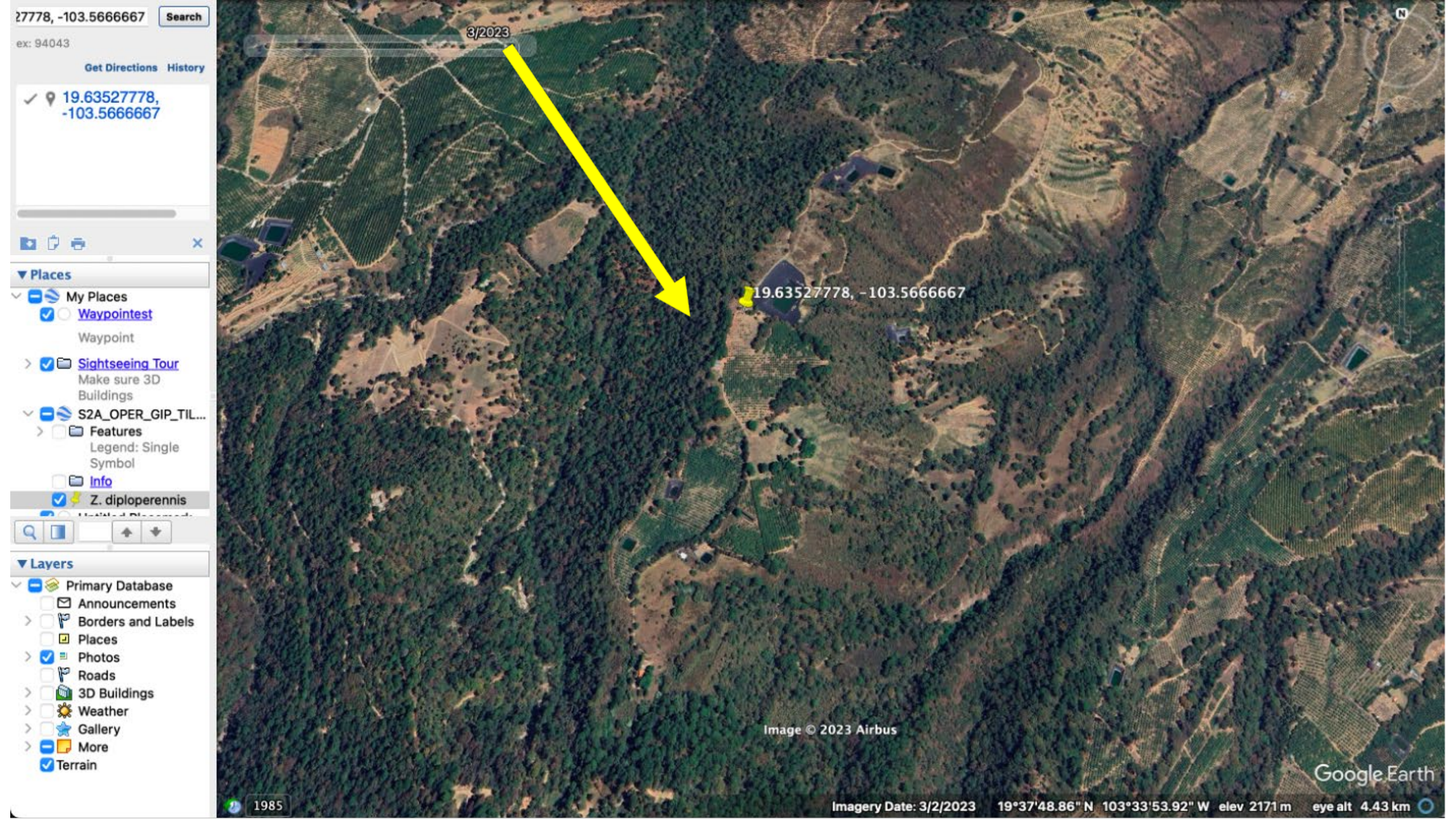


Populations > Ne = 1/3

Proportion of populations large enough to avoid loss of genetic diversity

Genes from Space

Earth Observation for monitoring existence and size of habitat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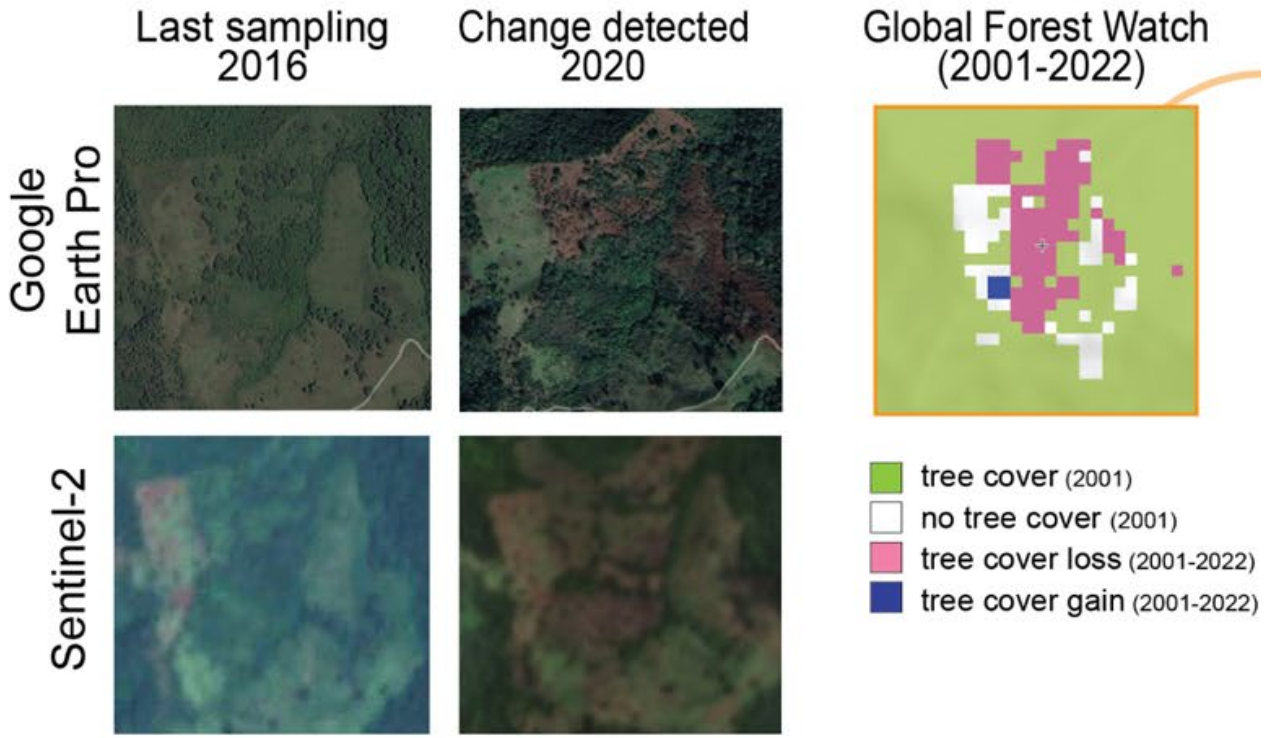
Layers
Primary Database
Announcements
Borders and Labels
Places
Photos
Roads
3D Buildings
Weather
Gallery
More
Terrain
3/2023
19.63527778, -103.5666667
Image © 2023 Airbus
Google Earth
1985
Imagery Date: 3/2/2023
19°37'48.86" N 103°33'53.92" W elev 2171 m
eye alt 4.43 km

Example:
Wild avocado (Persea cinerascens)

A) One population

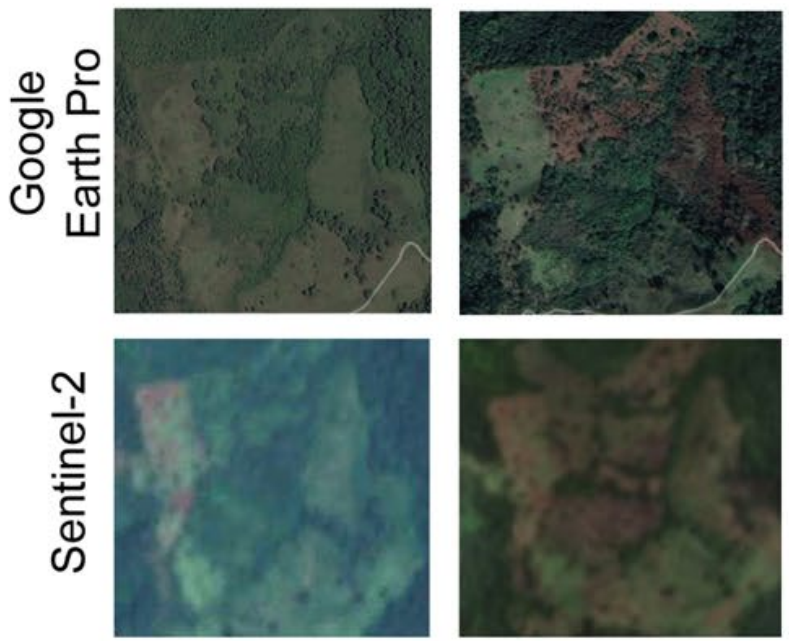


Schuman, Roeoesli et al. (preprint), Leveraging Earth Observation to monitor genetic diversity from Space, doi:10.32942/X2RS58

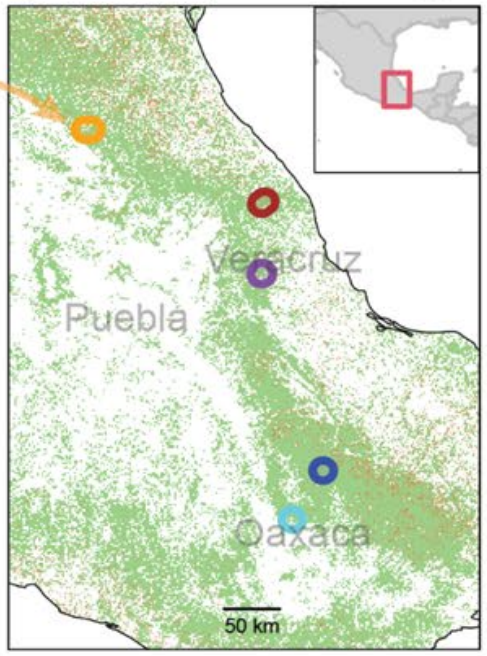
Conservation Genetics Expert Knowledge

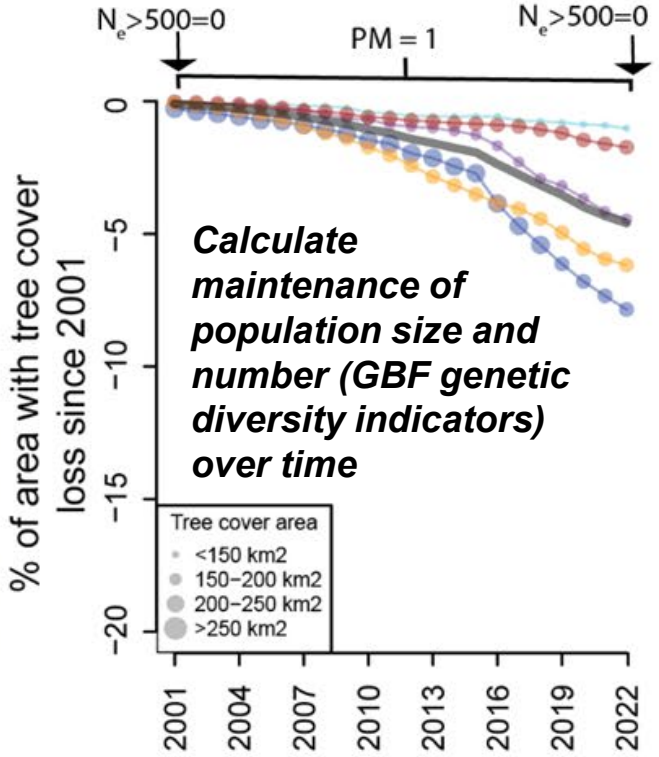
Example:
Wild avocado (Persea cinerascens)

A) One population



B) Entire species range





Calculate maintenance of population size and number (GBF genetic diversity indicators) over time

Colors represent populations - *i.e.*, locations where the species was observed in 2016.

Schuman, Roeoesli et al. (preprint), Leveraging Earth Observation to monitor genetic diversity from Space, doi:10.32942/X2RS58

Where do we expect to be at the end of the workshop?

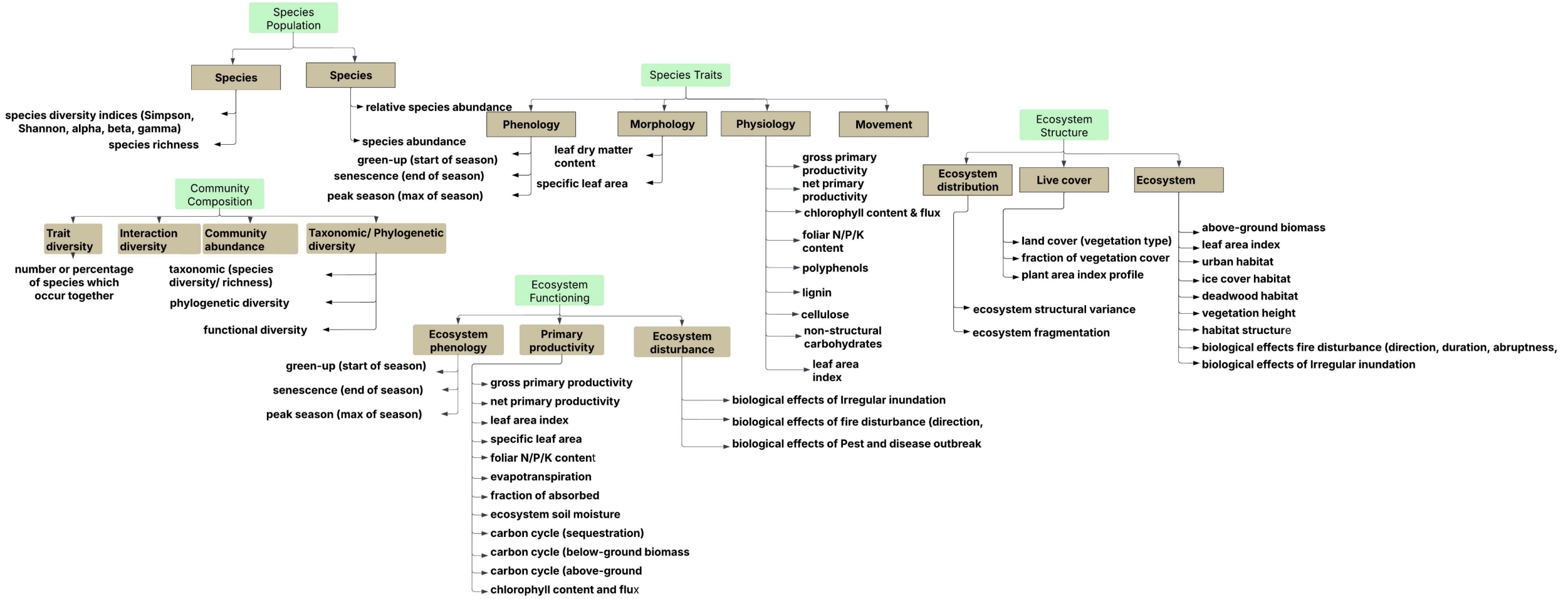
1. Which EBVs are relevant for the GBF targets submitted by the EU and member states to the CBD?

2. Reviewing remote sensing biodiversity products and how these can be further developed or strengthened through Earth observation to deliver the required indicators and EBVs?

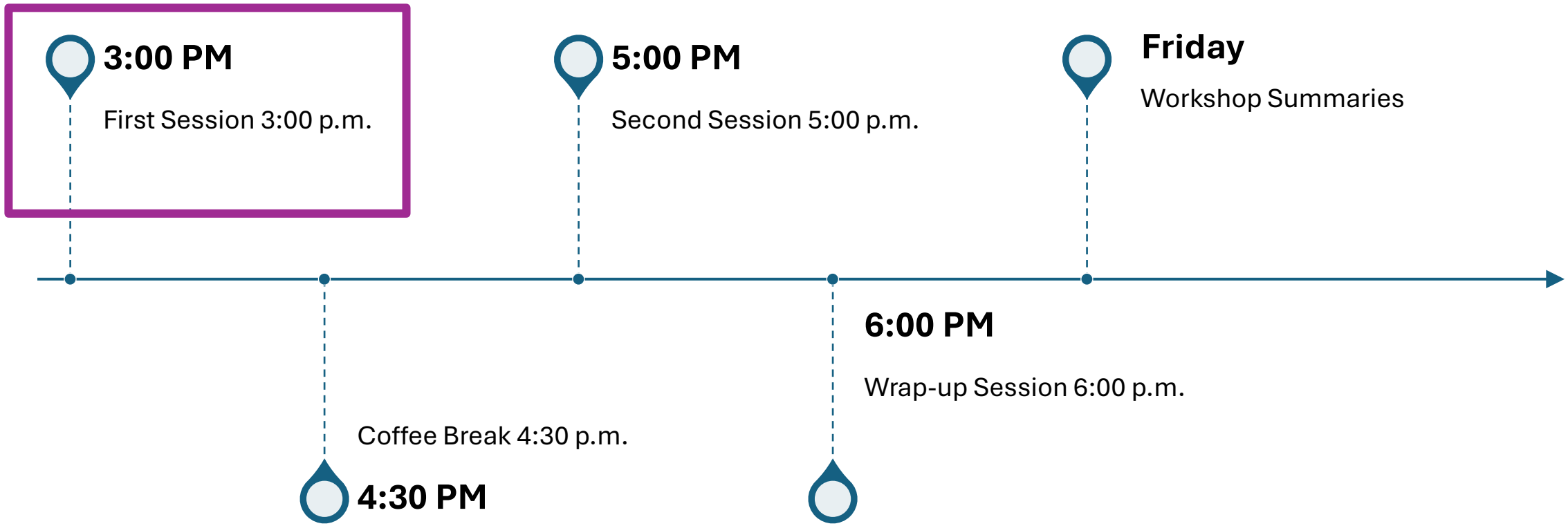
3. What needs to happen on the science policy interface to support the use of EBVs and improve indicators?

4. How can biodiversity change be detected and attributed to drivers, and how can uncertainty be handled and communicated?

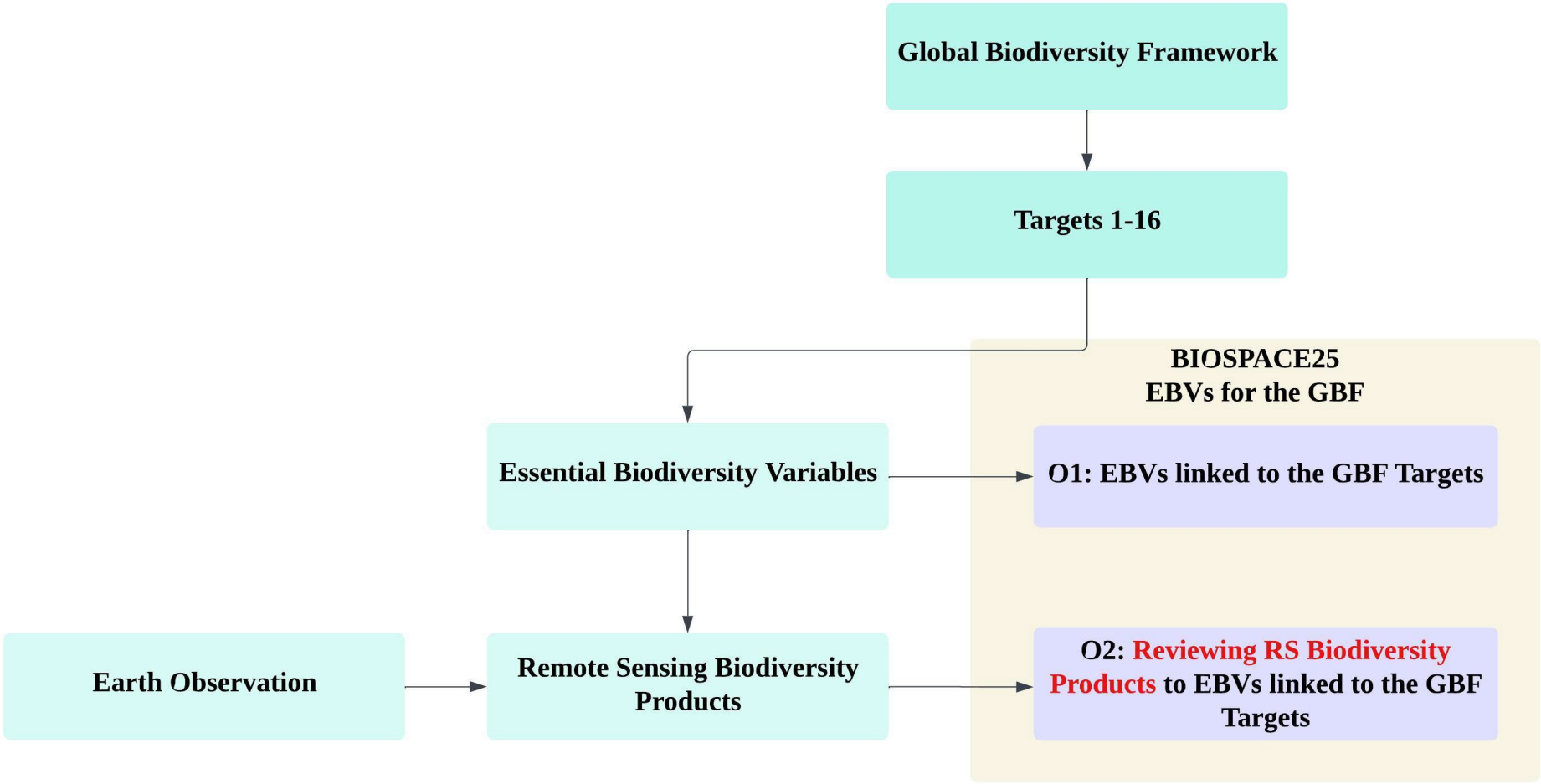
Development of EBVs Based on EO = Remote Sensing Biodiversity Products



https://geobon.org/ebvs/what-are-ebvs/


3:00 PM
First Session 3:00 p.m.
5:00 PM
Second Session 5:00 p.m.
Friday
Workshop Summaries
Coffee Break 4:30 p.m.
4:30 PM
6:00 PM
Wrap-up Session 6:00 p.m.

Reporting to GBF based on EO-based EBVs and Derived Indicators



GBF Targets (1-3)

Group A

1. Go to wooclap.com
2. Enter the event code in the top banner

Event code **OFUPXB**

GBF Targets (4-6)

Group B

1. Go to wooclap.com
2. Enter the event code in the top banner

Event code **DIMUGS**

GBF Targets (7-9)

Group C

1. Go to wooclap.com
2. Enter the event code in the top banner

Event code **LIQKQA**

GBF Targets (10&11)

Group D

1. Go to wooclap.com
2. Enter the event code in the top banner

Event code **EEPNLL**

GBF Targets (12&13)

Group E

1. Go to wooclap.com
2. Enter the event code in the top banner

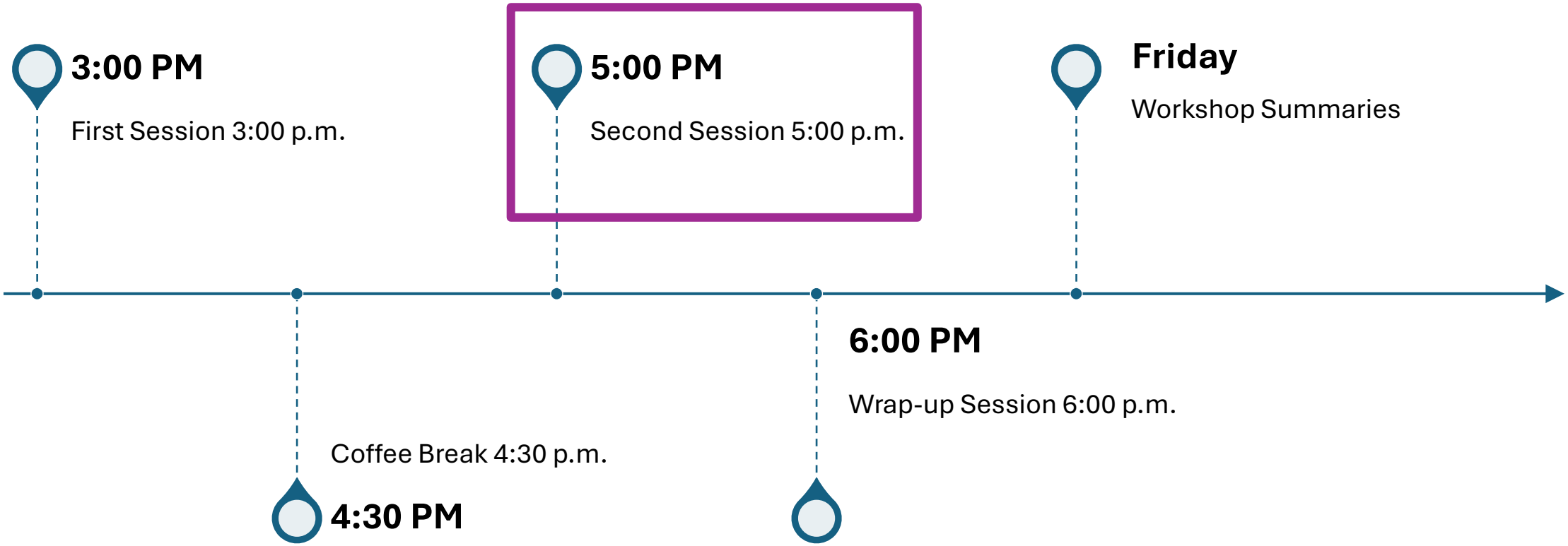
Event code **DNCIRR**

GBF Targets (14-16)

Group F

1. Go to wooclap.com
2. Enter the event code in the top banner

Event code **STOCNN**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