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France – Italia ALCOTRA

Detection and management of degraded forests to preserve protective functions

a transnational case study from European Western Alps

Cristian Accastello - CFAVS

SylvAFoRes

UNIVERSITÀ DI TORINO

CONSORZIO FORESTALE ALTA VALLE SUSA

Office National des Forêts

STOCKHOLM 2024 WORLD CONGRESS 26th IUFRO FORESTS & SOCIETY TOWARDS 2050

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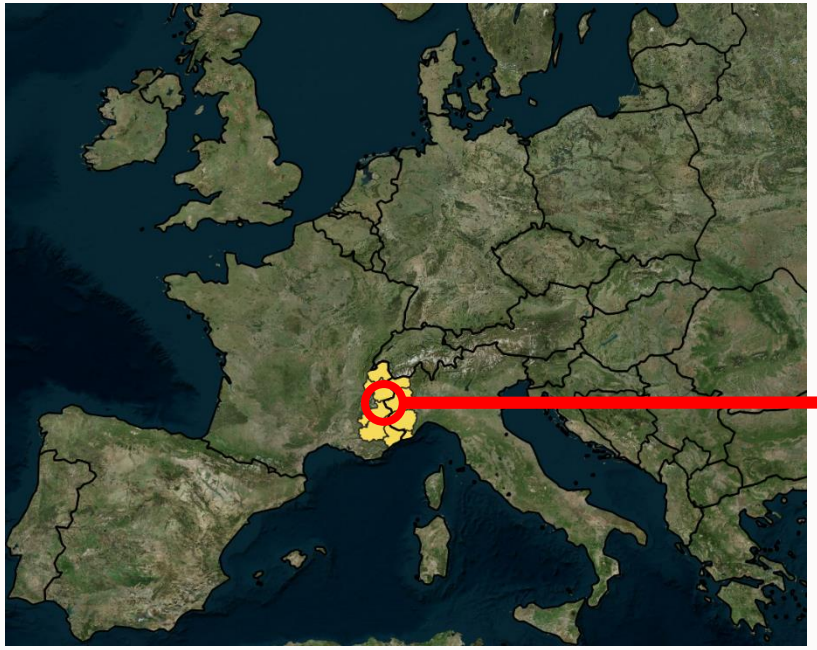
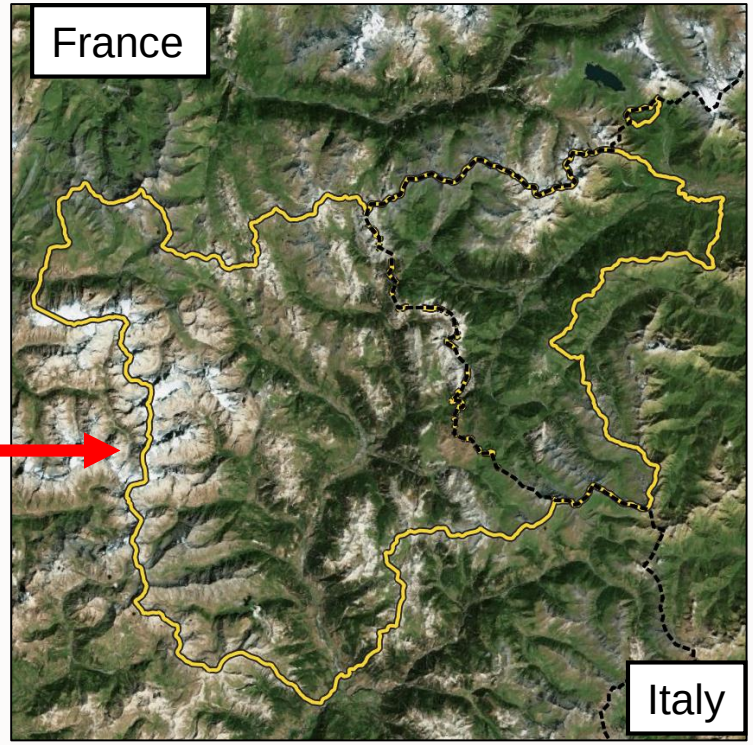
Background





2’000 km2 (>25% are forests)
37 municipalities
40'000 inhabitants (x5 including tourists)

Background

Forest overview:

- 56’500 ha of public forests
- Larch and scots pine forests are the most represented
- 25 Natura 2000 areas
- Relevant timber production from larch
- 25% of forest have mainly protection function

→ **multifunctionality**

The issue

CC effects and natural hazards are undermining the provision of forest ES essential for the liveability of the area

→ Which are the drivers of forest degradation?
→ How can we cope with this trend and slow/arrest it?

Forest degradation here is intended as «the loss of the capacity to provide goods and services to people and nature" (IUCN)

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Project objectives:

- Location of degraded forest stands (current and near-future)
- Identification of main degradation drivers
- Testing of climate-smart silvicultural solutions

Sylvafores (*adaptive silviculture for resilient forests*) in short:

- 3 partners; 1,1M€ budget
- 3 years duration; transnational approach

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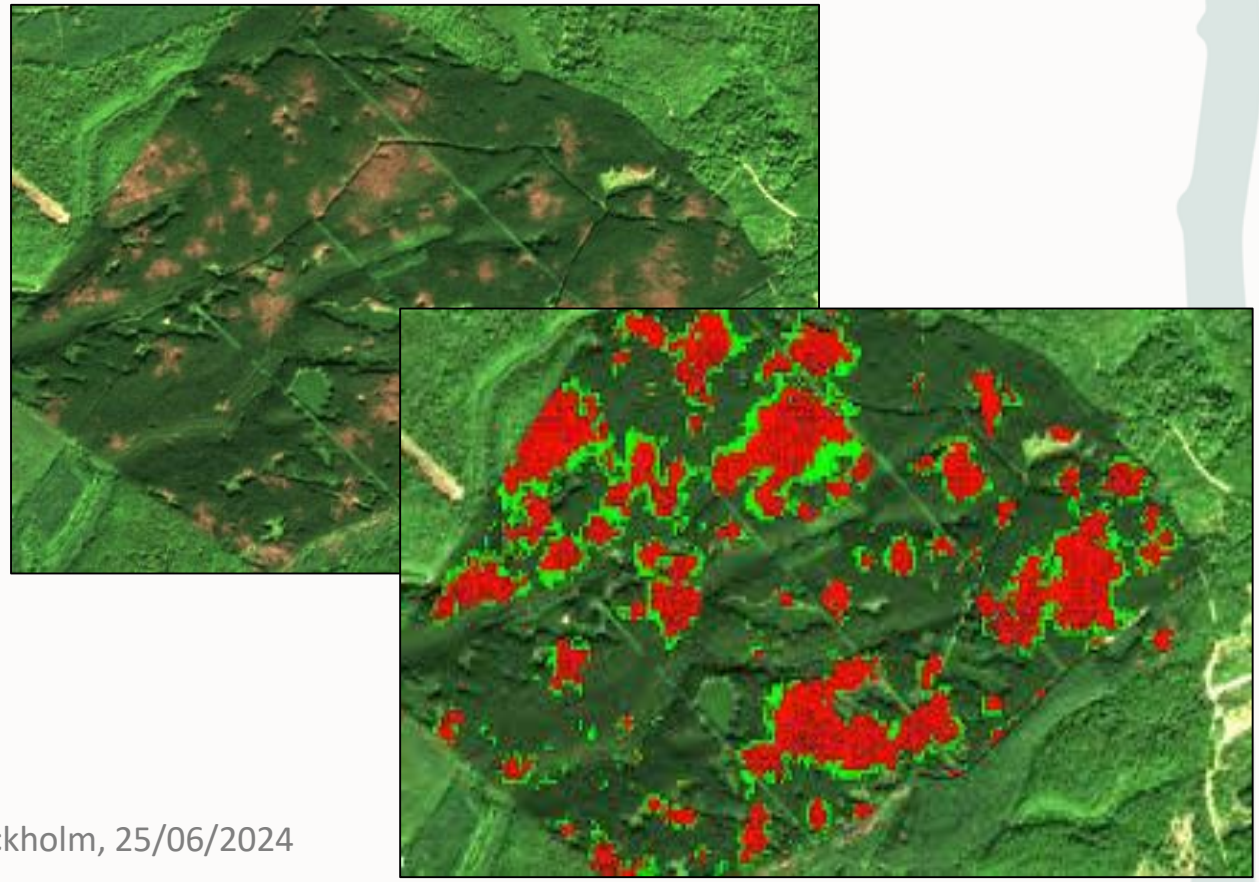
Investigating the causes of degradation

→ Combination of remote sensing and ground control

FORDEAD

A protocol to detect vegetation anomalies based on the comparison of Nir-SWIr data from Sentinel-2 images

→ Needs calibration for mountain context and species



Investigating the causes of degradation

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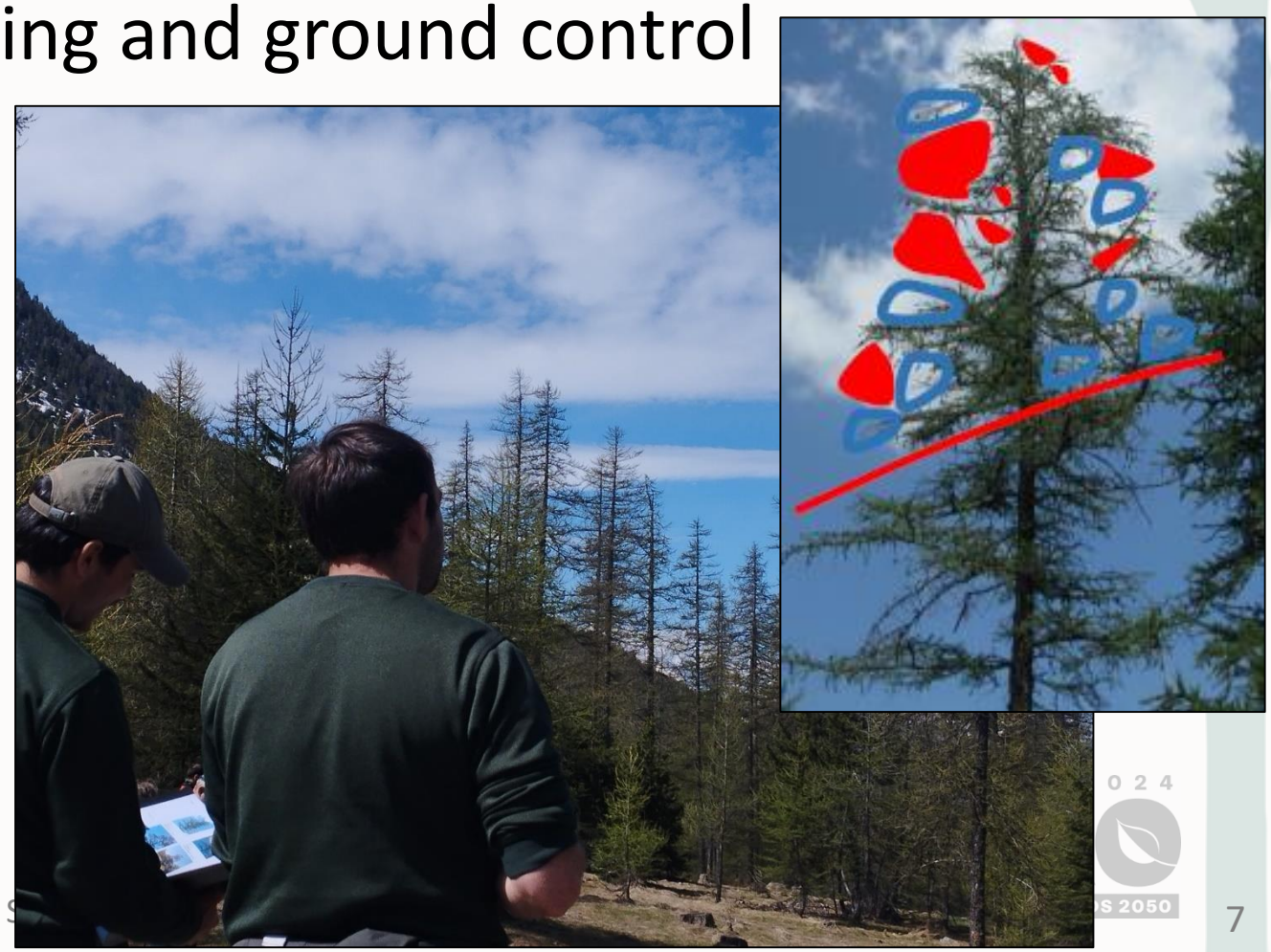


DEPERIS

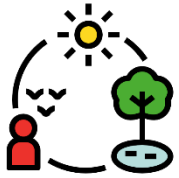
400+ plot to calibrate FORDEAD information with visual assessment of degradation level

+ dendrometric data

+ ecosystem services data

+ local environmental data

Planning while considering degradation

- Natural hazards 
- Forest degradation drivers 
- Ecosystem service provision 

Decision-making scheme to prioritize interventions

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Climate-smart silviculture to mitigate and prevent degradation

Definition of experimental intervention modules for Larch and Scots Pine based on closer-to-nature approach

- «Fire prevention» module
- «Avalanche protection» module
- «Wood production» module

Results and next steps

- Assessment of degradation levels in a transnational mountain area
- Multi-risk maps (fire+avalanche+rockfall)
- Priority intervention maps based on risks, degradation drivers and ES demand
- Forest interventions in high priority areas

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Thank you from the SylvAFoRes team