

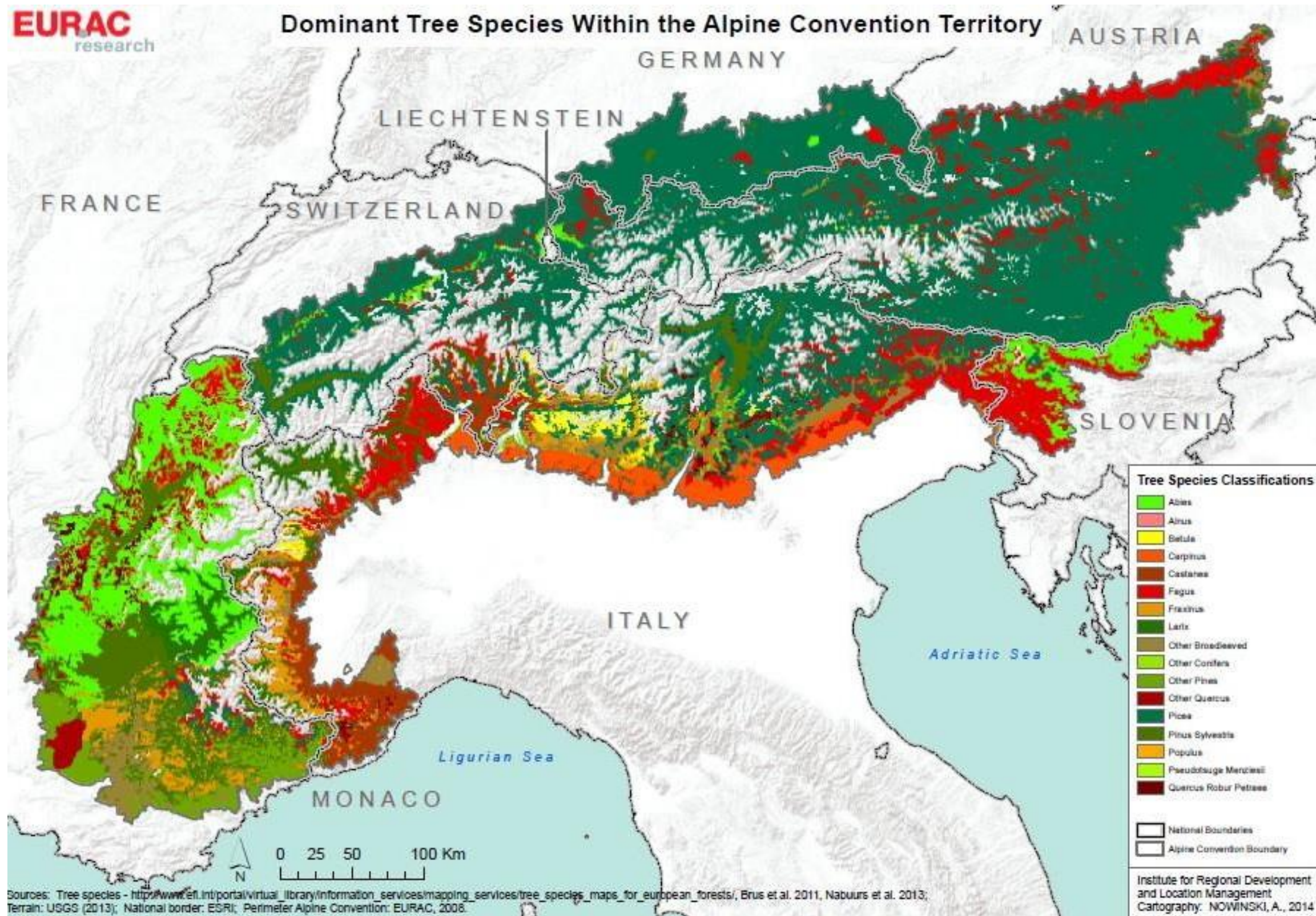
THE USE OF FORESTS AS NATURE-BASED SOLUTION TO BETTER INTEGRATE PROTECTION OF BIODIVERSITY, NATURAL RISKS MANAGEMENT AND CLIMATE CHANGE MITIGATION IN THE ALPS

Mountain Biodiversity Day, 13th January 2021

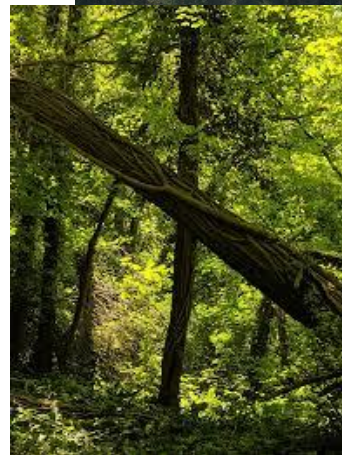
Cédric CONTEAU (Commissariat de massif des Alpes - ANCT)
Sandrine DESCOTES-GENON (Region Auvergne-Rhône-Alpes)
Cécile CADET (Region Provence-Alpes-Côte d'Azur)



THE ALPINE MOUNTAIN FORESTS



THE MULTIFUNCTIONNALITY OF MOUNTAIN FORESTS



Protection

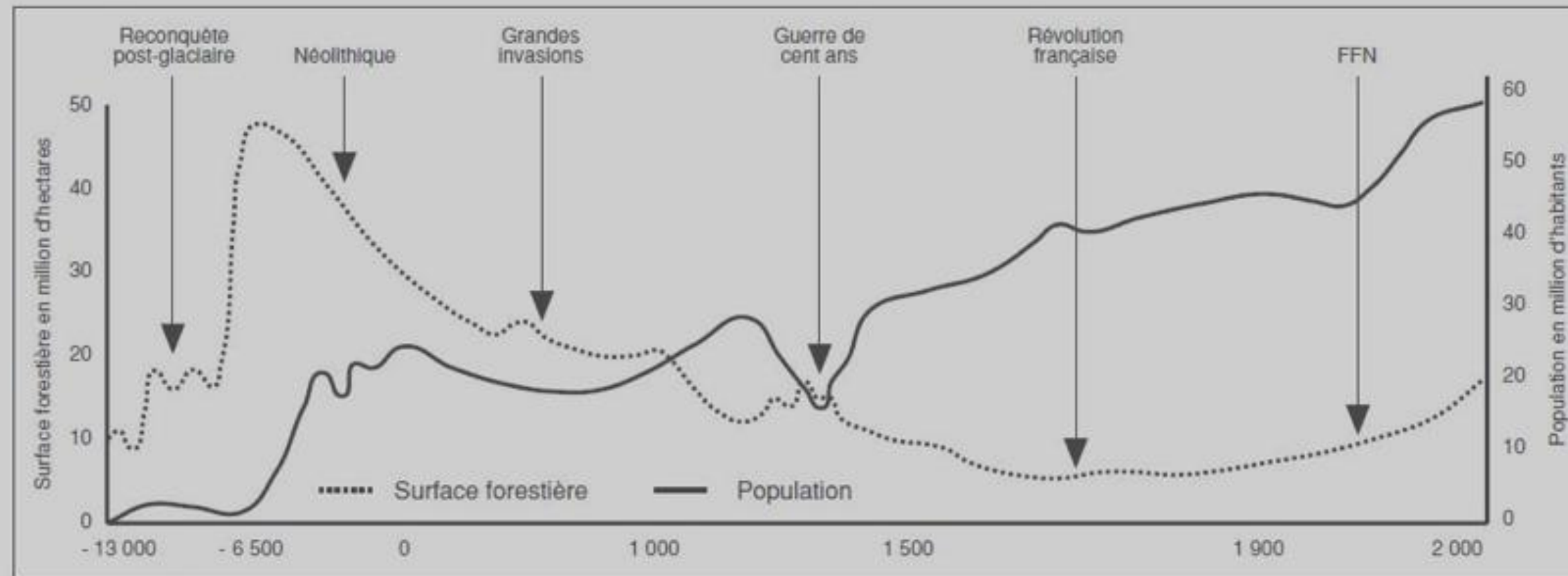


Integration



Production

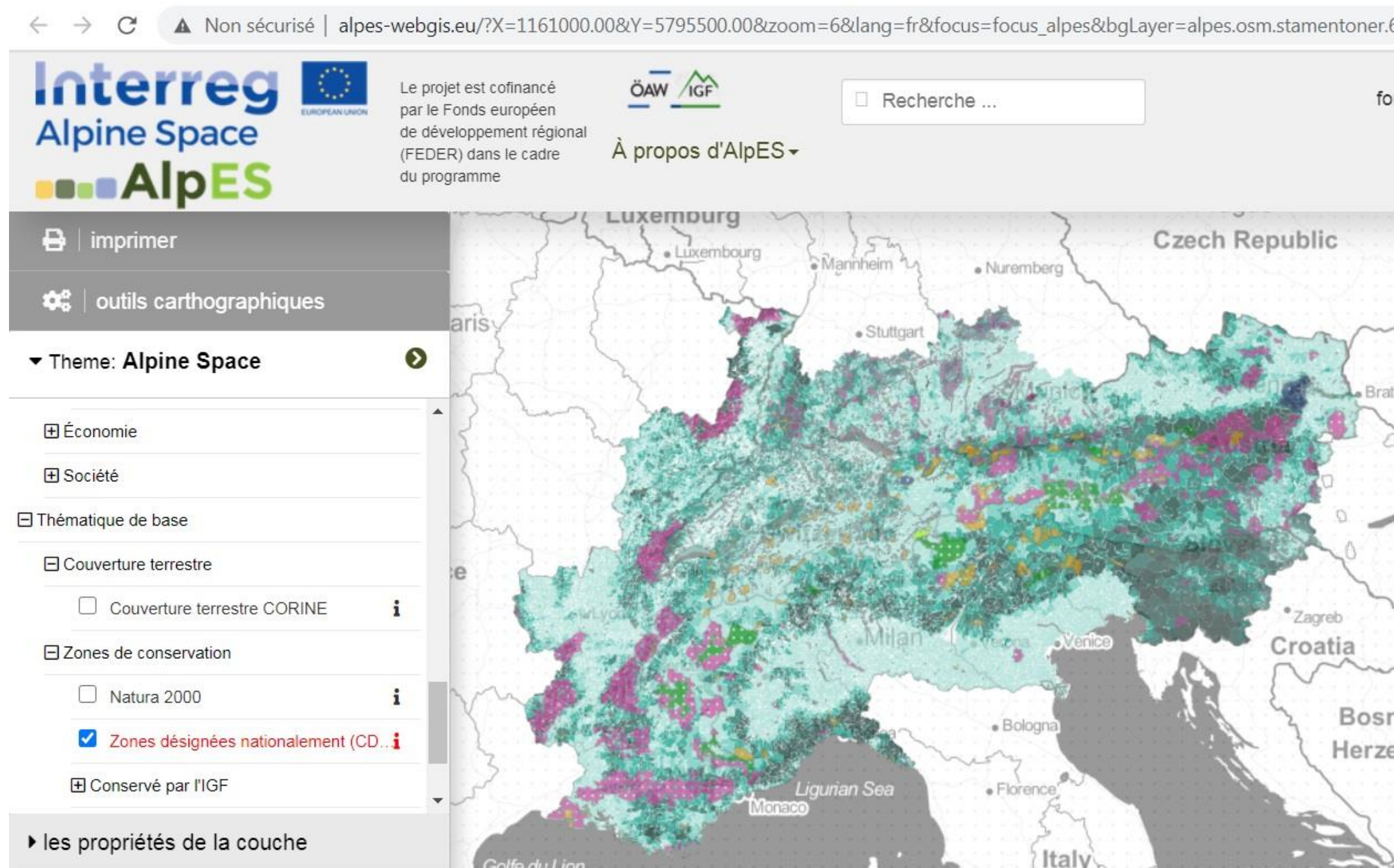
A FRAGILE BALANCE AND HISTORICAL AWARENESS IN THE XIXTH CENTURY



D'après Gandant, in Ecurat, (1995a)



ALPINE FORESTS : GROWING AND OFTEN PROTECTED



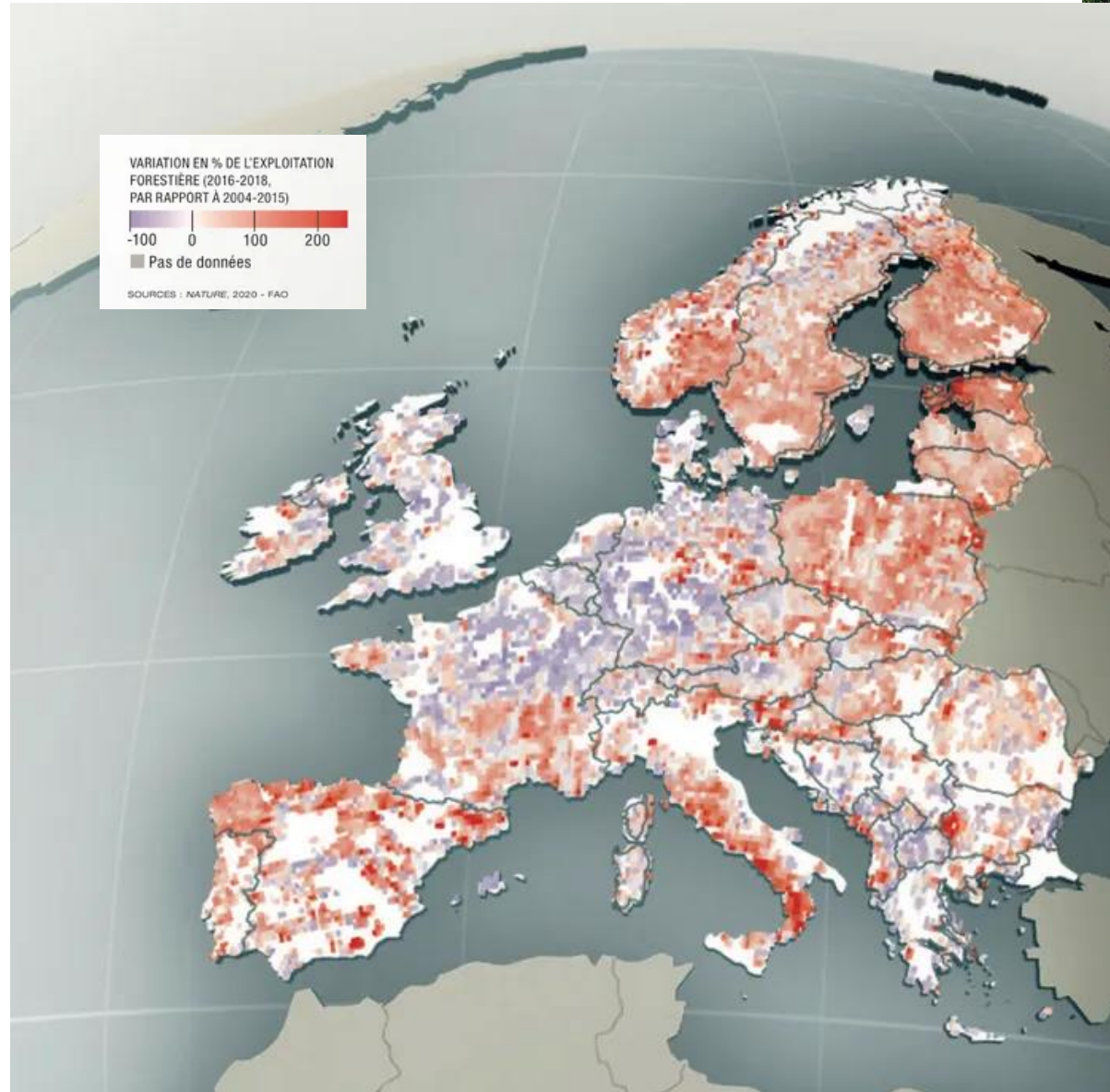
40% of the alpine area

**Still expanding due to
abandonment of some
cultivated areas**

**1996, ratification of a protocole
« Mountain forests »
on a application of the alpine
Convention**

**Cooperation projects to better
assess the ecosystem services of
forests and favor integrative policy**

ALPINE FORESTS : A SYSTEM UNDER THREATS



Global trade

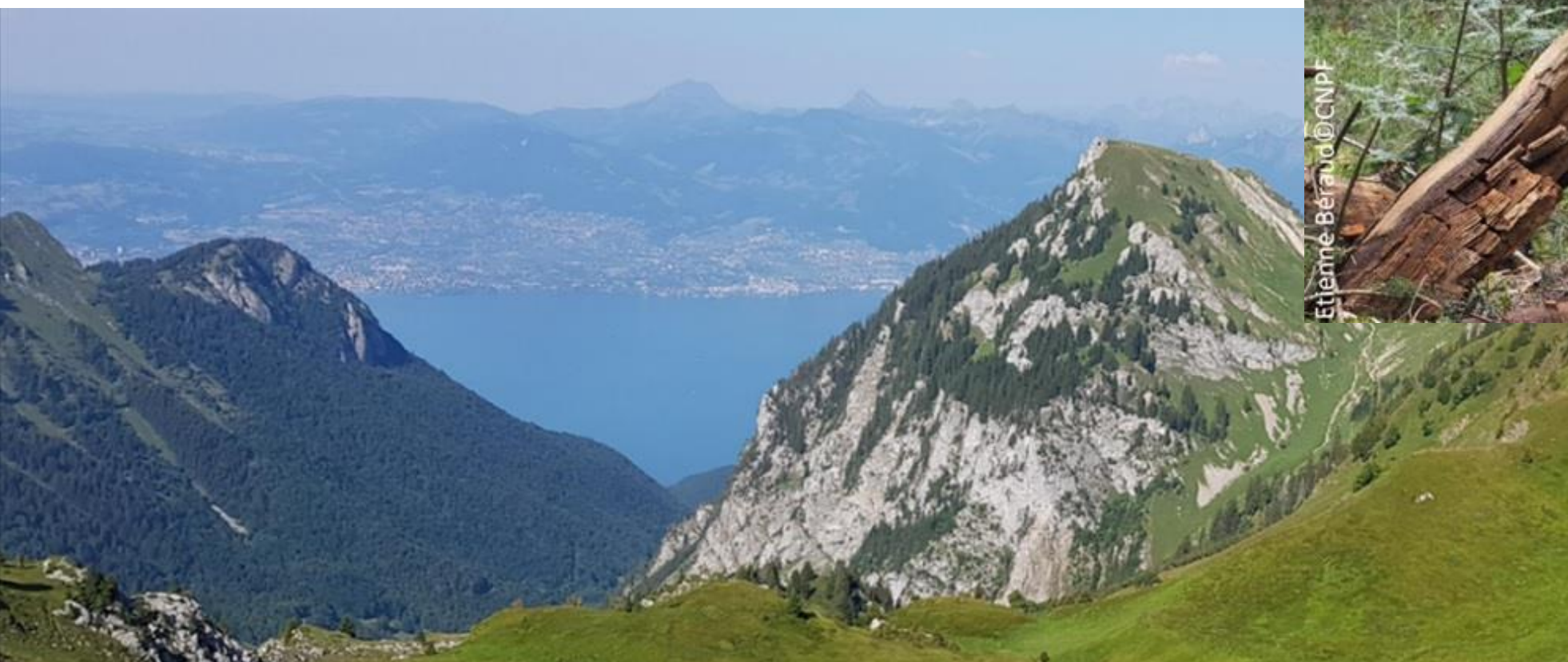
Global warming

Urbanisation

THINKING/DESIGNING THE FOREST ECOSYSTEM : A BIODIVERSITY ISSUE

From heritage management, focused on remarkable species or specific functions, to a more global biodiversity-oriented management for the benefit of the entire ecosystem

-> how to think French Alpine forests as an integrated fauna/flora/soil ecosystem, and take this into account in management methods?

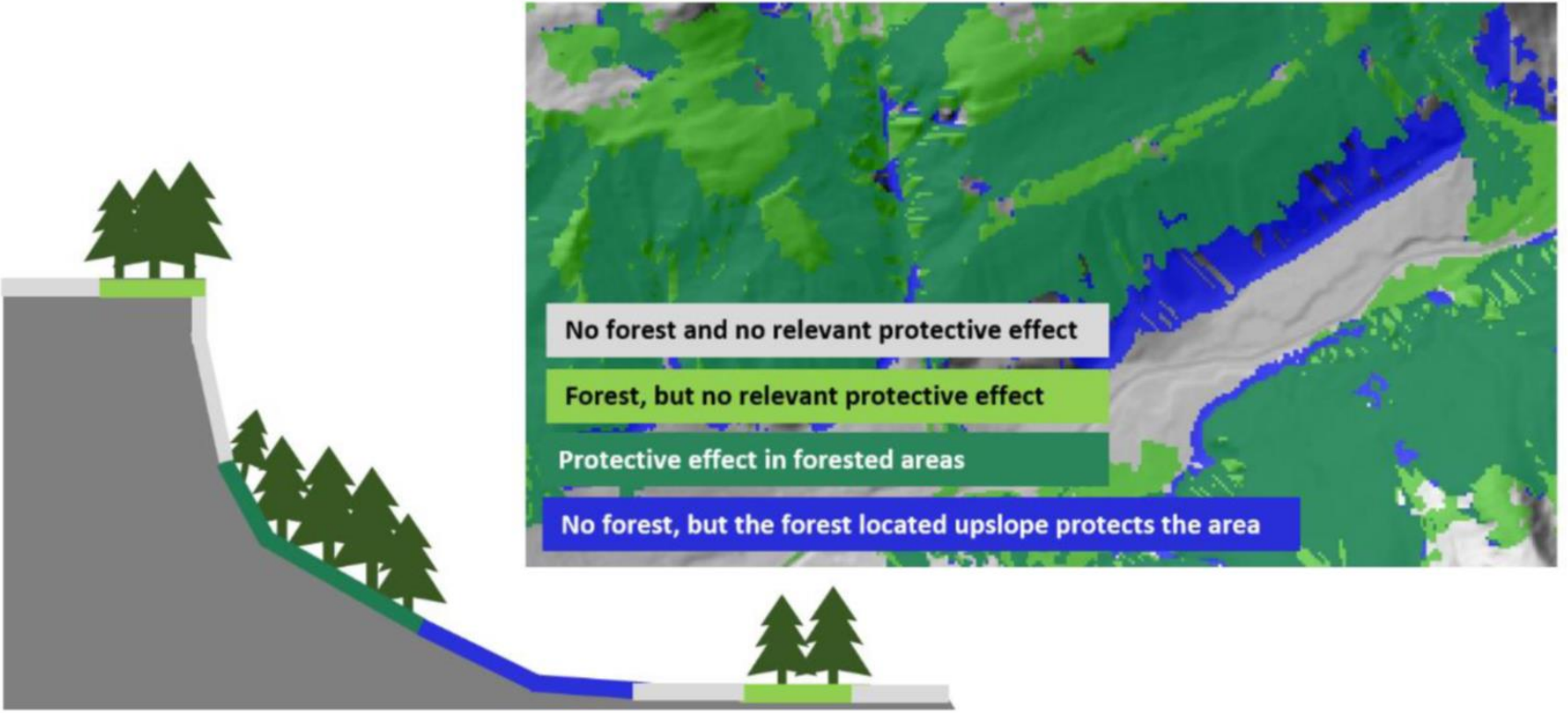


Chevêchette d'Europe : photo Loup Noally

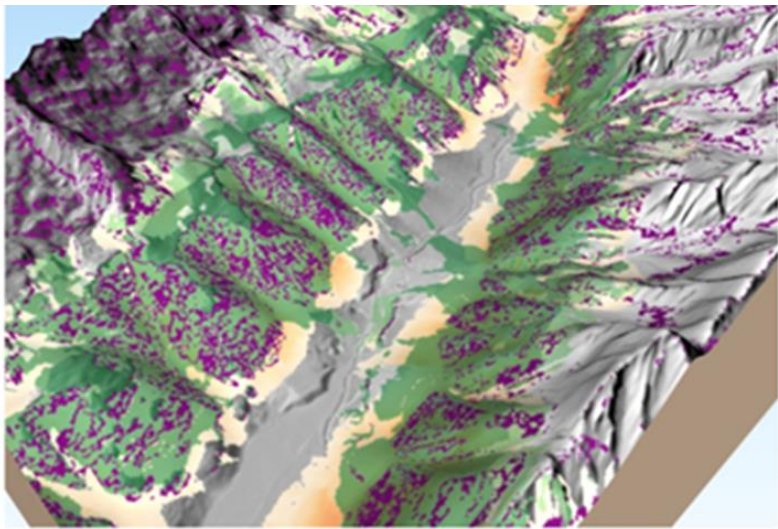


NATURE BASED SOLUTIONS : AN OPERATIVE FRAMEWORK FOR THE IMPLEMENTATION OF AN INTEGRATED MANAGEMENT OF THE “FOREST ECOSYSTEM”?

PROTECTION FOREST CHARACTERISTICS AGAINST AVALANCHES				
FOREST CHARACTERISTICS	Release area	Source	Transit and run out zone	Source
canopy cover	Promote evergreen conifers (> 50%) > 80% if slope < 38° in deciduous > 70% if slope < 42° in mixed stands > 35% if slope < 38° in spruce stands > 30% if slope < 35° in spruce and larch stands > 35% if slope < 32° in larch stands	Bebi et al., 2009; Berretti et al., 2006; Meyer-Grass and Schneebeil, 1992,	Maintain effective winter canopy cover, > 30% if slope 30° > 50% if slope 35° > 70% if slope ≥ 40° Most relevant in first 100–200 m from the release area.	Berger et 2013; Teich et al., 20
species composition	< 30 % of deciduous species (and Larch), Depends on the slope: larch →30°, coniferous →35°, mixed forest →35°, Deciduous trees prevent slow gliding at lower quantities of snow	Berger et al., 2013; Berretti et al., 2006, Bebi et al., 2009	Promote evergreen or mixed forest, corridor edge ≥ 70% otherwise ≥ 30%, in areas of powder avalanches, promote deciduous trees	Teich et al., 2013 Berger et 2013
terrain roughness	leave 1.3 m high stumps after cutting. snags, stumps, root plates, lying logs promotes roughness but are dangerous, because avalanches with debris are more destructive.	Dorren et al., 2005; Berger et al., 2013	leave 1.3 m high stumps after cutting. snags, stumps, root plates, lying logs promotes roughness but are dangerous, because avalanches with debris are more destructive.	Dorren et 2005; Berger al., 2013
tree size	twice as high compared to snow depth, >2 m	Frehner et al., 2005; McClung, 2001		
gap length ^a	≤ 1.5 x average height of trees, absence of gaps > 25 in length, <60 m if slope ≥30° <50 m if slope ≥35° <40 m if slope ≥40° <30 m if slope ≥45°	Frehner et al., 2005, Berretti et al., 2006, Berger et al., 2013,	≤ 1.5 x average height of trees	Berger et al., 2013



Avalanche start
Forest
Forest effect



INRAE Frédéric BERGER



: Nature-based Solutions (NbS) are actions to address societal challenges through the protection, sustainable management and restoration of ecosystems, benefiting both biodiversity and human well-being.

THE EUROPEAN STRATEGY FOR THE ALPINE REGION AND THE ROLE OF PROTECTIVE FORESTS AS NATURE-BASED SOLUTIONS FOR THE SAFETY OF PEOPLE, BUILDINGS AND INFRASTRUCTURES



An operational contribution to highlight the role of protective forests as nature based solution to increase resilience of territories and to preserve biodiversity: a French presidency initiative together with :

- Action Group 2: to increase the economic potential of strategic sectors
- Action Group 6: To preserve and valorise natural resources, including water and cultural resources
- Action Group 7: To develop ecological connectivity in the whole EUSALP territory
- Action Group 8: To improve risk management and to better manage climate change, including major natural risks prevention
- Action Group 9: To make the territory a model region for energy efficiency and renewable energy

Task force « Multifunctional Forests and Sustainable Use of Timber »



THE EUROPEAN STRATEGY FOR THE ALPINE REGION AND THE ROLE OF PROTECTIVE FORESTS AS NATURE-BASED SOLUTIONS FOR THE SAFETY OF PEOPLE, BUILDINGS AND INFRASTRUCTURES

Main objectives:

- to present a more global biodiversity oriented management for the benefit of the ecosystems
- to capitalize knowledge of past projects and to build a pragmatic action plan to promote the use of nature-based solutions (NBS) in the regional, national and alpine programs to restore ecological continuities and prevent natural Risk in the framework of climate change.
- to focus in this frame on forests and ecosystem services provided by forests to highlight the role of protective forests

Next steps:

After projects like Rediafor (that aims to identify and analyze the issues of conflicting interests and risks emerging from the multifunctional use of forests), the project of the operationnal contribution ambitions to reinforce synergies between forests uses to try to address global challenges with a more global biodiversity oriented management.



EUROPEAN GREEN DEAL-EUROPEAN BIODIVERSITY STRATEGY TO 2030-FORESTS STRATEGY



***EUROPEAN GREEN DEAL: protecting nature**



***BIODIVERSITY STRATEGY TO 2030: protect 30% of the land and the seas of European Union.**

***FORESTS STRATEGY:**

Echoes the language of the EU Green Deal and the Biodiversity Strategy, seeking consistency



Thank you for your attention!

