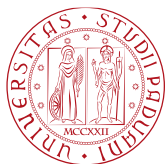




Ripristinare o non ripristinare? Dove, come, quando, e con che cosa? Nuovi e vecchi quesiti per la selvicoltura del terzo millennio

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e Sistemi Agro-Forestali
Università di Padova

 **VAIA FRONT**
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Lingua E, Costa M, Marangon D, Faes L, Marchi N, Bolzon P, Marzano R

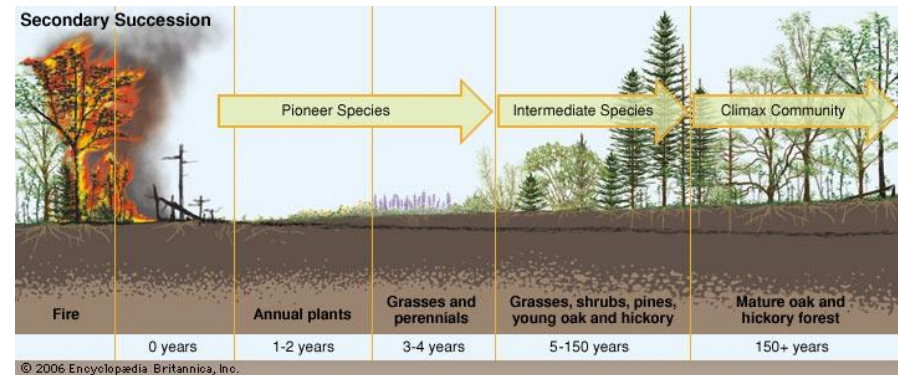
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Disturbi Naturali

Parte del sistema Cambiamenti climatici

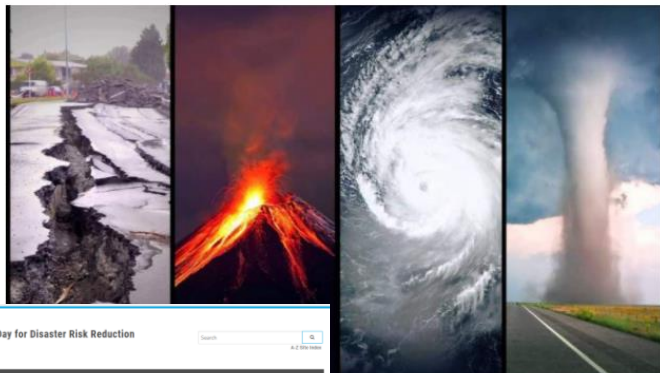


Home > News > World News > Natural Disasters have Doubled since 2000

NEWS | WORLD NEWS

Natural Disasters have Doubled since 2000

By Mikey Mathieson - 14 October 2020 @ 13:08



Euronews

UN: Climate emergency causes number of natural disasters to ...

Twice as many natural disasters have been reported in the past 20 years compared to the preceding 20, with climate change the main cause of ...
2 giorni fa



Aljazeera.com

Climate change spurs doubling of disasters since 2000: UN

Climate change is largely to blame for a near doubling of natural disasters in the past 20 years, a UN report said. Keep Reading. A moment of ...
1 giorno fa



TRT World

Natural disasters have almost doubled in the last 20 years

The UN's new research into disaster, has revealed that the number of natural calamities has nearly doubled in the last 20 years. Together with ...
1 giorno fa



International Day for Disaster Risk Reduction
13 October



2018



2021-?

Grigolato



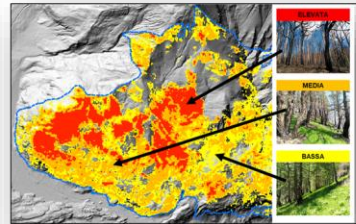
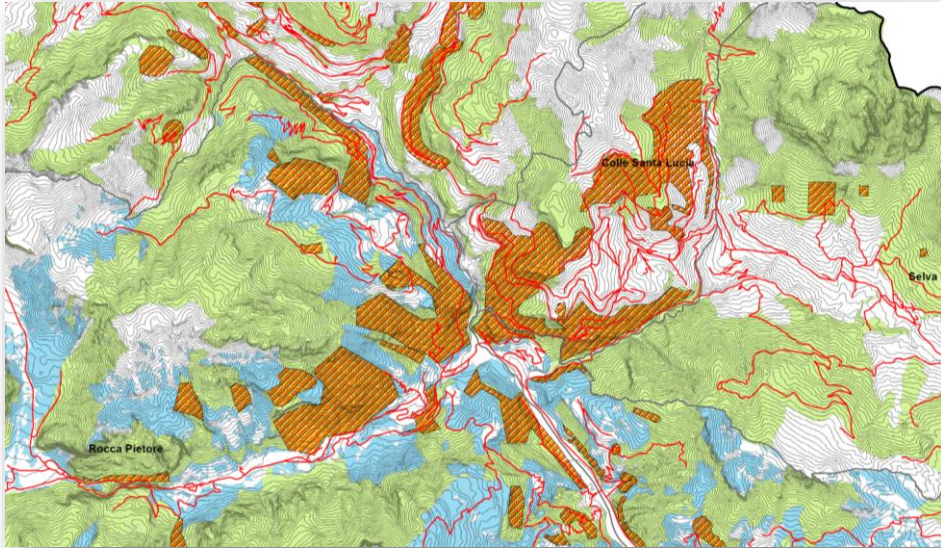
2017

Marzano

A livello di comprensori, vallate, scala regionale (*Landscape scale*)

Definire le priorità

Necessità di ripristinare rapidamente le funzioni del bosco



FUNZIONE PREVALENTE

TOPOGRAFIA

TIPO DI BOSCO

+



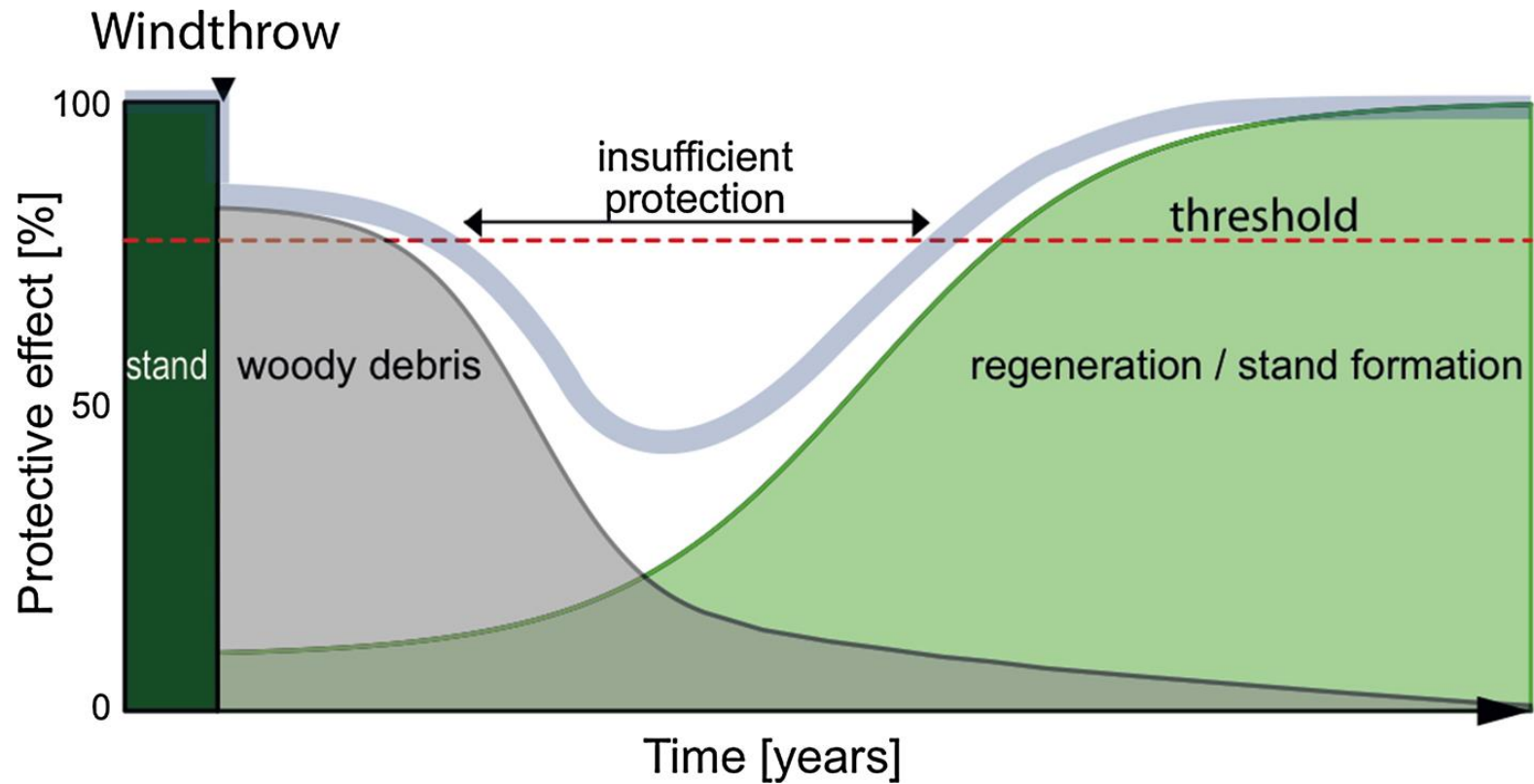
Foreste di protezione



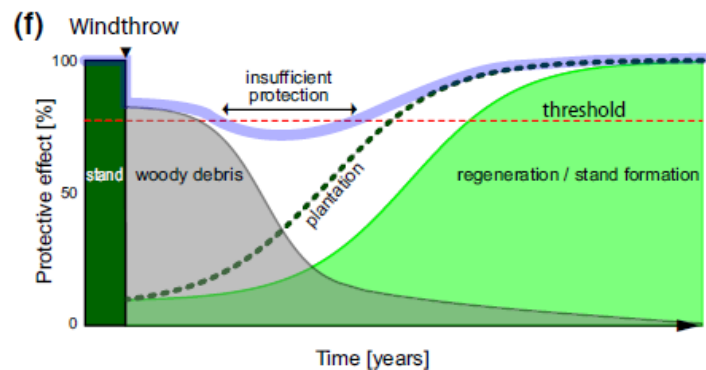
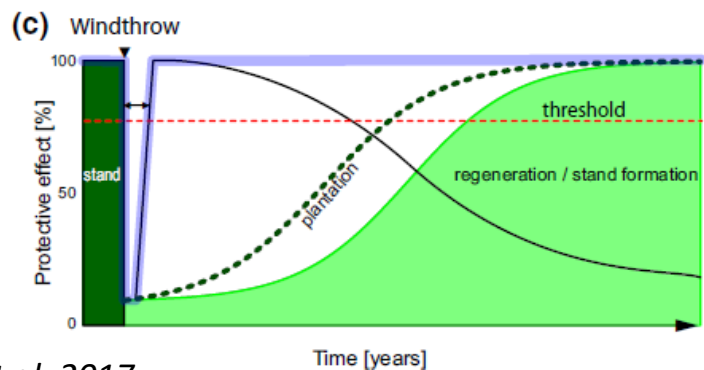
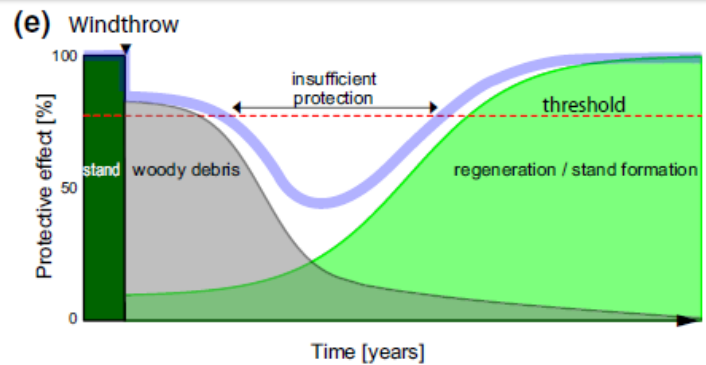
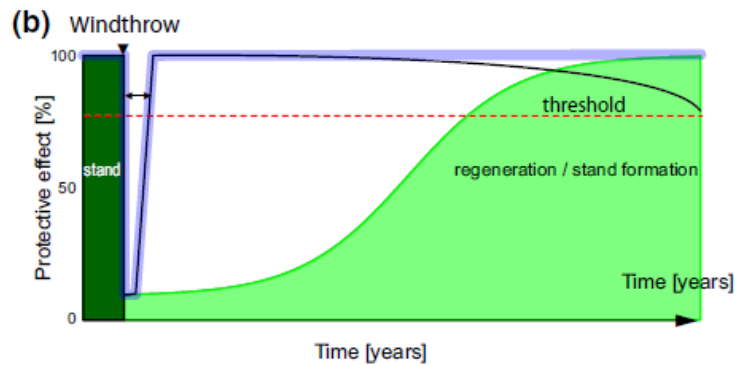
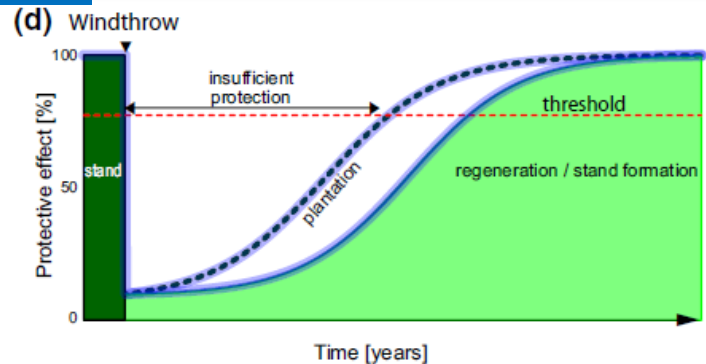
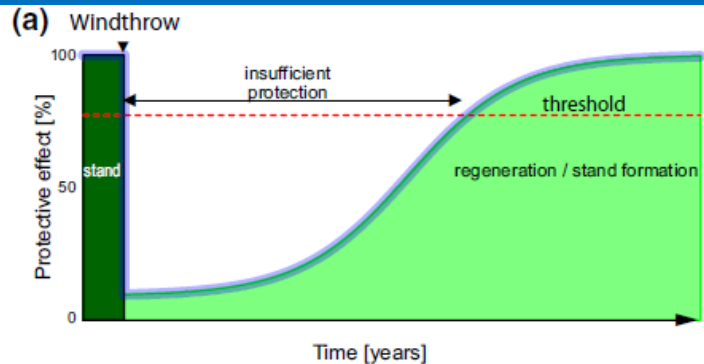
Veneto in ginocchio

I nostri boschi rasi al suolo

Foreste di protezione



Foreste di protezione

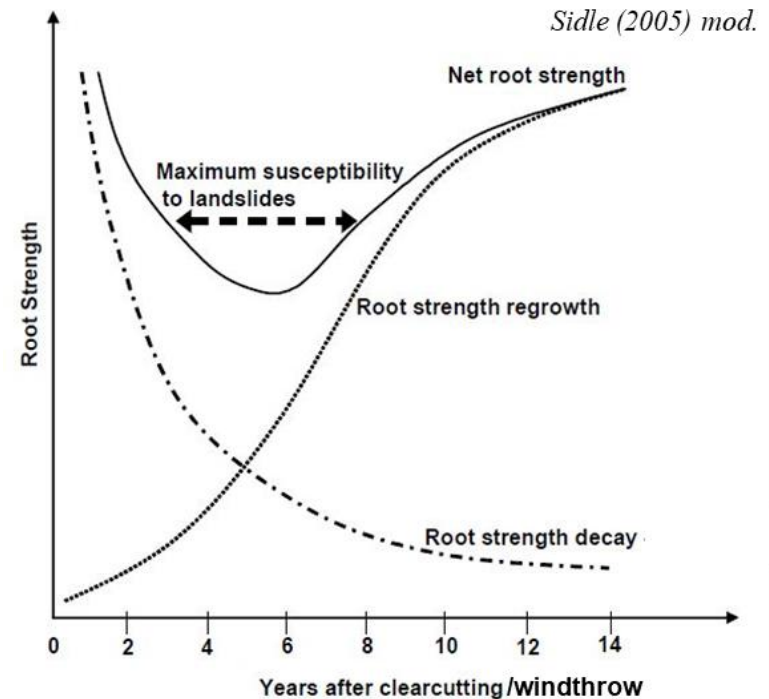


Frane superficiali innescate in aree schiantate prevalentemente nella finestra tra i 3 – 17 anni post disturbo

Esperienza Svizzera a seguito delle tempeste Vivian (1990) e Lothar (1999) *Bebi et al. 2019*



Dorren e Schwarz (2017)



A livello di popolamento (*Stand scale*)

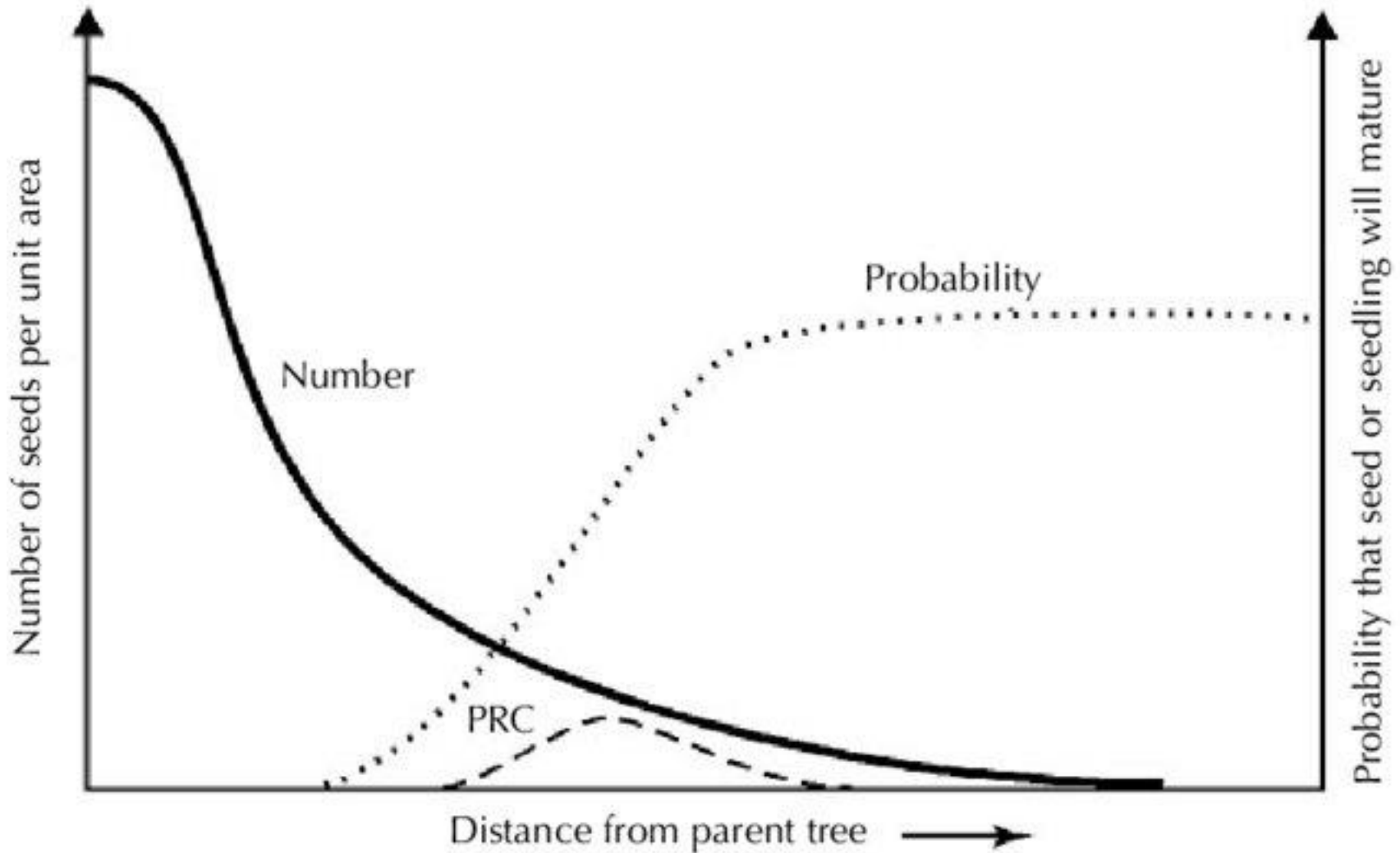
Definire l'area

Accelerare le dinamiche naturali dove sussistono limitazioni



Rinnovazione naturale

Janzen-Connell Hypothesis



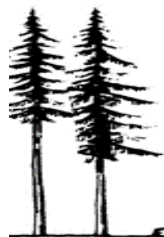
Rinnovazione naturale

Semi al suolo



Distanza dal margine

100 m



Monitoraggio rinnovazione naturale post- Vaia



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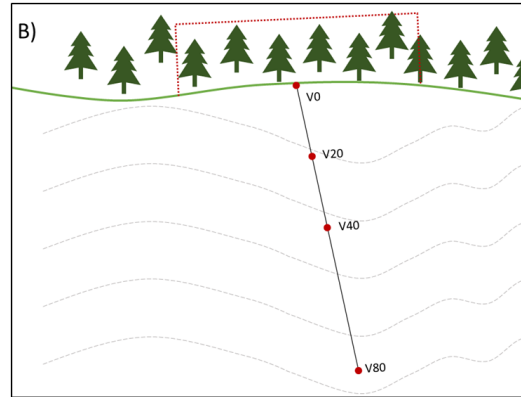
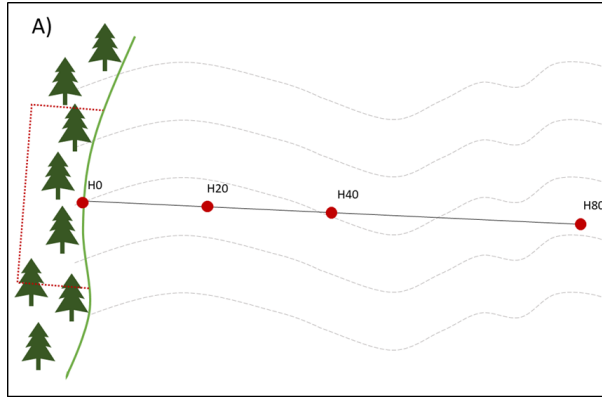
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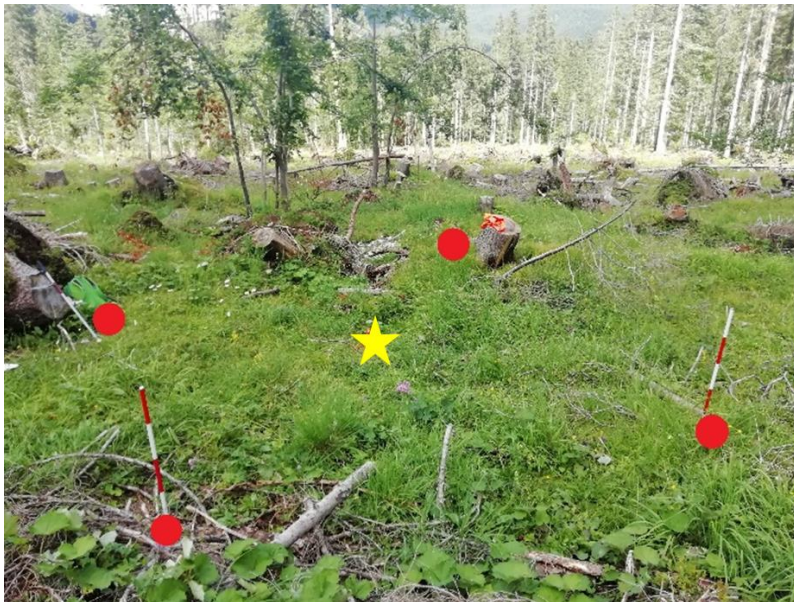
mipaaf
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agricole alimentari e forestali



REGIONE AUTONOMA
FRILVI VENEZIA GIULIA



Influenza interventi
Distanza margine
Brucamento



A livello di microsito (*Seedling scale*)

Individuare microsito favorevole

Focalizzarsi sui micrositi favorevoli eventualmente implementandone la presenza



Cosa determina il successo della rinnovazione?



Insemediamento - nascita



Sopravvivenza - mortalità



Siti favorevoli



Facilitazione

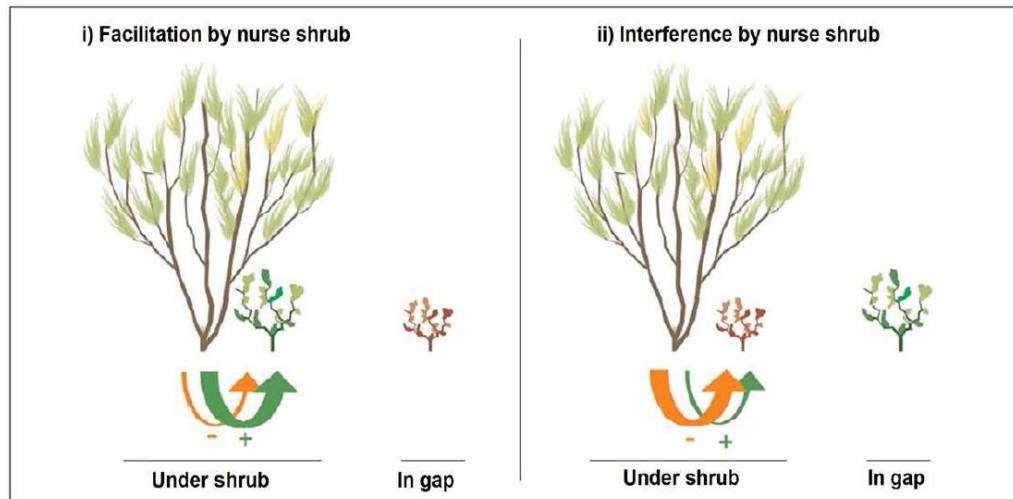


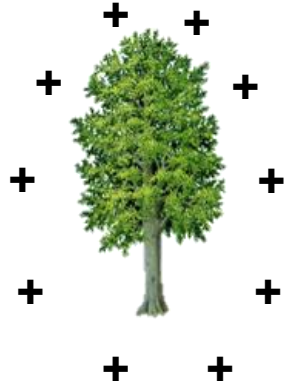
Figure 5. Facilitation and interference under nurse shrub. The net balance outcome from simultaneously acts of positive- negative effects determines the relative importance of the process driving shrub-seedling interaction, (i) when positive effects outweigh negatives ones, seedling can use environmental conditions that have been modified by shrubs and increase its performance in compare to seedlings located in gap; (ii) inverse that can be found when negative effects outweigh positive ones (Padilla and Pugnaire, 2006).

Facilitazione

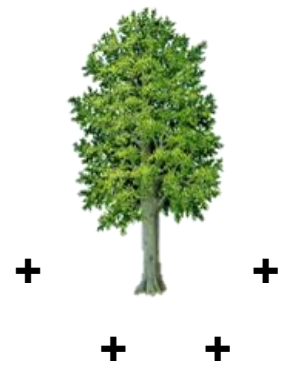


Facilitazione cwd



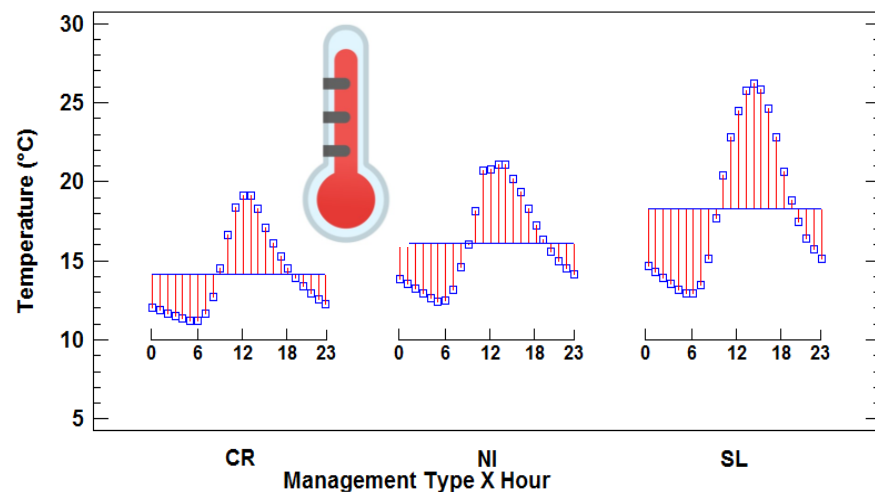
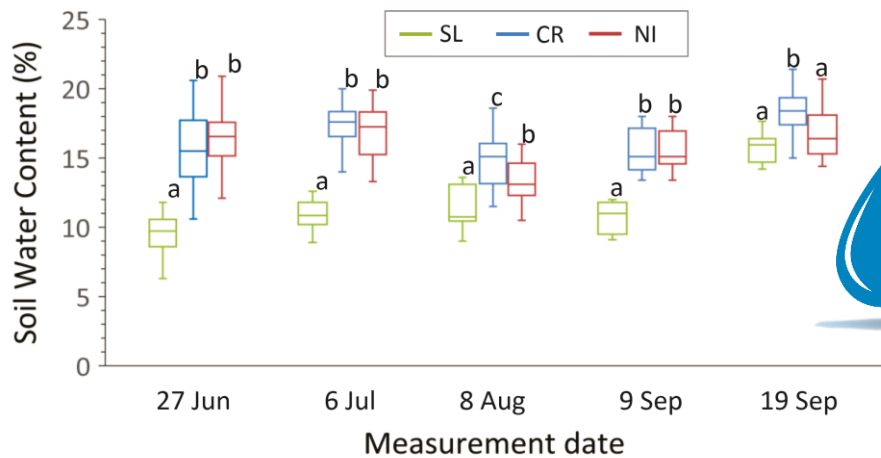
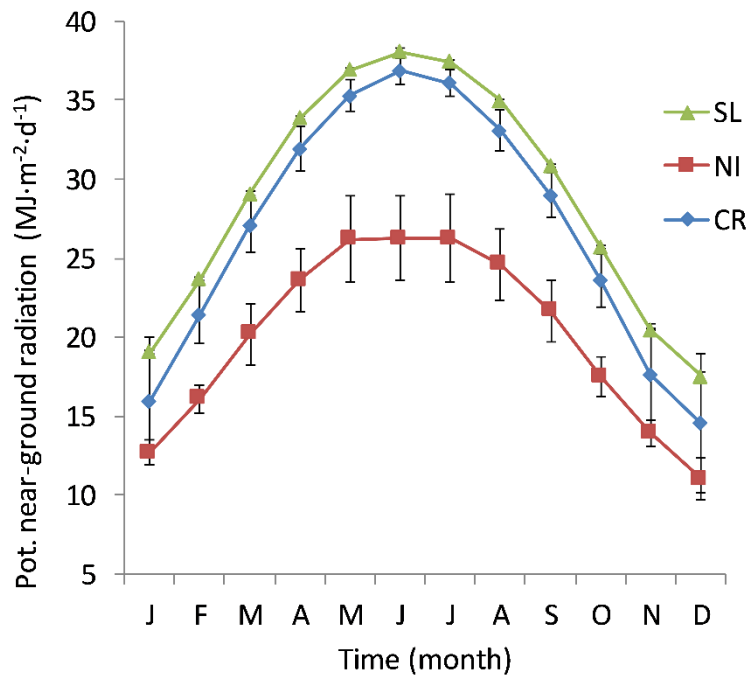


Isotropia



Anisotropia





Marzano et al. 2013; Marcolin et al. 2019

I diversi trattamenti post-incendio modificano le condizioni microstazionali.

Il salvage logging crea condizioni microclimatiche estreme, più calde, con minore umidità, maggiore insolazione e maggiori escursioni termiche tra giorno e notte rispetto agli altri trattamenti.



Ruolo della necromassa



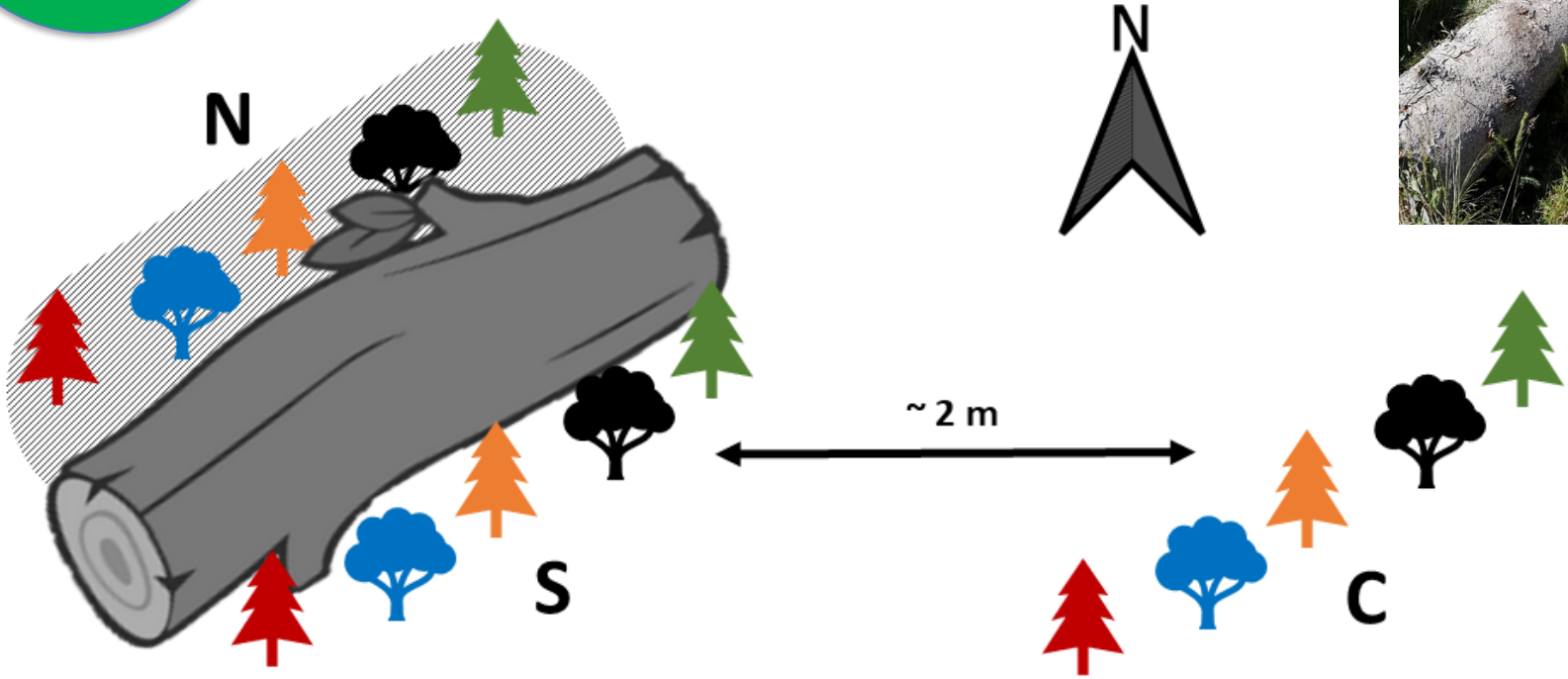
Foresta di Malgonera



- ▲ Casera Malgonera
- Path CAI764
- Experimental blocks



30
blocchi



Picea abies Karst.



Larix decidua Mill.



Abies alba Mill.



Fagus sylvatica L.



Sorbus aucuparia L.

Marangon et al. sub.

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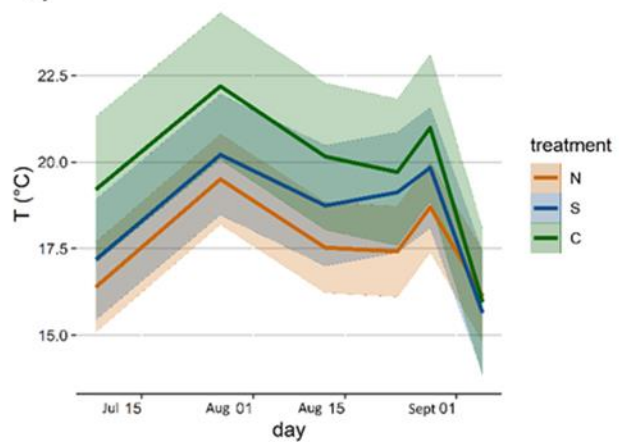
Dipartimento Territorio
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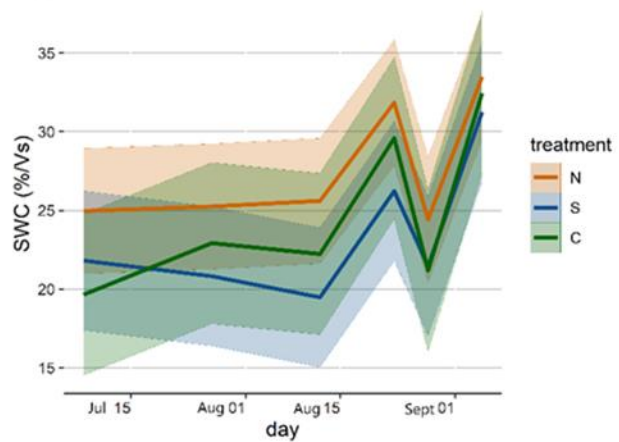
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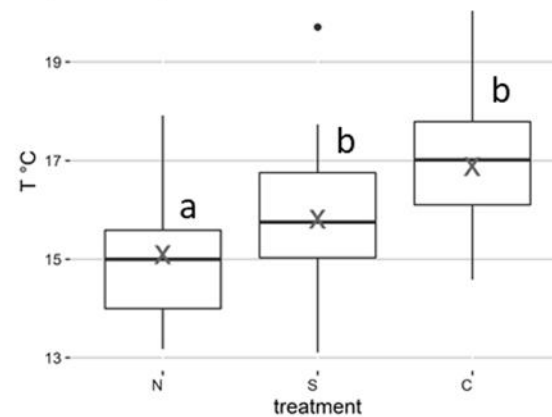
a) **Microsite T trend**



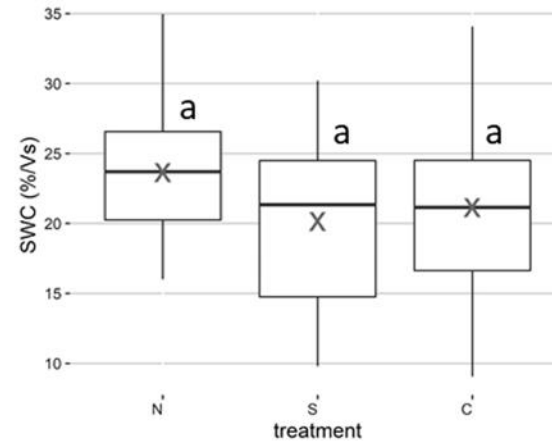
c) **Microsite SWC trend**



b) **Mean T per treatment**



d) **Mean SWC per treatment**



Come

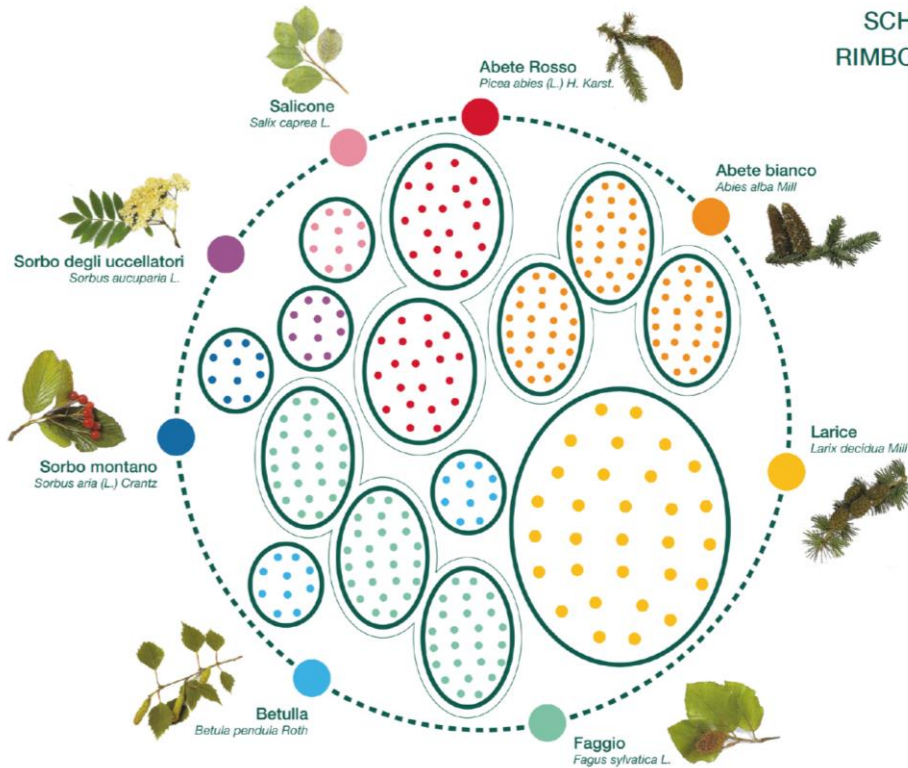
Irregolare, a gruppi, lacunoso

Creazione di un mosaico piuttosto che una matrice uniforme



Schemi di impianto irregolari

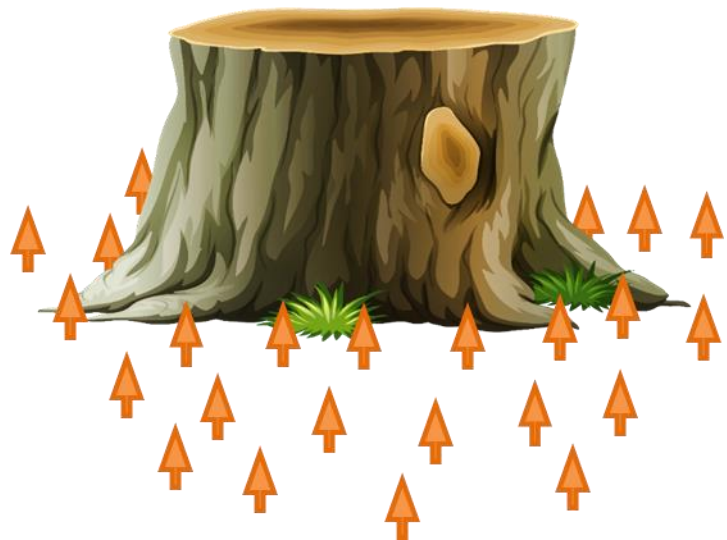
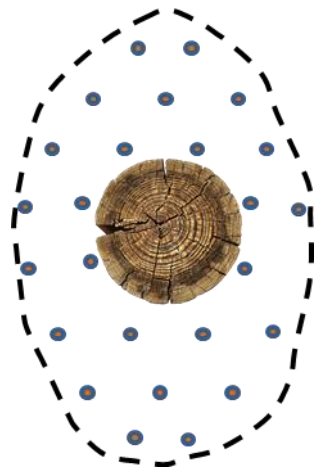
Micrositi favorevoli



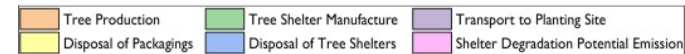
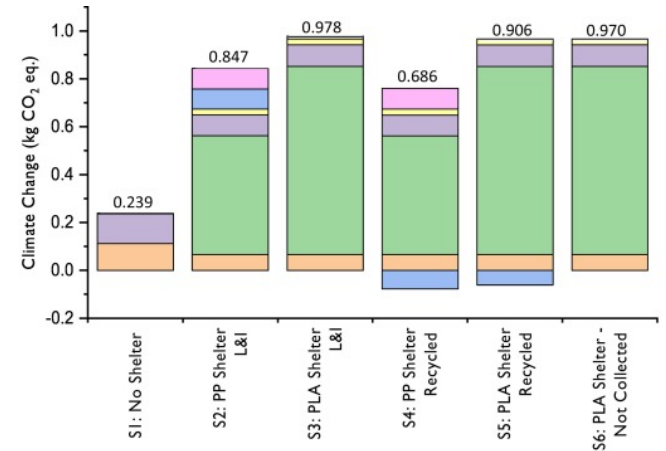
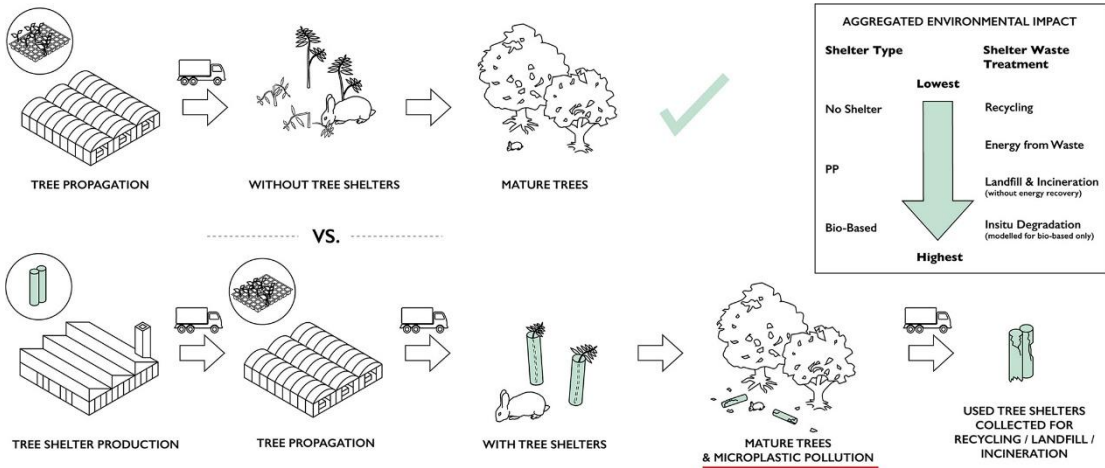
SCHEMA TIPO DI RIMBOSCHIMENTO (CLUSTER)



Oltre Vaia Asiago









Con che cosa

Provenienza

Rimboschimenti misti

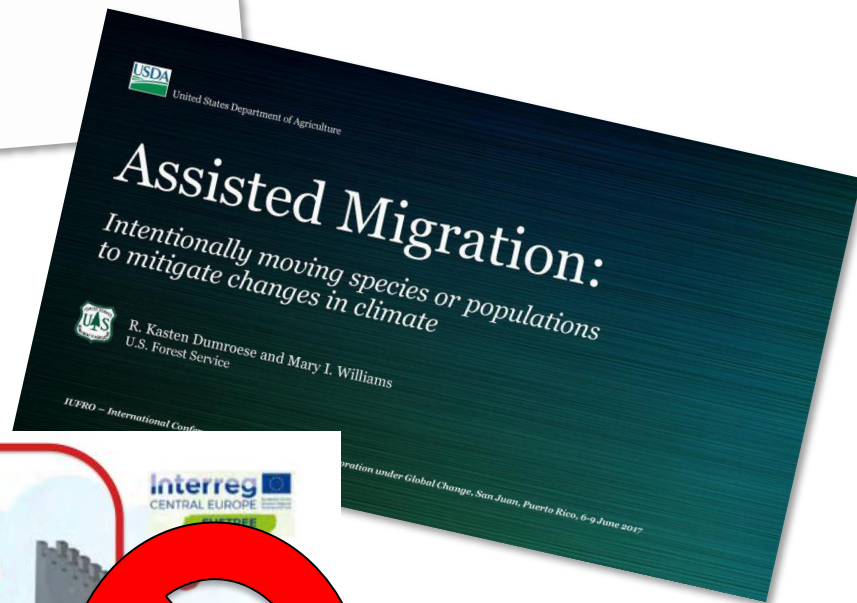
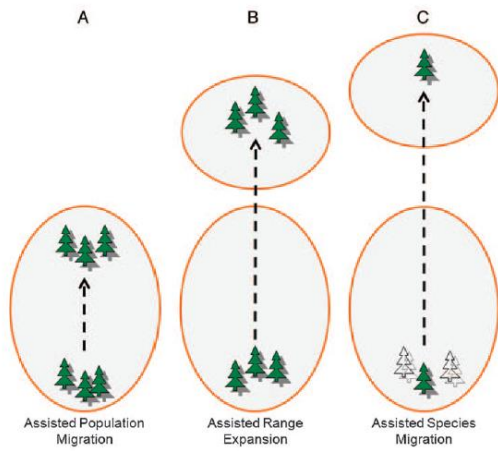
Resilienza e Resistenza



Preparing for Climate Change: Forestry and Assisted Migration

Mary I. Williams and R. Kasten Dumroese

Migrazione assistita
Altitudinale
Latitudinale







Brucamento & c.



Brucamento & c.



				
Fascia vegetazionale	abete bianco	acero montano	sorbo degli uccellatori	quercia
alpina	-	-	-	-
subalpina superiore	-	-		-
subalpina inferiore				-
montano superiore				-
montano inferiore				
sub-montano-collinare				
tutta la Svizzera				

°C ○ 12/18/09 09:22 AM ETH-FE---2



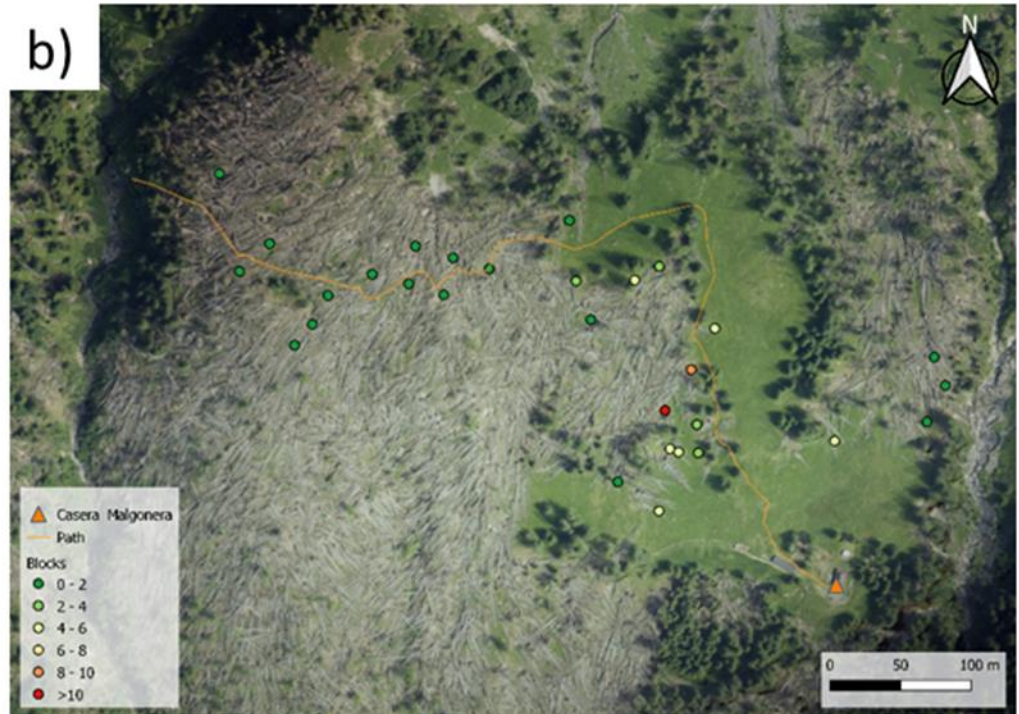
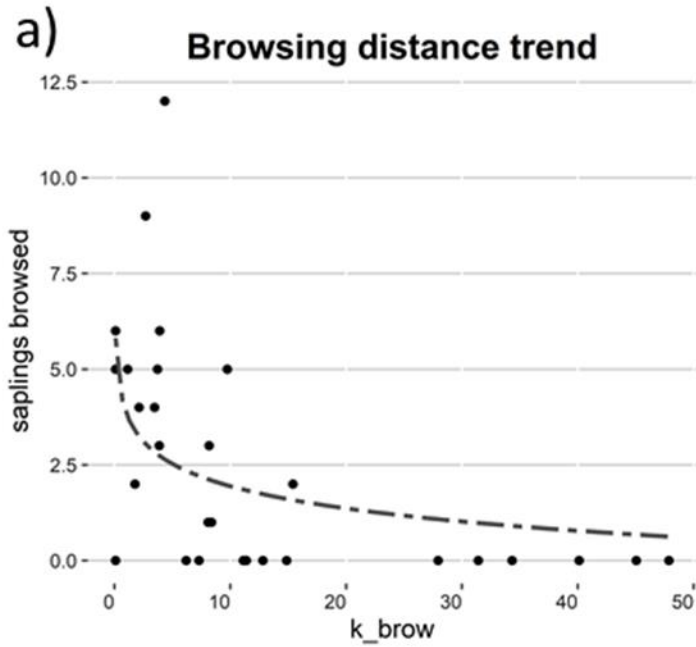
- Euclidean distance (d_{eucl})



- Cost distance (d_{cost})



- $K_{brow} = d_{cost} - d_{eucl}$





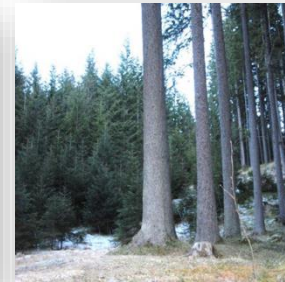
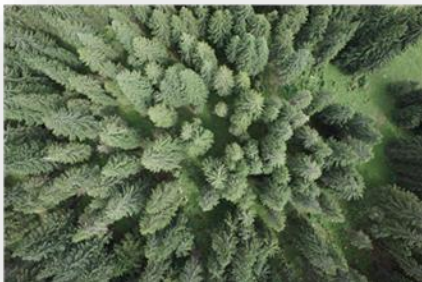
Conclusioni

Ecosistemi **complessi** necessitano di un approccio complesso, **multidisciplinare**.

Ripristinare popolamenti forestali è il primo passo per creare popolamenti più **resistenti** e **resilienti** alle nuove condizioni.

Non dobbiamo semplicemente piantare alberi, ma ricreare popolamenti forestali.

Forest restoration vs. plantation



Grazie per l'attenzione

emanuele.lingua@unipd.it



Ringraziamenti
Regione del Veneto
U.O. Forestale
Protezione Civile
Veneto Agricoltura