Restoring resilience in Mediterranean landscapes

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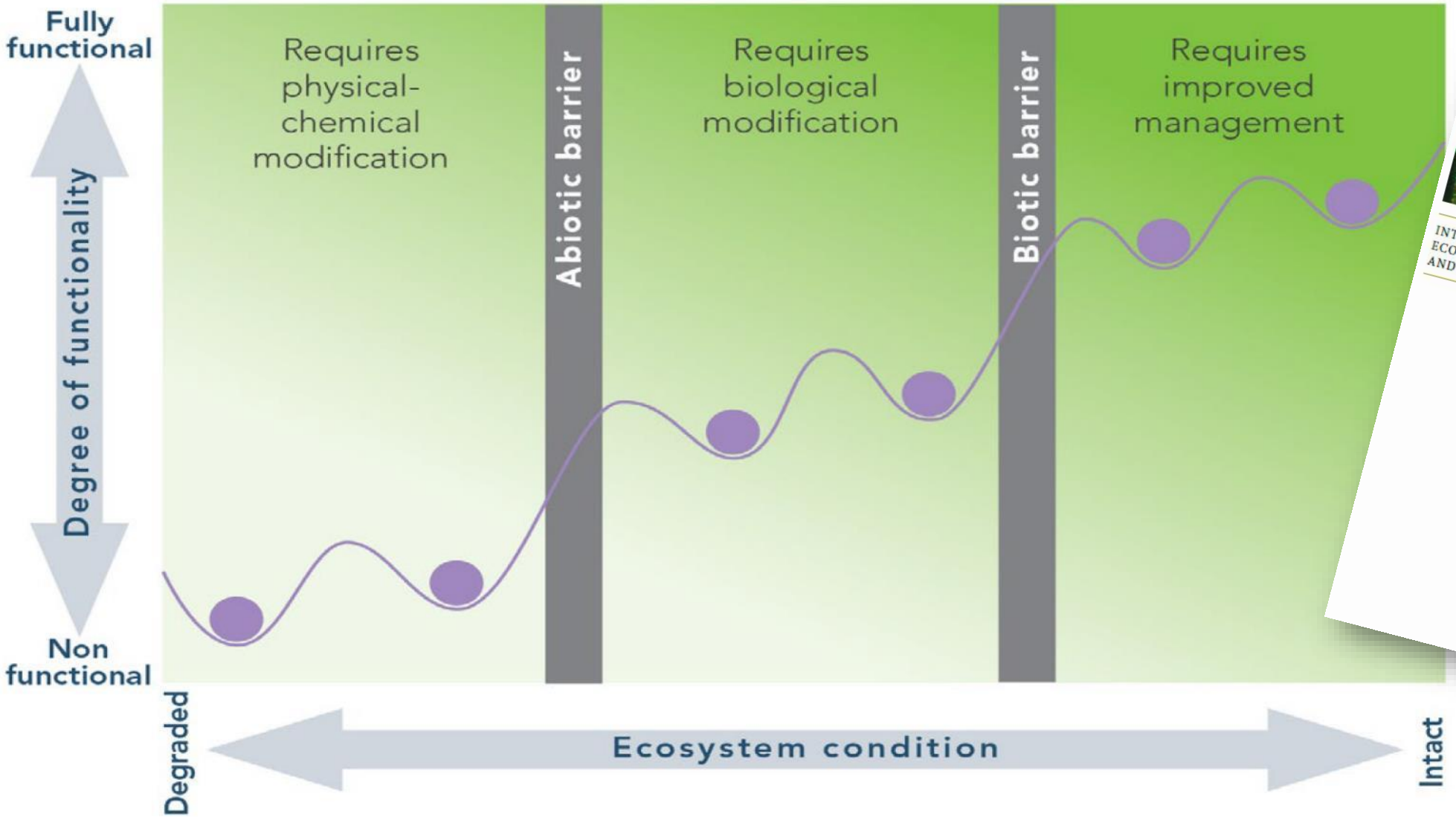
Restoring resilience in Mediterranean landscapes

- What's resilience in the context of Mediterranean landscapes?
- Biotic thresholds requiring no intervention (or passive restoration)
- Biotic thresholds requiring intervention
- Abiotic thresholds
- Increasing resilience under CC, assisted migration
- Resilience and society needs and aspirations

Resilience in the context of Mediterranean landscapes



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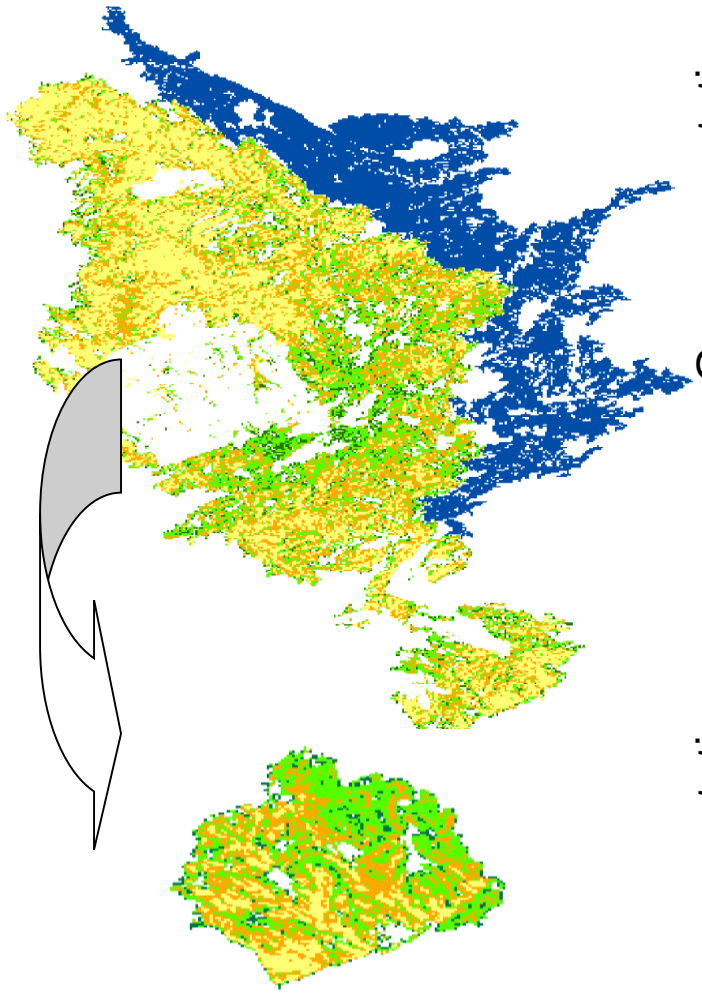
Biotic thresholds requiring no intervention

Biotic thresholds requiring no intervention

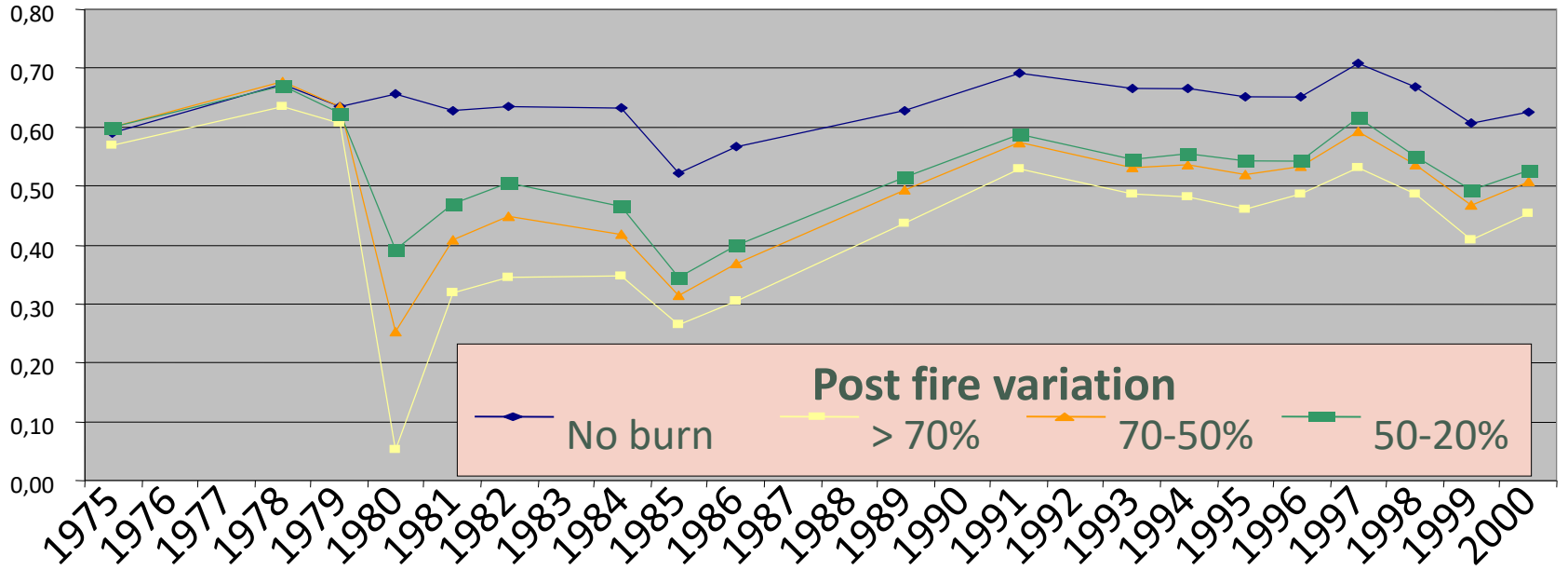
Old-fields colonised by *Juniperus phoenicea*

Limits to resilience

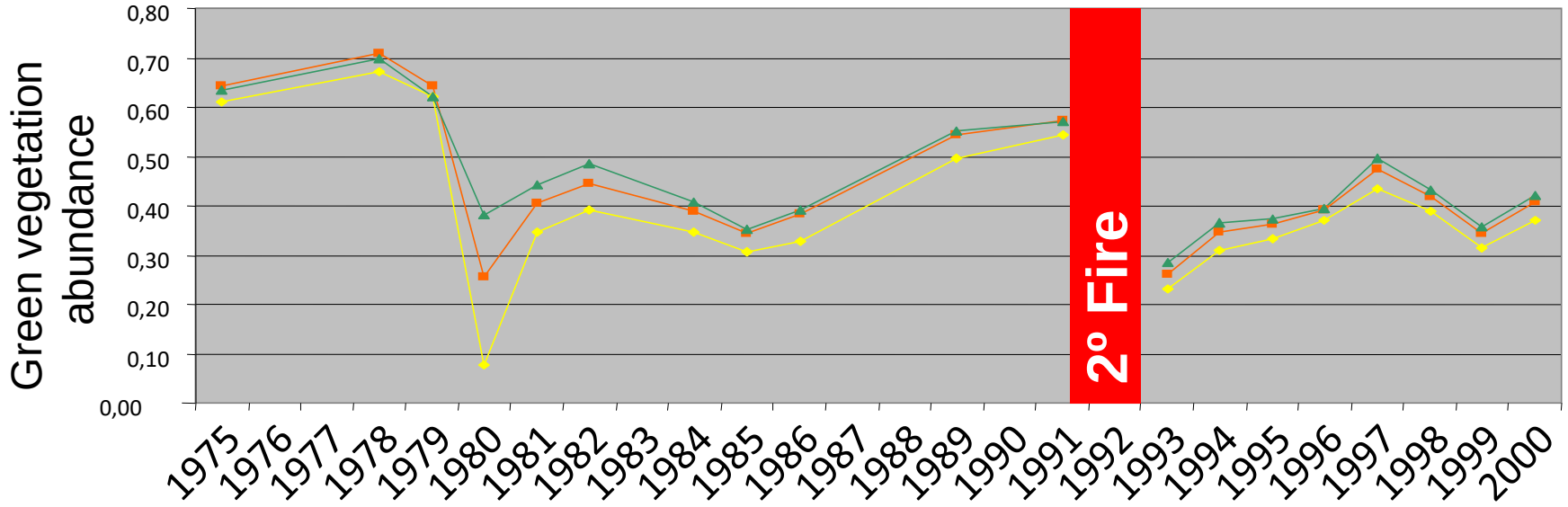


Spectral mixture analysis based on Röder et al. 2008

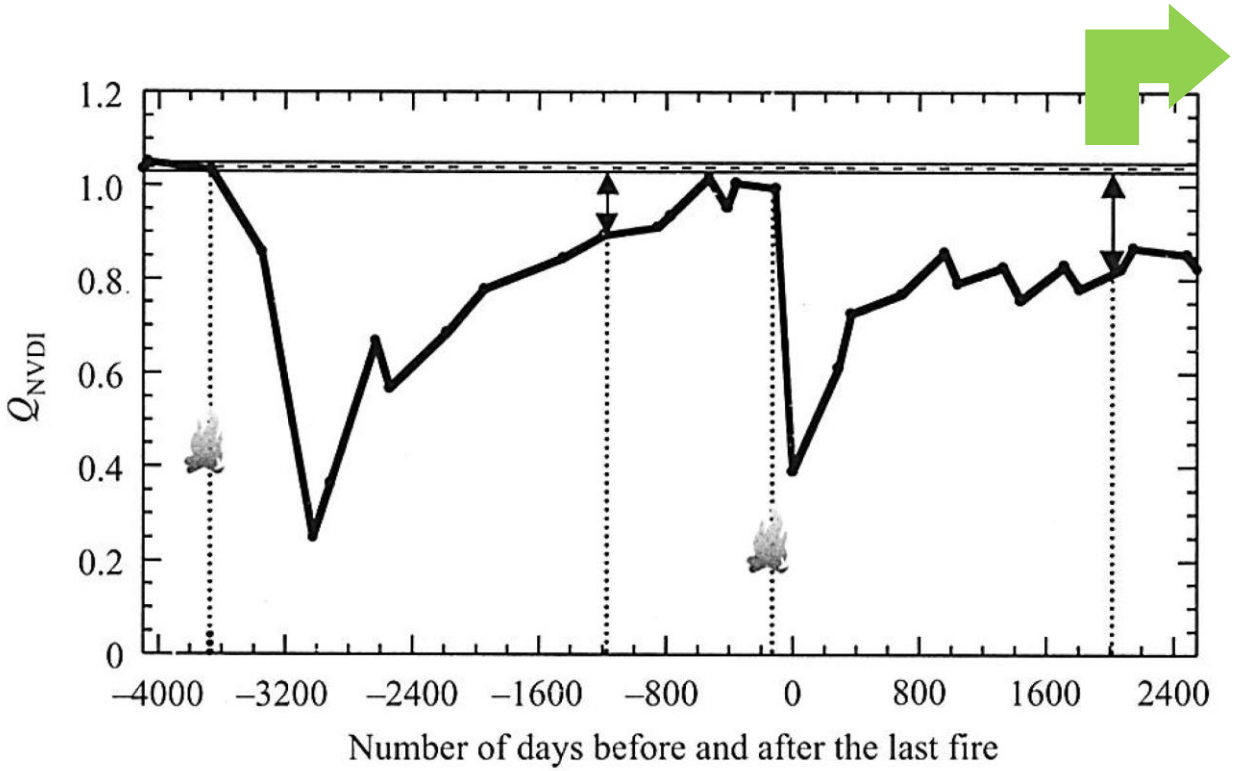
Areas burned once in 1978

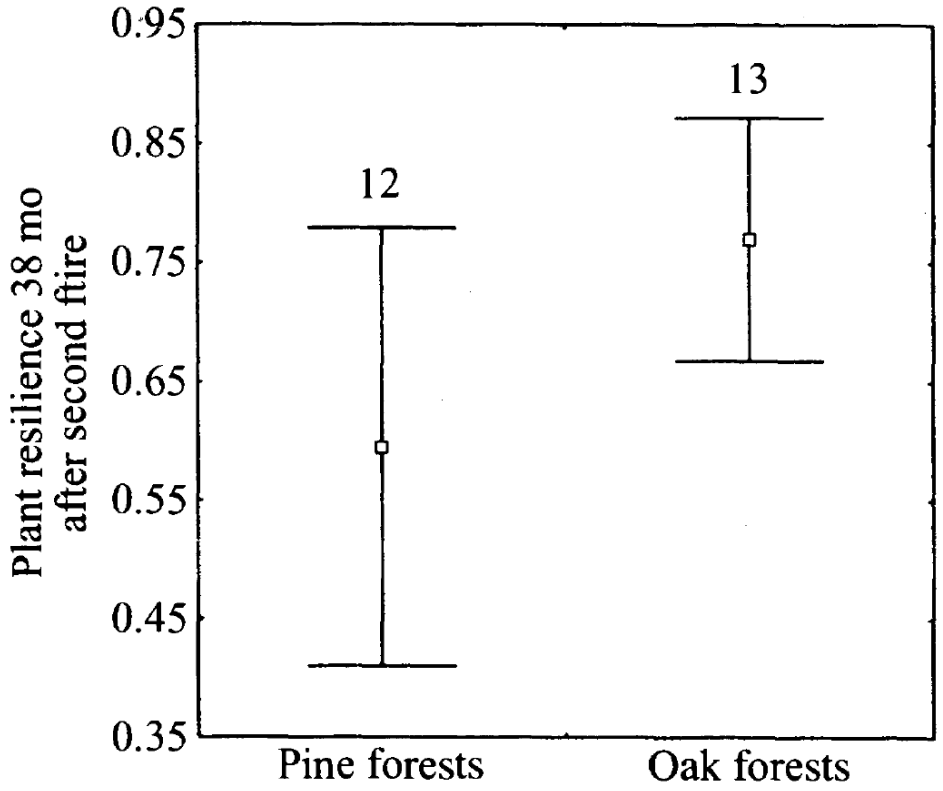


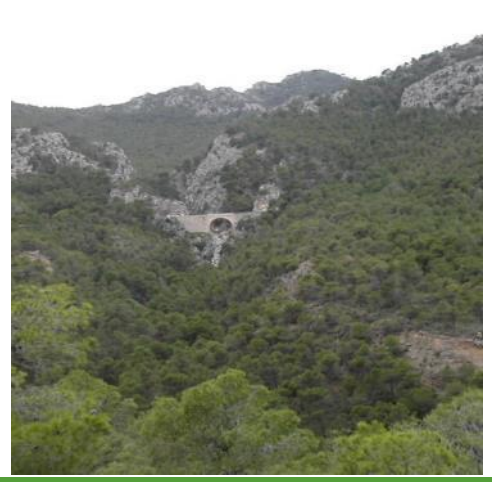
Areas burned in 1978 and 1991



Limits to resilience







Díaz-Delgado et al. (2002). Ecol. 83: 22293-2303

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Biotic thresholds requiring re-introduction

Valle de Ricote, Murcia

www.mma.es/portal/secciones/biodiversidad/montes_politica_forestal/fototeca_forestal/

Biotic thresholds requiring disturbance

SERRA ESPADÀ (CASTELLÓ, SPAIN)

Biotic thresholds requiring disturbance

Control (**CONTR**)

Spot cleared (**SPOT**)

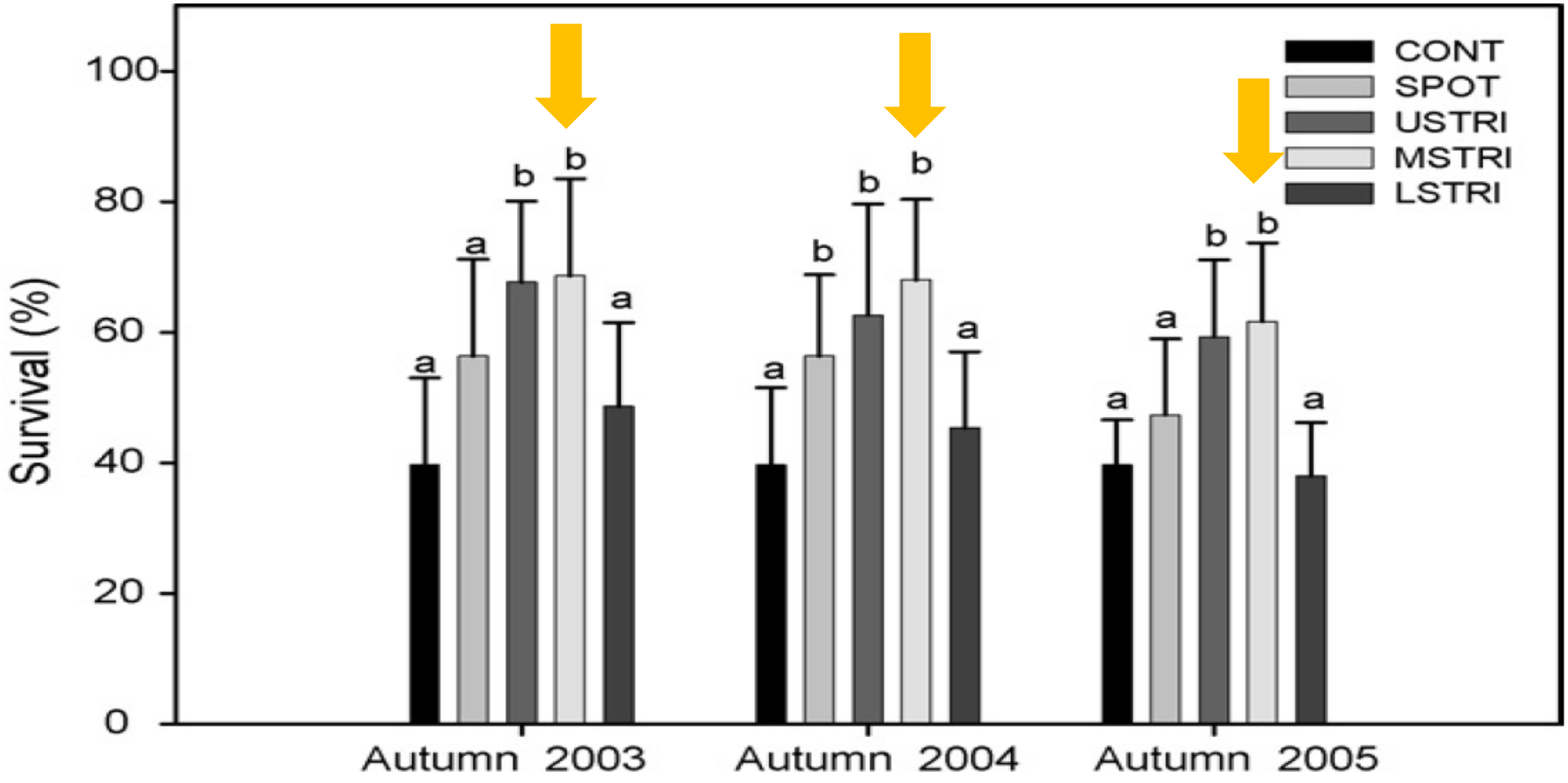
Strip cleared-planted downslope (**LSTRI**)

Strip cleared-planted midslope (**MSTRI**)

Strip cleared-planted upslope (**USTRI**)

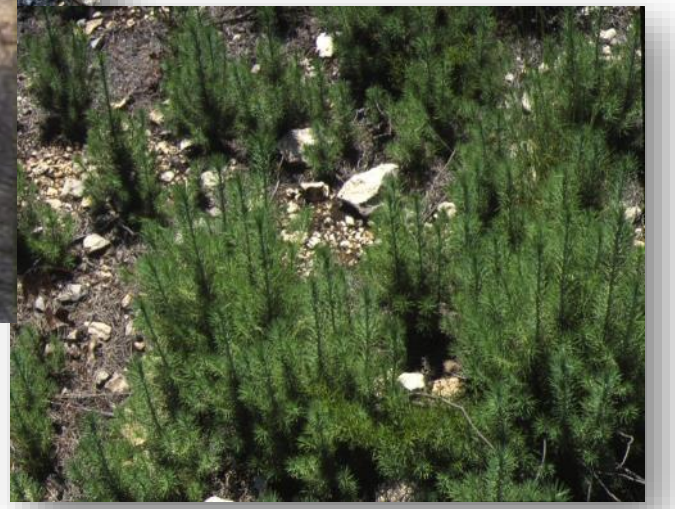
Biotic thresholds requiring disturbance

most exposed



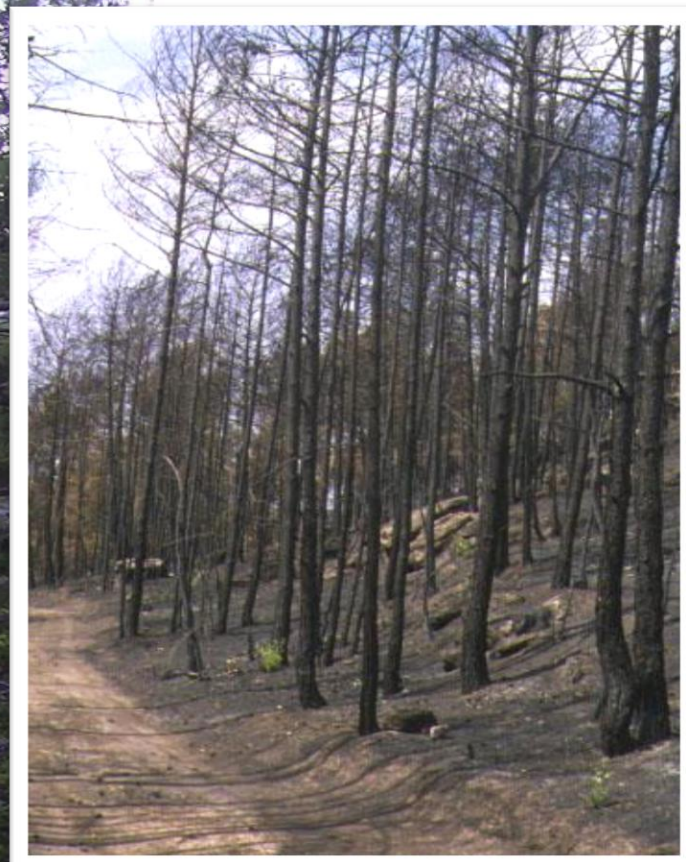
Pérez-Devesa et al. (2008). For. Ecol. Manage. 255: 374-386.

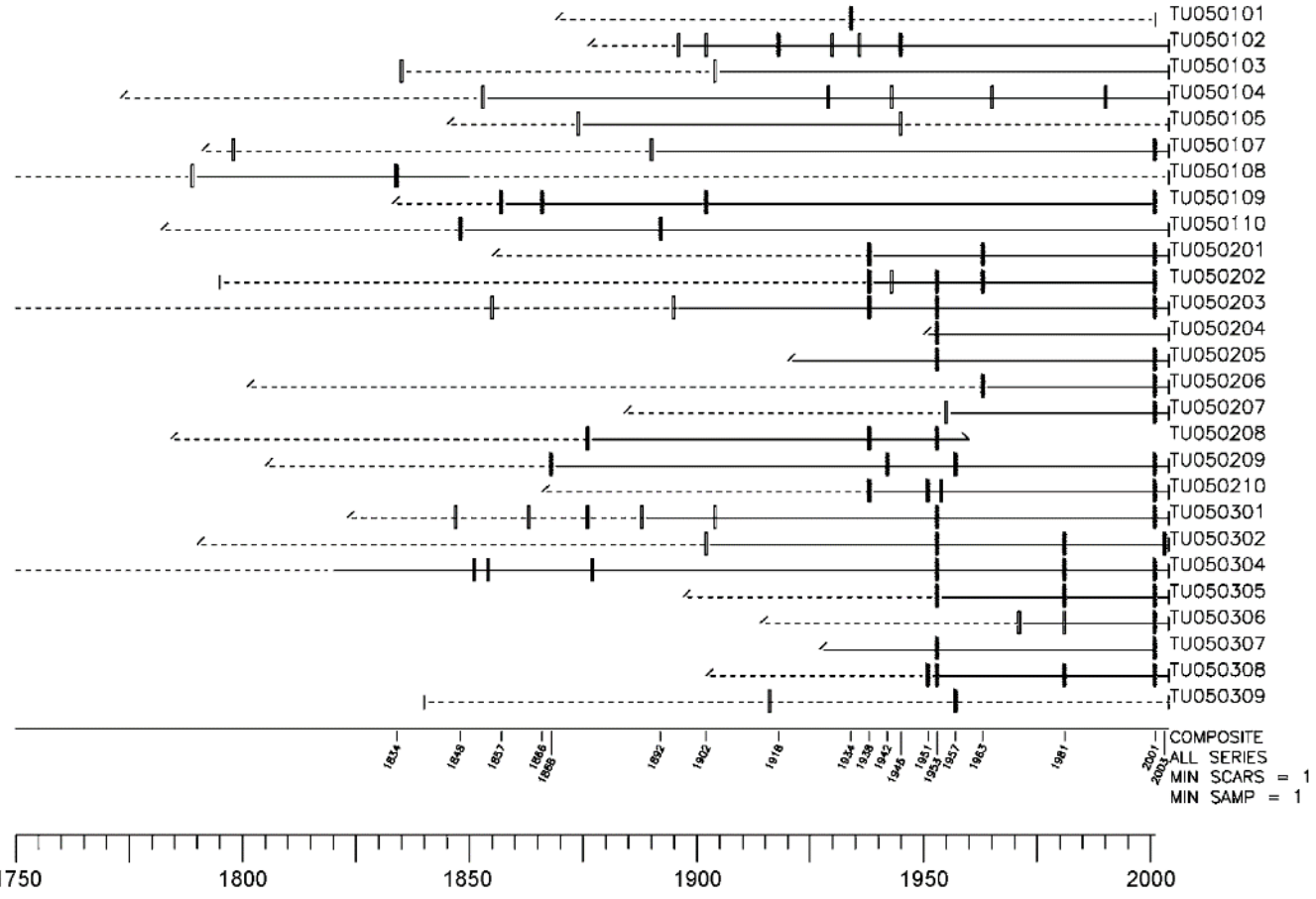
Biotic thresholds requiring changes in structure/disturbance



Tapias et al.(2001)

Biotic thresholds requiring changes in structure/disturbance



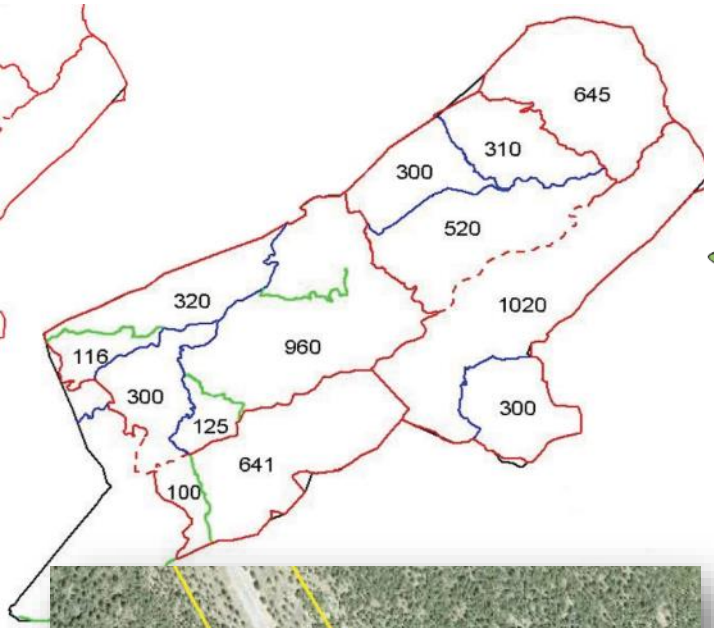


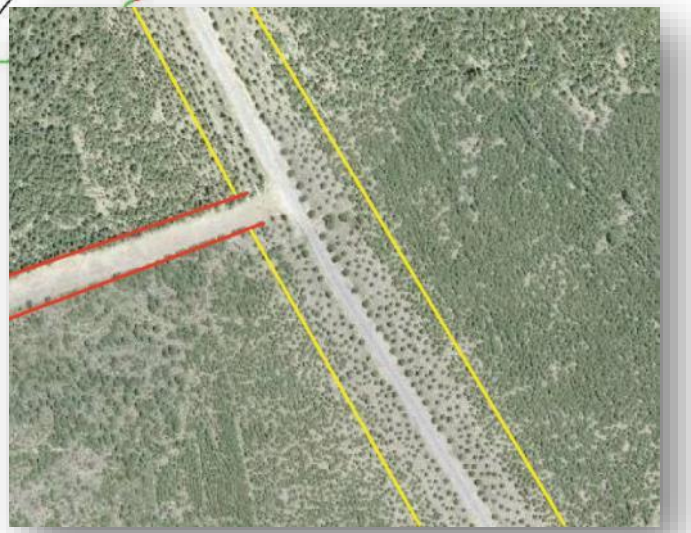
Pinus nigra natural stands

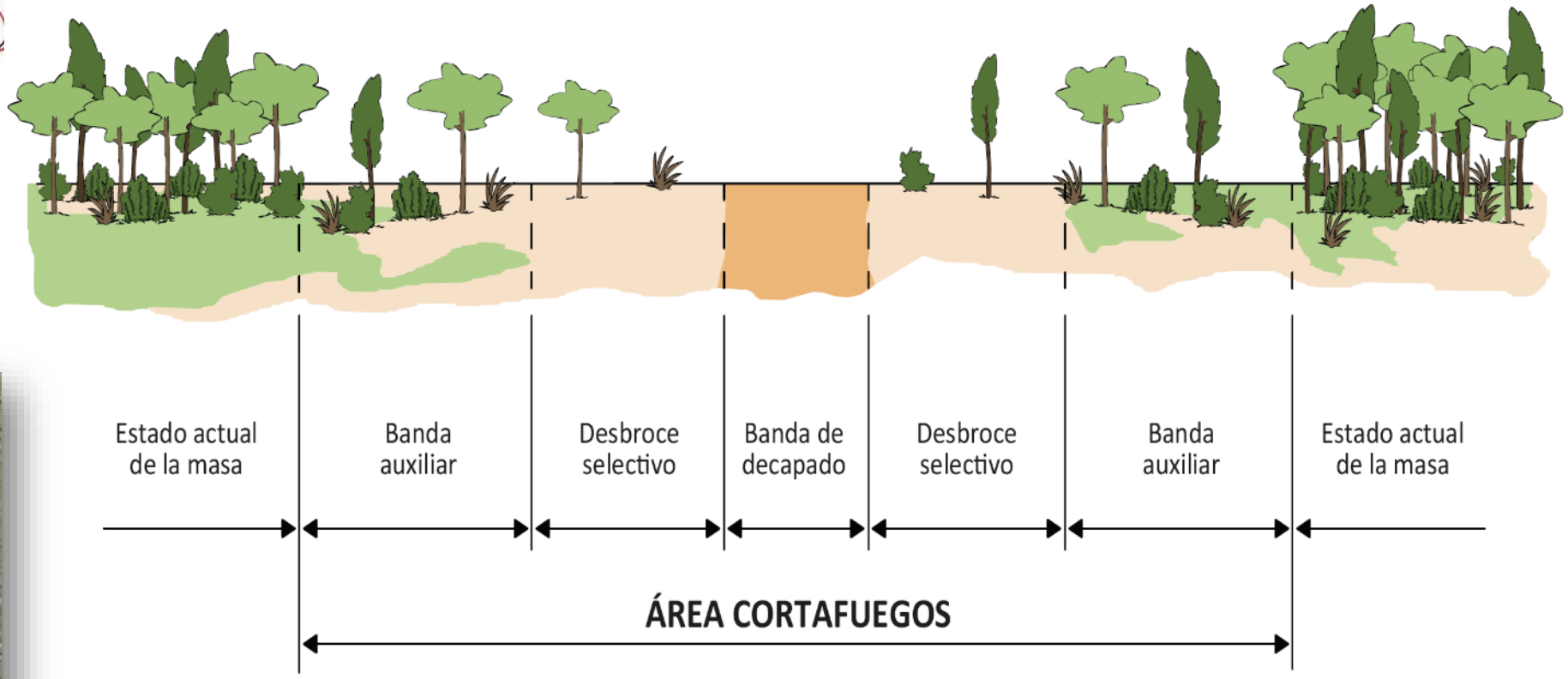
Turmell site (Castelló, E Spain)

Fule et al., (2007) For. Ecol. Manage.

Biotic thresholds requiring changes in structure/disturbance







Navarro et al. (2015). Infraestructuras de Prevención de Incendios Forestales. GV-REE. http://www.agroambient.gva.es/

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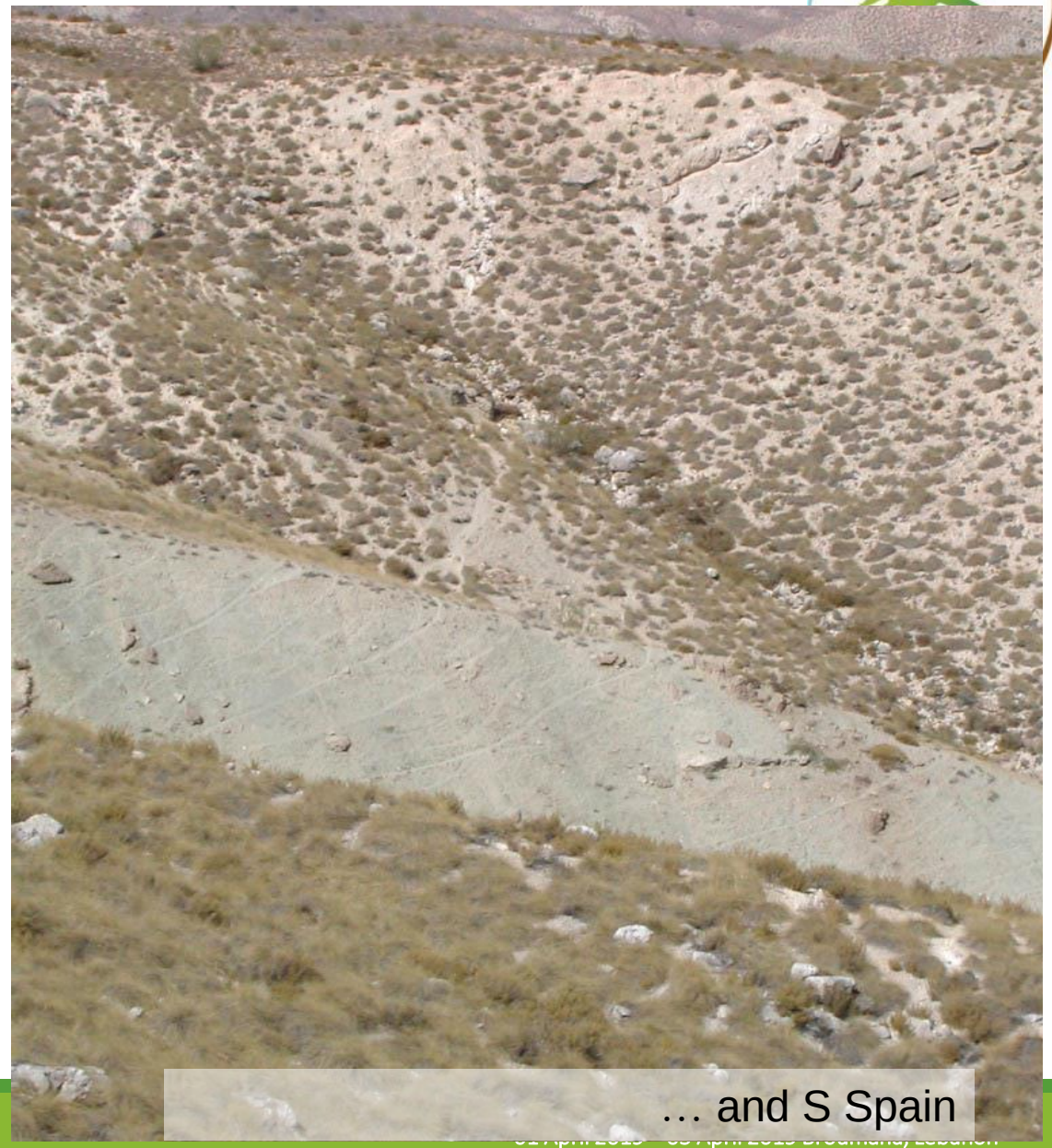
Abiotic thresholds that can be hardly reversed

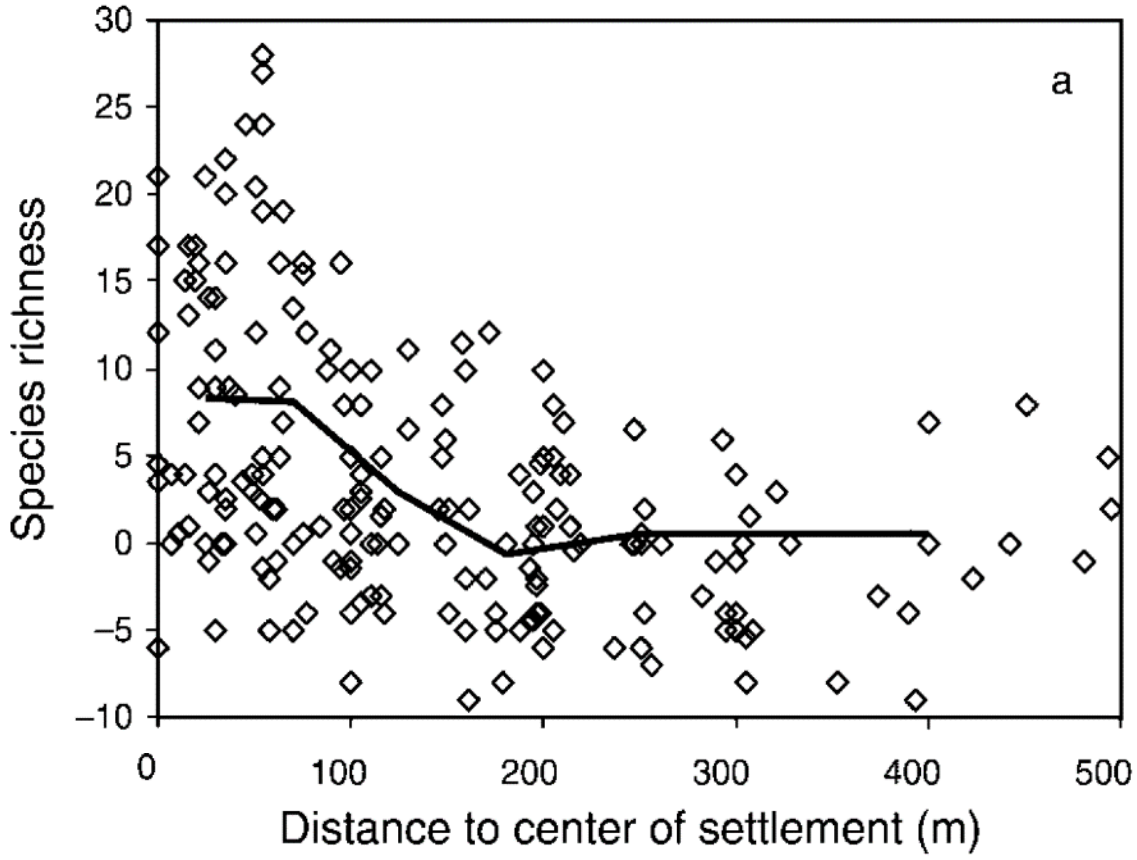
Overgrazed alfa grass steppes in Central Tunisia

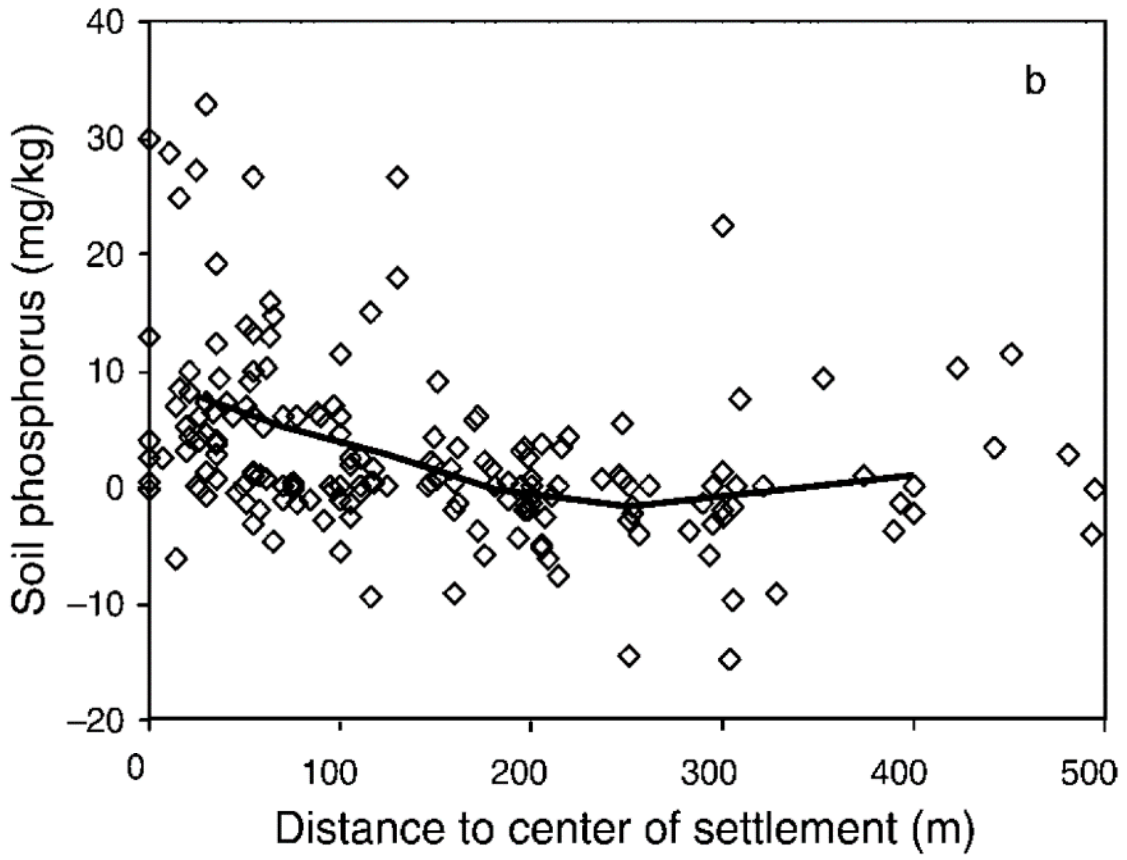


… and S Spain

Abiotic thresholds that can be hardly reversed

Effects of Roman disturbance persisting after ca. 1,500 years





Dambrine et al., (2007). Ecol. 88: 1430-1439.

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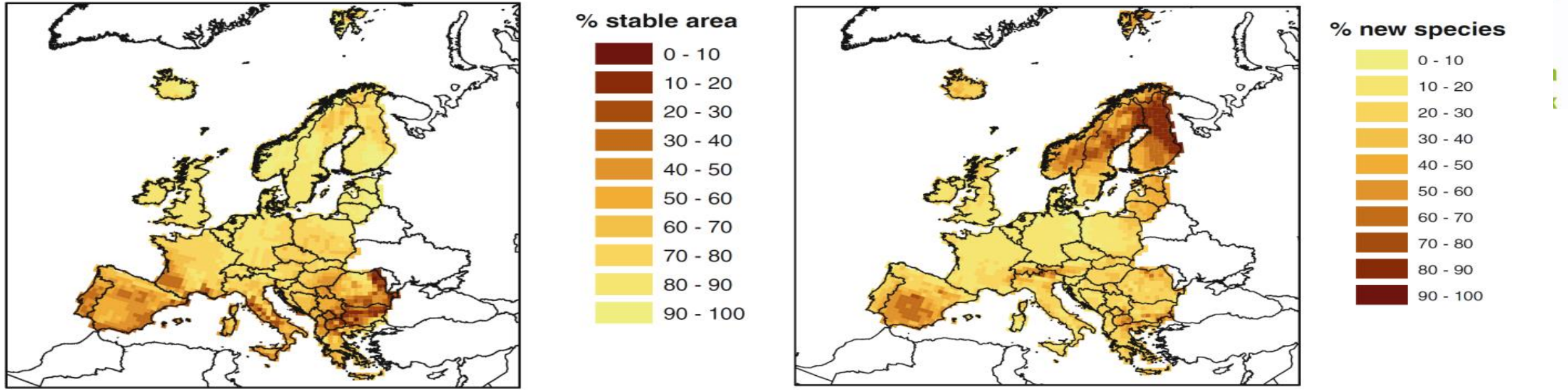
Increasing resilience under climate change



Bakkenes et al. (2006)

"…in southern Europe, where up to 25% of the species currently present will disappear under the climatic conditions predicted for 2100" Alkemade et al. (2011)

Increasing resilience under climate change

Sierra de Orihuela, SE España (12/01/2015)

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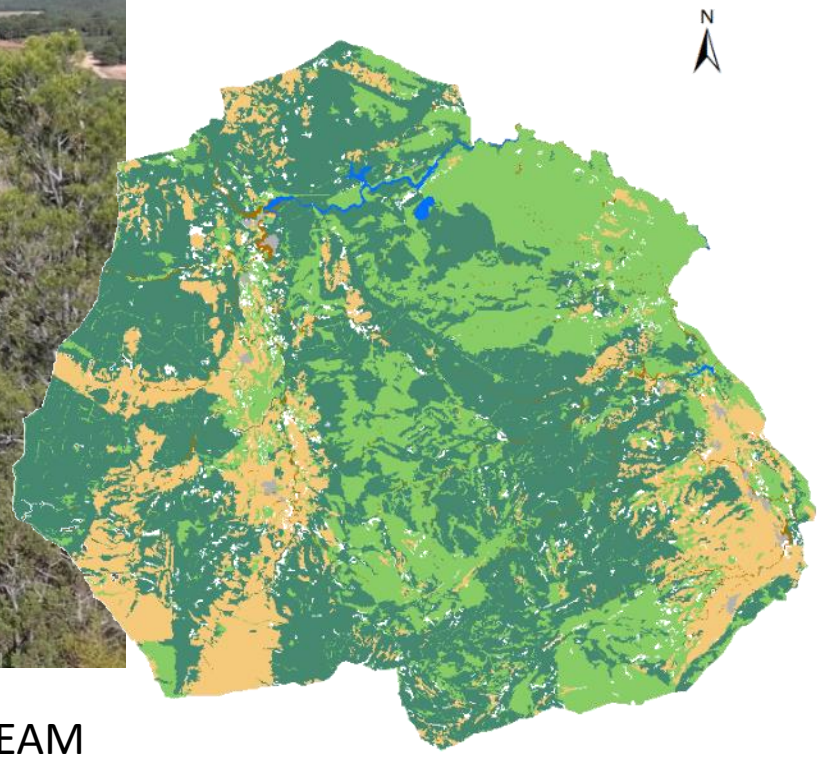
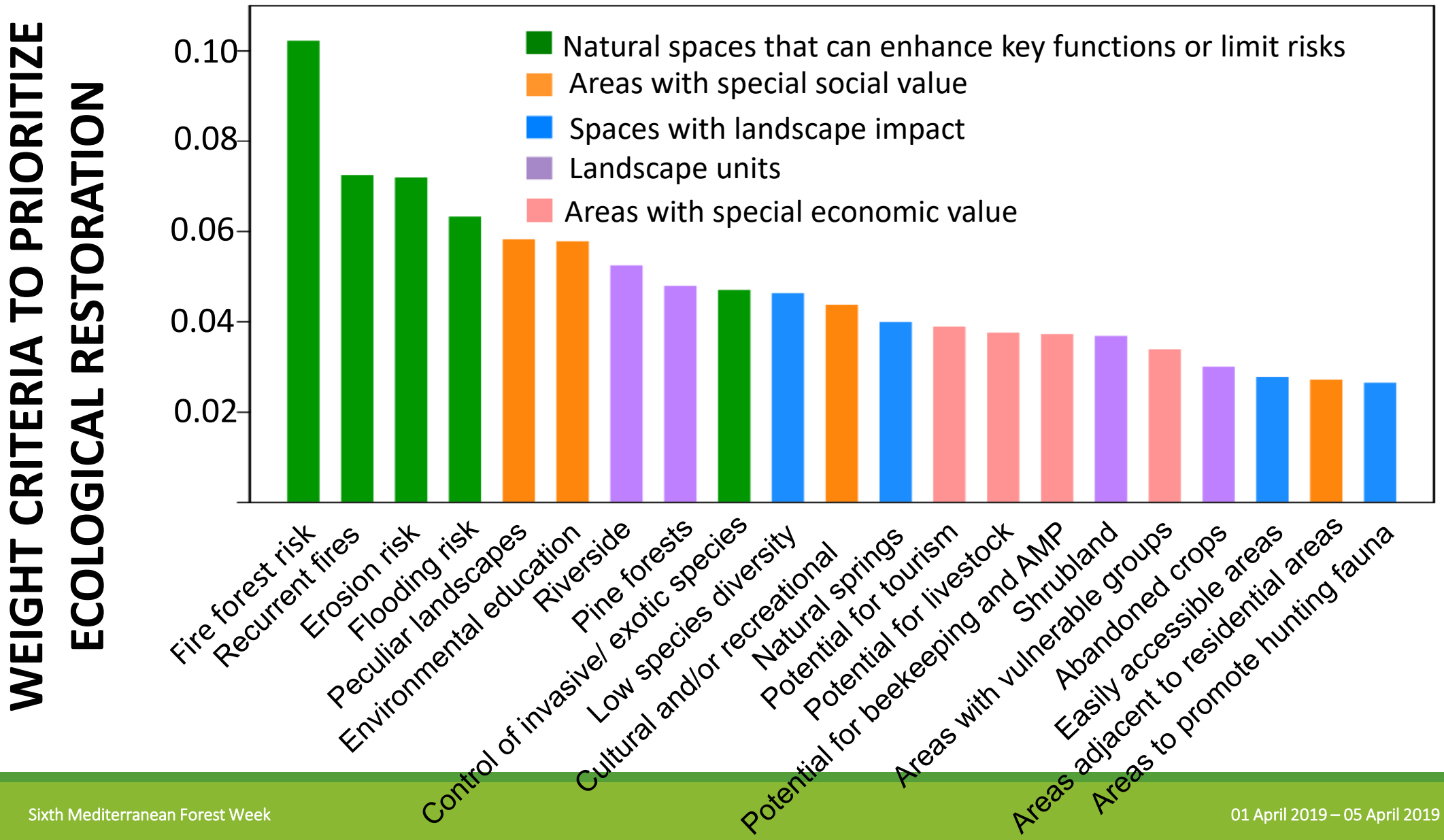
Resilience and society needs and aspirations

Demarcación Forestal de Enguera (Valencia, E Spain)



Disante, K. et al (unpublished) Fundación CEAM

Resilience and society needs and aspirations



Disante, K. et al (unpublished) Fundación CEAM

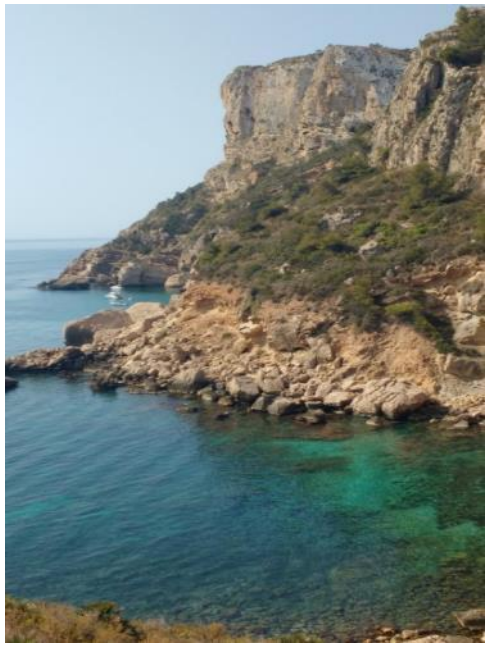
VI MFW Mediterranean Forest Week

Conclusions

1. Mediterranean landscapes are resilient ...to some extent
2. Identify when passive restoration is feasible and acceptable
3. Identify when loss of resilience cannot be reversed
4. Manage for increased resilience under climate change: resprouting and other traits, assisted migration, landscape configuration
5. Prioritize actions and areas
6. Engage society, restore socio-ecological resilience

THANK YOU!!

ALICANTE, Spain





SER Europe Conference
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