



Project cofinanciat per la Fonda Europea
de Desenvolupament Regional (FEDER)
Project co-financed by the European Regional
Development Fund (ERDF)

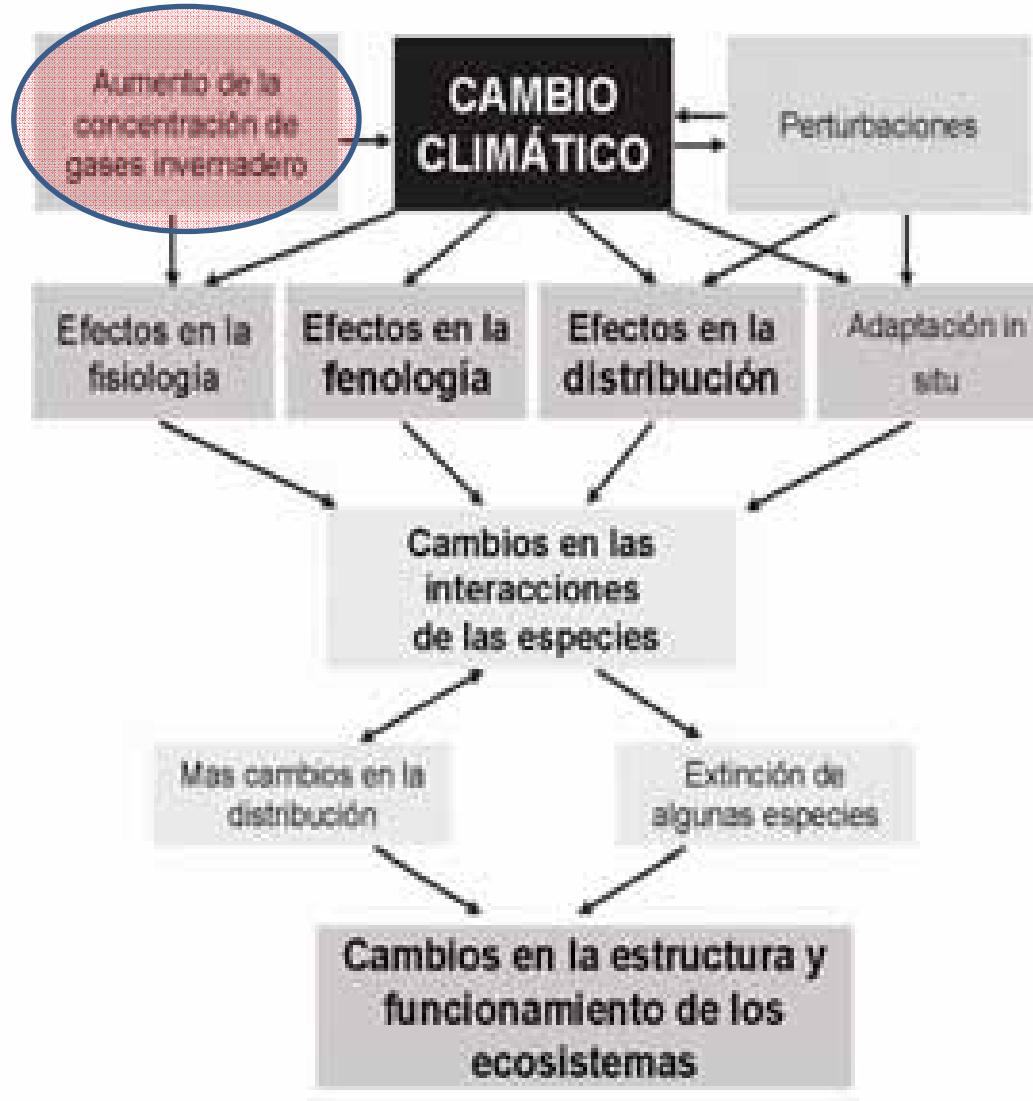
A wide-angle photograph of a dense forest with tall, thin trees, likely pines, with green and yellowish-green foliage. A horizontal black bar with a yellow grid pattern runs across the center of the image. Inside this bar, the text "CLIMATE CHANGE AND CATALANIAN FORESTS" is written in large, yellow, sans-serif capital letters.

CLIMATE CHANGE AND CATALANIAN FORESTS

Lluís Coll

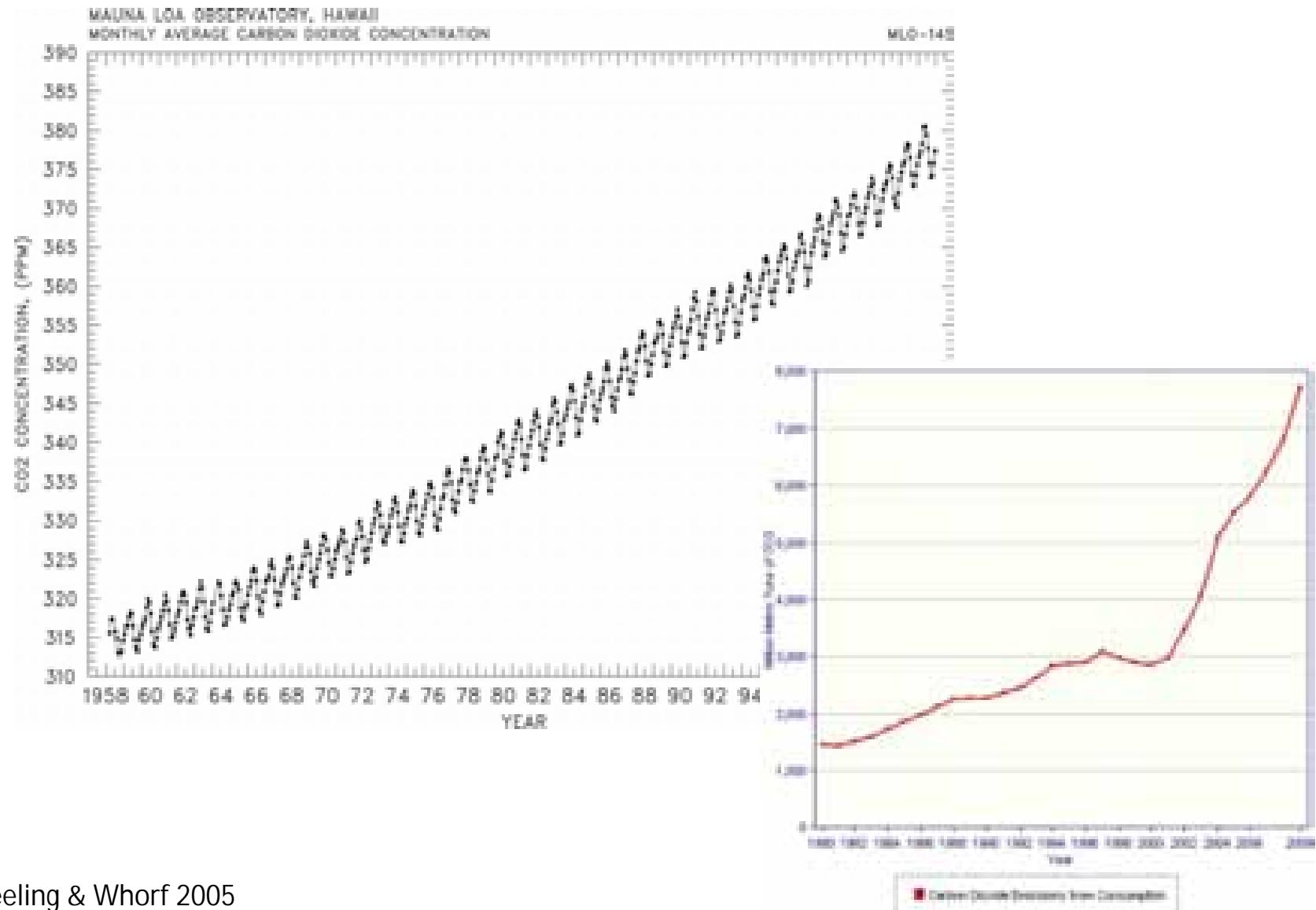
A solid black rectangular box is positioned at the bottom of the slide. Inside this box, the text "Centre Tecnològic Forestal de Catalunya (CTFC)" and "Grup de Funcionament i Dinàmica del Bosc" is written in yellow, sans-serif capital letters. Below this, the website address "http://fidbosc.ctfc.cat" is also displayed in yellow.

Centre Tecnològic Forestal de Catalunya (CTFC)
Grup de Funcionament i Dinàmica del Bosc
<http://fidbosc.ctfc.cat>



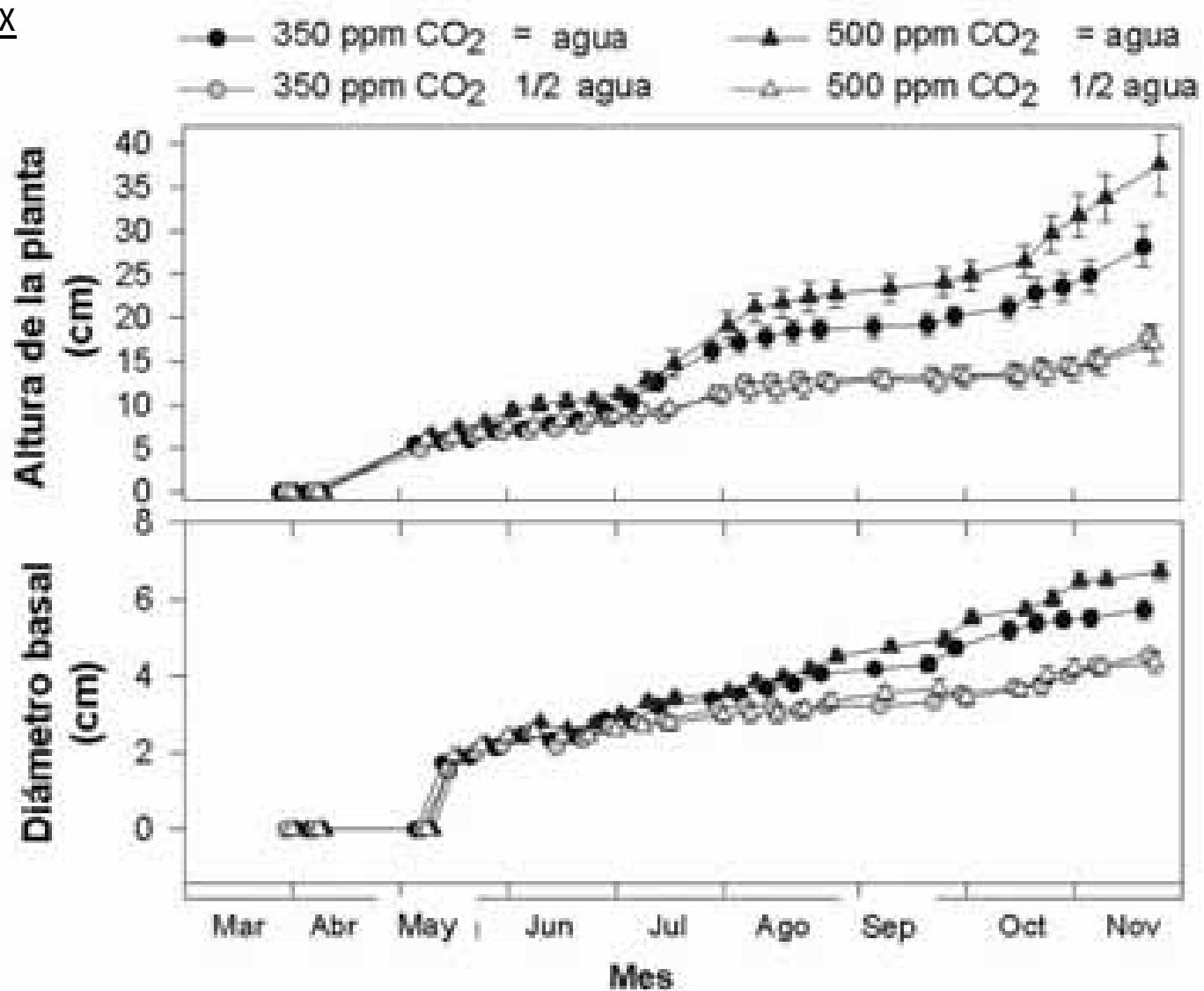
Peñuelas et al. 2004 (adapted from Hughes 2000)

Greenhouse gases



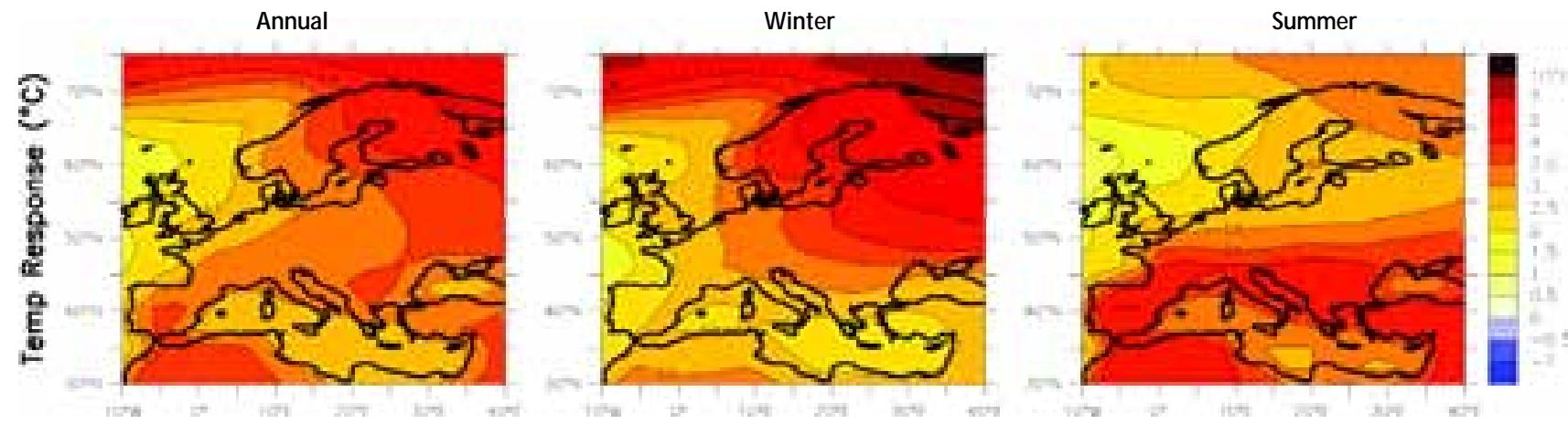
Keeling & Whorf 2005

Q. ilex

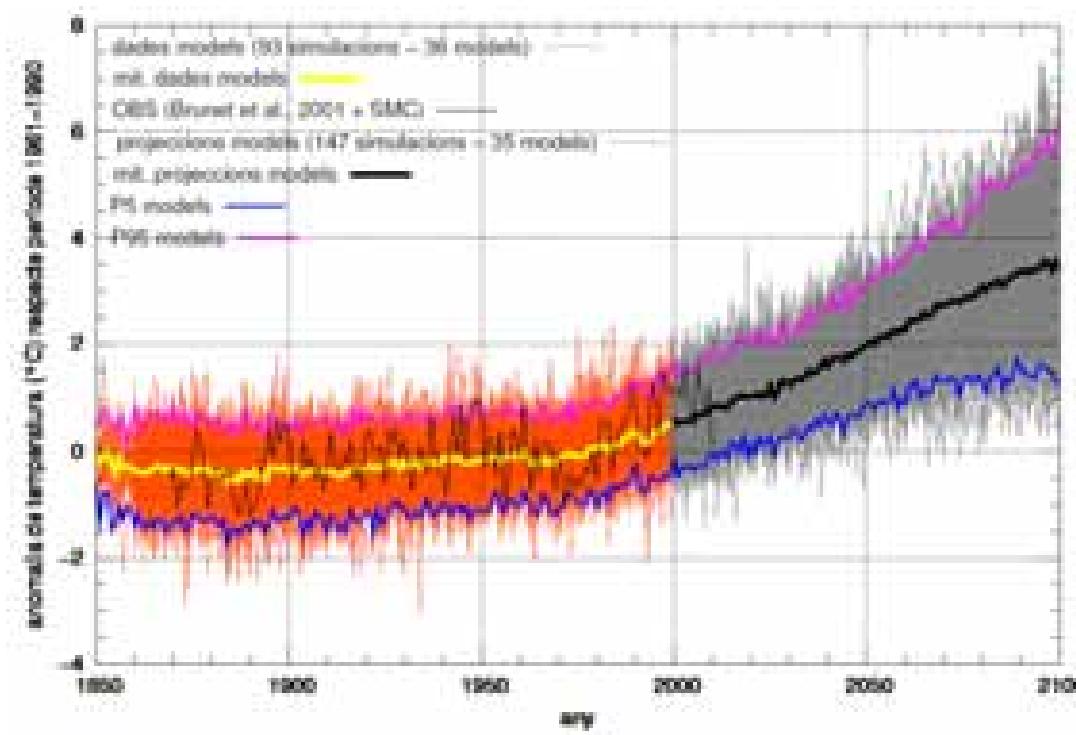


López et al. 1997

Temperature increases

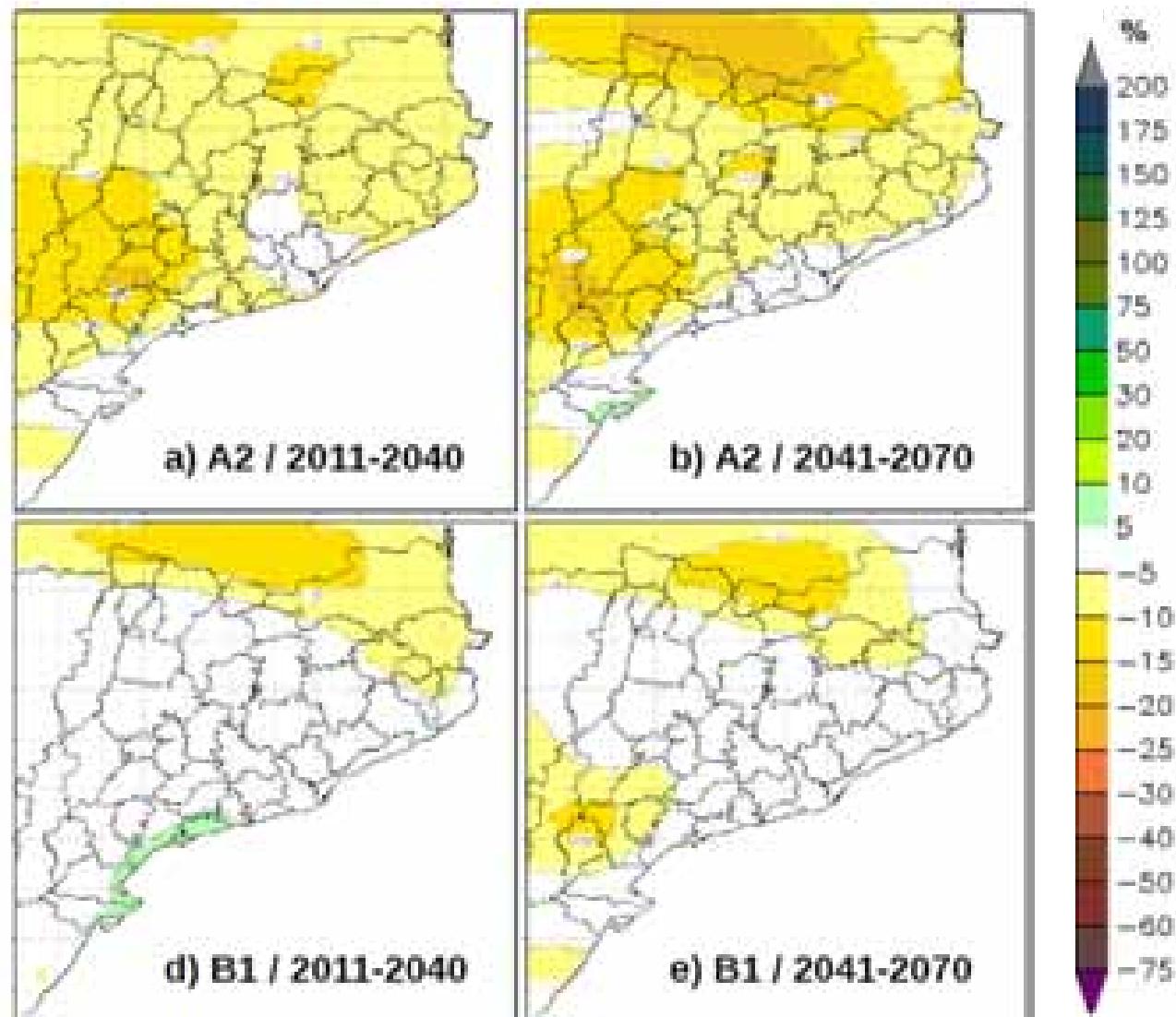


Christensen et al. (2007)



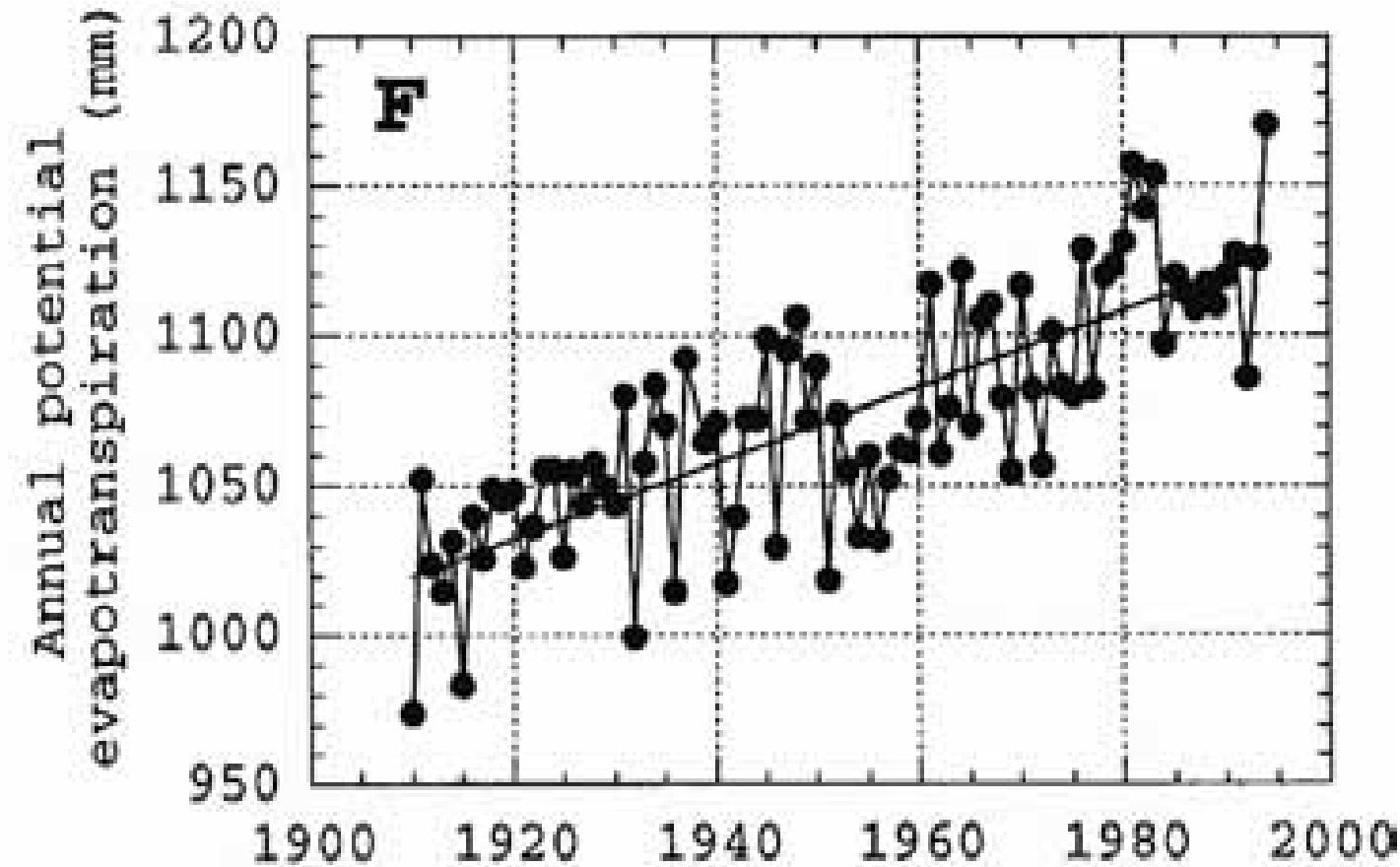
Barrera-Escoda i Cunillera (2011)

Moderate effect on precipitation



Barrera-Escoda i Cunillera (2011)

Increase of annual evapotranspiration



Extreme drought periods

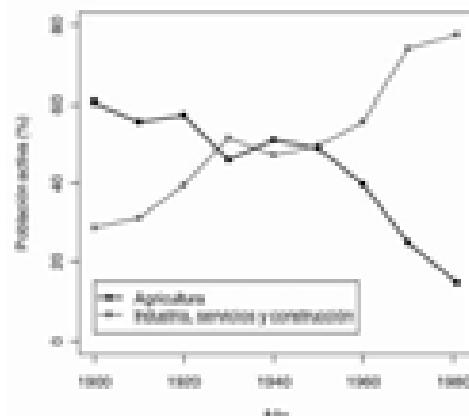
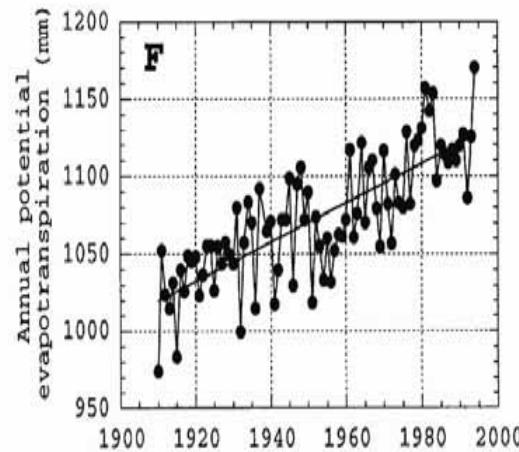




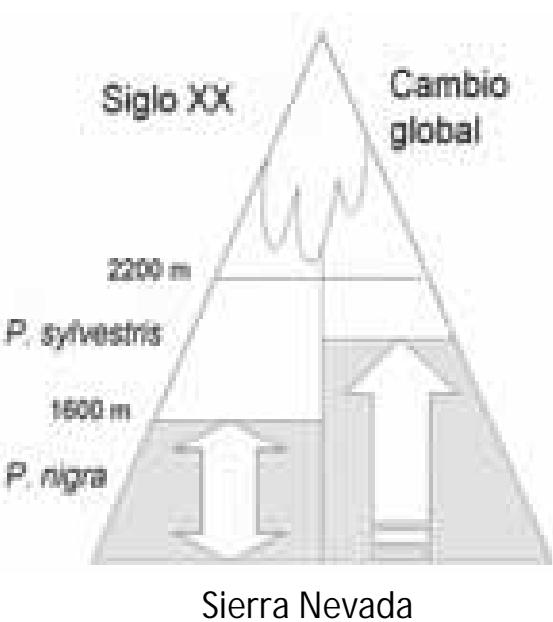
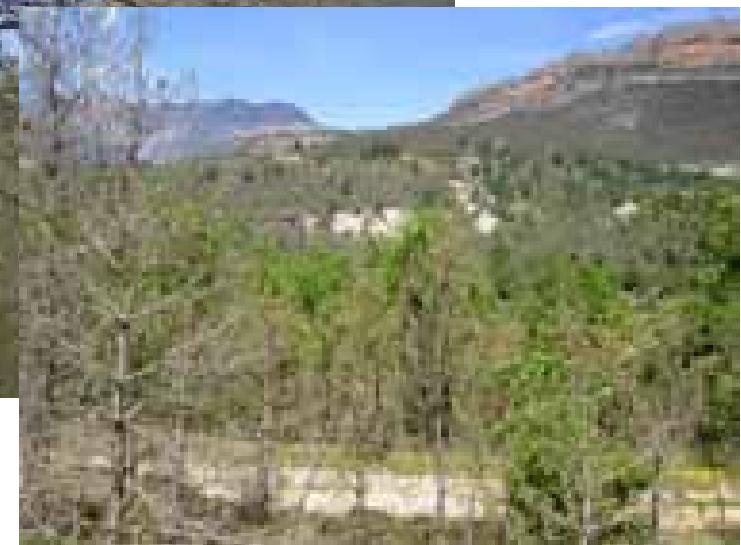


Peñuelas et al. 2004 (adapted from Hughes 2000)

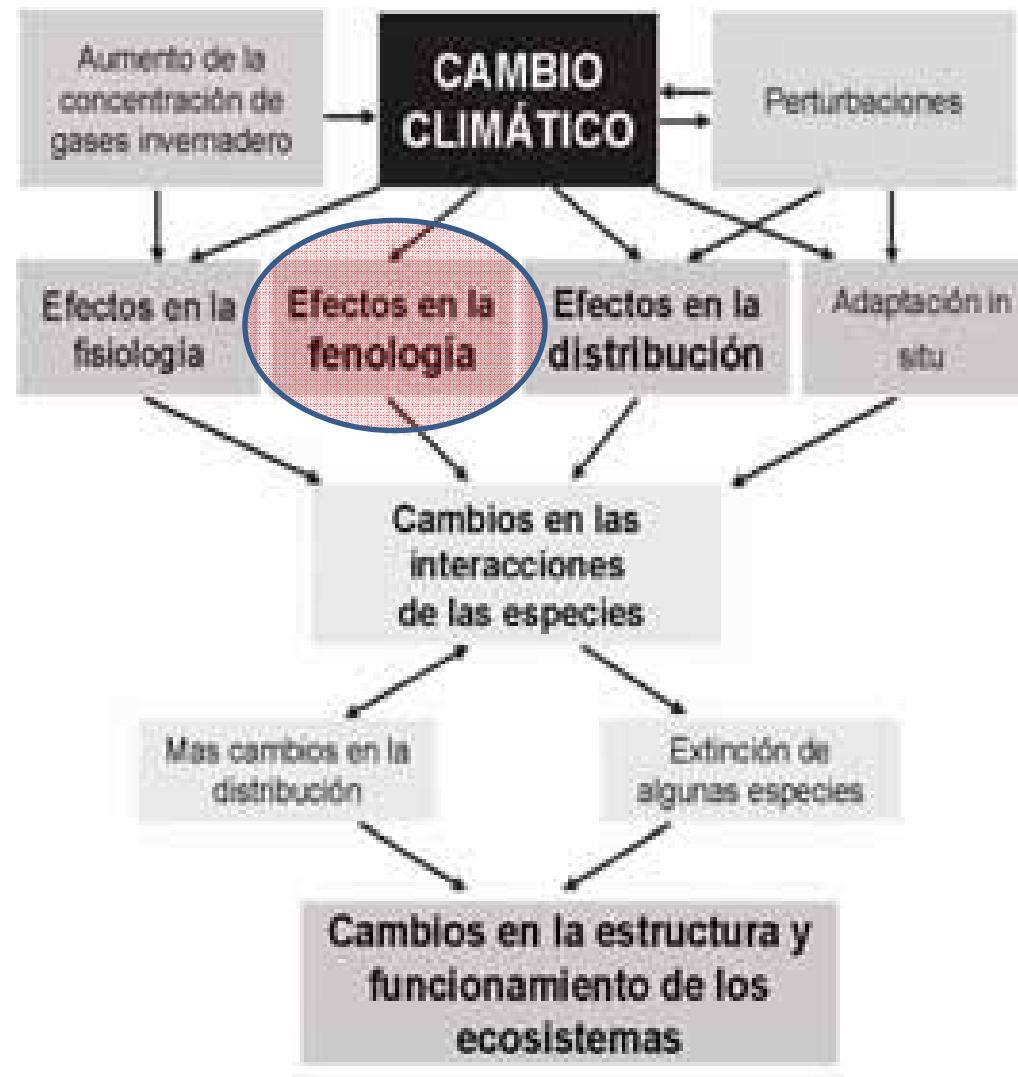
Increasing fire risk



Pine Processionary

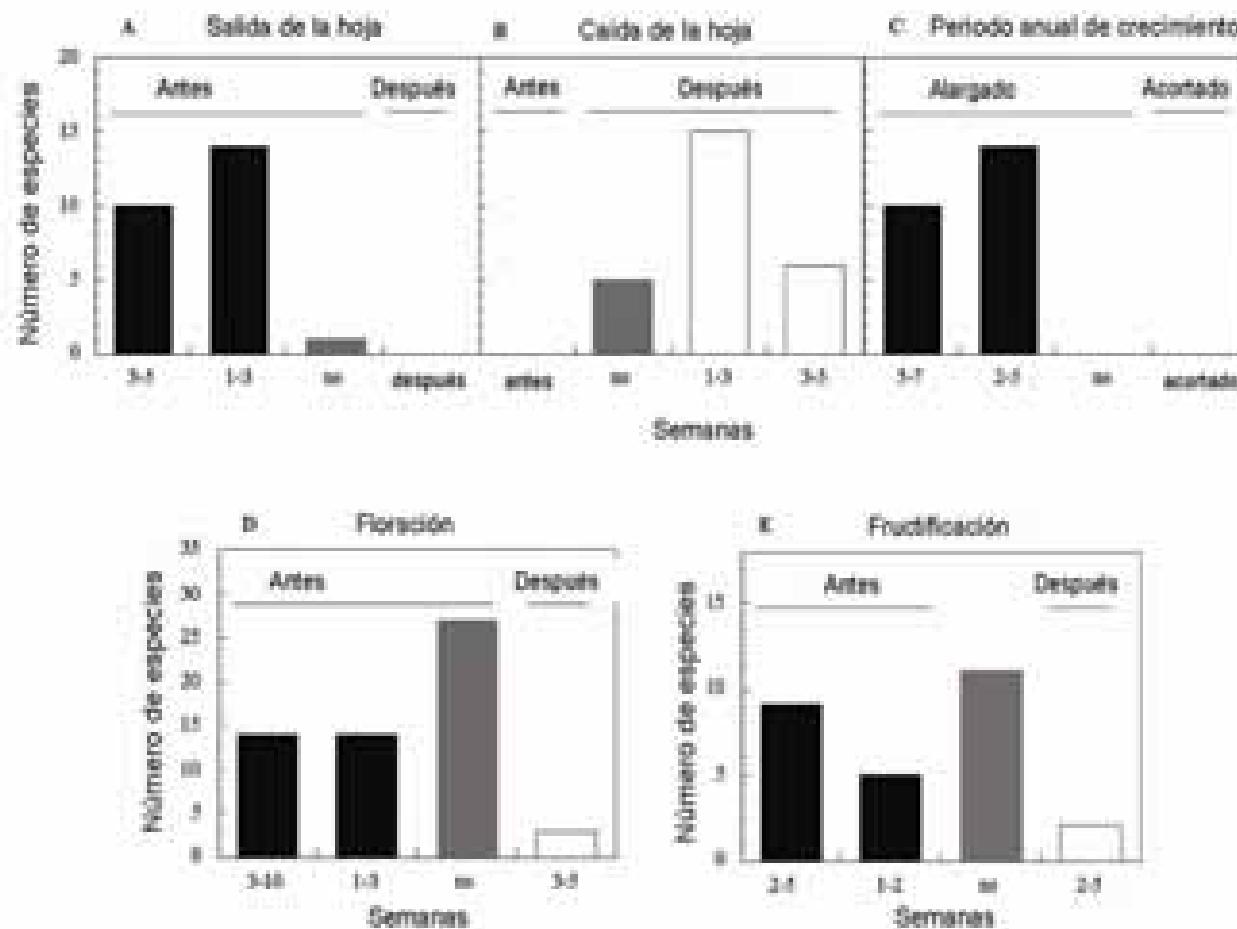


Hódar i Zamora 2004

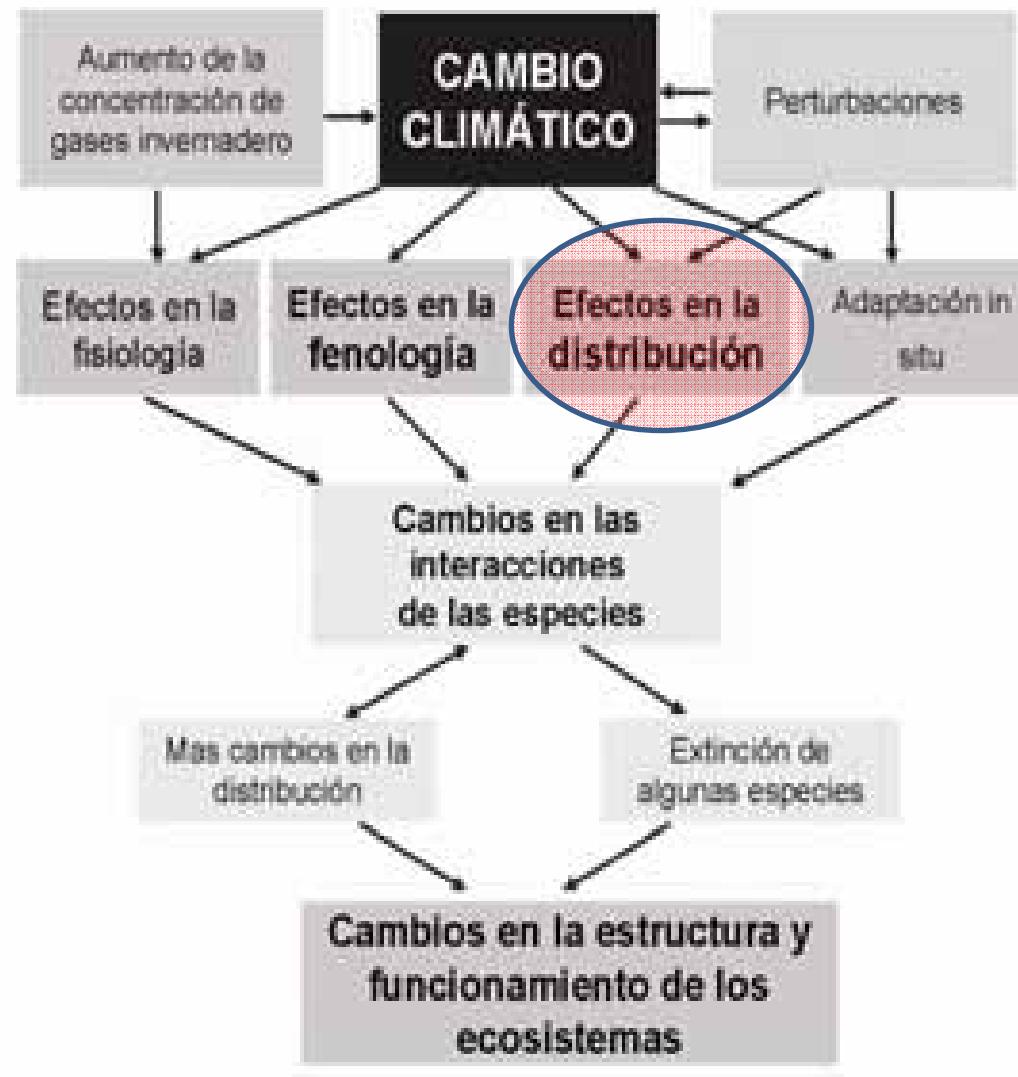


Peñuelas et al. 2004 (adapted from Hughes 2000)

Cambios en el periodo 1952-2000

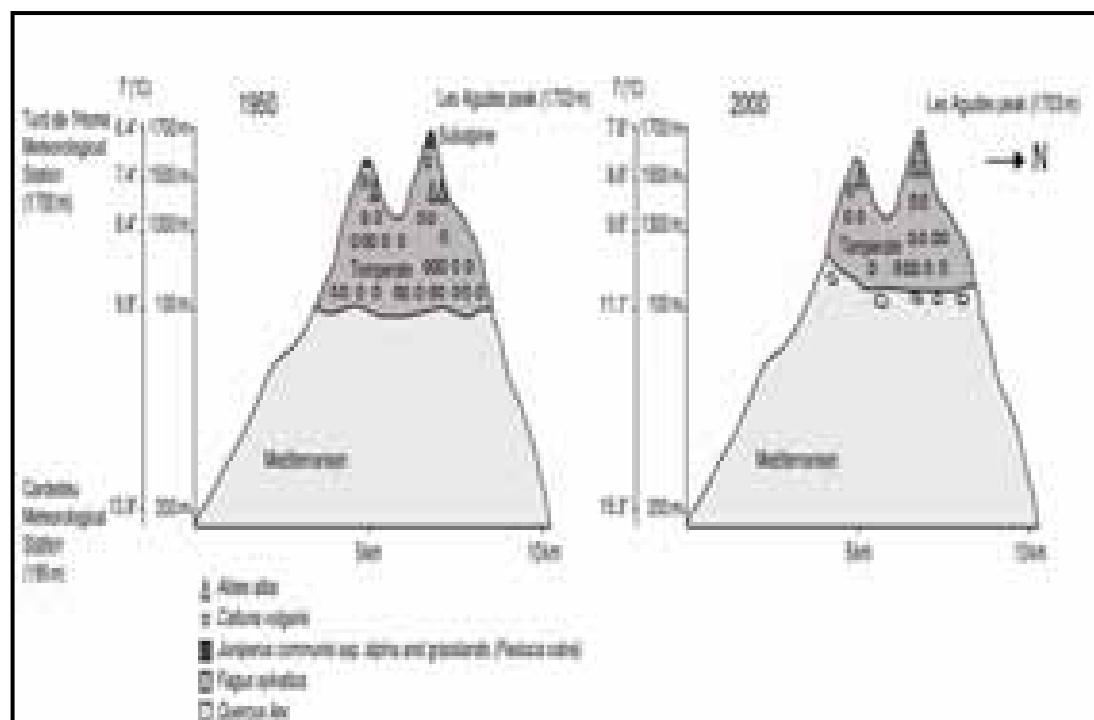
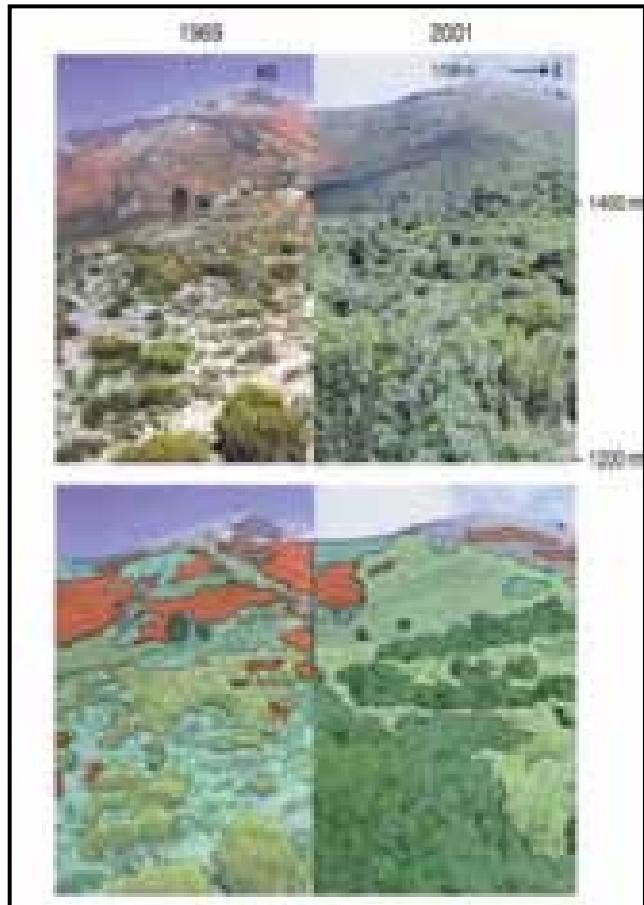


Peñuelas et al. 2002



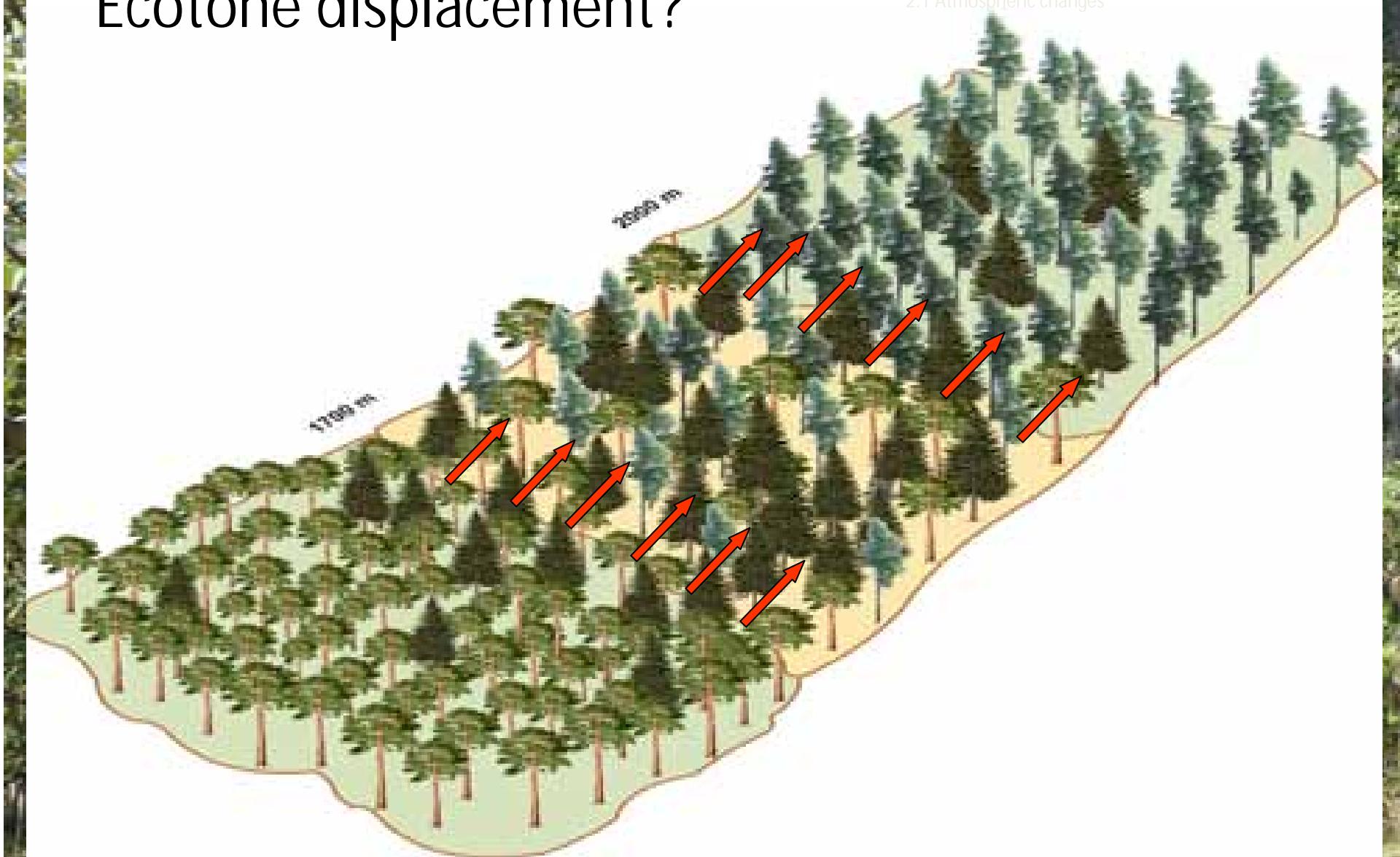
Peñuelas et al. 2004 (adapted from Hughes 2000)

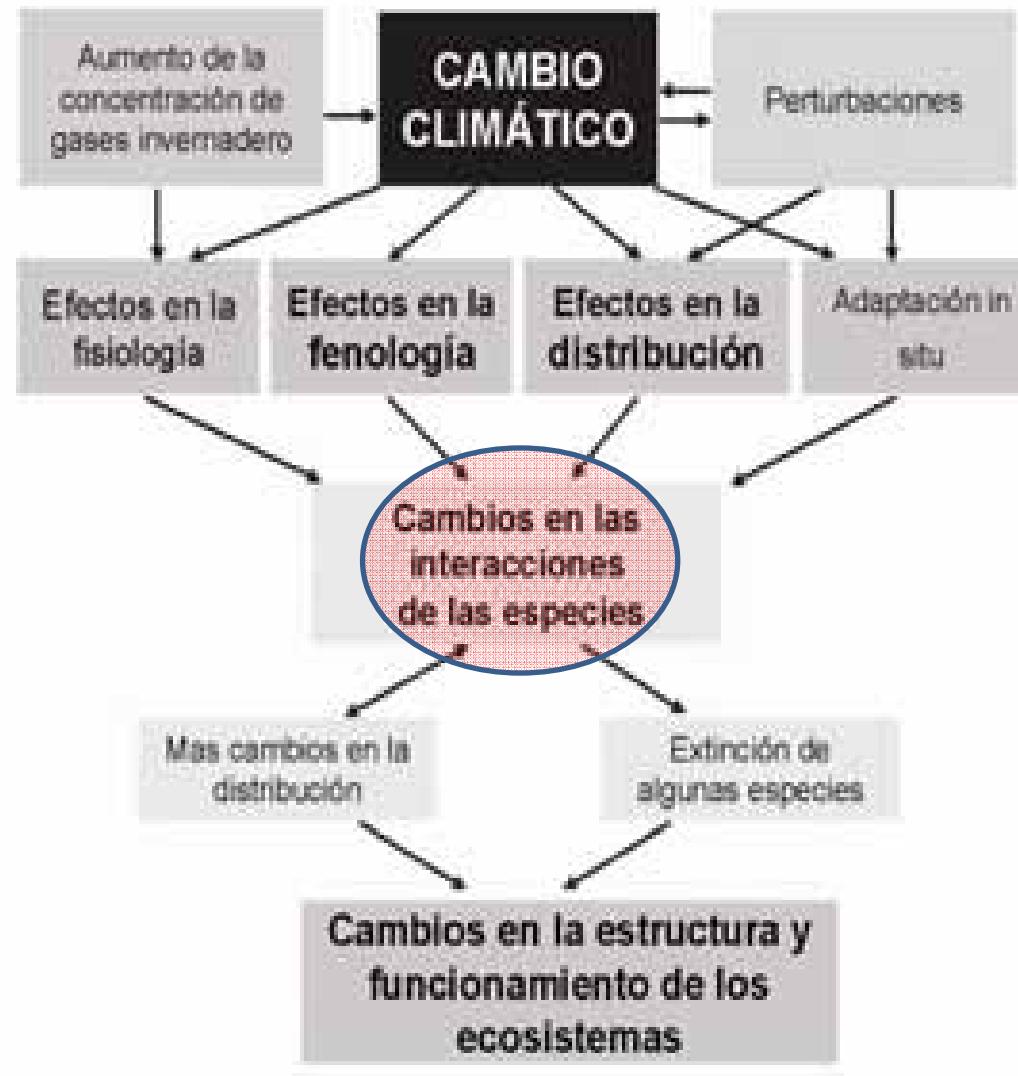
Turó de l'Home – Les Agudes (Montseny)



Peñuelas & Boada 2003

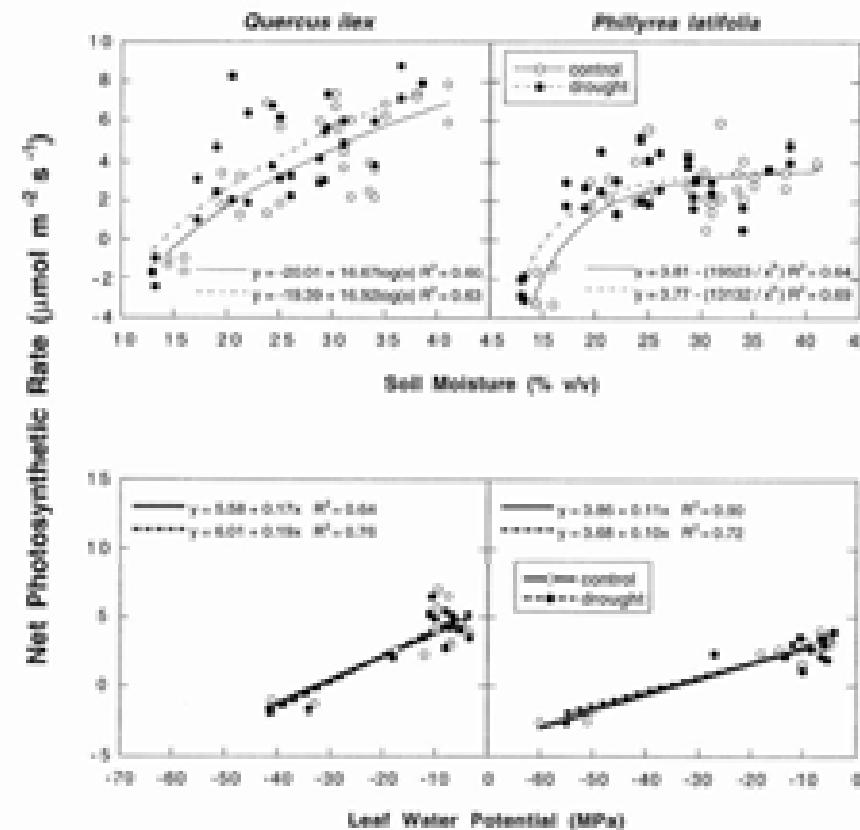
Ecotone displacement?





Peñuelas et al. 2004 (adapted from Hughes 2000)

Increasing role of drought tolerance



Ogaya i Peñuelas 2003

Creixement diametral del tronc (mm any^{-1})

1
0.5
0

control
sequera

*Arbutus
unedo*

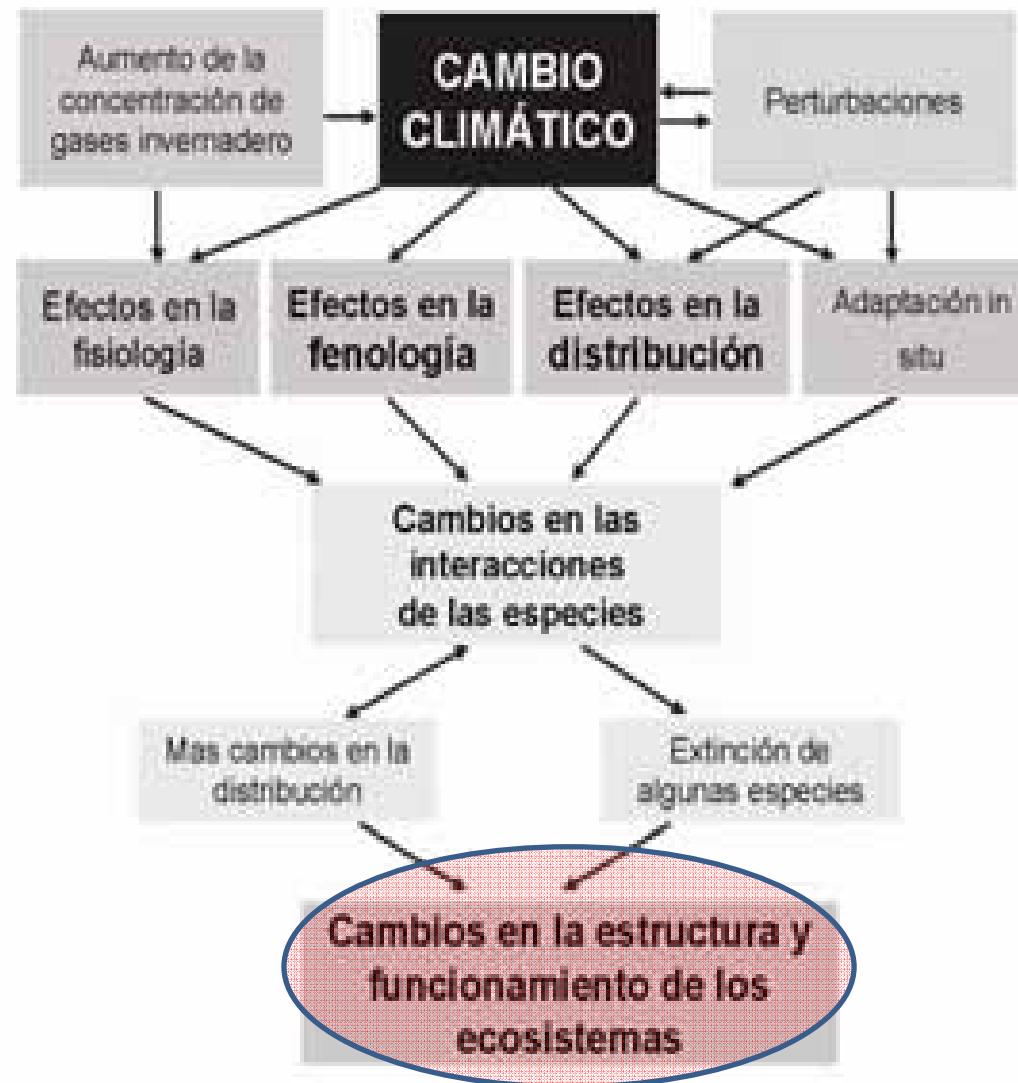
*Quercus
ilex*

*Phillyrea
latifolia*

*

*

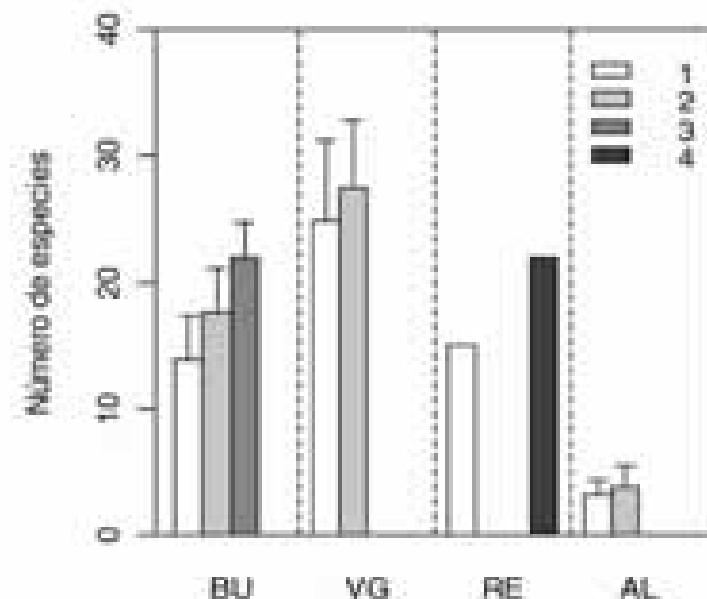
Ogaya i Peñuelas 2007



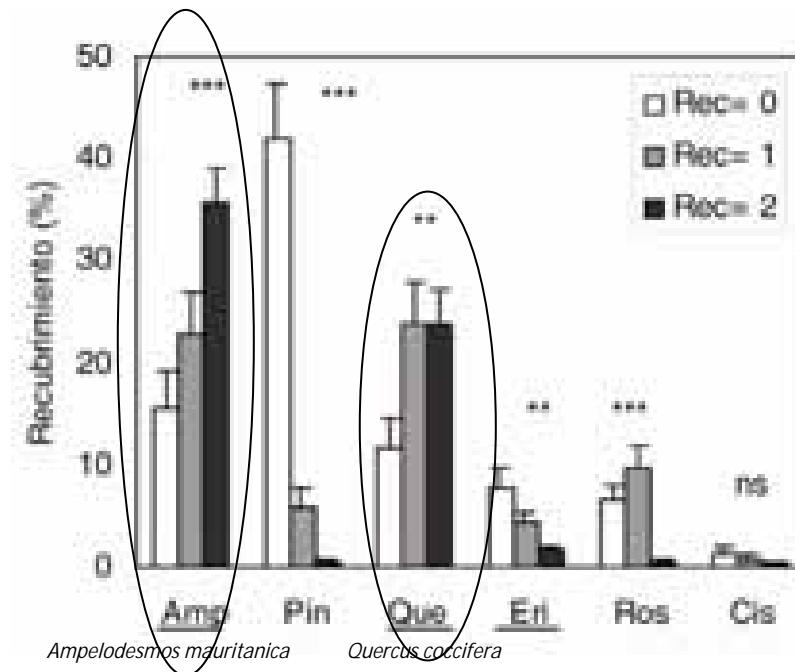
Peñuelas et al. 2004 (adapted from Hughes 2000)

Fire recurrence and species richness and cover

Richness (4 sites)



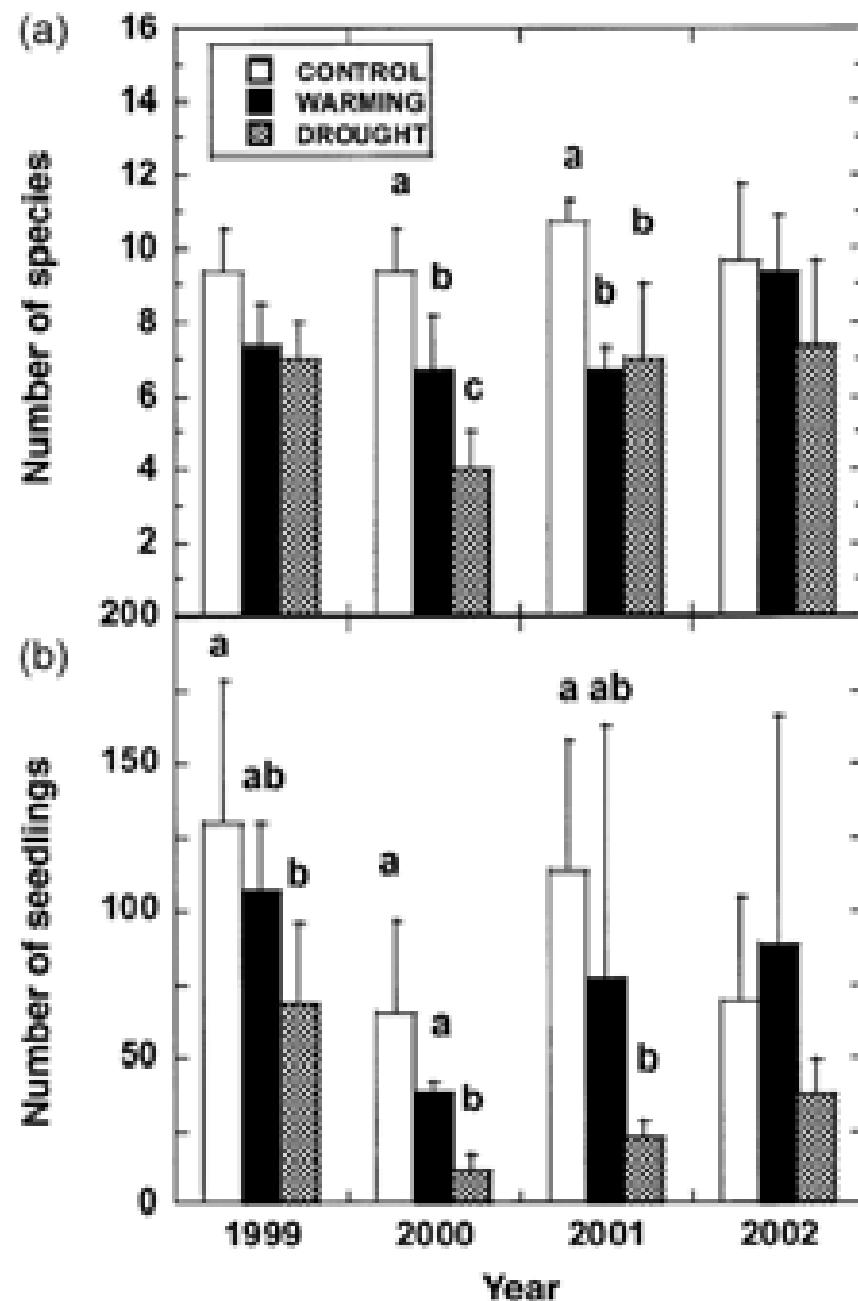
Recoberimento



- Species richness is maintained with fire recurrence but not composition

-The cover (%) of resprouting species increases with fire recurrence





Lloret et al. 2004

CONCLUSIONS

In Mediterranean areas, climate change is expected to:

- Increase temperature, evapotranspiration, length drought periods
- Modify the disturbance regimes
- Induce changes in the phenology and physiology of plants
- Change the distribution of some species as well as plant-plant and plant-animal interactions
- Modify the structure and functioning of forest ecosystems



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