COST ACTION FP 0703

Echoes: Expected Climate cHange and Options for European Silviculture

Country Report: Major points

SPAIN

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INTRODUCTION

- Major climate areas of Spain.
- 25 M ha forest areas: 23% Forest, 27% Other wooded lands.
- Diversity of tree species. Different objectives of forestry in Spain.
- In 2005 total GHG emissions in Spain reached 440.6 Mt of CO_2-equivalent (+ 52.2% with respect to 1990, + 37.2% over Kyoto).

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- State administration and autonomous communities administration (17). Most of the forest policies issues are determined at a regional scale.
- State Secretary for climate change.
  http://www.mma.es/portal/secciones/cambio_climatico/lucha_cambio_climatico/
- General policy for climate change and implications for forestry:
  - -NATIONAL PLAN FOR ADAPTATION TO CLIMATE CHANGE.
  - -SPANISH CLIMATE CHANGE AND CLEAN ENERGY STRATEGY

IMPACT

- Significant negative impact on ecosystems and socioeconomic systems in the Mediterranean Basin.
- More sensitivity of forest located in dry areas, mountains or riversides.

➢ **<u>Impacts more directly related to forestry</u>**

•Biodiversity and natural ecosystem losses.

•Increase in soil erosion.

•Increased forest fire risk.

•Movement of forest species to higher elevations and latitudes. Tree line increases

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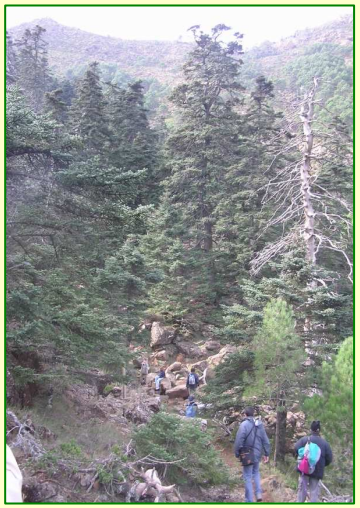
Evergreen oak forest. Extremadura



Abies pinsapo. Sierra de Grazalema

MEDITERRANEAN ECOSYSTEMS: reduction in tree number, changes in species distribution, special risk for conservation of provenances with a restricted area or even species.

ADAPTATION

- National Climate Change Adaptation Plan. (NCCAP)

CONSERVATION + SUSTAINABLE MANAGEMENT + REFORESTATION

❖ Preventive actions to avoid forest fires.

❖ Forest fuel management.

❖ Improvement of the present efficiency in forest fire extinction.

❖ Control of deforestation

❖ improve disease control: more problems nowadays (climate change or global change).

❖ Special attention to reserves, corridors, species with a restricted range, fragmentation, edges

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❖ Even productive forests can temporarily turn into C sources:

-counteract by better management

- increasing the rotation between successive harvests.

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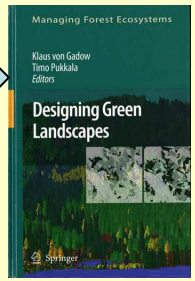
❖ Approach of adaptive management.

- Multiple Path Concept, being an essential element of forest design the calculation of a carbon balance for alternative management paths (Forest compartment-specific management



❖ Thinning programs: mobilize timber and keep vigorous trees

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❖ Diversity in genotypes will improve the possibility of successful adaptation to climatic changes.

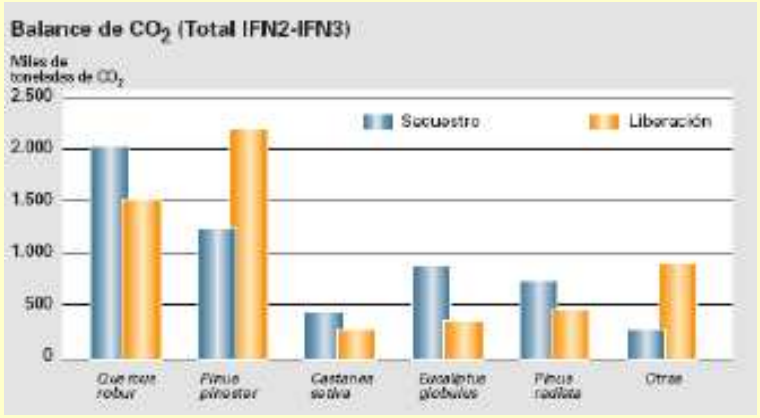
- Selection of genotypes for planting.

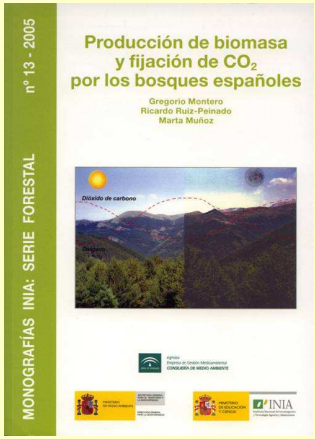
❖ Afforestation of agricultural lands. Do not promote organic matter losses through soil preparation.

❖ Promote mixed species plantations, if possible in the site

MITIGATION

- Sound evaluation of C stocks in forest through biomass equations and BEFs, using data from the NFI3. Major changes in NFI4 methodology to allow calculation of C stocks in “Other wooded land” (FRA 2005).
- To increase the capacity of CO_2 sequestration of the atmosphere by wood stocks. How?





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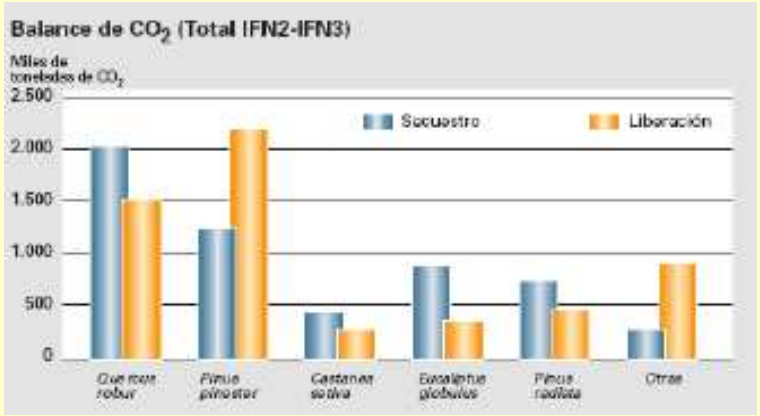
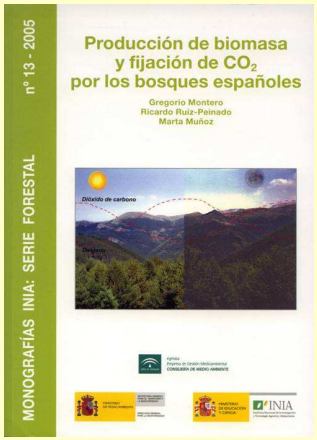
- 2010: renewable power well above the target 12%. 20% in 2020. Biomass is nowadays one of the less developed. To promote fuel change of domestic boilers and the use of pellets and chips.
- Regional Plans to enhance explotation of loging residues and promote short rotation coppice for thermal and electric energy production.

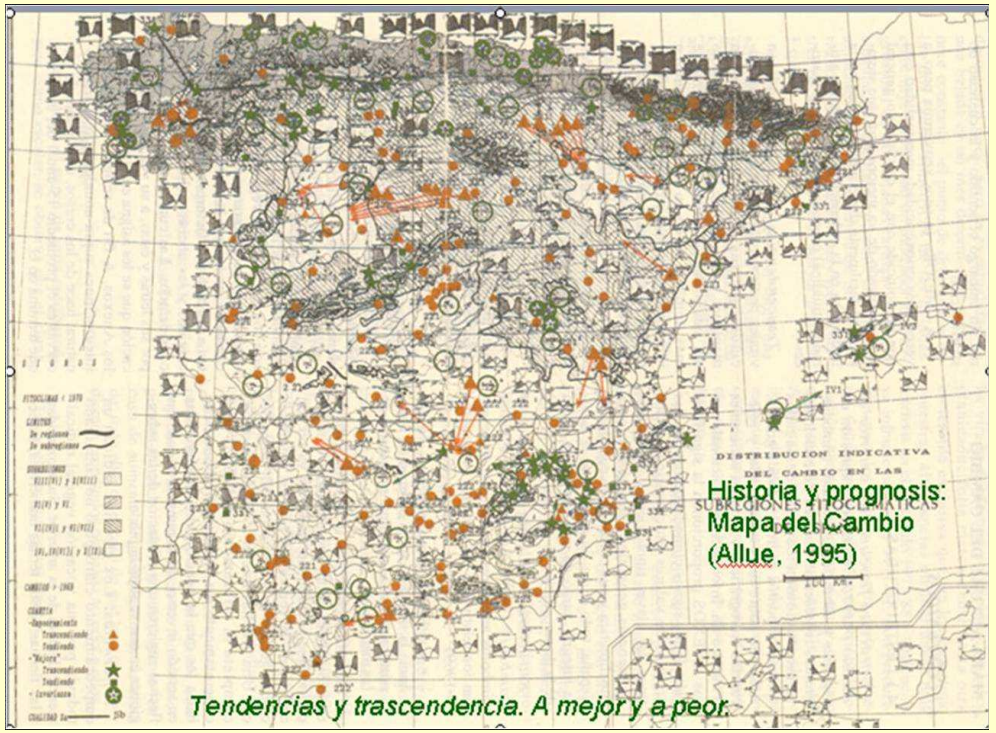




Promotion of the use of timber for products with long carbon storage periods: furniture, building (inclusion of timber in the Construction Technical Code): Manage for large diameter timber

CONCLUSIONS

- Map of climate change (Allué, 1995), Climate change study, Gracia et al (2005), SILVISTRAT, CREAF, many others
- Lack of applied guidelines for forest management. Forest Services should address more direct and pressing threats.
- Lack of definition of some proposals to face climate change, and even contradictory recommendations depending on the author.
- Dryland forests of Mediterranean-type regions have received much less attention. Gap in scientific knowledge and serious limitation in our capacity to anticipate and mitigate the effects of climate change



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Promote forest economy, stop rural depopulation?

Application of intense thinning regimes. Which type? How intense? How to sell small timber?

Avoid clearcuts of large areas. How big?

Lenghtening of rotations. For how long?

Special atention to regeneration. Keep shelter trees for more time. How long?

Use a diverse set of species in reforestation. Which ones? Where?

Do not give any chance to changes of land use in forest areas. How?