GOBIERNO DE ESPAÑA
VICEPRESIDENCIA TERCERA DEL GOBIERNO
MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO

FONFARAÓN MARTELOSCOPE

A seed for a new management of the Native Broadleaved Woodlands of Asturias

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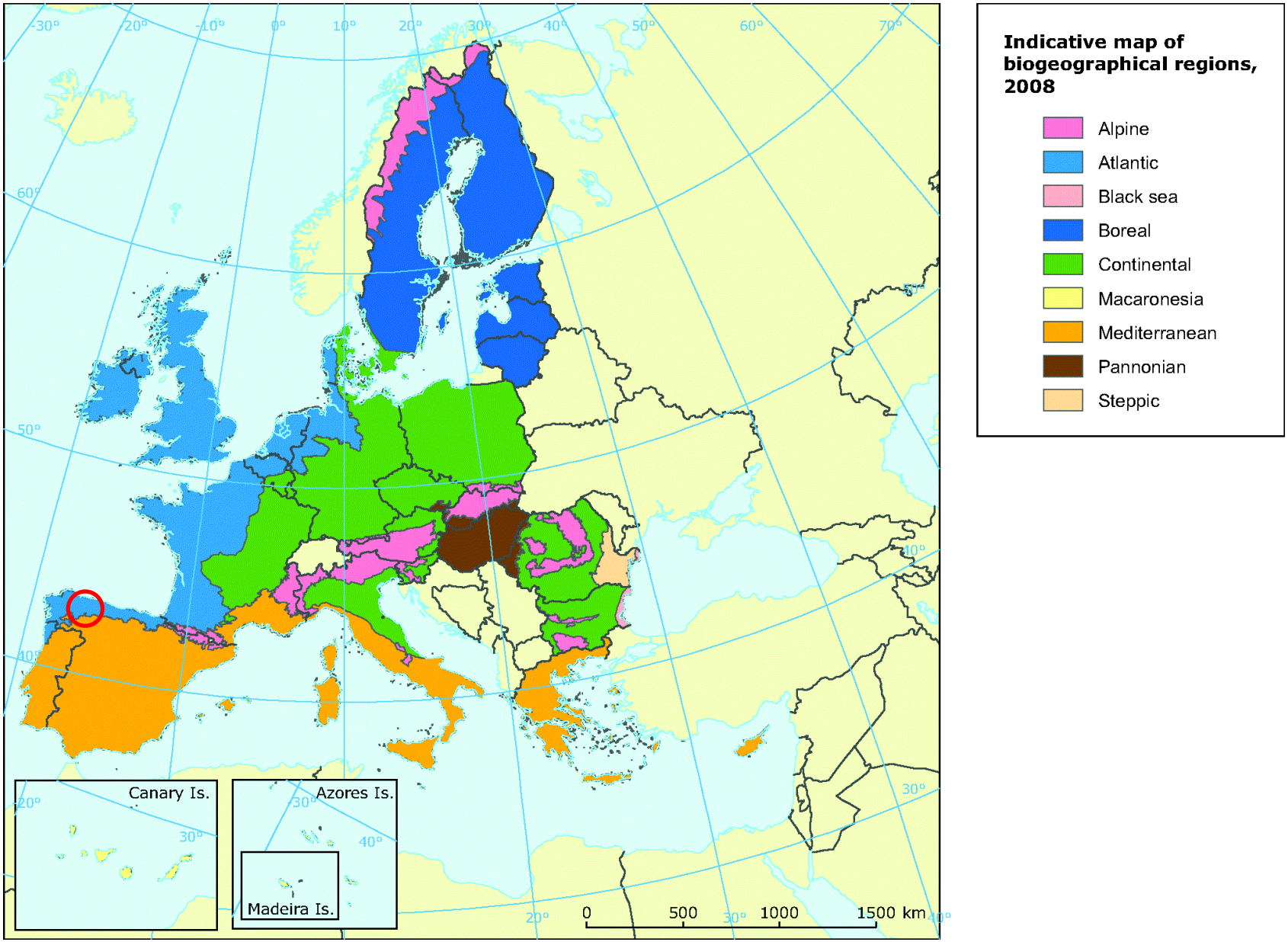
Integrate Network
facilitated by EFI

Principado de Asturias

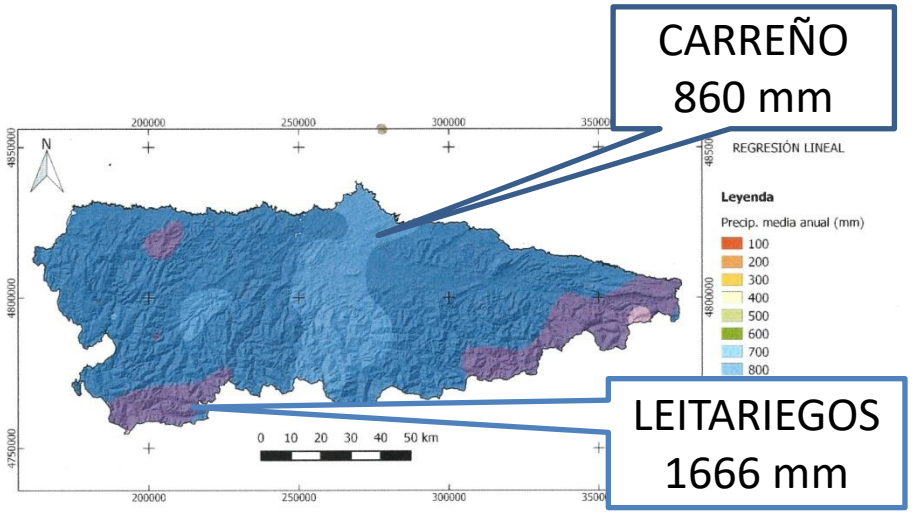
ASTURIAS IN EUROPE

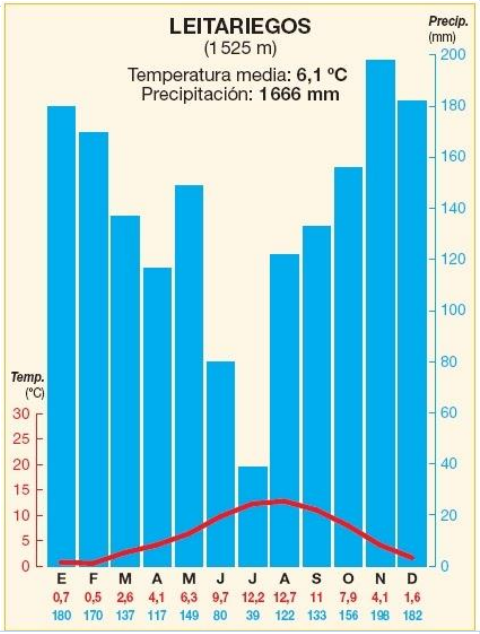
THE CLIMATE OF ASTURIAS



RAINFALL AND TEMPERATURES IN ASTURIAS

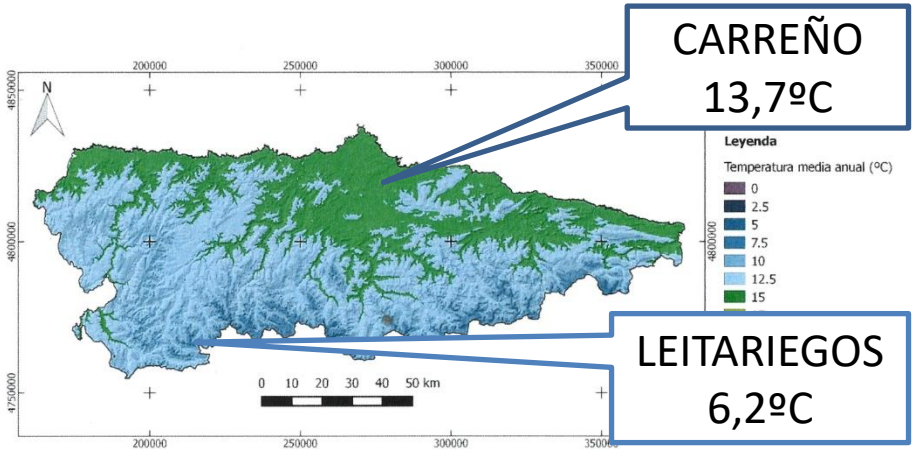
MEAN ANNUAL RAINFALL





MEAN ANNUAL TEMPERATURE

- Mean Annual Temperature of Leitariegos (1525 m) (vegetation level montane): **6,2ºC**
- Mean Annual Temperature of Carreño (vegetation level foothill): **13,7ºC**



DIFFERENT TYPES OF NATIVE WOODLAND IN ASTURIAS

(SIMPLIFIED)

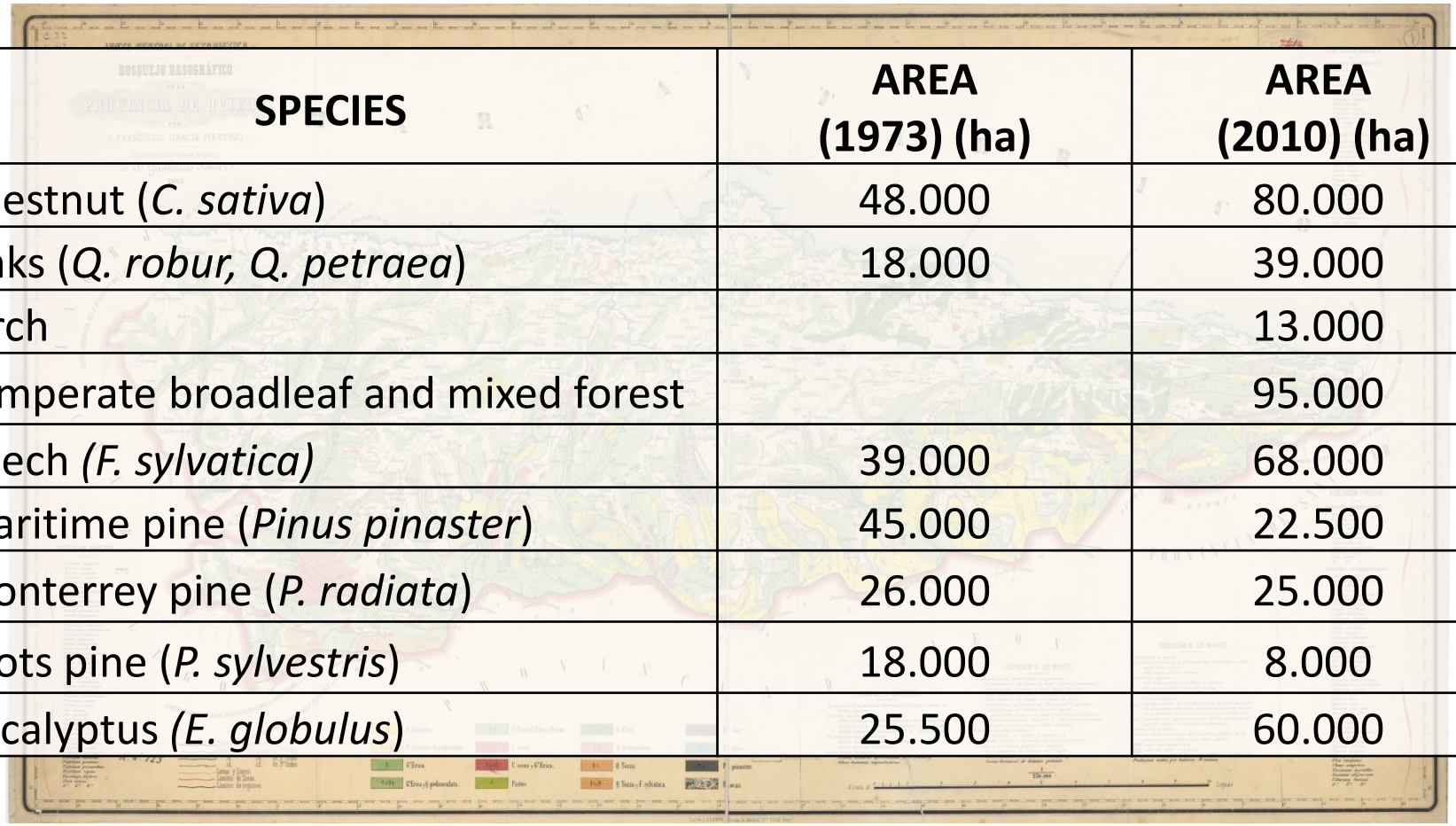
- **Pedunculate oak forests (*Quercus robur)*** (foothill forest)
- **Sessile oak forests *(Quercus petraea)*** *(montane forest)*
- **Pyrinean oak forests *(Quercus pyrenaica)*** *(montane and foothill forest)*
- **Beech forests*(Fagus sylvatica)*** *(montane forest)*
- **Birch forests *(Betula celtiberica,)*** *(montane and foothill forest)*
- ***Chestnut forests (Castanea sativa)*** *(montane and foothill forest)*
- ***Temperate broadleaf and mixed forest (Quercus robur, Castanea sativa, Betula celtiberica)***

Oak forest with beech

Birch forest

THE EVOLUTION OF OUR FORESTS

SPECIES	AREA (1973) (ha)	AREA (2010) (ha)
Chestnut (*C. sativa*)	48.000	80.000
Oaks (*Q. robur, Q. petraea*)	18.000	39.000
Birch		13.000
Temperate broadleaf and mixed forest		95.000
Beech *(F. sylvatica)*	39.000	68.000
Maritime pine (*Pinus pinaster*)	45.000	22.500
Monterrey pine (*P. radiata*)	26.000	25.000
Scots pine (*P. sylvestris*)	18.000	8.000
Eucalyptus *(E. globulus*)	25.500	60.000



Above: Forest Map of Asturias (1862)

Yellow: beech
Brown: oaks
Green: different shrubs (heather landscape)
White: agriculture surface

Source: National Forest Inventories

OUR WOODLANDS TODAY

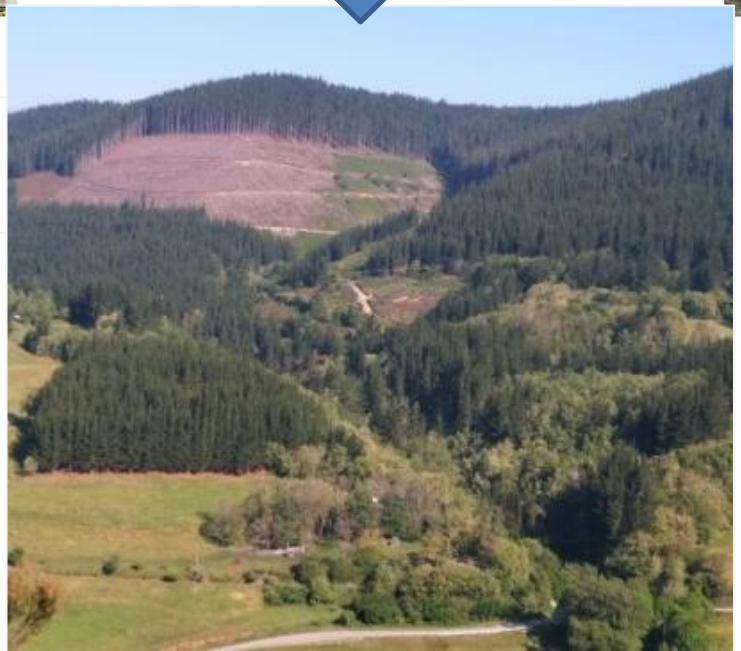
	SPECIES	AREA (2010) (ha)	ANNUAL HARVEST (m^3)	
CULTIVATED FOREST	*Maritime pine (P. pinaster)*	22.500	67.000	
	Monterrey pine (*P. radiata*)	25.000	94.000	
	Scots pine	8.000	24.000	
	Eucalyptus globulus	60.000	800.000	93 % private property
NATIVE BROADLEAVED FOREST	Chestnut (*C. sativa*)	80.000	25.000	80 % private property
	Oaks *(Q. robur, Q. petraea, Q. pyrenaica)*	39.000	6.000	
	Birch (*B. celtiberica*)	13.500	3.800	
	Beech (*F. sylvatica*)	68.000	1.700	84 % public property
	Temperate broadleaf and mixed forest	95.000		Oaks, beech, chestnut, birch mixed

Source: 4th. National Forest Inventory and statistic of the Regional Forest Service

OUR WOODLANDS TODAY

Eucalyptus plantation (clearcutting)

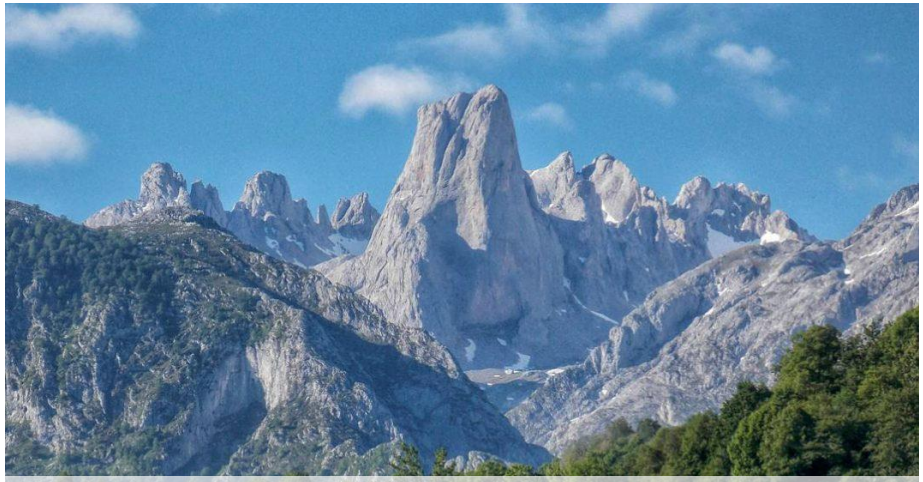
Monterrey pine forest



Beech forest

NATURE CONSERVATION IN ASTURIAS

- 1918: First National Park of Spain was declared in Asturias “Montaña de Covandonga”, in 1995 and 2015 the Park has been amplified to 67.000 ha and now it´s called “Parque Nacional Picos de Europa”.
- 1982: The first Biological Reserve was created in the state forest of “Muniellos”, 2.622 ha of sessile oak forest with an important brown bear population. Present the total area of the reserve is of 5.970 ha.
- 1984/88: Nature Conservation was separated from the Forest Service.
- 1988: The first Nature Park in Asturias “Somiedo” was created in another important brown bear area.
- 2008: 281.000 ha (26%) of Asturias is protected, 37% of the protected area are woodlands.



National Park “Picos de Europa”

Capercaillie (Foto J. Benito)

NATURE CONSERVATION VS SILVICULTURE

In the past the management of the native woodlands was inspired presupposing that a classical silviculture meets nature conservation.

Conservacionist movement, began to see forest management as the principal threat for biodiversity in our mountains. The managers instead of looking for alternatives, reduced slowly the management.

The result is that forest management and silviculture in sensitive areas, special in public forests, have been lost.

This fact gets against a multifunctional and sustainable view of forest management?

The problem is the absence of a debate of this situation and there is no search for alternatives.

Marteloscope as an element of forest pedagogy, can be a meeting point to discuss about the management of our native woodlands and improve silviculture.

Image: *Beech and oak forest in Nature Park "Ubiñas-La Mesa", Public forest "El Grande" (M.U.P.)*

FONFARAON MARTELOSCOPE

FONFARAON MARTELOSCOPE

TECNICAL INFORMATION:

- **Fonfaraon Marteloscope** is in the public forest of the Tineo council, “Sierra de Fonfaraón y Mulleiroso”
- Altitude: **819 m.a.s.l.**
- Mean Annual Temperature: **10,6º C**
- Mean Annual Rainfall: **1200 mm**
- Natural forest community: ***Blechno spicanti - Querceto roboris sigmetum facies Fagus sylvatica. (Oligotrofic oak forest with beech)***
- Number of trees (N/ha): **443**
- Basal Area (m^2/ha): **30,4**
- Volume (m^3/ha): **207,1**
- Habitat value (points): **7.933**

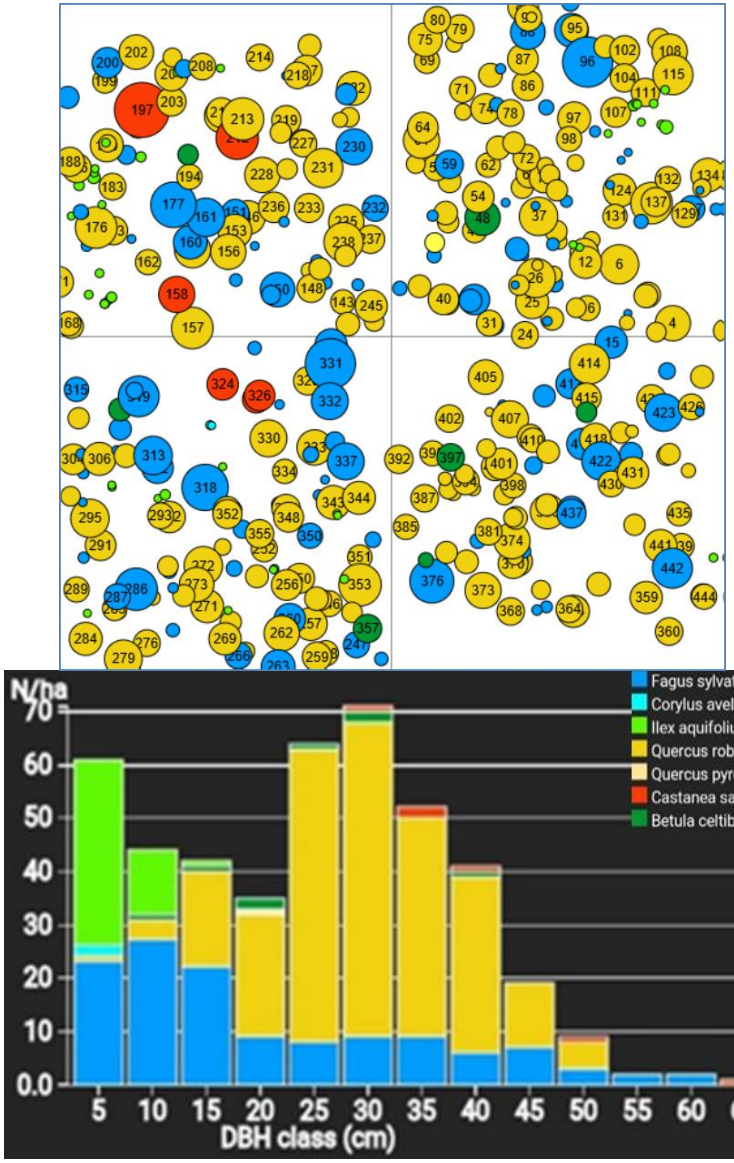
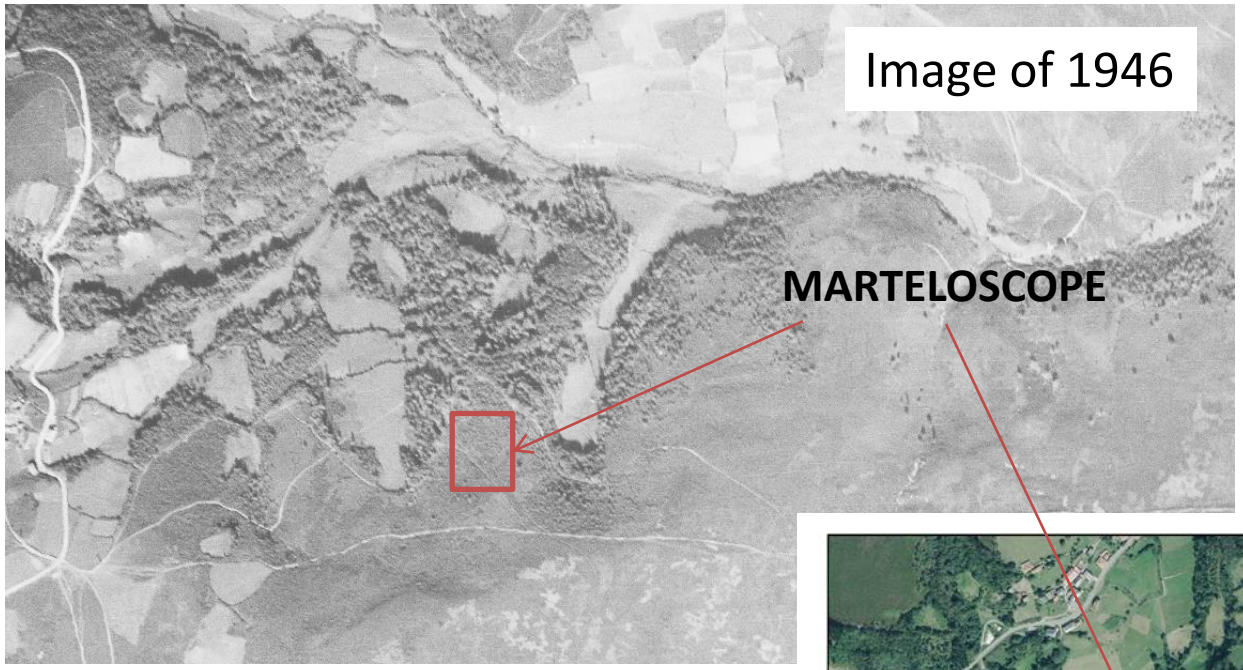
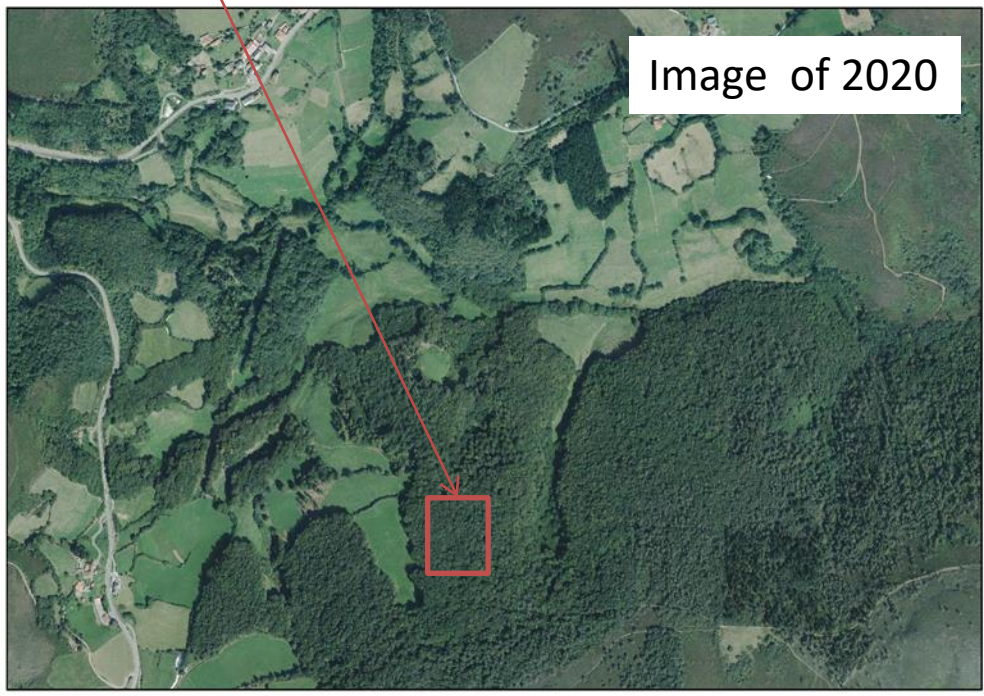


Image: DBH distribution of the marteloscope

FONFARAON MARTELOSCOPE





INTEREST IN THE MARTELOSCOPE:

- Faculty of Forest Science, University of Oviedo, to take the students of silviculture to make sign practica and discuss.
- Foresters school of Tineo for practica.
- Forest Service to make practica with forest rangers.