

# Conservation and restoration of relict *Taxus baccata* woods in the Valencian Region (E Spain).

DANIEL ARIZPE<sup>\*1</sup>, SELA HUESCA<sup>1</sup>, VICENTE SERENA<sup>1</sup>, PABLO FERRER<sup>2</sup>, INMACULADA FERRANDO<sup>2</sup>, JESÚS MARTÍNEZ<sup>1</sup>, VICENTE CERDÁN<sup>1</sup>, EMILIO LAGUNA<sup>3</sup>, ANTONI MARZO<sup>4</sup>.

\*Corresponding author: mfr.banc@gva.es. Comarques País Valencià, 114, 46930 Quart de Poblet, Spain.

1.- Centre of Applied Forest Research (CIEF) | VAERSA. 2.- Centre of Applied Forest Research (CIEF) & Wildlife and Natura 2000 Service | VAERSA. 3.- Centre of Applied Forest Research (CIEF) & Wildlife and Natura 2000 Service | Generalitat Valenciana. 4.- Centre of Applied Forest Research (CIEF) | Generalitat Valenciana.

## SUMMARY

The **habitat 9580\* "Mediterranean *Taxus baccata* woods"** is a Natura 2000 priority habitat of an extreme reduced extension with severe conservation problems. *Taxus baccata* woods are relict formations showing severe decline all over its distribution range. In the Valencian region yew woods are placed in the highest Mediterranean mountains, occupying the wettest ravines and the bases of slopes facing north, often on rocky habitats. These forests barely exceed one hectare and, for the most part, they are interpreted as the remains of bigger yew communities, progressively reduced and destroyed by a combination of human actions and climate change.

The current **main threats in the project area** are:

- 1.- Very small, dispersed and fragmented habitat spots.
- 2.- Low seed productivity and seedling recruitment.
- 3.- Herbivory and trampling of both, domestic and wild ruminants.
- 4.- Climate change.
- 5.- Wildfires.

This communication presents the efforts under development by the environmental administration in the Region of València, Spain to improve its conservation status in the context of the recently approved **LIFE Teixeres project (LIFE20/NAT/ES/001128)**. The project will take place in the 10 Natura 2000 sites where the habitat 9580\* has been declared.

## PUBLIC PARTICIPATION

Actions will be carried out in public and private terrains. The participation of the community is a key aspect that will be promoted during and after the project.

## CONSERVATION ACTIONS AND EXPECTED RESULTS

### FORESTRY TREATMENTS FOR COMPETITION REDUCTION

The main objective is to improve the forest structure in order to allow the habitat 9580\* **increasing its dominance**. The intervention aims to accomplish an equilibrium between competition for resources (water, nutrients, light) and the facilitation effects of the forest.

### HERBIBORY PROTECTION (FENCING)

This action intends to protect seed producing plants **against the overgrazing and trampling** by wild and domestic ruminants which affects many mountain areas of València and compromises the growth and recruitment of species like yews.

### GERMPLASM COLLECTION, CURATION AND STORAGE

Germplasm of the **38 selected species** will be collected along the project area and processed and stored at the seed bank of the CIEF. Here seeds and fruits are collected from natural populations in the different project regions.

### YEW ORCHARDS FOR SEED PRODUCTION AND DISPERSAL

Orchards of yew collections **representing the regional genetic diversity** for the different regions of the project area will be carried on. They will be created in key spots in all Natura 2000 sites, where soil-climatic conditions are similar to the natural habitat, so they can fulfill their function as seed dispersal cores.

### PLANT PRODUCTION

The project will produce circa **30.000 plants of 38 species and 18 families**. The high diversity in taxa and families means also high diversity of germinating and production procedures. In the next table we can see the plant production process applied to the different species of the project. From the produced plants, 23.000 will be used for plantations, 4.300 in orchards and the rest for replacements.

### PLANTATION

23.000 plants of 38 species will be planted in **51 spots in a total of 230 ha**.

Plantations will be done to increase habitat cover and the number of individuals of some of the most endangered species, specially *Taxus baccata*. The action aims to increase the habitat's resilience, especially in places where the plant individuals are very low and natural plant recruitment is not very successful.



SPECIES	Treatments					Pretreat ment Duration (months)	Years from Sowing Until plantation	Plant propagation procedures
	MScar	CScar	Cstr	Wstr	Sw			
<i>Acer granatense</i>						3	1	
<i>Acer manspessulanum</i>						3	2	
<i>Amelanchier ovalis</i>						3	2	
<i>Arbutus unedo</i>						3	2	
<i>Berberis hispanica</i> subsp. <i>hispanica</i>						3	2	
<i>Berberis hispanica</i> subsp. <i>serot</i>						3	2	
<i>Buxus sempervirens</i>						3	2	
<i>Cornus sanguinea</i>						3	1	
<i>Coronilla emerula</i>						3	1	
<i>Corylus avellana</i>						3	2	
<i>Cotoneaster granatensis</i>						3	2	
<i>Cotoneaster tomentosus</i>						3	2	
<i>Crataegus monogyna</i>						5	1	
<i>Daphne laureola</i>						3	1	
<i>Daphne oleoides</i>						3	1	
<i>Fraxinus ornus</i>						3	1	
<i>Ilex aquifolium</i>						3	1	
<i>Juniperus communis</i>						5	3	
<i>Juniperus oxycedrus</i>						5	3	
<i>Juniperus phoenicea</i>						5	3	
<i>Lonicera amplexicaule</i>						3	1	
<i>Lonicera etrusca</i>						3	1	
<i>Lonicera implexa</i>						3	1	
<i>Lonicera xylosteum</i>						3	1	
<i>Pistacia terebinthus</i>						4	1	
<i>Prunus spinosa</i>						4	1	
<i>Prunus mahaleb</i>						4	1	
<i>Quercus faginea</i>						4	1	
<i>Rhamnus alaternus</i>						3	2	
<i>Rhamnus alpinus</i>						3	2	
<i>Rhamnus lycioides</i>						3	2	
<i>Sorbus aria</i>						3	2	
<i>Sorbus torminalis</i>						3	1	
<i>Taxus baccata</i>						6	3	
<i>Tilia patens</i>						3	1	
<i>Tilia platyphyllos</i>						2	2	
<i>Viburnum lantana</i>						6	2	
<i>Viburnum tinus</i>						6	2	

Generative treatments: MScar=Mechanical Scarification, CScar= Chemical Scarification, Cstr= Cold Stratification, Wstr= Warm Stratification, Sw=Sowing in peat



## HABITAT

In the Valencian Region, the *Taxus baccata* woods are located in the highest mountains, occupying the wettest ravines and the bases of slopes facing north. These forests barely exceed one hectare and, for the most part, they are interpreted as the remains of yew communities, progressively relegated and destroyed by a combination of human actions and climate change.

Here, these forests can be differentiated into two types:

The first one is located in the **eastern Iberian system**, ranging the central and northern part of the Valencian Region. These forests survive in narrow ravines that also serve as a refuge for other Eurosiberian trees and shrubs, such as *Ilex aquifolium*, *Corylus avellana*, *Ulmus glabra*, *Tilia platyphyllos*, *Acer campestre*, *A. monspessulanum*, *Ribes alpinum*, *R. uva-crispa*, *Rhamnus alpinus*, etc. and are close to the Eurosiberian yew formations.

On the other hand, the second type are located in the mountains of northern Alacant and south of València, they form sub-river and ravine communities at the foot of north-facing shady cliffs. These are known as **Setabense yew forests**. Also here, there are abundant trees and deciduous shrubs such as flower *Fraxinus ornus*, *A. opalus* subsp. *granatense*, *Quercus faginea*, *Sorbus aria*, *S. domestica*, *Amelanchier ovalis*, *Cotoneaster granatensis*, *Prunus prostrata*, *Rhamnus saxatilis*, etc. In this region, the habitat occupies subhumid areas under meso-mediterranean and supra-mediterranean climate in the highest mountains.

