CONSERVATION OF MEDITERRANEAN YEW FORESTS

LAYMAN'S REPORT

November 2016

Index

Cover photographs: *Teixeda de Cosp* (Cosp's Yew Grove) in Cardó Mountain. Jordi Bas.

Partners of Life TAXUS Project

Centre Forestal de Catalunya · Paratge Natural d'Interès Nacional de Poblet · Generalitat de Catalunya, Departament de Territori i Sostenibilitat · Consorci Serra de Llaberia · Ajuntament de Rasquera

Collaborators

Consorci de Cala Pimentera · xct xarxa de custòdia del territori · Generalitat de Catalunya, Departament d'Agricultura, Ramaderia, Pesca i Alimentació · UVIC Universitat de Vic Universitat Central de Catalunya · Beta Biodiversitat, Ecologia i Tecnologia Ambiental i Alimentària

Life TAXUS (2012-2016) is a LIFE+ Nature project (LIFE+ NAT/ES/711) cofounded by the European Commission.
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Life · Natura 2000

INTRODUCTION

What makes Mediterranean yew groves so exceptional is their scarcity, the environments where they can be found and, above all, the highly unique tree they contain. The yew (*Taxus baccata*) is a tree with great ecological, aesthetic, cultural and therapeutic value. Few species in the world have such symbolic strength. Ever since Neolithic times, humans have been taking advantage of the wood's exceptional properties for fashioning tools, particularly bows, and have known of the extreme toxicity found throughout the tree, with the exception of its fleshy fruit (the aril). These properties, together with the tree's longevity, (some thousands years old!) have given the yew an extraordinarily magical and symbolic character in the collective imagination of European peoples.

European yew groves are threatened and in decline in the Iberian Peninsula. A host of events have led to this situation, one being a lack of regeneration, caused by low fruit production, water stress and excessive shade. Yew regeneration also suffers from pressure from ruminant herbivores, which are tolerant to the taxine, and predators.

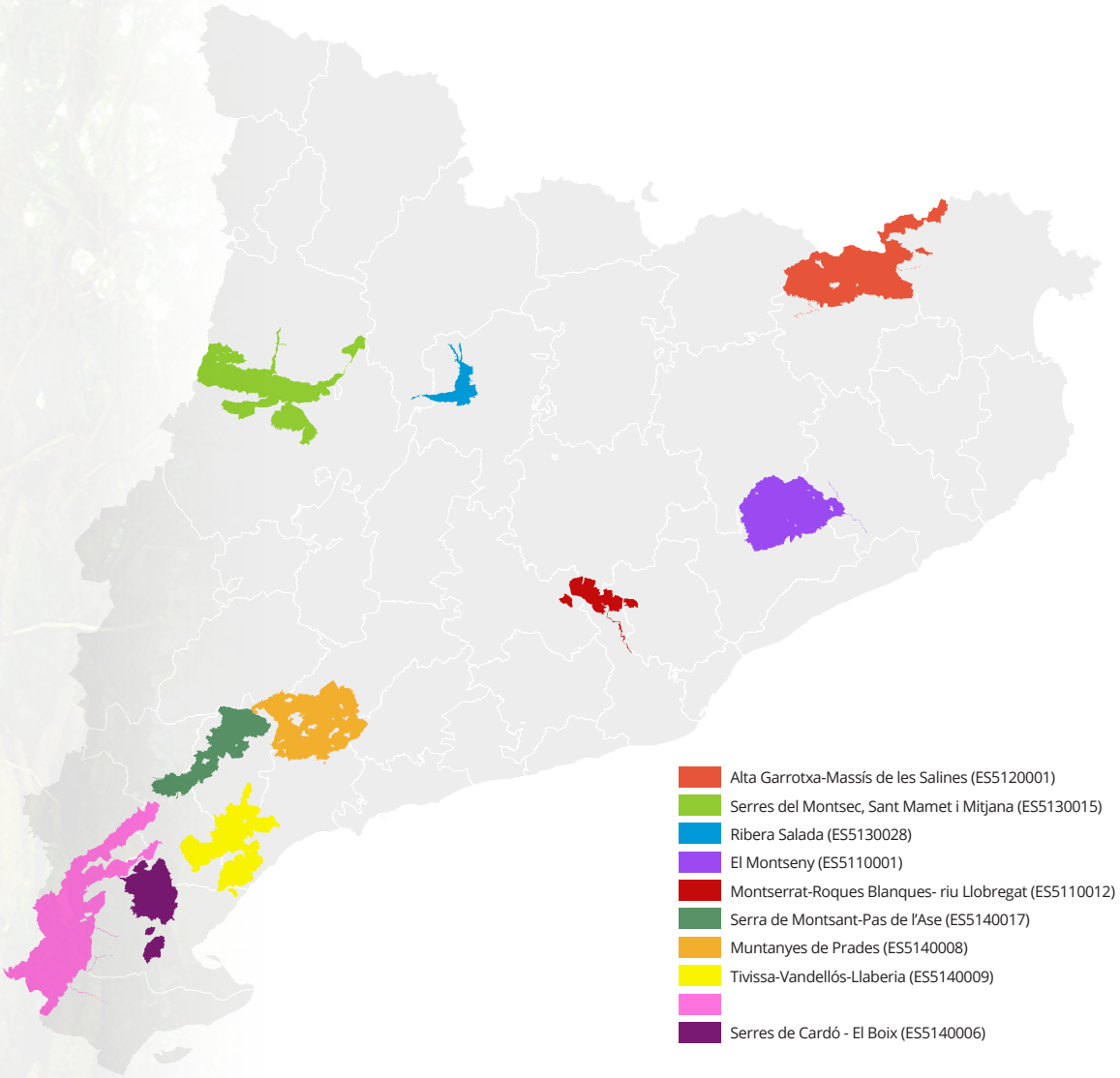
An additional cause of this decline is the excessive forest cover, meaning more competition from other species or, indeed, other yews which may eventually lead to phytosanitary issues. Another great threat to yew groves are large forest fires, which can decimate entire populations and may lead to the genetic isolation of populations. In fact, the lack of genetic continuity has been described as a serious problem, as it leads to a decrease in genetic variation and increase in genetic divergence among populations. To the above, we should add that the viability of yew populations seems to be in greater danger at the southern boundary of their habitat distribution; a problem that is likely to get worse as climate change leads to climbing temperatures and a drop in rainfall.

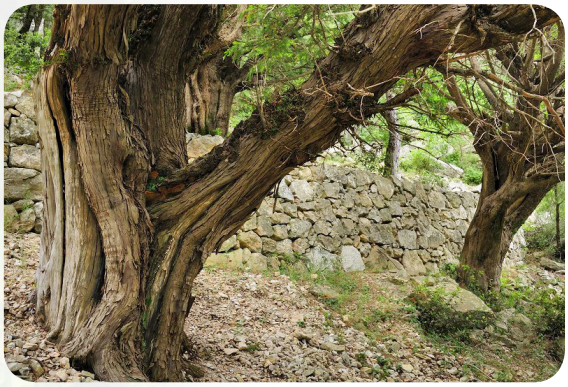
For these reasons, yew forests constitute a priority habitat for conservation in the European Union (Habitat 9580* Mediterranean forests of *Taxus baccata*).

> **Life TAXUS** is a project cofunded by the EU LIFE Programme, developed with the objective of ensuring the conservation of the yew groves in Catalonia.

YEW GROVES IN CATALONIA

Life TAXUS has catalogued the yew groves of Catalonia, distributed across 10 Special Areas of Conservation (SAC) of the Natura 2000 Network. The catalogue broadens and updates knowledge of yew groves with ecological inventories and delimits new stands previously unknown.





The Cosp Yew Forest (SAC Serra de Cardó), in the municipality of Rasquera. Probably the oldest natural forest in Catalonia. Photos: Jordi Bas.

Miseclòs (SAC Alta Garrotxa) the densest yew forest in Catalonia. Photo: Jordi Bas.

Centennial yew at Torrent de l'Orri (SAC Alta Garrotxa). Photo: Jordi Bas.

Barranc del Tillar Yew Forest (Poblet Forest, SAC Muntanyes de Prades). Photo: Jordi Bas.

Detail of the interior of a mixed yew forest with broadleaved trees in the Llaberia Mountain in SAC Tivissa-Vandellós-Llaberia. Photo: Jordi Bas.

Small yew stand in a beech forest at Turó de l'Home (SAC El Montseny). Photo: Antònia Caritat.

Yews in the Canal dels Arínjols, SAC Montserrat. Photo: Jordi Camprodon.

Yew forest in Obaga del Vilar, in SAC Ribera Salada. Photo: Jordi Camprodon.

Yew forest in Racó d'en Guasc in SAC Serra de Montsant.

Yew forest in Barranc de la Fontfreda in SAC Serra del Montsec.

OBJECTIVES LIFE TAXUS

Improving the understanding and conservation of yew forests in Catalonia

SPECIFIC OBJECTIVES

Knowing the distribution and ecological characteristics of yew forests in Catalonia.

Improving the medium and long term conservation of yew forests, which includes demonstrative conservation and mitigation of the threats that affect yew forests.

Disseminating the natural and cultural value of Mediterranean forest habitats and the Natura 2000 network, based on the emblematic nature of the yew forests.

Transferring the methodology and results to public administrations, private companies, owners and other Natura 2000 sites management stakeholders for replicability.

IMPLEMENTATION

The project's strategy included a combination of habitat ecological restoration techniques with silvicultural methods that can address all the problems of yew forests.
In this way, the decision-making process prioritised processes that are observed in nature, in order to increase the probability of success and minimise possible impacts on the ecosystem.
This project has been carried out in a Mediterranean context where there were few previous experiences, and thus it has pioneered the application of these conservation practices.

The development of the project has followed the next process of decision making and implementation:
Stages of the decision making and implementation processes:

Location of yew forests	• Own experience • Previous inventories • Local stakeholders • Protected natural areas • Individuals
Previous studies	• Cartography • Botanical inventories • Census of seed-dispersing animals • Forest inventories
Identification of disturbances and proposal of solutions	• Genetic isolation • Competition • Herbivory • Lack of fructification and regeneration • Diseases • Risk of erosion • Risk of fire • Water stress • Public access
Land stewardship agreements	From lowest to highest commitment: • Landowner's authorisation for conservation actions • Management support for landowners (by means of an agreement) • Management transfer from landowners (by lease)
Conservation plan	• Description of the yew forest • Analysis of conservation problems • Description of actions • Monitoring • Budget • Technical guidance for actions
Execution of conservation actions	• Regulation of competition • Sanitary treatments • Exclusion of livestock • Reinforcement of regeneration • Promotion of dispersers • Fire prevention • Stabilisation of soil • Regulation of public access • Climate change adaptation
Ecological monitoring	
Measurement of achievements	
Adaptive management	

Table 1. List of yew groves and areas with presence of yews, as catalogued by the Life TAXUS Project.

SAC	Site	Yew grove
ES5120001. Alta Garrotxa-Massís de les Salines	Alta Garrotxa Region	L'Orri
		Llongarriu
		Miseclós
ES5130028. Ribera Salada	Ribera Salada Valley	Obaga del Vilar
ES5110001 El Montseny	Turó de l'Home (Montseny Natural Parc)	Font Fosca
	La Calma (Montseny Natural Parc)	Font del Vilar
		Font Negra
ES5110012. Montserrat-Roques Blanques-Riu Llobregat	Montserrat Mountain Natural Parc	Canal dels Arínjols
ES5130015. Serra del Montsec	Montsec Mountain	Barranc de la Fontfreda
ES5140008. Muntanyes de Prades	Poblet Forest	Obaga de la Pena
		Barranc del Tillar
		Barranc dels Torners (presence of yew trees)
		Barranc de l'Argentada (presence of yew trees)
	Montblanc Municipality	Barranc de la Vall de Montblanc
		Ermita de Sant Joan
		Barranc de Mas d'en Llort
		Mas de Mateu
		Cogullons
ES5140017. Serra de Montsant-Pas de l'Ase	Montsant Mountain	Clot d'en Guasc
		Barranc de la Taverna
ES5140009. Tivissa-Vandellós-Llaberia	Llaberia Mountain	Barranc del Teixar
		Escambellet
		Barranc de la Canyera
		La Mafla
		Mola de Perelló
		Canal Fosca
		Font de la Coma
		Clots - Tossetes
		Font de l'Avellar
		Canal del Roc
		Font de l'Om
		Bullidor
		Camí de Pratdip - Esquirol
		Coll del Guix
		Mas del Ramer
	Tivissa Mountain	Los Borjos
	Vandellós Mountain	Presence of yew trees
ES5140006. Serres de Cardó - El Boix	Rasquera Municipality	Cosp
	Benifallet Municipality	Los Teixets
ES514011. Sistema Prelitoral Meridional	Els Ports Natural Parc	Presence of yew trees

“39 yew groves have been identified, with an average area of 2.1 ha and a total of 287 ha with high yew density.”

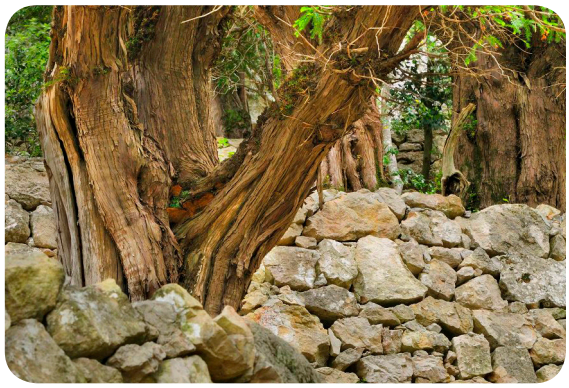
PREVIOUS ACTIONS

YEW GROVES INVENTORIES AND ECOLOGICAL CHARACTERISATION

Life TAXUS has performed ecological inventories of yew groves, which have been classified into 6 types of habitats.

Dense yew grove (type 1). Miseclòs (SAC Alta Garrotxa). Dominant height of yew trees is 15 m and average diameter is 10.4 cm (2.5 to 30.8 cm). High canopy density: averaging 81% cover, mainly yews (66%). The understory is very poor: 10% shrub cover and 2% herbaceous cover. Photo: Jordi Bas.

Mixed yew grove with conifers and broadleaved trees (type 2). Barranc del Tillar (Poblet Forest, SAC Muntanyes de Prades). Dominant height of yew trees is 9.8 m and average diameter is 17 cm (4-29 cm). Average canopy density is 80%, with a yew cover of 53% in the densest areas. The understory is not very dense in the densest areas, with 25% of shrub cover and 10% of herbaceous cover. Photo: Jordi Bas.



Mature yew forest (type 3). Cosp (SAC Serra de Cardó). Dominant height of yew trees is 8.1 m and average diameter is 41 cm (17 to 65.5 cm), with large Black pines (*Pinus nigra*).Average canopy density is 55%, mainly yews (47%). The understory is scarce, with a 21% shrub cover and 6% herbaceous cover. Photo: Jordi Bas.

Yew forest mixed with oak (type 4) in the Llaberia Mountain. Dominant height of yew trees is 15 m and average diameter is 9.8 cm. Average canopy density is mainly yew (66%). The understory is usually poor (10% shrub and 2% herbaceous) due to high tree density, but becomes dense and dominated by sarsaparilla (*Smilax aspera*) and/or laurestine (*Viburnum tinus*) in less dense patches. Photo: Jordi Camprodon.

Beech forest with small yew stands (type 5) in the Pla de la Calma (SAC El Montseny). Dominant height of yew trees is 4.6 m and average diameter is 10.4 cm. Canopy density ranges between 40 and 80% depending on yew density. The understory is usually poor (10% shrub cover and 5% herbaceous and moss). Photo: Antònia Caritat.

Pine forest with yews (type 6) in SAC Alta Garrotxa. Dominant height of yew trees is 5.7 m and average diameter is 4.1 cm. Average canopy density is 80%, where yew density ranges between 20 and 40%. The understory is usually poor (5% shrub and 5% herbaceous and moss). Photo: Jordi Bas.

STEWARDSHIP AGREEMENTS WITH LANDOWNERS

Collaboration with landowners is essential for the success of conservation actions. 559 stewardship agreements have been signed with private owners.

From lower to higher commitment these agreements can be:

- The landowner's permission for conservation works.
- Stewardship agreement with a project partner, providing support for forest management.
- Constitution of a real right for the land transfer. The owner rents the land to the beneficiary partner, who manages the yew forest for 25 years.

Signing of a stewardship agreement by Life TAXUS on the occasion of the 2nd Meeting of Land Stewardships Agreements in 2015, which brought together more than 50 people interested in forest stewardship in Capçanes (Llaberia Mountain). Photo: Sandra Carrera, XCT.

MANAGEMENT PLANS

Planning of conservation actions in each yew forest and their post-Life assessment. Detailed technical guidance for practitioners has been drafted from the plans.

Planning of selective thinning for the regulation of competition. Llaberia Mountain. Photo: Jordi Bas.

CONSERVATION ACTION

1. REGULATION OF THE COMPETITION BETWEEN WOODY SPECIES

A majority of yew trees do not grow properly, and they do not flower nor fruit because of intense mechanical competition for light and water exerted by other woody plants (pines, oaks and other broadleaved trees and sometimes vines such as sarsaparilla). The control of competition benefits the growth in diameter and height of yew trees and their flowering, fructification and regeneration.

Actions are designed in order to observe the response of yew trees to different treatment types and intensities. Treatment methods are selective thinning, coppicing with standards, pruning and banding of competing trees. There are two thinning options:

- Moderate selective thinning: cutting of trees that contact yew crowns.
- Heavy selective thinning: also remove background trees that intercept light.

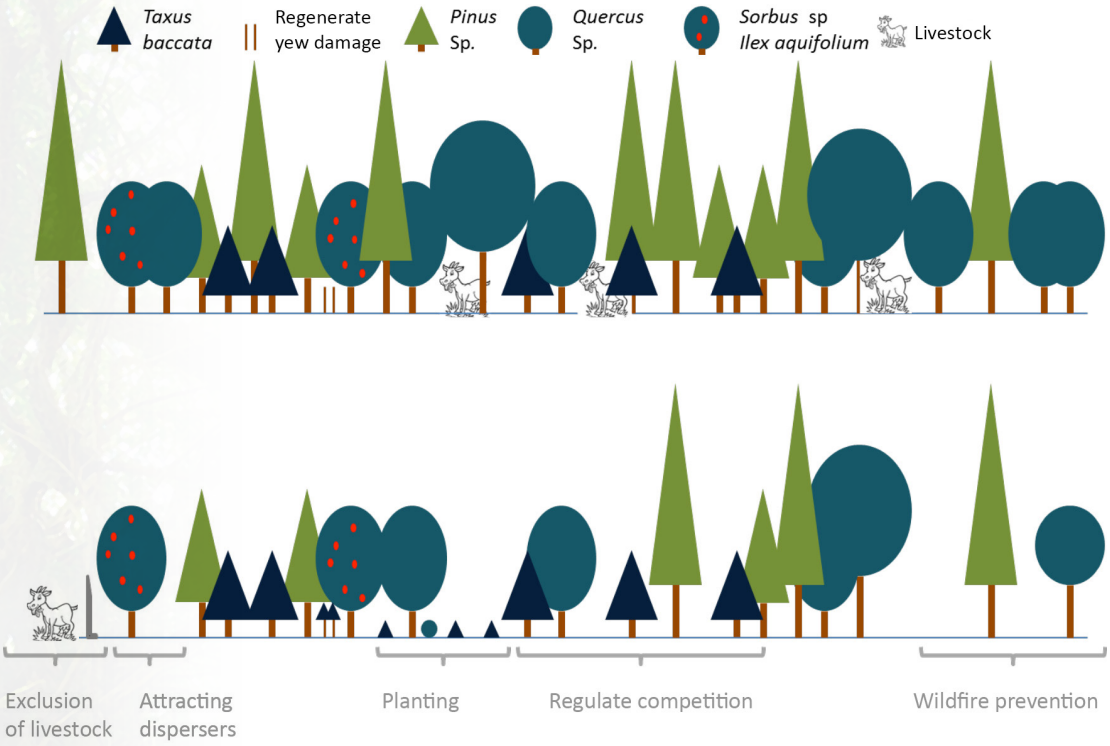
All dead timber produced by the felling or banding of trees is left in situ to promote biodiversity and to return carbon and other nutrients to the soil, likewise protecting it from erosion. Part of the wood can be used as firewood for the property self-consumption.

Heavy thinning is better executed in two phases (for example in autumn-winter of two consecutive years) so as not to expose yews to a sudden excess of light. The long-term result is competition regulation.

This is the first time that these different treatments have been tried and ecological follow-up has been carried out in different biogeographic locations in the Mediterranean area, and thus, knowledge obtained about the best treatments can be applied in other localities and regions.

During the second year after the treatment, a significant increase in height and a moderate increase in diameter was observed in treated yew trees with respect to controls. The impact of light on the yew foliage was minimal.

Competition has been reduced for more than 9070 yews, acting on 23,000 competing trees approximately, in 29 yew forests and 231 hectares.



Scheme of the main management actions in yew forests by the Life TAXUS Project. Original by Jarkov Reverté.

“Work was performed on 29 forest stands with yew trees (231 hectares), which represents an increase of 91 hectares with respect to the initial forecasts.”

Tree girdling, which can be practiced with a chainsaw or an ax. Poblet Forest. Photo: Jordi Bas.

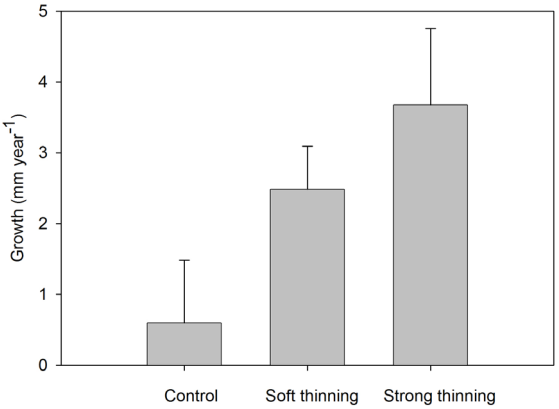
a

b

c

d

Process of regulation of the competition: a) plot before treatment; B) marking trees to be cut or pruned and survey of the initial state; C) selective thinning; D) ecological monitoring with plot centre in the yew. Llaberia Mountian. Photos: Jordi Bas.



Growth in diameter per year in function of the treatment and in control plots (without performance).

2. PHYTOSANITARY TREATMENTS

Yews attacked by Armillaria fungus have been removed or pruned, in order to avoid the spread of the infection.

Adult shingles affected by Armillaria sp. in the yew grove of Miseclòs (Alta Garrotxa). Dry branches or branches with few needles can be observed, as well as a great amount of resprouting. Dendrometers for growth monitoring. Photo: Jordi Camprodon.

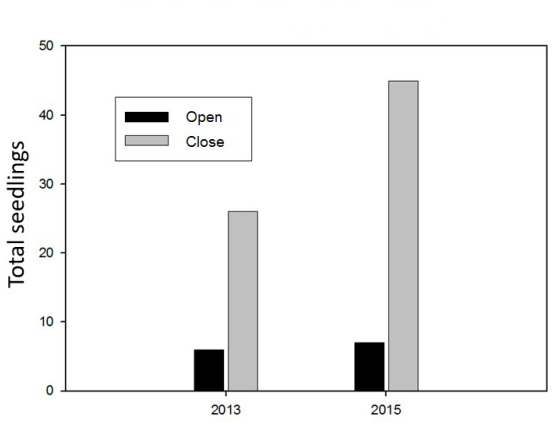
Mycelium of Armillaria on the trunk of a young adult yew killed by the infection. Llaberia Mountain. Photo: Jarkov Reverté.

Heavy pruning for the treatment of Armillaria in the yew grove of Miseclòs (Alta Garrotxa). Photo: Antonia Caritat.

3. REDUCING THE IMPACT OF LIVESTOCK

Construction of 223 fencing to avoid herbivores grazing on seedlings and yew juveniles. Signing of agreements with farmers to reduce damages caused by livestock.

Temporary fencing for livestock exclusion in the Llaberia Mountain. Photo: Jordi Bas.



Seedlings produced by natural regeneration, survivors inside and outside of livestock fences.

Installation of exclusion fencing in the Cardó Mountain. Photo: Jordi Bas.

Yew juvenile affected by goat grazing in process of recovery. Laberia Mountain. Photo: Jordi Bas.

4. REINFORCEMENT AND RESTORATION OF YEW POPULATIONS THROUGH PLANTING

Seed collection in different female forest trees. The resulting seedlings will be planted in the same locality when they are two years old.

Collection of arils in mother trees and extraction of arils seeds in the laboratory. Photos: Jordi Camprodon.

The production of yew tree seedlings is a delicate process, slower than most woody plants. The aril (edible red cover) is extracted, cleaned and treated with acid (scarification). The seeds are planted in trays and prepared for germination. Germination is expected in the second spring (about 18 months later). The seedlings are acclimatised in moderate shade with 50% light passage and controlled irrigation.

Counting seedlings at the end of germination. Agrarian Training School of Solsonès. Photo: Jordi Bas.

Root pruning of seedlings in individual pots. Agrarian Training School of Solsonès. Photo: Jordi Bas.

Yew seedlings in the seed tray. Photo: Jordi Bas.

Plantation of near 2,500 yew seedlings in action areas to reinforce natural regeneration. Seedlings are planted at a certain distance from the mother tree, in order to facilitate genetic recombination. Plantation areas are located in the interior or periphery of the yew forests or in areas with scattered yews, and thus they act as genetic connectors between yew forests. Seedlings are planted inside livestock exclusion fences or inside "nurse plants" present in the habitat. Nurses are prickly bush plants present in the habitat, such as brambles, sarsaparilla and holly, which protect young yews from livestock.

Planting of a two-year tree in the outer perimeter of the Cosp yew grove (Cardó Mountain). Photo: Jordi Bas.

Yew juvenile protected by nurse plants against the grazing of cows, goats or other domestic or wild ungulates. Alta Garrotxa. Photo: Jordi Bas.

5. PROMOTION OF DISPERSING FAUNA

Seed dispersal can be promoted attracting frugivore birds and mammals. In addition, floristic diversity and the structural and functional complexity of the habitat are thus improved.

5.1. Selective thinning to benefit fruit-producing plants

Selective heavy thinning is made on parent yew trees with the highest flowering and fructification potential.

The same treatment is applied to fleshy fruit producers: holly, rowan, buckthorn or hawthorn. Yews and other fruiting species usually form associations in the so-called dispersal landscapes,

where plant individuals aid each other in dispersal. Species that bear abundant fruit benefit the dispersal of others that bear less fruit that season, since these bird - plant mutualisms are not species-specific.
Work was performed on about 900 fruit trees.

5.2. Plantation of fruit trees

Yew regeneration is benefitted by planting fleshy fruit producing plants. These dispersal facilitators are selected from floristic inventories and are planted from seeds collected in the same locality.
During the Life TAXUS project, about 3,700 facilitator plants were planted, amongst the following species: snowy serviceberry (*Amelanchier ovalis*), strawberry tree *(Arbutus unedo*), hawthorn (*Crataegus monogyna*), holly *(Ilex aquifolium*), green olive tree (*Phillyrea latifolia*), and rowans (*Sorbus aria, Sorbus domestica and Sorbus torminalis*).

5.3. Drinking troughs for attracting birds and dispersing carnivorous

12 drinking troughs were installed and 3 natural ponds were restored, in order to promote the presence of frugivore birds.

Holly (*Ilex aquifolium*) is a representative species of yew forests and facilitator of yew dispersal. Photo: Jordi Bas.

Common thrushes (*Turdus philomelos*) in a limestone trough in Llaberia Mountain. Photo: Jarkov Reverté.

Wood pigeon (*Columba palumbus*) captured by photographic traps, feeding on yew arils on a small platform arranged to attract dispersers. Photo: Biodiversity Department, CTFC.

The presence of bird or carnivore scats containing yew seed is a good sign of the effectiveness of conservation techniques that promote dispersal. Miseclòs Yew Forest (Alta Garrotxa). Photo: Jordi Camprodon.

6. FIRE PREVENTION

When drought and high temperatures are extreme, Mediterranean yew forests, despite being in shady areas, are exposed to a high risk of high intensity wildfires. This risk will increase in a global warming context. The aim is to prevent fire from spreading to the canopy in a fire event. At the same time, a reduction in the virulence of the flames facilitates its extinction.

Our method consists of silvicultural wildfire risk reduction treatments following innovative management guidelines (ORGEST models), which involve low intensity interventions with a high cost/benefit ratio. For example, the reduction and the discontinuing of high-risk vegetation, with the aim of facilitating the extinction work by firemen (strategic management points, PEG) and thus preventing the flames from reaching yew forests.

Life TAXUS has acted in more than 36 hectares, including perimeter areas, PEG and auxiliary strips (2 ha in extension) in 18 areas between Alta Garrotxa, Poblet Forest, Llaberia and Cardó Mountains.

Images of the interior of the stands, before and after performances. Prior of intervention, the structure of both stands was highly vulnerable to wildfires. Up to 75% of shrubs, sprouts and saplings were removed, but only those contacting large tree canopies (ladder fuel). Protected or rare species were respected, as well as broadleaved trees producing fleshy fruit. In this way, the prevention objective is met, however minimising its impact on biodiversity.

7. FIGHT AGAINST EROSION

The risk of soil loss in Mediterranean yew forests located in steep ravines, and often affected by rainstorms, is very high. Risk of erosion is enhanced by human activities, which are intense in yew forests located in crowded areas.

The objective is to minimise the effects of erosion on yew populations and other plant species in habitats in areas with a high soil degradation risk.

Life TAXUS has stabilised trails to yew groves by means of galvanised steel mesh barriers (Cardó Mountain) and faggot revetments made with remnants of Competition regulation actions (Cardó and Montserrat Mountains).

Roots boot rebarking. Refuge Vicenç Barbé (Montserrat Mountain). Photo: Joan Llovet.

Faggot revetments to prevent erosion in the mature yew forest of Cosp (Cardó Mountain). Branches and twigs from competition regulation works were reused. Photo: Jordi Camprodon.

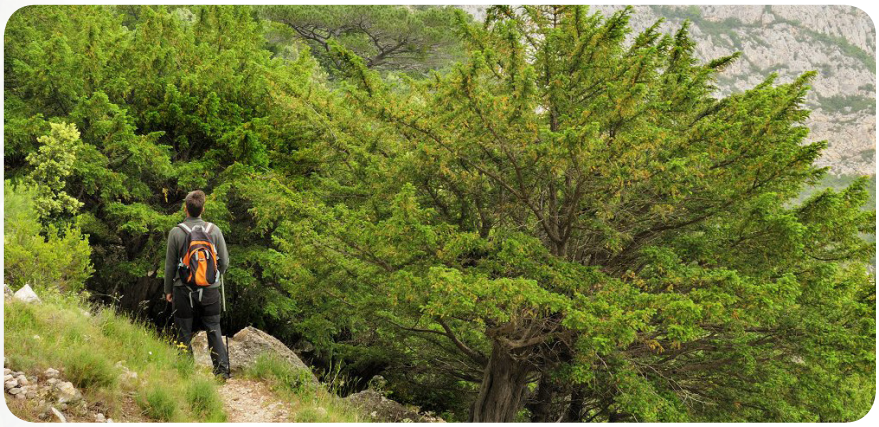
Trail conditioning with a low mesh of galvanised triple torsion steel, laid on the rocky bottom and anchored with galvanised steel wire. In the image on the left, we can see mules carrying fencing material. Yew grove of Cosp (Cardó Mountain). Photos: Jordi Bas and Jordi Camprodon.

8. GENETIC ISOLATION

Silvicultural restoration treatments result in a greater fruit yield and greater visibility for dispersers in areas that were genetically isolated. Therefore, genetic recombination is favoured. Planting of new yews is done with seedlings harvested from seeds of different plots, always within the same subpopulation.

9. REGULATION OF PUBLIC USE

Yew forests are awe-inspiring and very popular, especially among nature lovers and religious, spiritual people. Life TAXUS has taken advantage of this attraction leading it towards a conservation awareness. However, an indiscriminate flow of visitors to yew forests has been avoided, in order not to compromise their conservation. For example, the exact location of yew forests has not been disseminated in websites, brochures, panels or social media. Guided visits have been organised. Only in the case of Cosp yew forest, which is an important heritage for the municipality of Rasquera, the existing trail was conditioned to allow access to the forest's periphery.



Yew forest of Cosp (Cardó Mountain). Photo: Jordi Bas.

10. ADAPTATION TO CLIMATE CHANGE

Increasing temperatures and expected drought periods may lead to a sharp decline in yew populations at the end of the 21st century, which may be more pronounced in southern mountains, eventually leading to extinction in many areas of Mediterranean region.

Actions undertaken by Life TAXUS increase resilience and reduce vulnerability of yew groves to climate change: a) the reduction of competition, which results in a decrease of water stress; b) the protection of seedlings against herbivores and reinforcement of populations with seedlings of the same biogeographical zone under optimum ecological conditions; c) fire prevention around yew groves.

Yew forest at la Obaga de la Pena (Poblet Forest, SAC Muntanyes de Prades) two years after selective thinnings for competition regulation. Most of the cut twigs had been distributed on the ground, and the decomposed nutrients have returned to the soil. Photo: Jordi Bas.

ECOLOGICAL MONITORING

A thorough monitoring of the biological variables was carried out, before and after the habitat improvement treatments. For each action, different indicators were selected to measure water stress (through isotope ratio 13C: 12C), growth in height and diameter, the effect of livestock regulation on the regenerated crop, the attraction of dispersing fauna, etc.

The technical staff of Life TAXUS carried out these surveys, aided by university students (UVic and UdG) who completed their degree practices and three final degree papers. Monitoring and data analysis will continue post-LIFE to obtain valuable information about habitat response to improvement treatments.

Yew tree with an installed dendrometer that measures diameter growth (left) and measurement of the cover on yews and other plants by means of hemispherical photo. Photos: Jordi Bas.

COMMUNICATION ACTIVITIES

Life TAXUS has disseminated the natural and cultural values of yew forests and the conservation actions that have been carried out. It has reached local communities and the whole of the Catalan population.

www.taxus.cat
Instagram: life.taxus

Panels, brochures and leaflets
Customised for each main area of action.
Distributed by several council and tourist information offices, tourist services, educational centres, landowners, professionals of the environment, etc.

One of the panels of the Life TAXUS project in the Llaberia Mountain. Photo: Jordi Camprodon.

Biodiversity of the Mediterranean yew forests. Cosp yew forest (Cardó Mountain). Drawing: Toni Llobet.

DISSEMINATION IN THE MEDIA

The project has appeared in the media (digital newspapers Nació Digital, Punt Avui, Ecodiari, Vanguardia Digital, Contra de La Vanguardia, Diari Ara, El Periódico de Cataluña, etc.), radio and television. It has reached an audience between 60,000 and 600,000 people.

Life TAXUS in Catalan Television (TV3):

http://www.tv3.cat/videos/4422496/Espai-Terra---dimarts-15-de-gener

http://www.tv3.cat/videos/5322751/TN-Comarques-Tarragona-03112014

http://www.ccma.cat/tv3/alacarta/telenoticies-comarques/un-projecte-life-actua-per-conservar-la-teixera-de-rasquera-el-bosc-mes-antic-de-catalunya/video/5575774/

Filming of the report about the TAXUS project for the TV Espai Terra program in November 2012 and for Telenotícies Comarques on TV3 in October 2014. Photos: Jordi Camprodon and Jordi Bas.


Temas del día | Referéndum Italia | Manuel Valls | Inundaciones Málaga | Niños con móvil | Barça | Más temas

elPeriódico SOCIEDAD

MEDIO AMBIENTE

PROYECTO DE CONSERVACIÓN FORESTAL

Los últimos bosques de tejo

- La ancestral conífera mantiene apenas 65 hectáreas en buen estado en Catalunya
- Un programa Life apoya la conservación por su valor ambiental y patrimonial

Lo + Visto | Comentado

1 Boicots que buscan el miedo — Jordi Évole

2 Italia golpea en las urnas a Renzi, que anuncia su dimisión

3 Eduardo Inda dice que su exmujer le debe 25.000 euros y arremete contra dirigentes de Podemos

4 Renzi dimite tras perder el referéndum de la reforma constitucional en Italia

5 James Rhodes: "En todo el mundo hay niños que sufren violaciones. Hay que hablar de ello"

SPORT

Aquí esconde Cristiano Ronaldo sus 150 millones de euros

http://www.elperiodico.com/es/noticias/medio-ambiente/ultimos-bosques-tejo-catalunya-life-taxus-4764427

TRAVELLING EXHIBITIONS

The exhibition The Yew forest of Catalonia is one of the key communication events. It has visited most of the localities of the project. It is combined with talks and guided tours to the yew forests, and will continue after the project. It has been visited by more than 16,000 people. Video available in https://vimeo.com/122522800.

Details of the Life TAXUS project exhibition: panels and showcase with objects made with yew wood. Photos: Ana Rios

Detail of the exhibition The yew forests of Catalonia. Design: Geosilva, photos: Jordi Bas.

ENVIRONMENTAL EDUCATION ACTIVITIES

Different activities of environmental education have been organised for schools, which includes talks and visits to yew forests for a family audience. 1078 students from 21 schools have participated in different workshops, excursions and talks.

School activities in Alta Garrotxa and Poblet Forest (Muntanyes de Prades). Photos: El Refugi and PNIN Poblet.

School activities continue after the project:

- Activation of the interactive map #EdulocTaxus for the Garrotxa region.
- Environmental education dossiers adapted to each area of action, distributed in schools and educational resources centres.
- Life TAXUS didactic suitcase developed by El Refugi Nature School that travels through the educational resources centres of Catalonia. From kindergarten to high school.

Life TAXUS didactic suitcase developed by El Refugi Nature School, adapted to the different educational levels.

"Taxus the Druid of the Forest", a tale for children (Original idea of Escola El Refugi de Natura i Muntanya, drawing by Guillem Fradera). Http://www.taxus.cat

TECHNICAL CONFERENCES AND CONGRESSES

Participation in 5 technical conferences, including the 2nd Meeting of Land Stewardship Owners, in 2 forest management courses, in the Iberian Congress of Ecology (Coimbra, June 2015), as well as in the Iberian Workshop *Florestas mediterrânicas de Taxus Baccata* (Manteigas, June 2016, http://www.lifetaxus.quercus.pt).

One of the concerns of Life TAXUS is how habitats conservation can contribute to sustainable rural development. This lead to the organisation of the session How to value the natural heritage. The yew forests of Catalonia as an example (Rasquera, October 2016).

2nd Meeting of Land Stewardship Owners, Capçanes (Llaberia Mountain). Photo: Sandra Carrera.

ORGANISATION OF THE IV INTERNATIONAL YEW WORKSHOP

Held in the Monastery of Poblet, and was attended by 140 stakeholders and experts from different European, Asian and American countries.

Digital edition of the Proceedings of the Workshop, with 28 contributions (papers and communications).
http://www.taxus.cat/docs/llibre%20ponencies%20jornades%20teix.pdf.

Publishing of a selection of the best contributions Forest Systems, the scientific journal of INIA.
http://revistas.inia.es/index.php/fs/issue/view/132.

Front cover of the proceedings of the IV International Yew Workshop. Http://www.taxus.cat

Attendees to the IV International Yew Workshop. Monastery of Poblet, October 2014. Photo: Richard Martín.

RESULTS

- The actions developed by the LIFE Taxus Project have contributed significantly to the long-term conservation of Mediterranean forests of yew (habitat 9580*) throughout Catalonia.

- The durability of interventions is protected by land stewardship agreements, which ensure their conservation for the next 25 years. These agreements include the transfer of management by lease, management plan drafts for the property, the prevention of wildfires or the improvement of open spaces for pasture.

One year old wild yew seedlings. Alta Garrotxa. Photo: Jordi Bas.

“The Best Practice Handbook contains Life TAXUS experiences for the conservation and ecological monitoring of Mediterranean yew forests”

Conservation of Mediterranean yew forests. Best practice handbook
http://www.taxus.cat/docs/MANUAL%20TAXUS%20ANG.pdf

- Social awareness has been raised about yew forests and the importance of its conservation in a way that is compatible with property rights and local development.

- Opportunities for the local economy have been created, by way of development projects associated with the natural and cultural heritage. The TAXUS Life project has hired 41 companies, 22 of them in the forestry sector, which carried out conservation works.

- Likewise, awareness and training have been promoted in the forestry sector: forest owners and companies who were not used to conservation actions, have integrated this concern into their activities through this project.

Inauguration of the exhibition The Yew forest of Catalonia in Prades. June 2016.

- The average cost of silvicultural treatment (thinning, pruning, planting) has been 1177 euros/ha, a very competitive price. Trees were marked on the field by management technicians (with an average cost of 716 euros/ha). The management team has designed the actions, planning and mapping each yew grove, marking trees, elaboration of technical prescriptions, surveillance of adjudication processes, operator training, monitoring and certification work, field data collection, data analysis, reports and corrective measures.

Life TAXUS has employed professionals from local forestry companies. It has promoted the social integration of people at risk of social exclusion, who have performed all the forest works in Alta Garrotxa (Fageda Fundació). Photo: Jordi Bas.

- The conservation practices developed in the project can be replicated in other locations throughout the Mediterranean region by public authorities, wildlife trusts, private companies and other managers of Natura 2000 sites. Actions have been designed according to the best possible solution to each problem, according to processes observed in nature, and have been adapted to particular conditions, for example, public or private ownership, biogeographic differences, differences in livestock husbandry, etc.

- Designed protocols include the monitoring of ecological variables and detailed technical guidelines, so they are easily reproducible by other managers.

Visit to the conservation actions of Life TAXUS by managers, forest owners and technicians of protected areas. Llaberia Mountain. Photo: Jordi Camprodon.

POST-LIFE CONSERVATION PLAN

It is the document that guides conservation procedures to be carried out or maintained after the end of the LIFE Project. It contemplates conservation and communication actions to be carried out over the next 10 years.

The conservation practices developed by the Life TAXUS project have been designed so as to achieve system sustainability, seeking the minimum interventions in the future and the consequent cost savings. For example, in the case of competition regulation actions, they are designed to stabilise the yew groves and seek their maturity and regeneration increase without further interventions in the next decades. In the case of fences or plant protectors, a minimal maintenance will be required.

Field management carried out regularly by partners of the project will ensure the maintenance of long-term actions and the continuity of ecological monitoring and dissemination activities. Consequently, the future prospects for the conservation of yew forests as habitat are encouraging.

Idealised example of conservation, monitoring and social awareness actions in yew forests. Drawing: Toni Llobet.

BASIC DETAILS OF THE PROJECT LIFE TAXUS - LIFE 11 NAT / ES / 711

Chronology	4/11/2012 – 4/11/2016
European contribution	915.710 €
Total budget	1.220.947 €
Coordinating beneficiary	Centre Tecnològic Forestal de Catalunya
Contact Person	Dr. Jordi Camprodon
Postal address	Carretera de Sant Llorenç de Morunys km 2. E-25280 Solsona
Phone	00-34-973 481 752 ext. 237
Fax	00-34-973 481 392
E-mail	taxus@ctfc.cat europe@ctfc.es
Website of the project	www.taxus.cat
Instagram	life.taxus

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