



**Southwest
Europe**

Combination of
plantations and agro-
silvo-forestry





Margarida Tomé
Instituto Superior de
Agronomia
Centro de Estudos
Florestais
Universidade de Lisboa



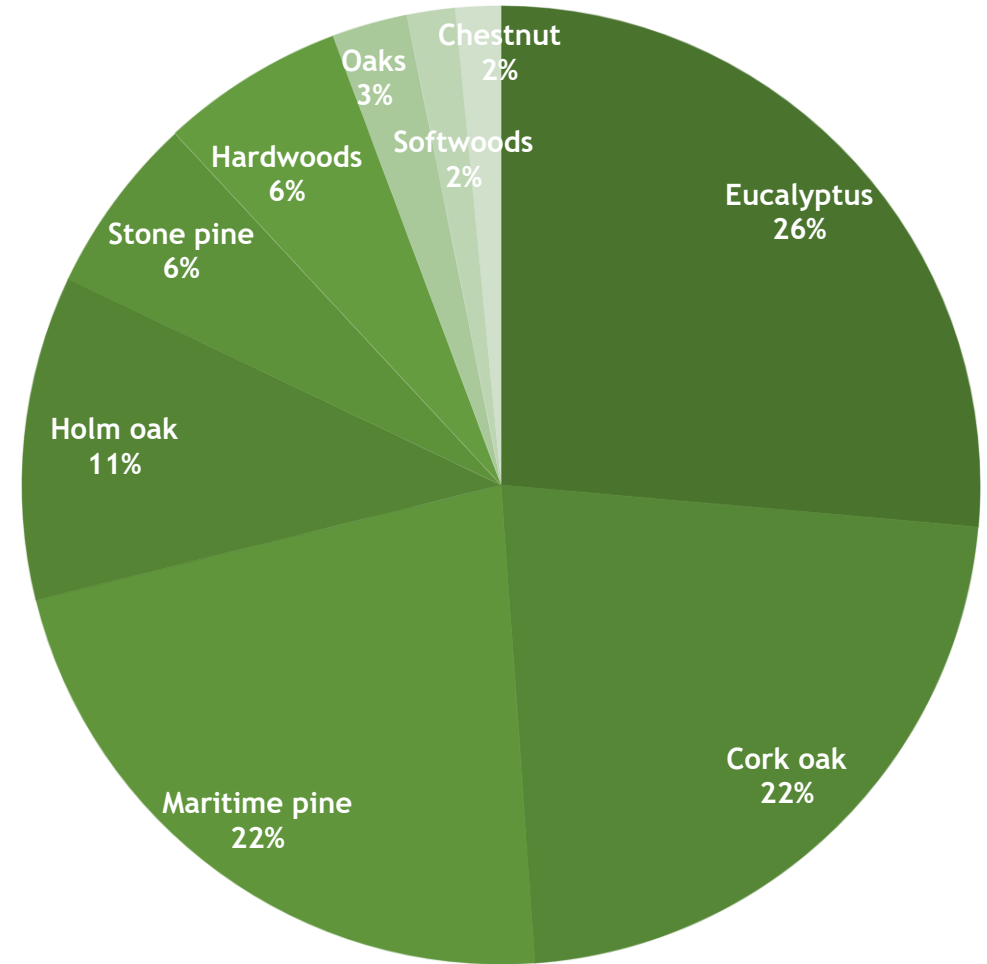
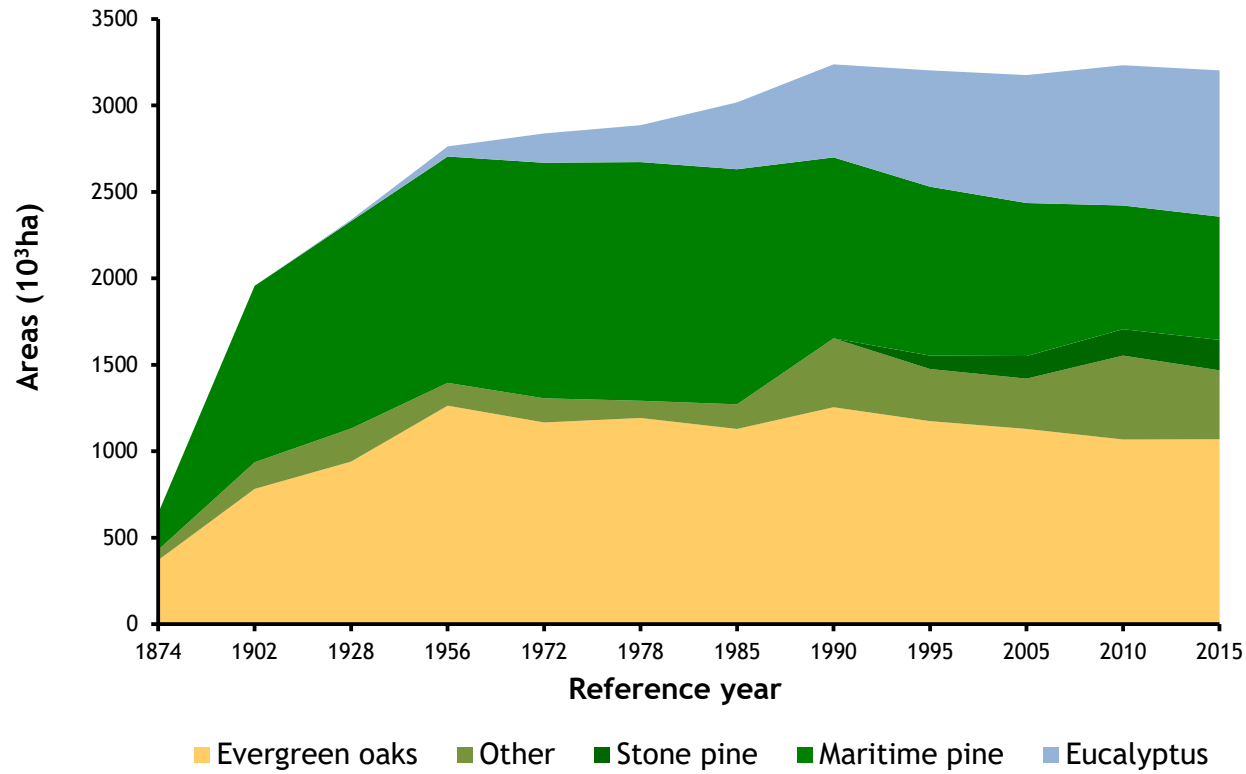
■ Southwest forests - past

- ✓ Evolution over the last few thousand years had a **pattern** common to the entire Mediterranean, with the **destruction of the original forest** by frequent fires, natural or purposeful:
 - to favour grazing (mainly sheep)
 - with the use of the best soils for cereal cultivation
 - with the use of woody material for boat construction, fuel and construction
- ✓ This situation was maintained until the end of the XIX century, when **reforestation actions** start to take place initially with protection purposes

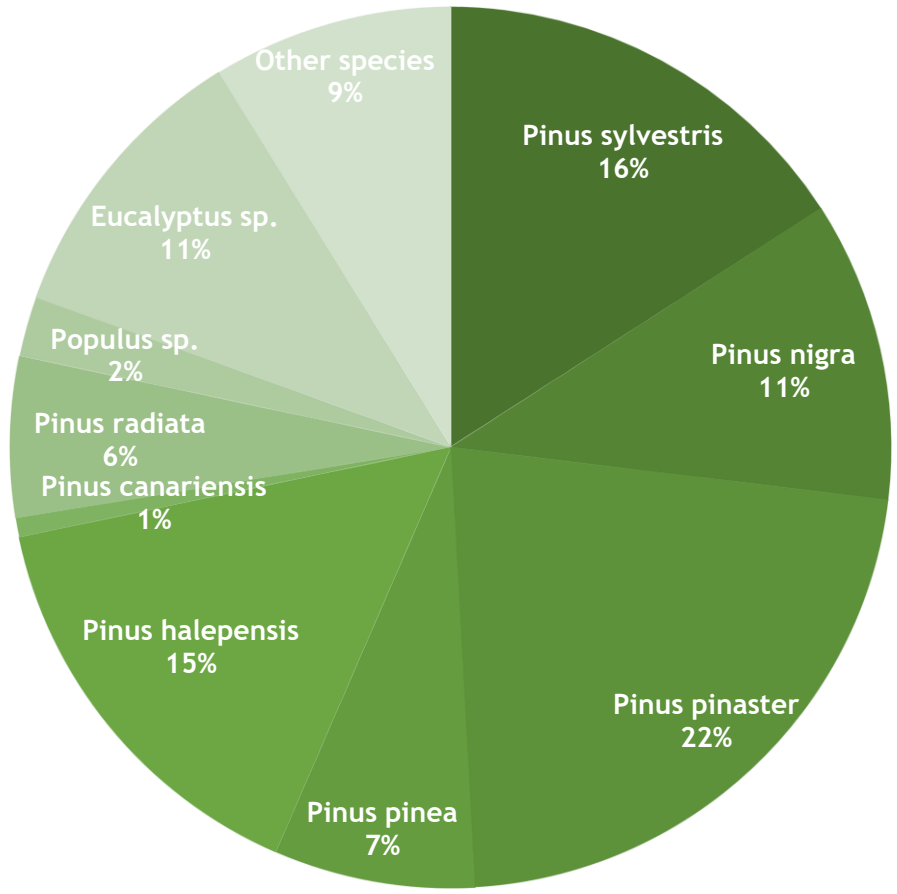
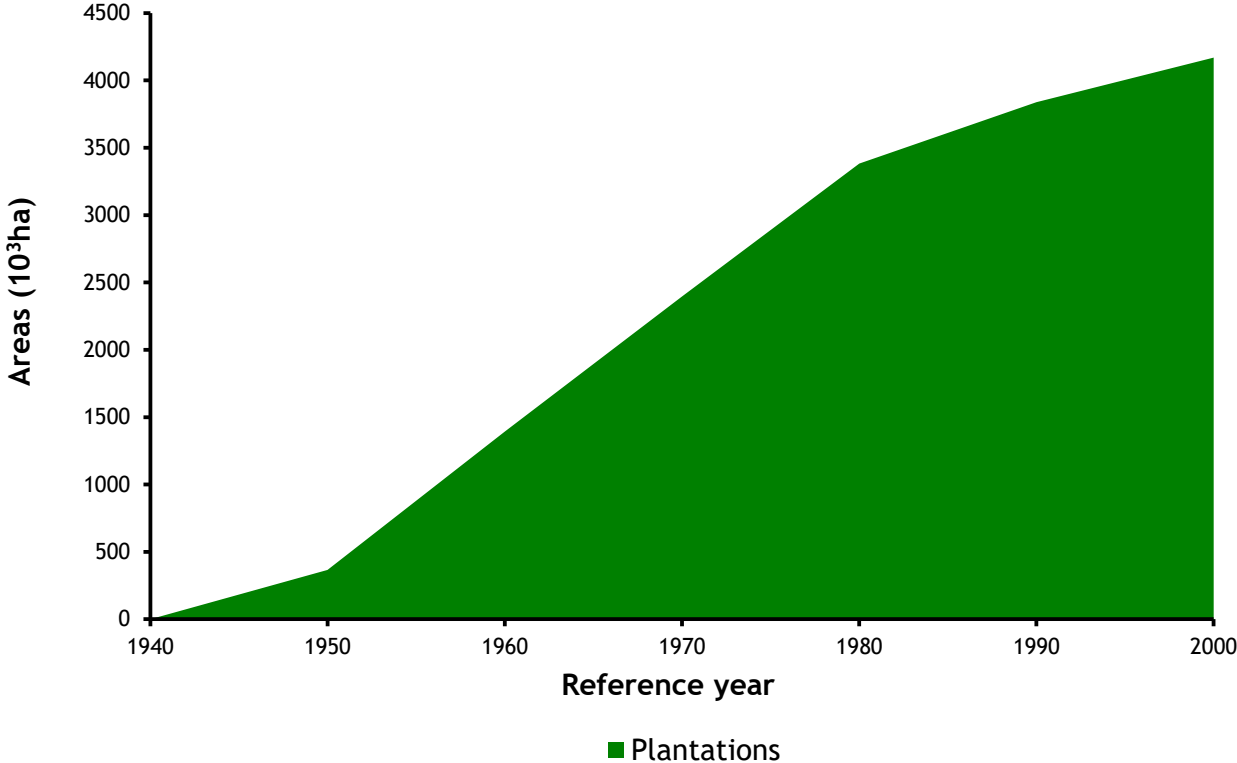
■ Southwest forests - past

- ✓ **A large increment** of forest **area** could be seen from the end of XIX century, with **intensive industrial plantations** starting by the middle of the XX century

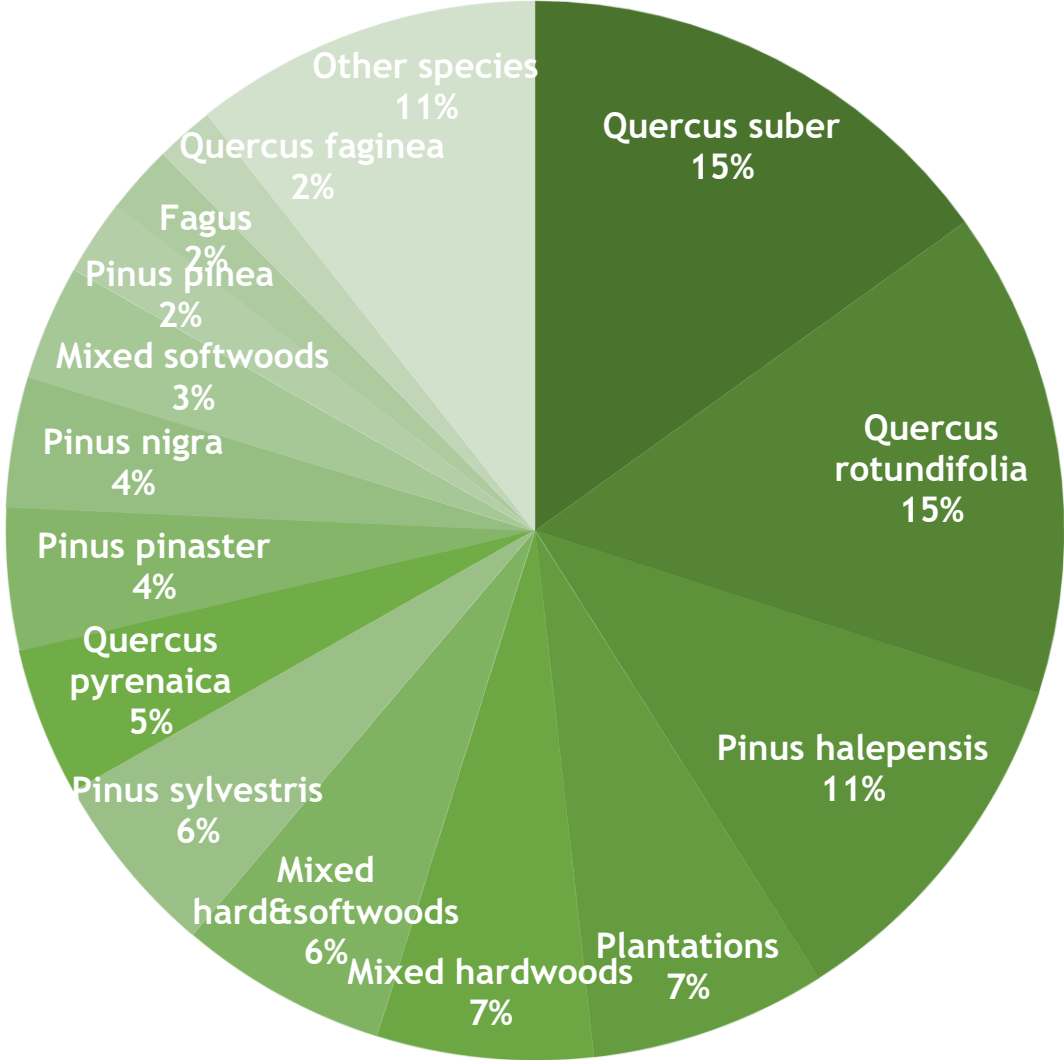
PORTUGAL - evolution of forest area and share of species 2015



SPAIN - new plantations 1940-2000



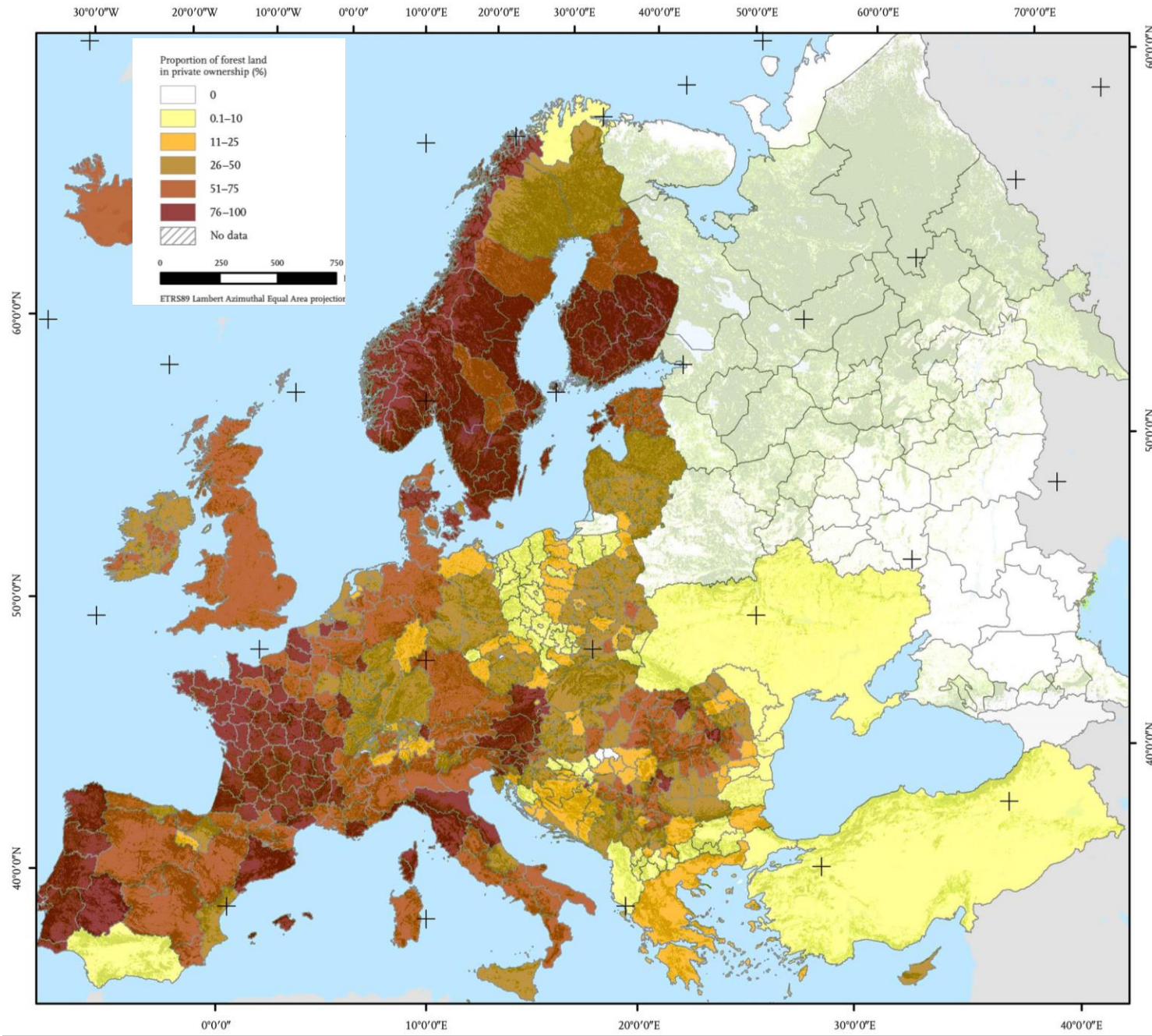
SPAIN - forest species in 2022



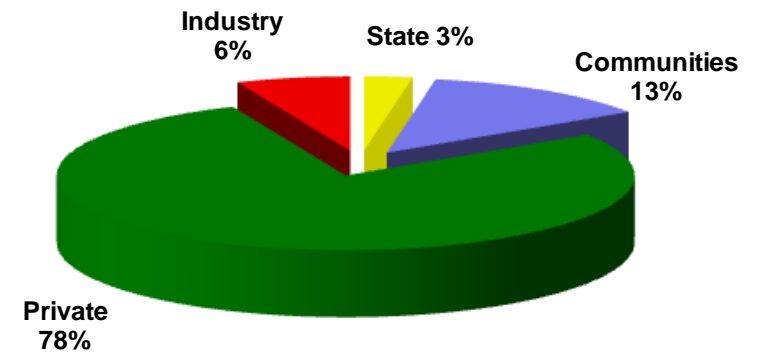
■ Southwest forests - present

- ✓ Nowadays forests are characterized by a very high percentage of **private forest**, with **very fragmented ownership**

Private forest ownership in Southwestern Europe - EFI TR 88



PORTUGAL



■ Southwest forests - present

- ✓ As a consequence of the evolution of forests nowadays we can find a divide between **two forest “types” (silvicultural systems)** and the **ecosystem services they** provide:
 - **Production forests**, with a large share of the so-called “private goods”
 - **Multifunctional, closer to nature forest**, with a large share of “public services”
- ✓ In fact, there are other silvicultural systems, from “biomass for energy” to “nature protection” but those are the most abundant

Production forest

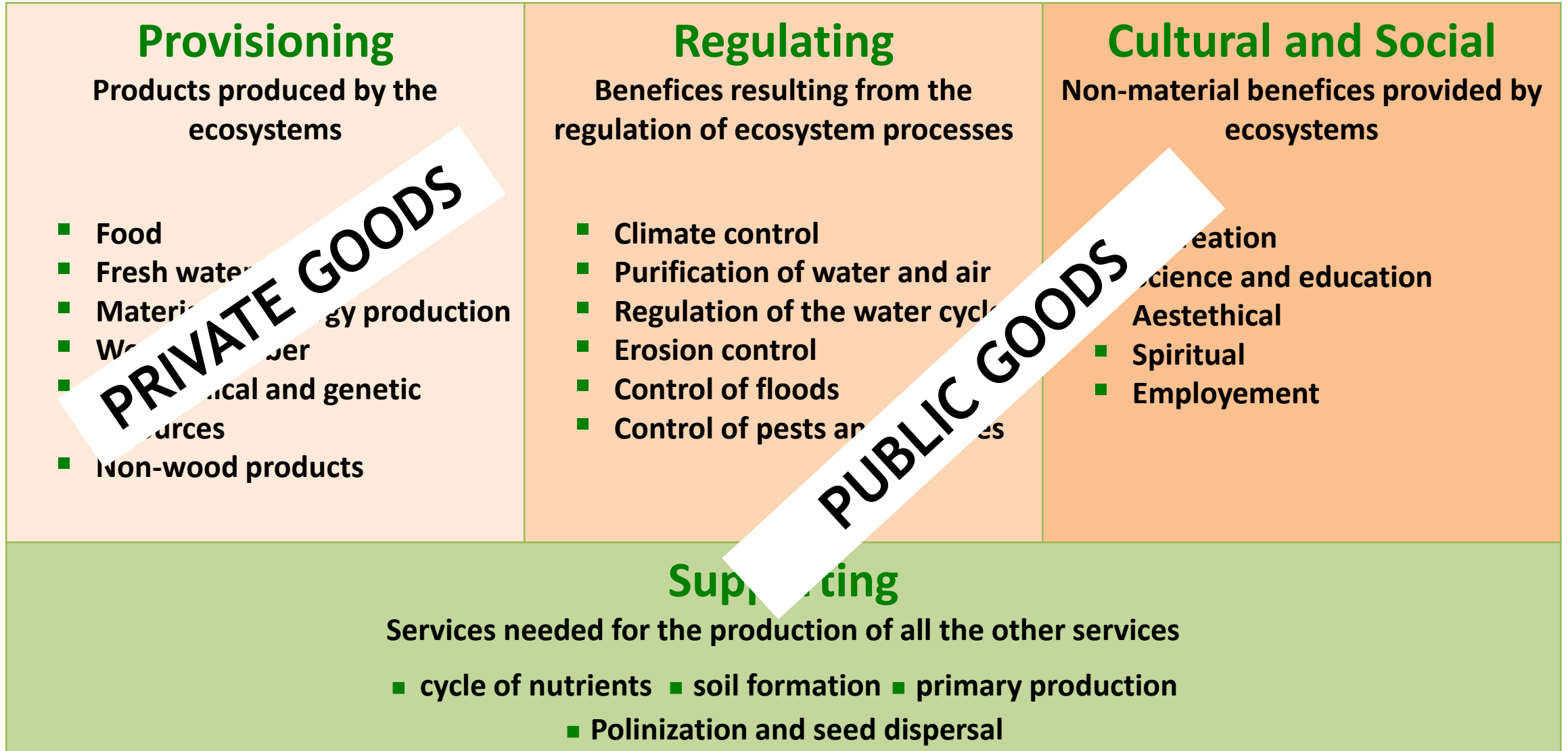




Mutifunctional forest



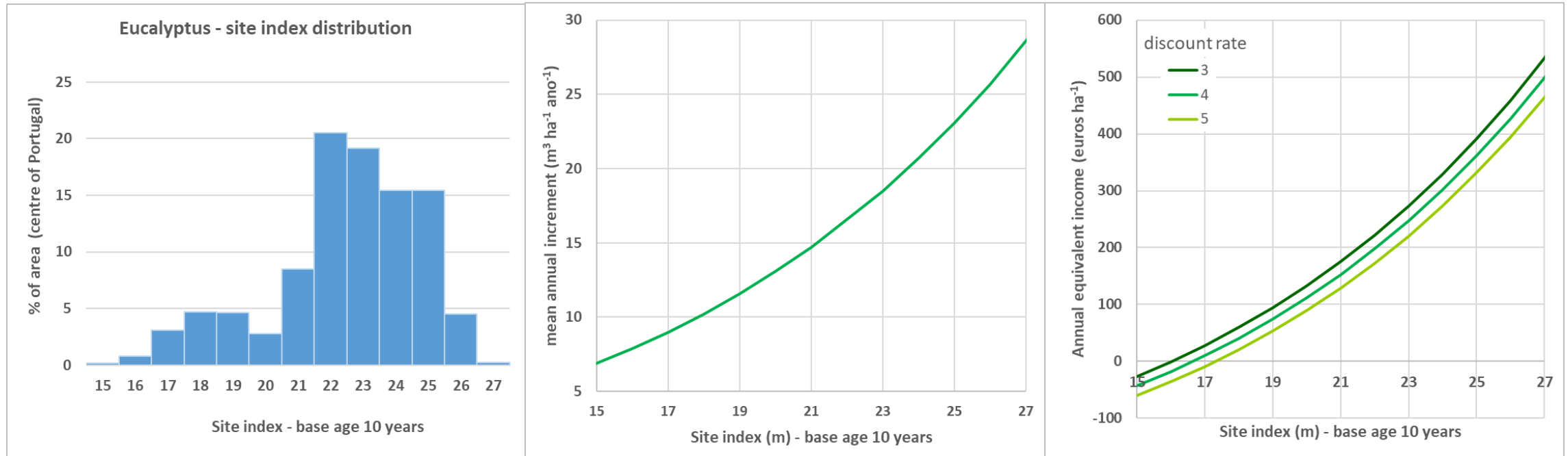
Ecosystem services



■ Southwest forests - present

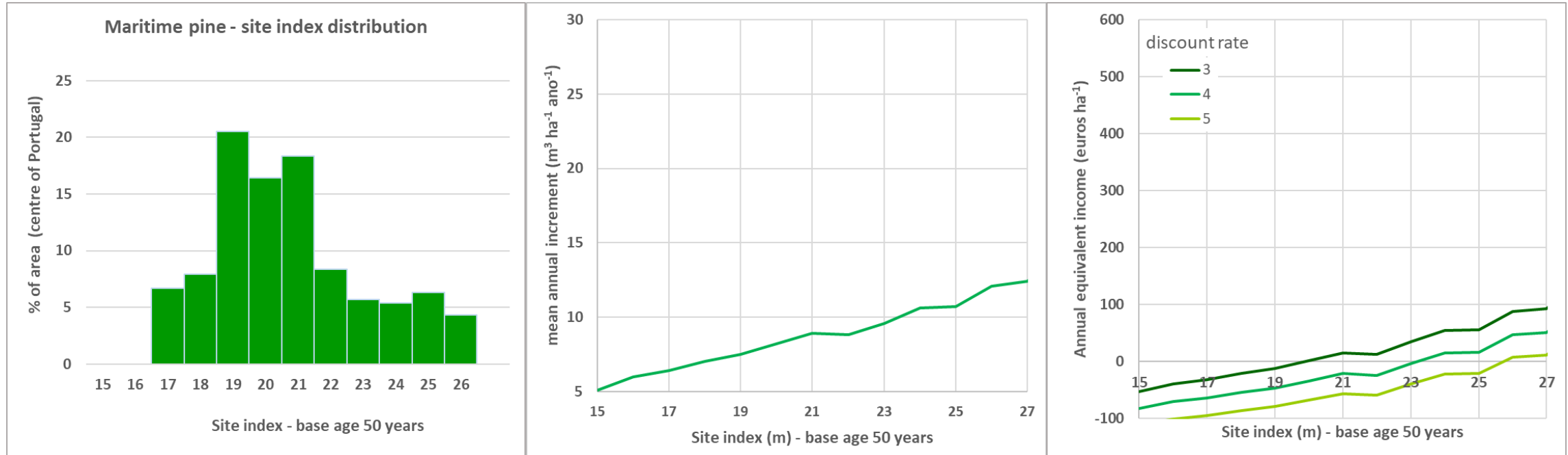
- ✓ As shown before the percentage of **private forest is very high**, with a very **fragmented property**, which makes it difficult to apply an adequate management that is very often inexistent
- ✓ One of the main causes of this “bad management” is the **low profitability** that is usually associated with the most part of the Portuguese forest ecosystems that leads to
 - the **abandonment** of a large share of the forest areas
 - some **bias in farmers’ selection of species and silvicultural systems**

Profitability of forests in the Centre of Portugal - eucalyptus



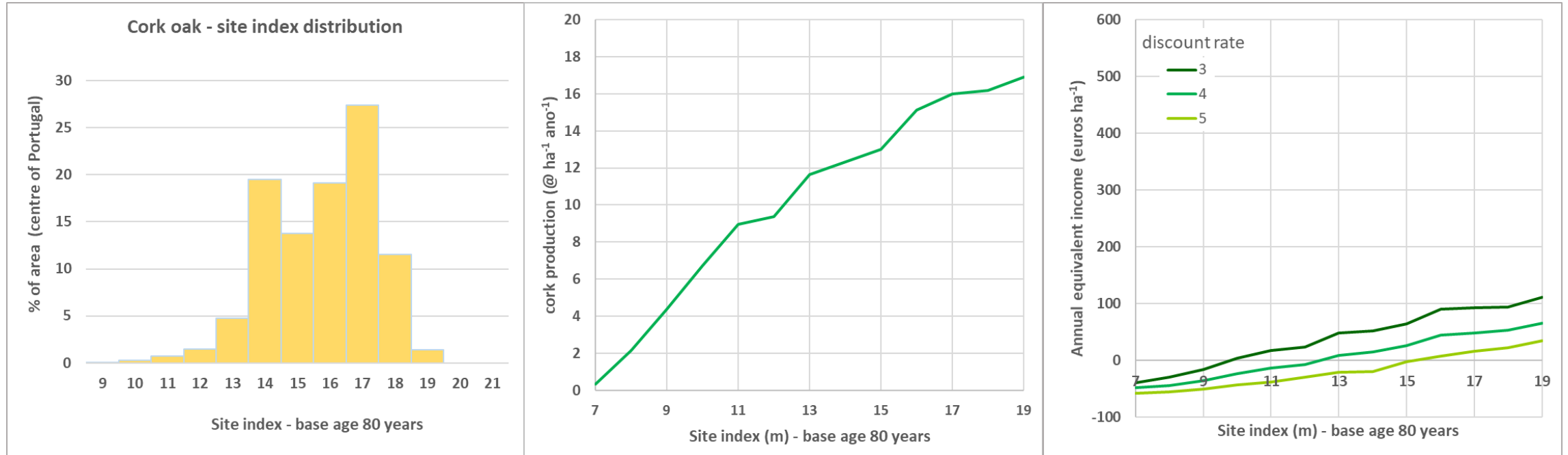
In the Centre of Portugal most eucalyptus area is profitable

Profitability of forests in the Centre of Portugal - maritime pine



In the Centre of Portugal half of the maritime pine area is not profitable and when profitable income is not comparable with eucalyptus

Profitability of forests in the Centre of Portugal - cork oak



In the Centre of Portugal most cork oak area is profitable but with an income not comparable with eucalyptus

■ But those incomes are for “normal” situations...

✓ Imagine that your land is very sloppy, has been burned, is invaded by acacia

✓



✓



■ Southwest forests - present

- ✓ Different **silvicultural systems** including
 - composition and structure of the stands
 - different ways to manage the forest (from intensive silviculture to continuous cover forestry and nature protection)
 - chronology and characteristics of the silvicultural operations needed

Provisioning ecosystem services ↑

Biomass for energy



Intensive silviculture



Multifunctional forestry



Close to nature forest



Poorly managed forests



Nature conservation



Different silvicultural systems

Income to the landowner

Provisioning ecosystem services

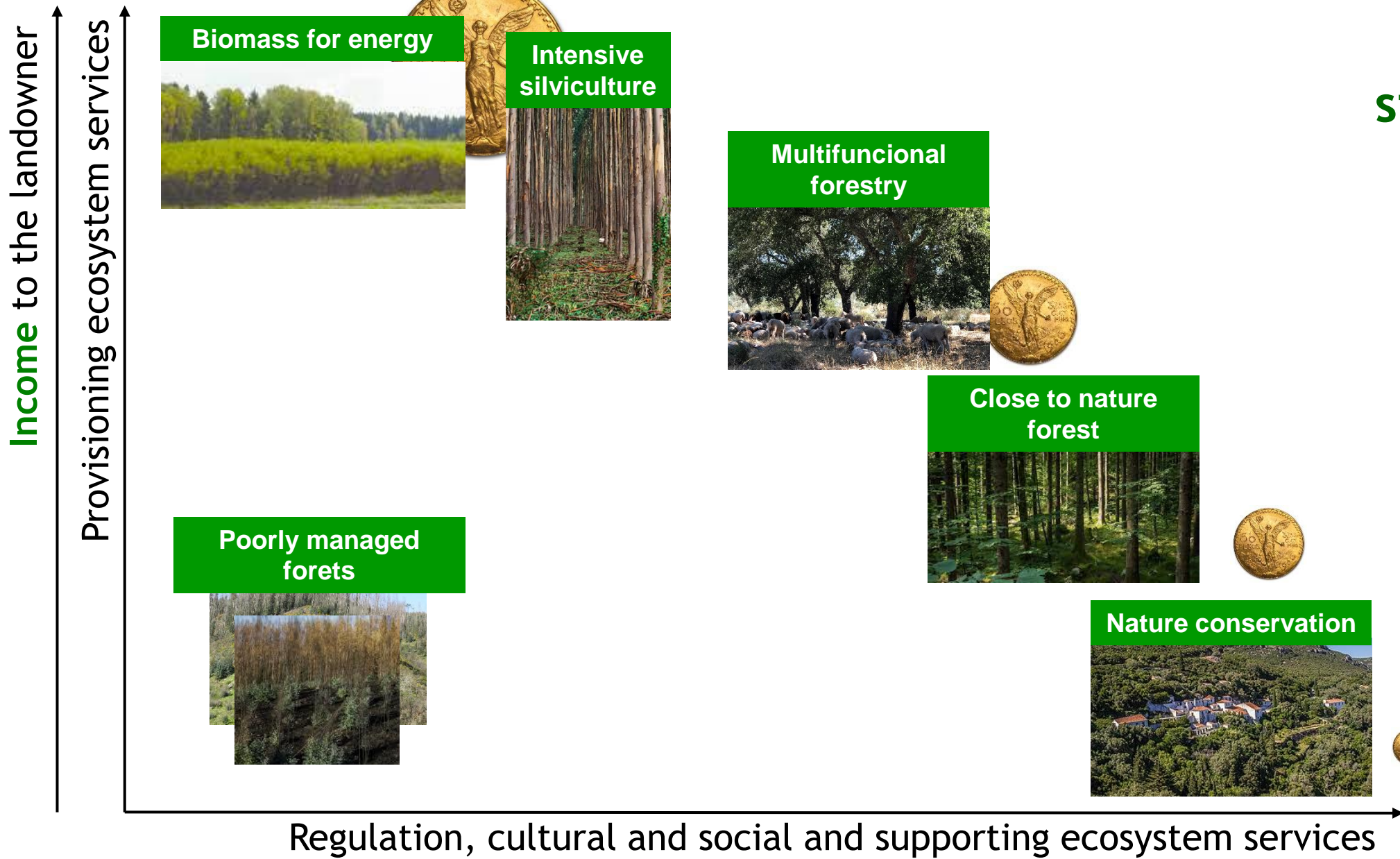


Intensive silviculture



Different silvicultural systems





Different silvicultural systems

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Different silvicultural systems

Regulation, cultural and social and supporting ecosystem services

Need for technical support and **management costs**



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Regulation, cultural and social and supporting ecosystem services

Need for technical support and **management costs**

Valorization of the forest by the **urban society**

Income to the landowner

Provisioning ecosystem services

Different silvicultural systems

Biomass for energy



Intensive silviculture



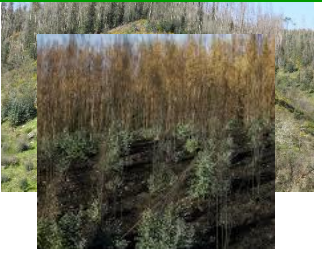
Multifunctional forestry



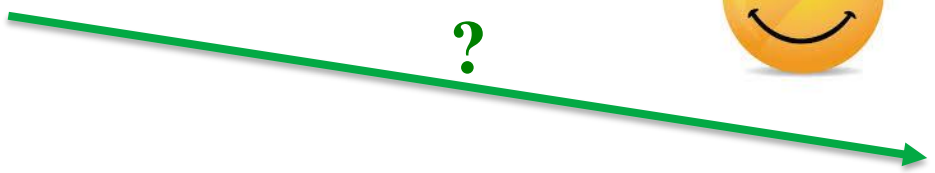
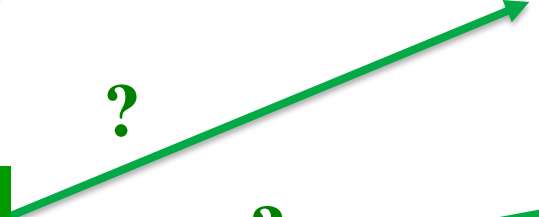
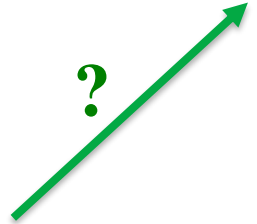
Close to nature forest



Poorly managed forests



Nature conservation



Regulation, cultural and social and supporting ecosystem services

Need for technical support and **management costs**

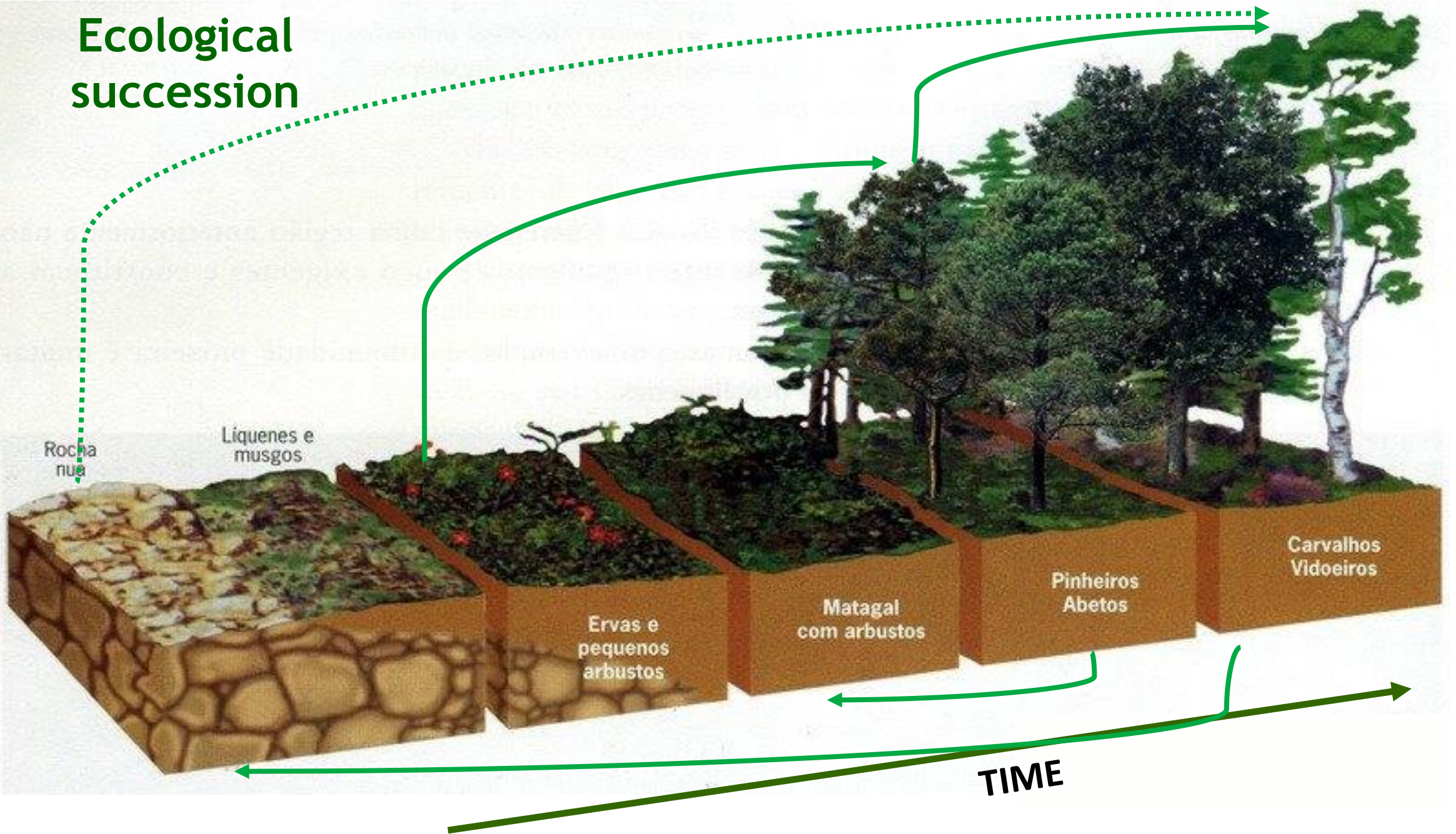
Valorization of the forest by the **urban society**



▪ How to make the transition?

- ✓ **Transition is**, in the great majority of the cases, **difficult**, takes time and has **very high costs**

Ecological succession



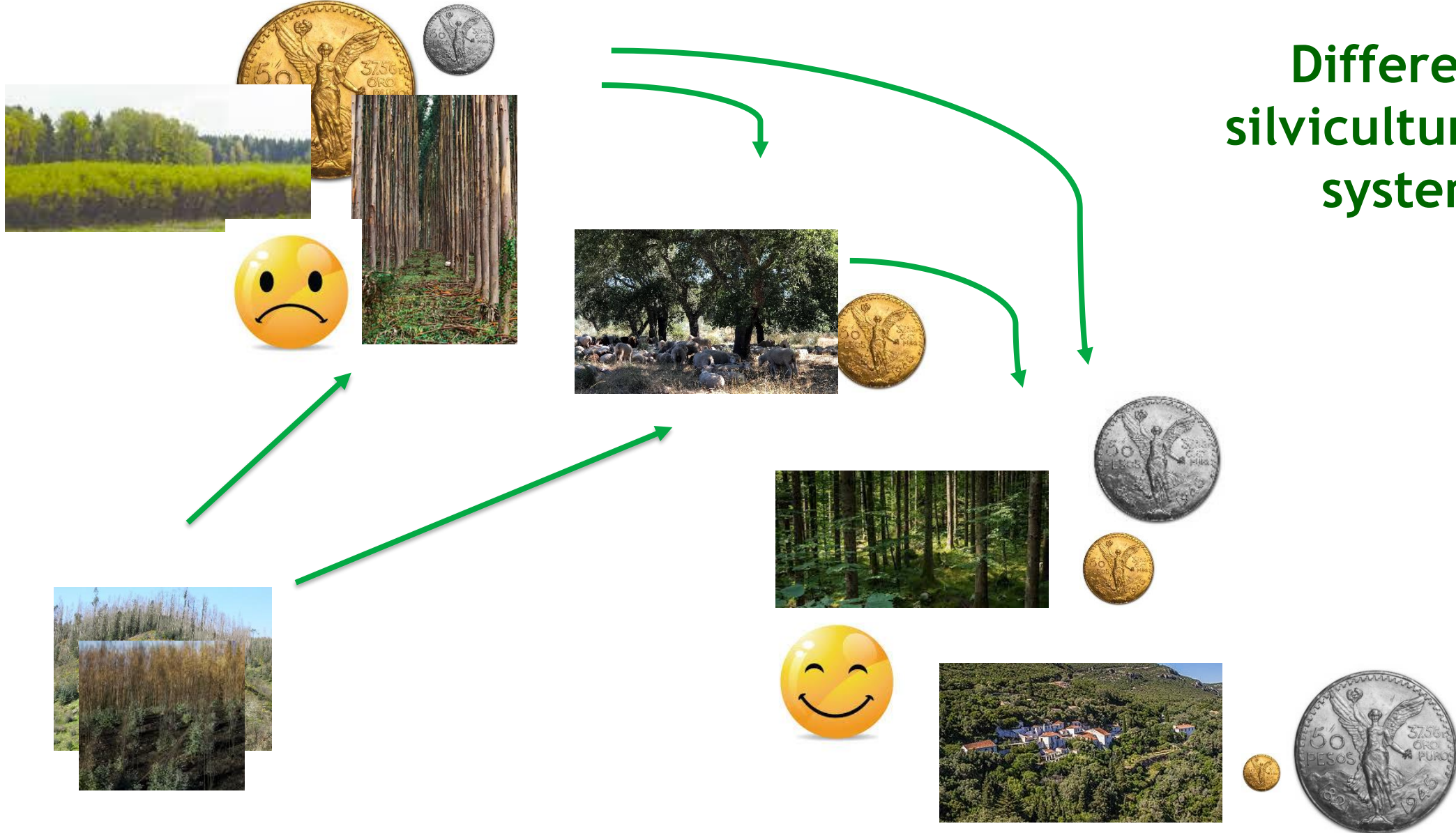
▪ How to make the transition?

- ✓ Transition is, in the great majority of the cases, **difficult**, takes time and has **very high costs**
- ✓ It is **not possible** to change directly **from degraded situations to nice mixed hardwoods forests!**

Income to the landowner

Provisioning ecosystem services

Different silvicultural systems



Regulation, cultural and social and supporting ecosystem services

Need for technical support and **management costs**

Valorization of the forest by the **urban society**

▪ How to make the transition?

- ✓ Transition is, in the great majority of the cases, **difficult**, takes time and has **very high costs**
- ✓ And it is **not possible** to change directly **from degraded situations to nice mixed hardwoods forests!**
- ✓ And **who** is going to **make the change?**

■ The change involves many stakeholders!

- ✓ stand
homogeneous forest area
- ✓ management unit
set of stands with a common management plan

- ✓ watershed, landscape
- ✓ region
- ✓ country
- ✓ continent

Foresters and forest owners (private and other)

Industry and society requirements

Politicians and public administrators

Decide on:

- ✓ Land use
- ✓ Tree species
- ✓ Silvicultural systems
- ✓ Forest mgt approaches

Decide on:

- ✓ Forest policy - legislation
- ✓ Incentives and subsidies
- ✓ Payment of ecosystem services?
- ✓ Promotion of aggregated management

■ Take home messages

- ✓ Forests in the Mediterranean region were destroyed till the XIX century for agriculture, grazing, construction
- ✓ Reforestation took place from the beginning of the XX century, starting with protection forests but moving to industrial plantations
- ✓ Nowadays there is a divide between production forests versus multifunctional forestry

▪ Take home messages

- ✓ **Forest management** depends on **several actors** and at different spatial scales, from **forest landowners**, to **politicians**, the **public administration** and **the society** in general
- ✓ The **transformation of forest areas** to more diverse and more resilient lands **is not easy**, takes time and requires the participation of several actors
- ✓ The management in **areas with a “reasonable” dimension** and the **payment of public services** are essential for the landscape transformation

▪ Acknowledgements

- ✓ My sincere thank you to the Spanish colleagues that contributed with information and/or publications from Spain:
 - Miren Del Rio
 - Iciar Alberdi
- ✓ Any errors in the information from Spain it is my fault, not hers



**THANK YOU FOR
YOUR ATTENTION!**

