



GIAHS

Globally Important Agricultural Heritage Systems



Exploring potential of the alpine landscapes in their inclusion in GIAHS

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GIAHS (FAO Agricultural Heritage Program)

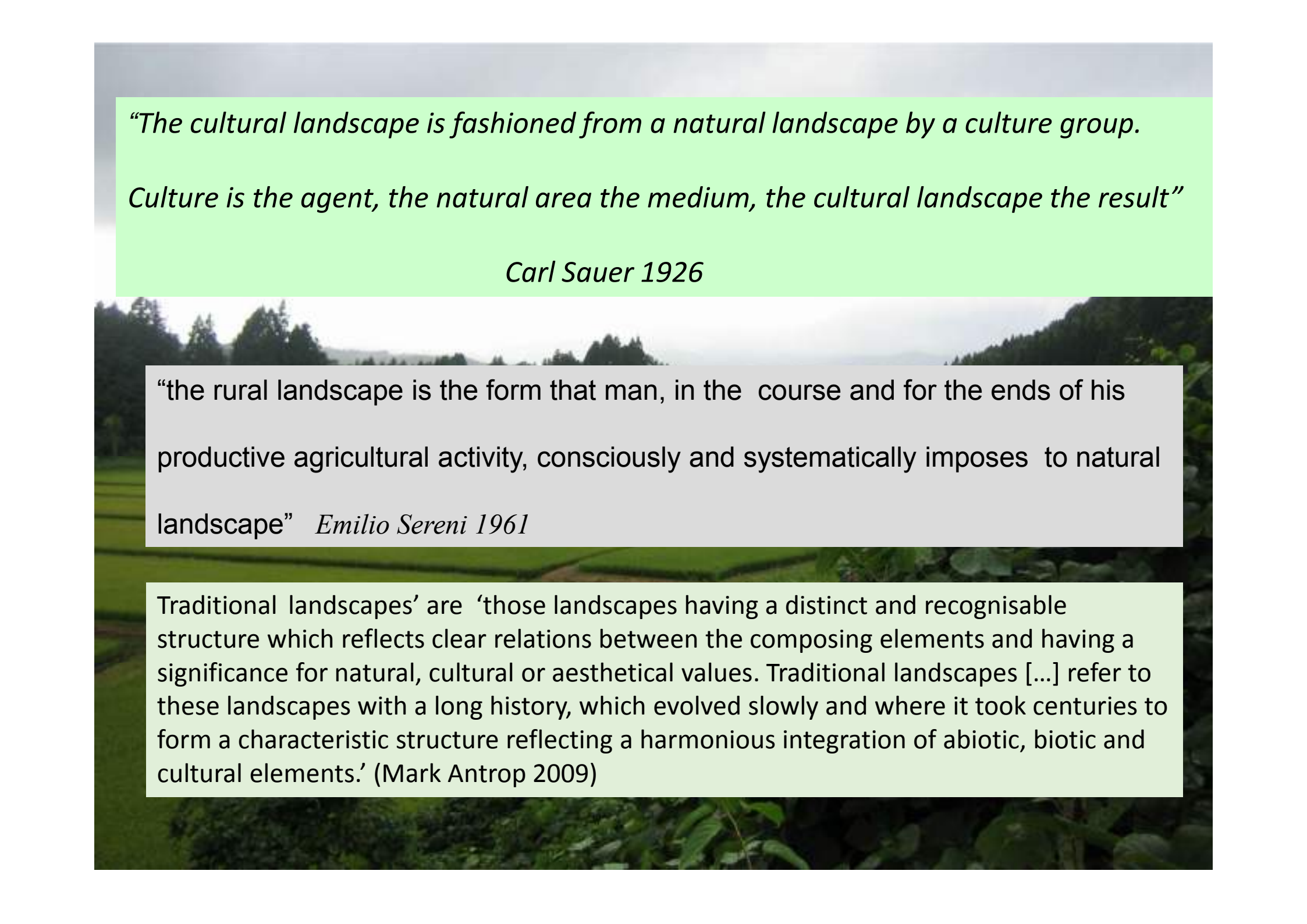
Globally Important Agricultural Heritage Systems



Definition

“Remarkable Land Use Systems and landscapes which are rich in biological diversity evolving from the co-adaptation of a rural community with its environment and its needs and aspirations for sustainable development (FAO, 2002)”.





“The cultural landscape is fashioned from a natural landscape by a culture group.

Culture is the agent, the natural area the medium, the cultural landscape the result”

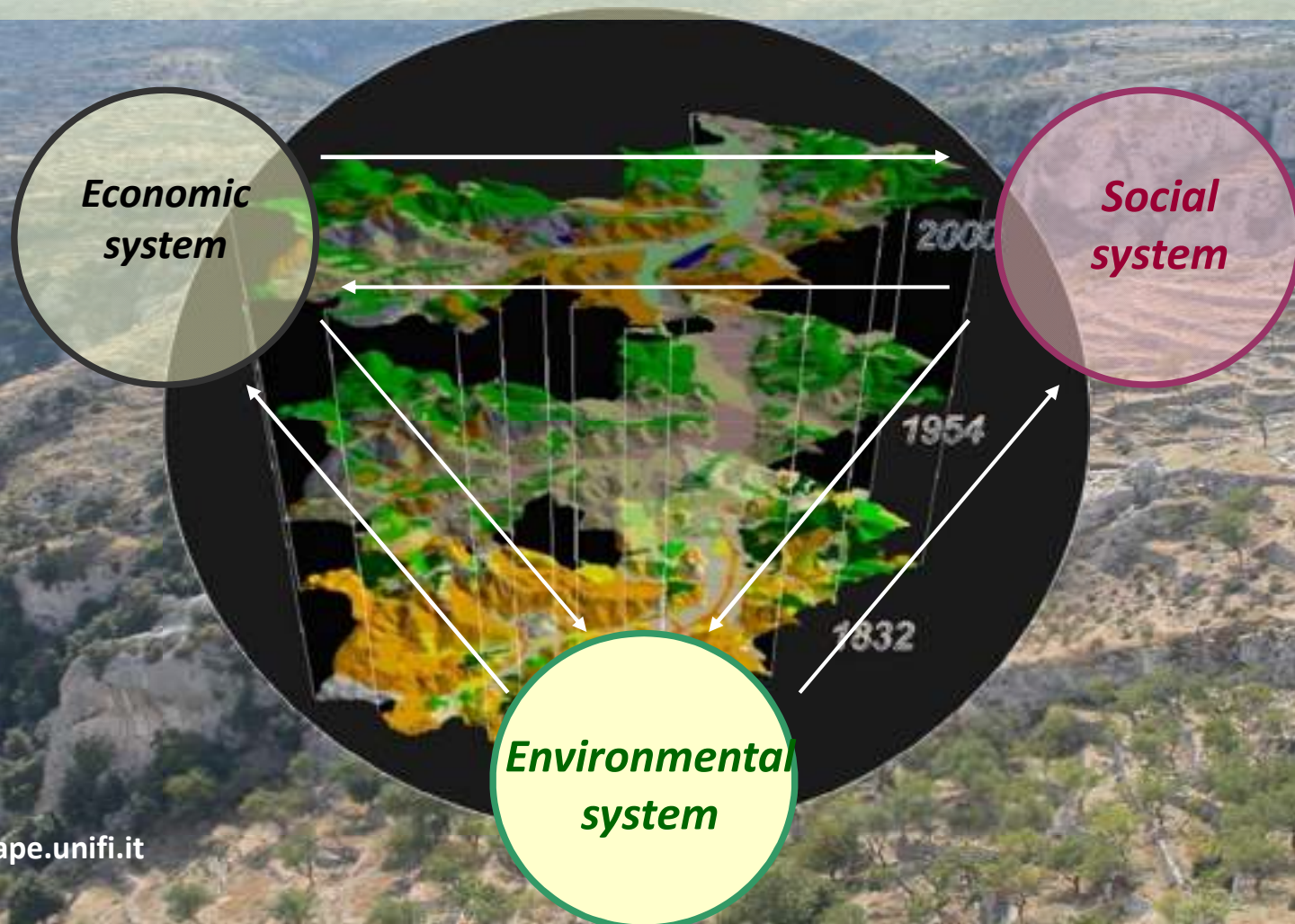
Carl Sauer 1926

“the rural landscape is the form that man, in the course and for the ends of his productive agricultural activity, consciously and systematically imposes to natural landscape” *Emilio Sereni 1961*

Traditional landscapes’ are ‘those landscapes having a distinct and recognisable structure which reflects clear relations between the composing elements and having a significance for natural, cultural or aesthetical values. Traditional landscapes [...] refer to these landscapes with a long history, which evolved slowly and where it took centuries to form a characteristic structure reflecting a harmonious integration of abiotic, biotic and cultural elements.’ (Mark Antrop 2009)

Landscape as an approach for the government of the rural territory

the integration among systems in space and time



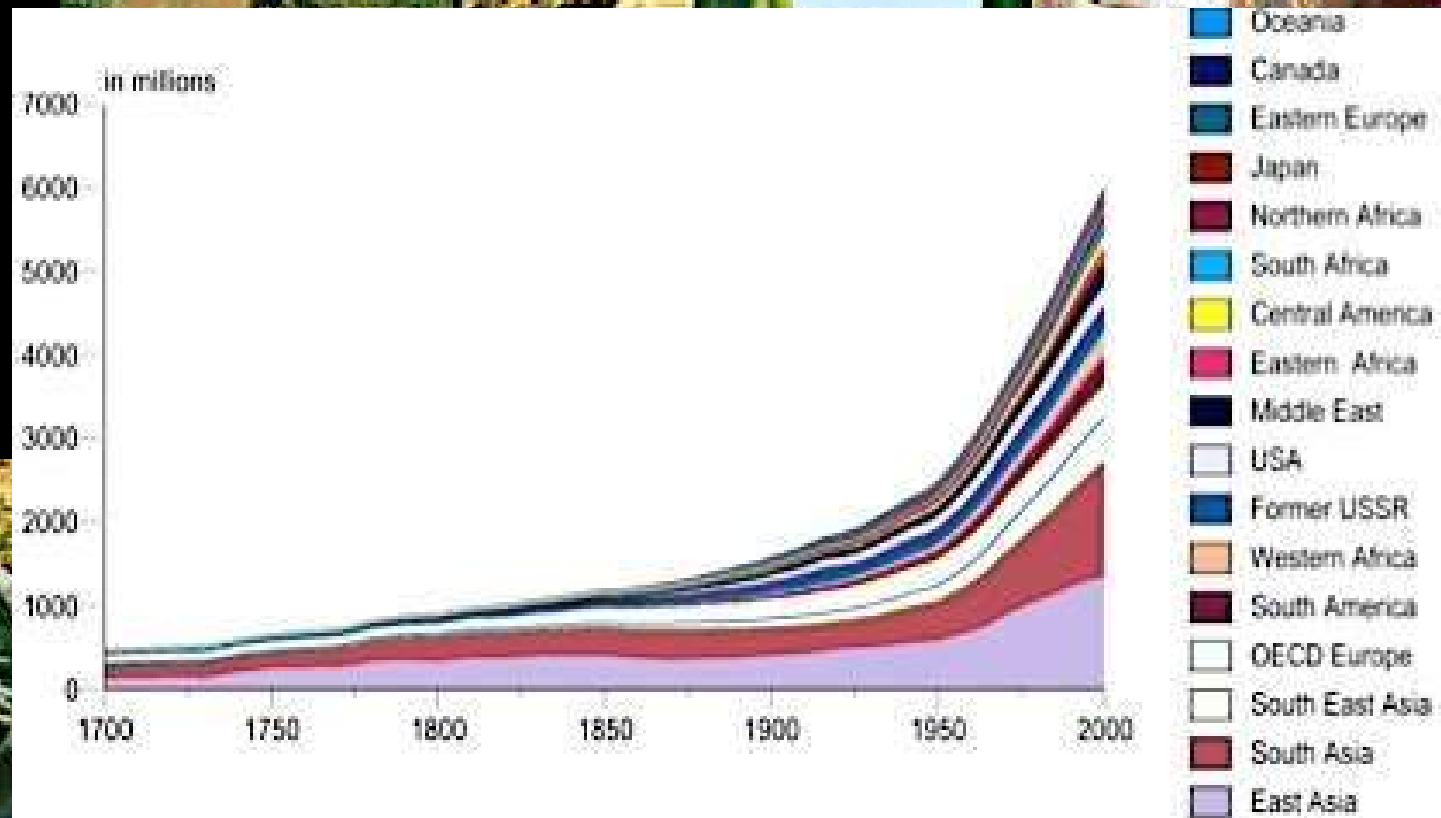
Population Growth (x 1.000.000)

year n

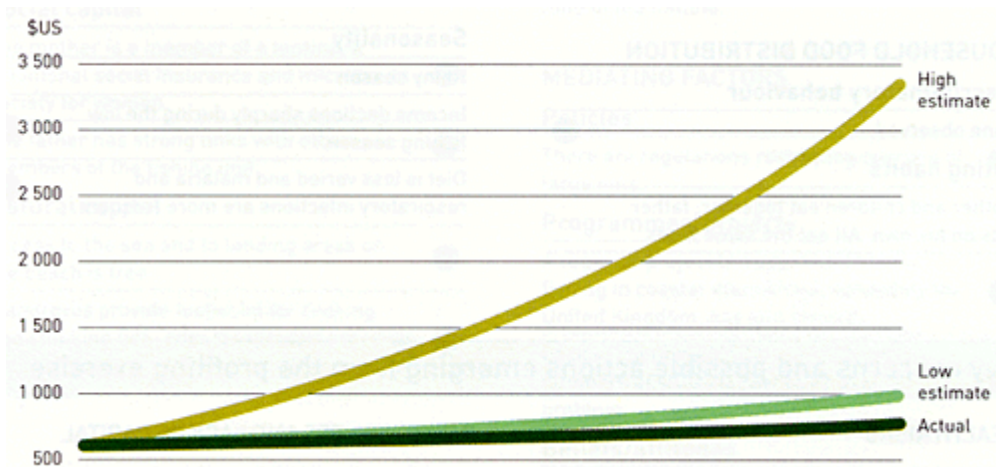
1700	605
1800	975
1900	1628
1950	2531
1975	4080
2000	6088
2014	7300



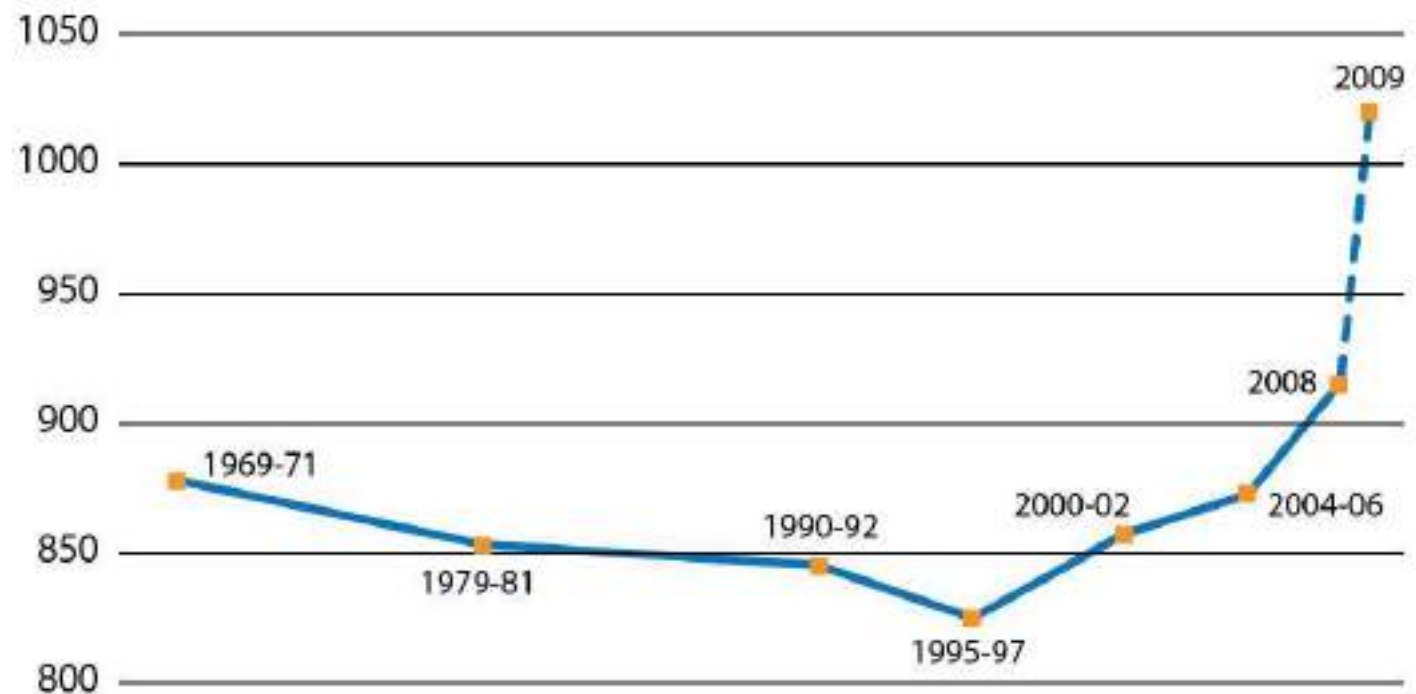
The food challenge

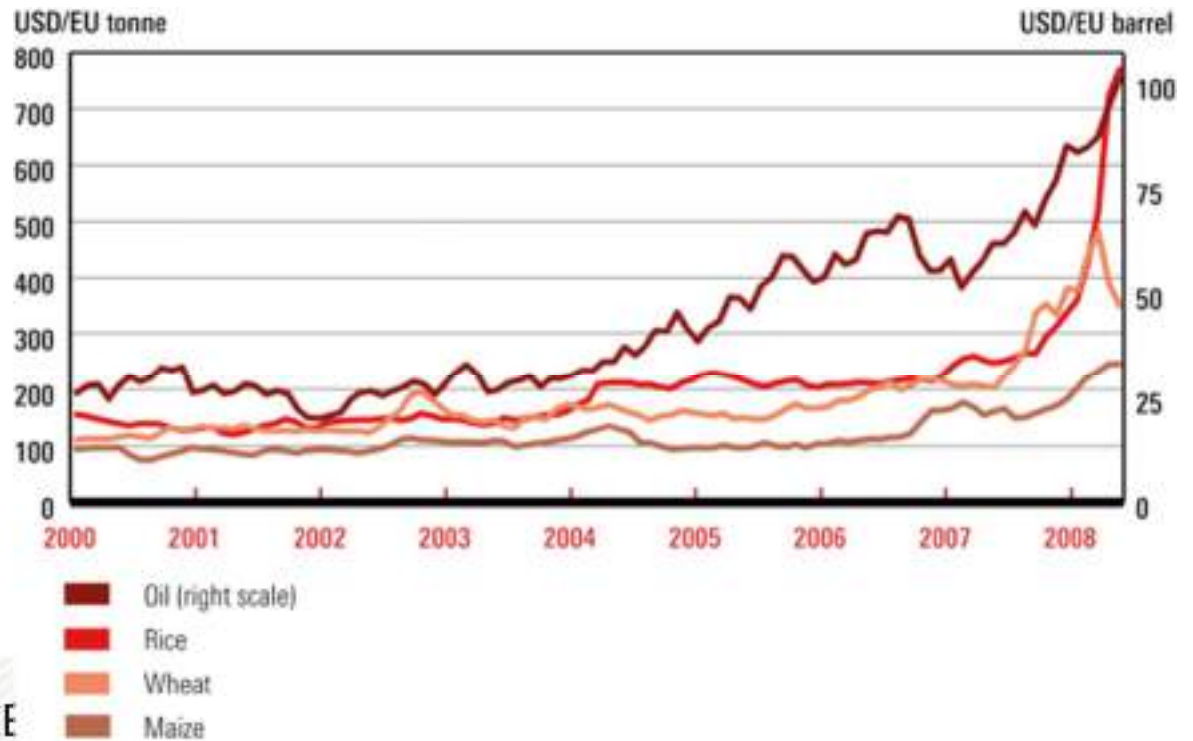


Estimate of food insecurity



Number of Hungry People in the World (in Millions)





FAO FOOD PRICE



*The real price index is the nominal price index deflated by the World Bank Manufactures Unit Value Index (MUV)

- We cannot industrialize all kinds of agriculture to feed the world

-we need to propose sustainable agriculture not degrading the environment

-we cannot protect this kind of agri-culture without protecting the local culture



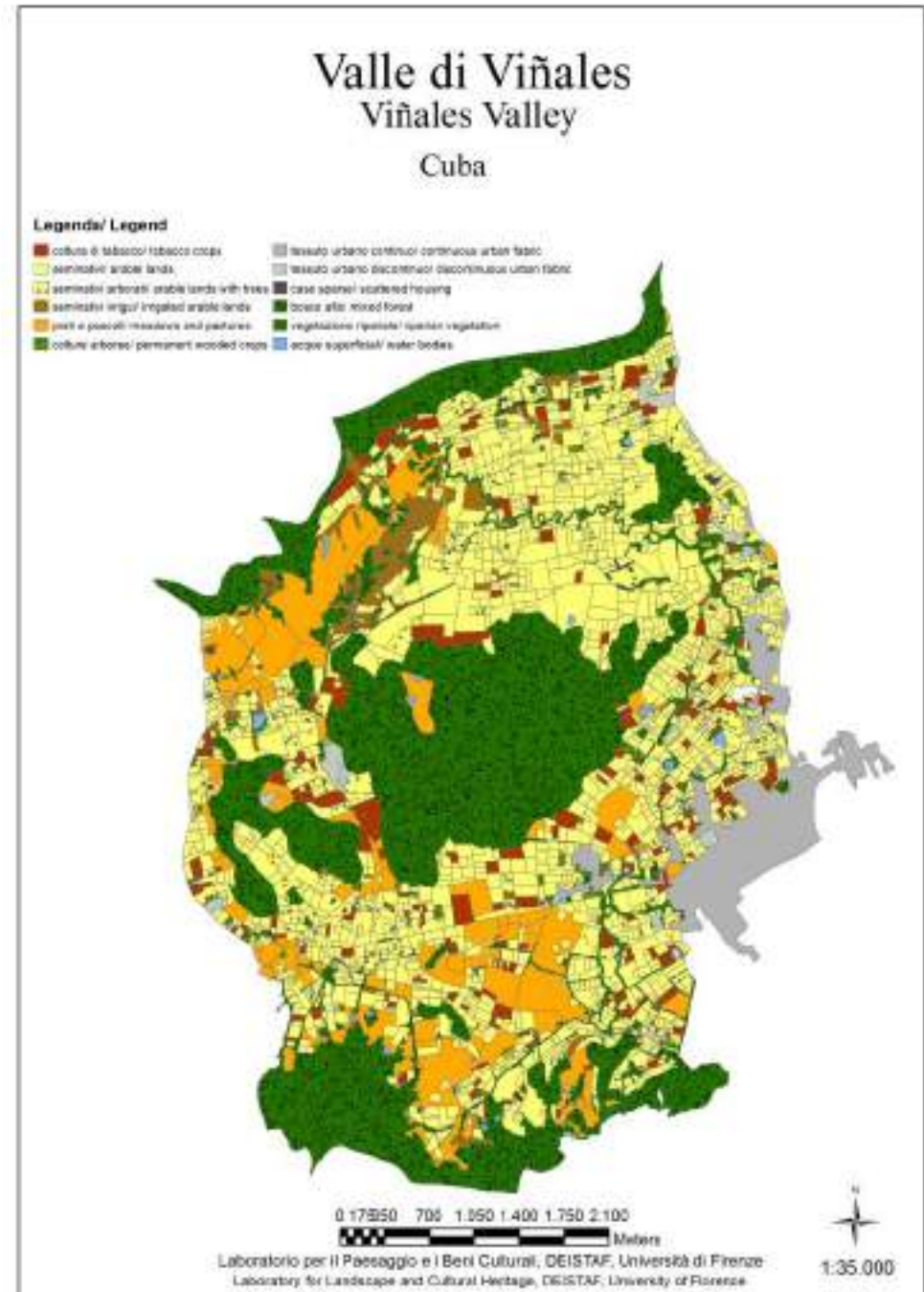






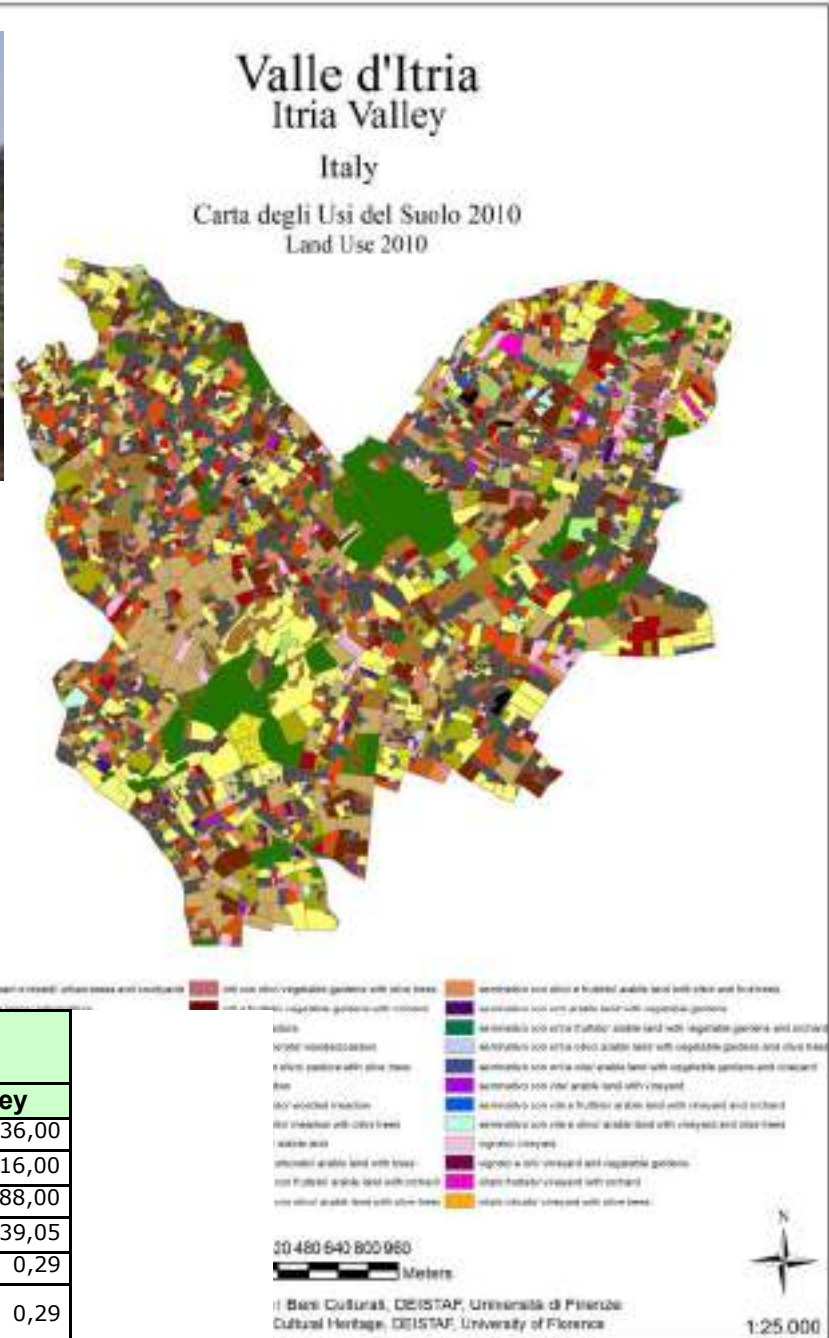


Beta Diversity



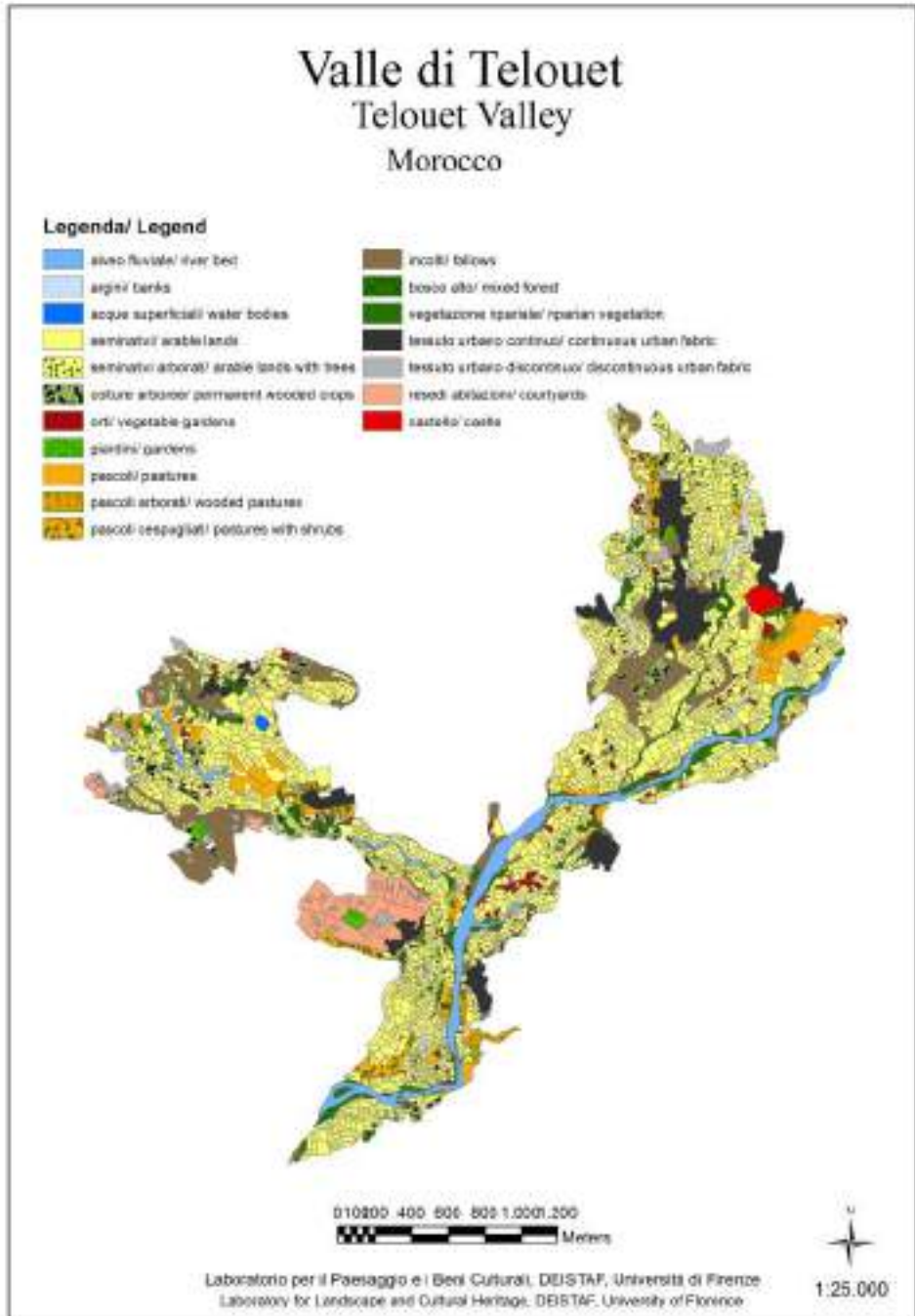


Beta Diversity



Landscape Indexes			
	Viñales	Telouet	Itria Valley
NUMBER OF LAND USES	12,00	18,00	36,00
NUMBER OF PATCHES	2.920,00	3.301,00	2.916,00
NUMBER OF AGRICULTURAL PATCHES	2.394,00	2.862,00	1.588,00
TOTAL SURFACE (ha)	2.418,73	451,91	839,05
AVERAGE PATCHES SURFACE (ha)	0,83	0,14	0,29
AVERAGE AGRICULTURAL PATCHES SURFACE (ha)	0,48	0,09	0,29
EDGE DENSITY	678,57	939,67	891,77

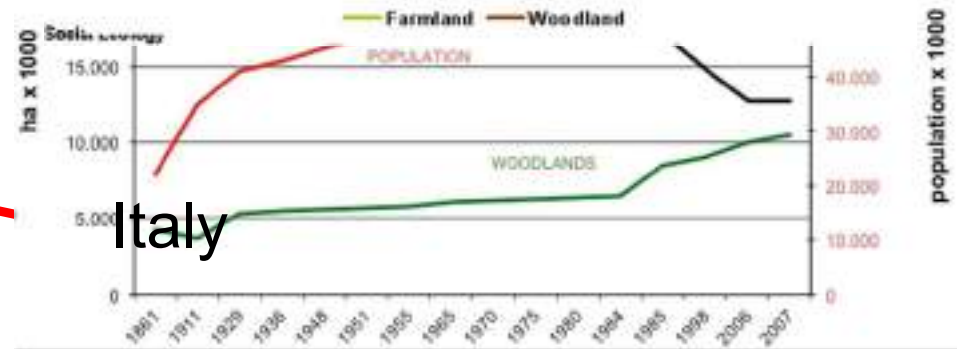
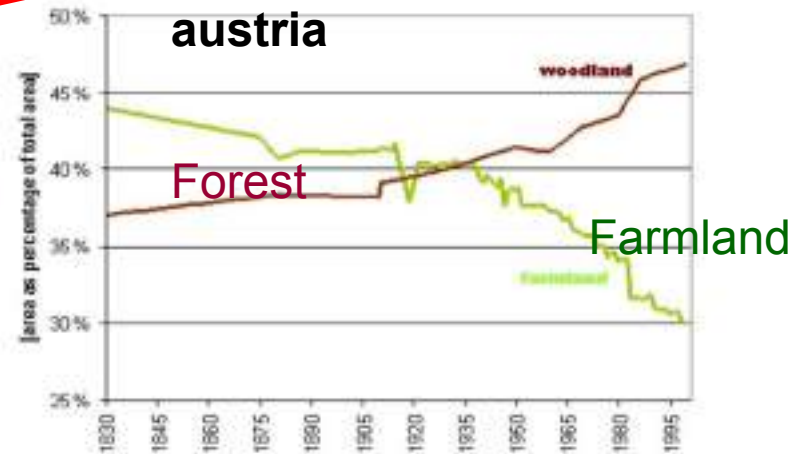
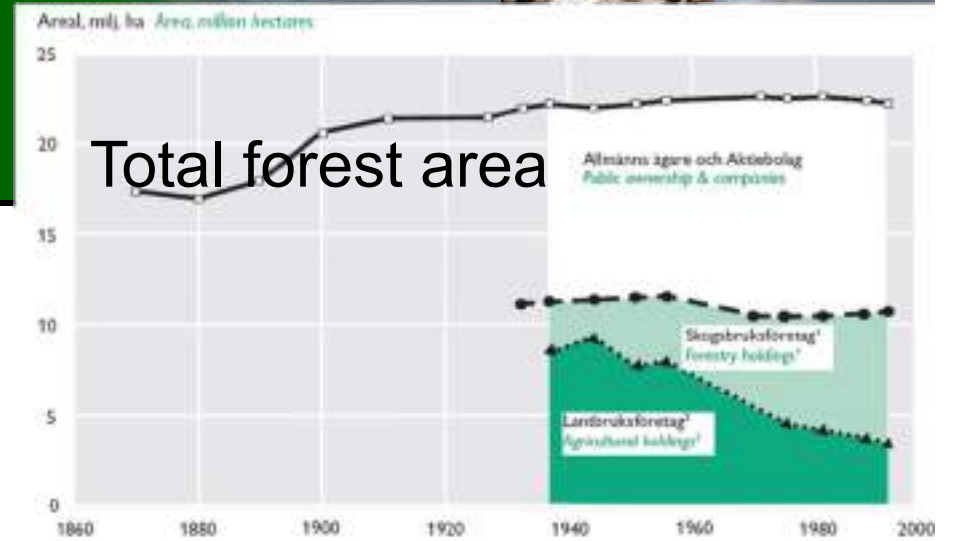
Beta Diversity





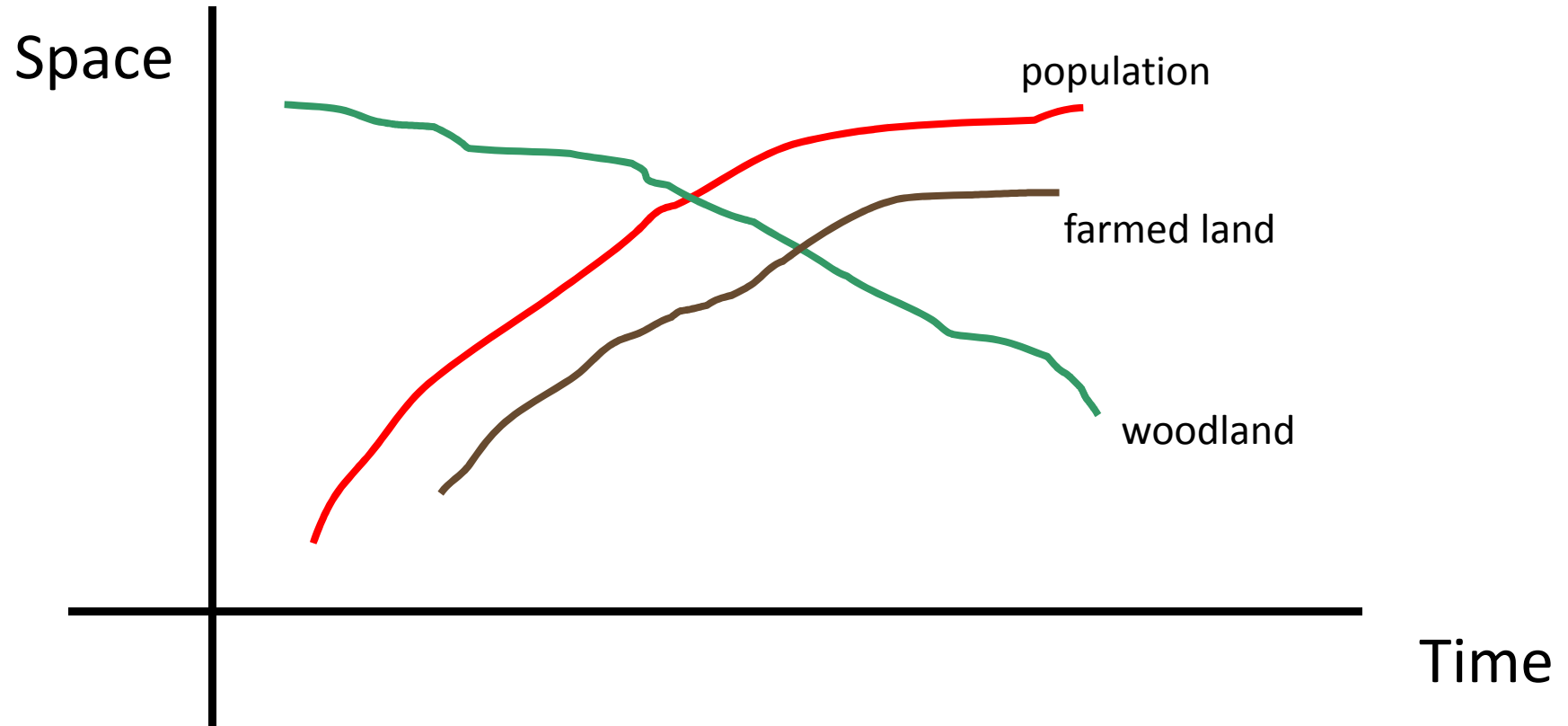
The matter of abandonment

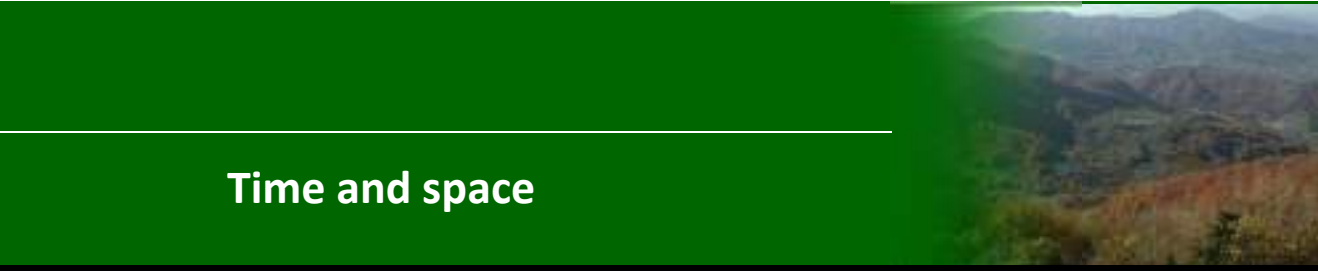
The reduction of farmed land and Increase of forests on abandoned Land in Europe: 800.00 ha/year



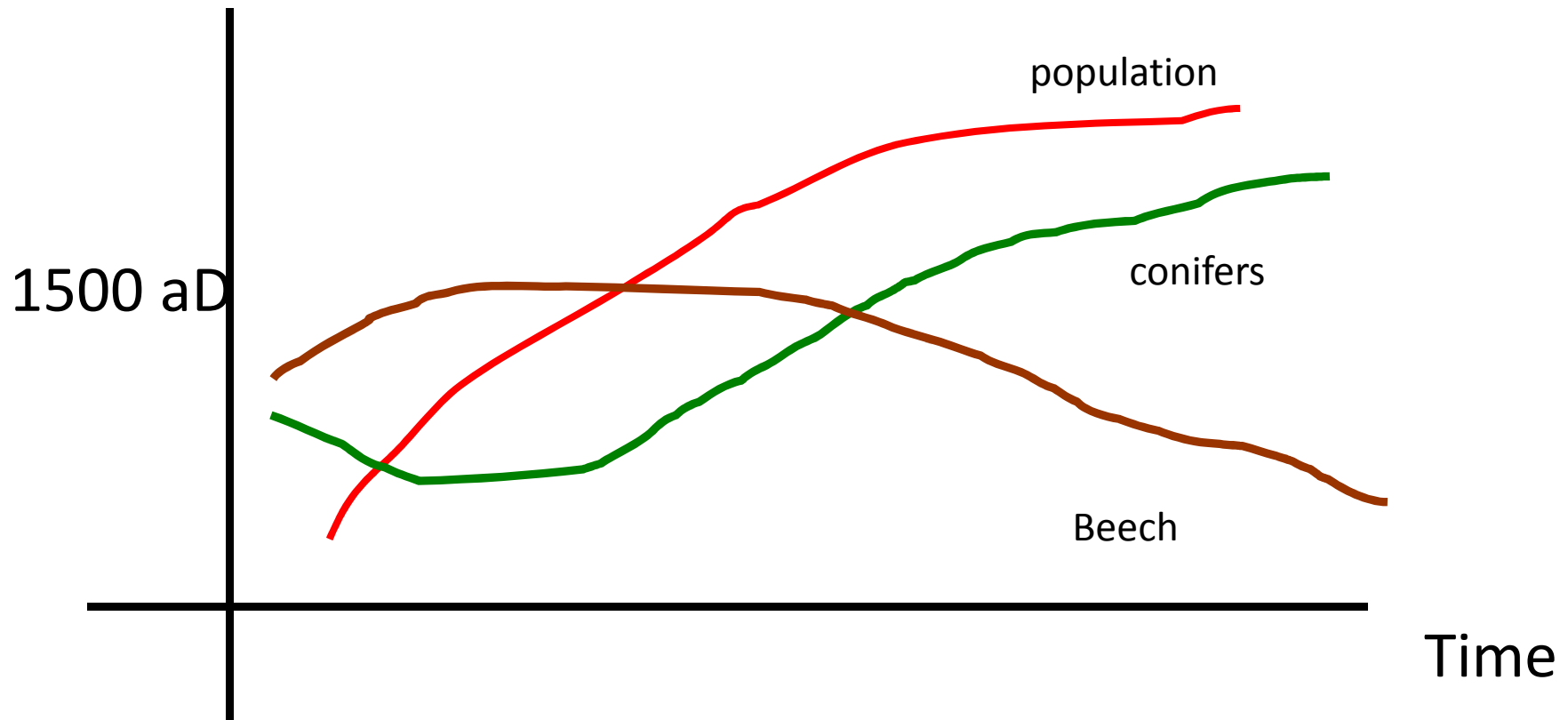


Time and space



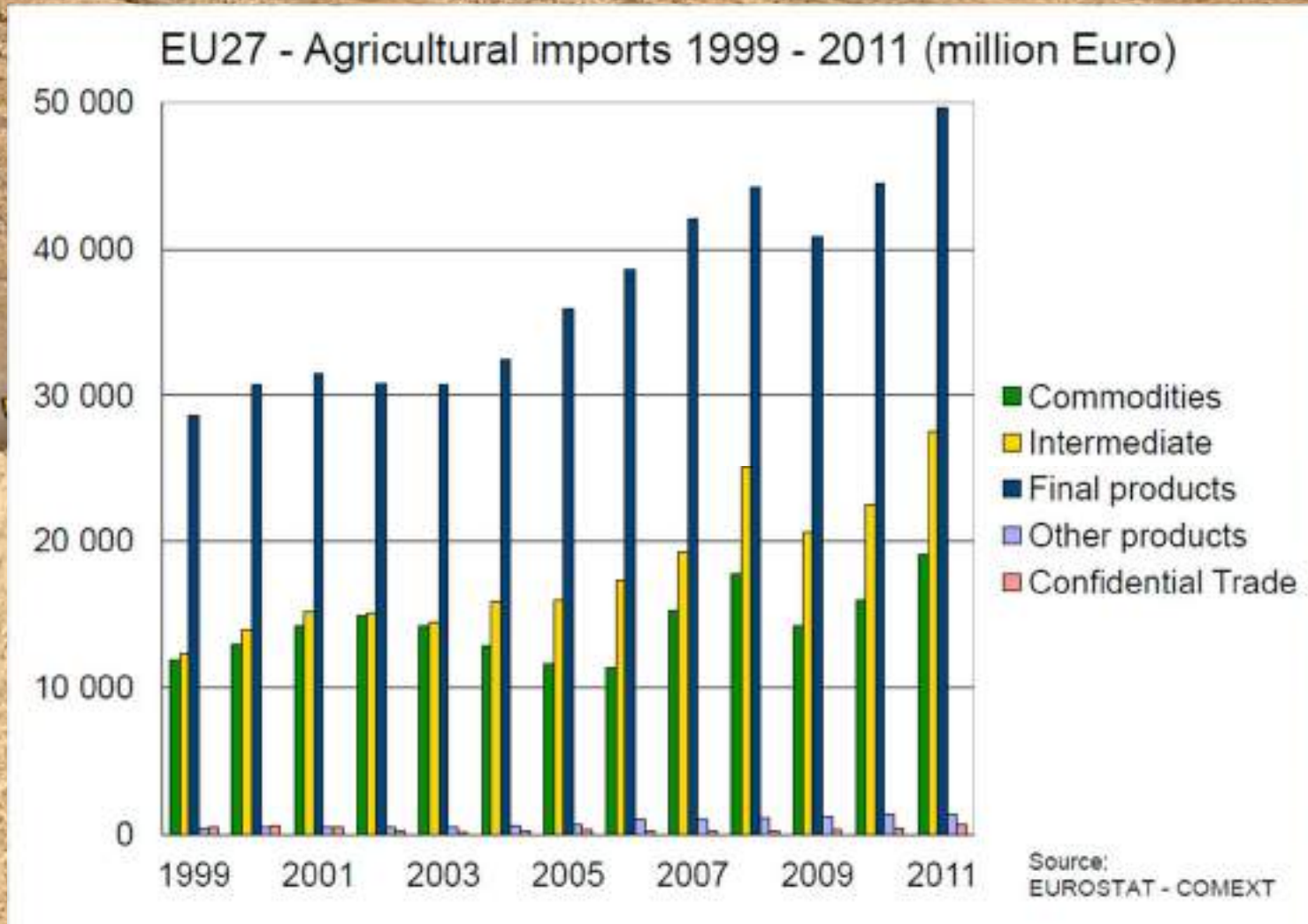


Time and space



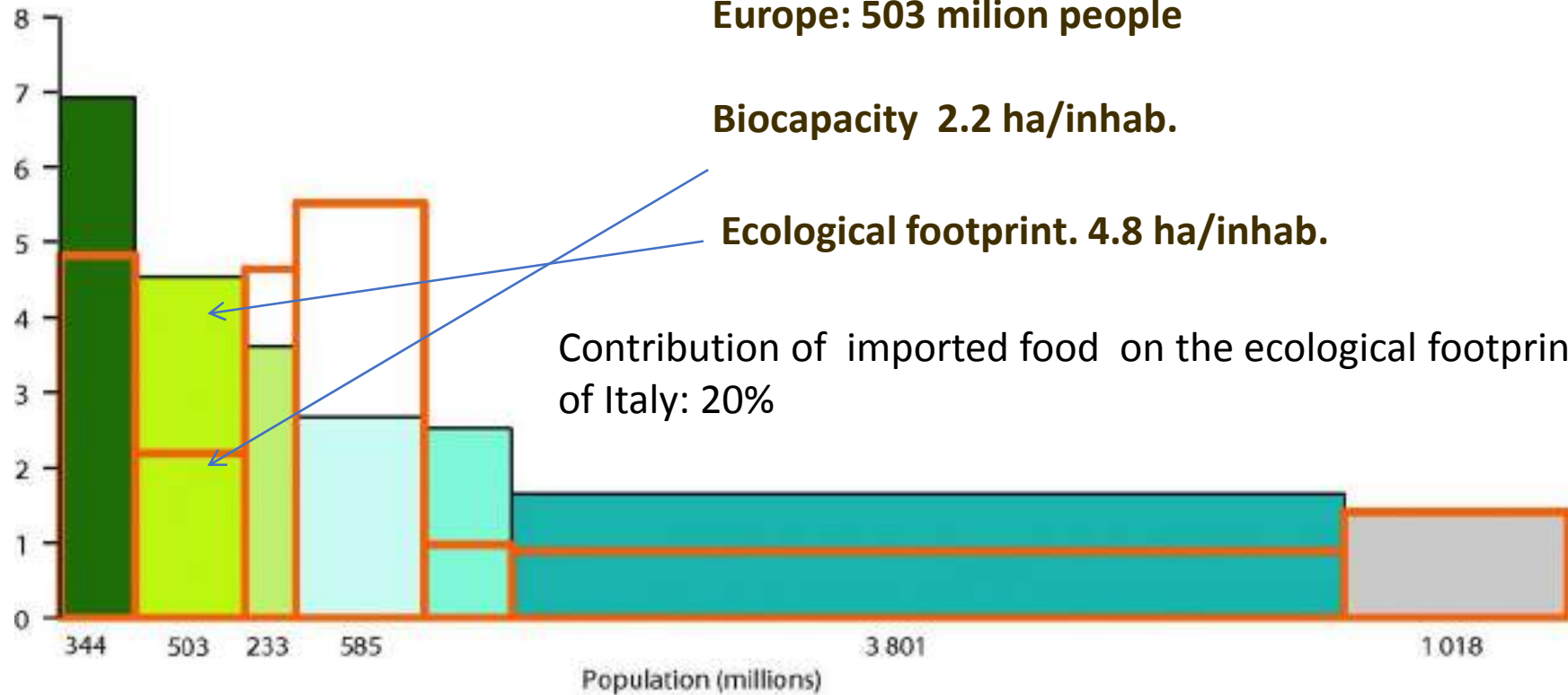


Technological development of agriculture



Ecological footprint

Global hectares per person



Europe: 503 milion people

Biocapacity 2.2 ha/inhab.

Ecological footprint. 4.8 ha/inhab.

Contribution of imported food on the ecological footprint of Italy: 20%

North America

Europe (EU)

Europe (non-EU)

Latin America

Middle East/Central Asia

Asia-Pacific

Africa

Biocapacity available per person

Landscape Monitoring system Tuscany

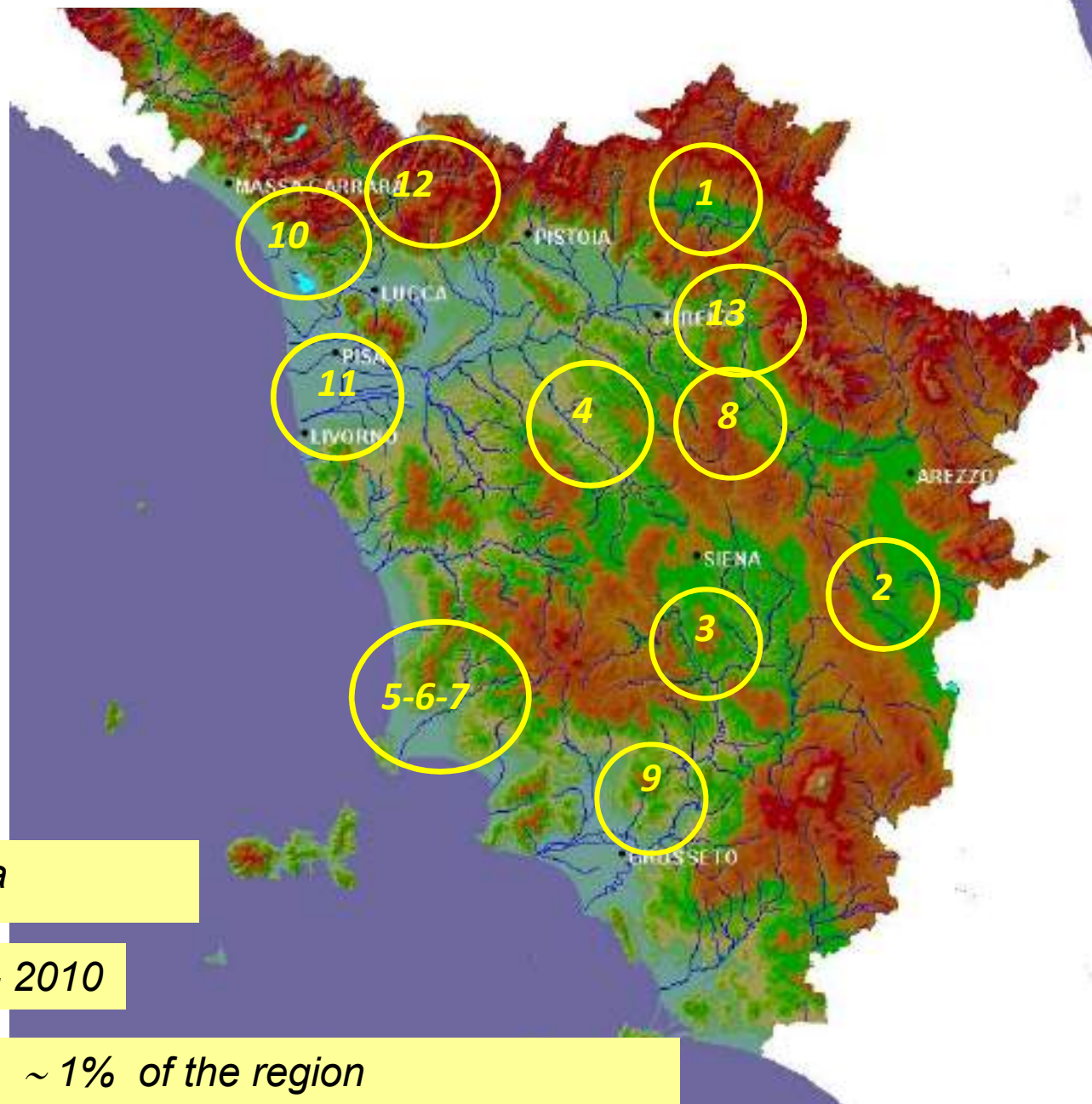
Study areas

- 1 - Moscheta
- 2 - Gargonza
- 3 - Spannocchia
- 4 - Barbialla
- 5 - Castagneto C.
- 6 - Donoratico
- 7 - Bolgheri
- 8 - Montepaldi
- 9 - Paganico
- 10 - Stazzema
- 11 - Migliarino
- 12 - Castiglione Garf.
- 13 - Mensola

Average extension: 1800 ha

Time period : 1832 – 1954 - 2010

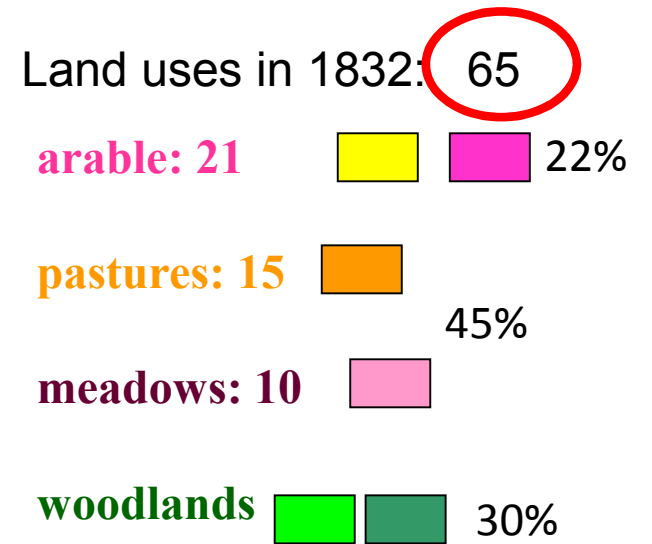
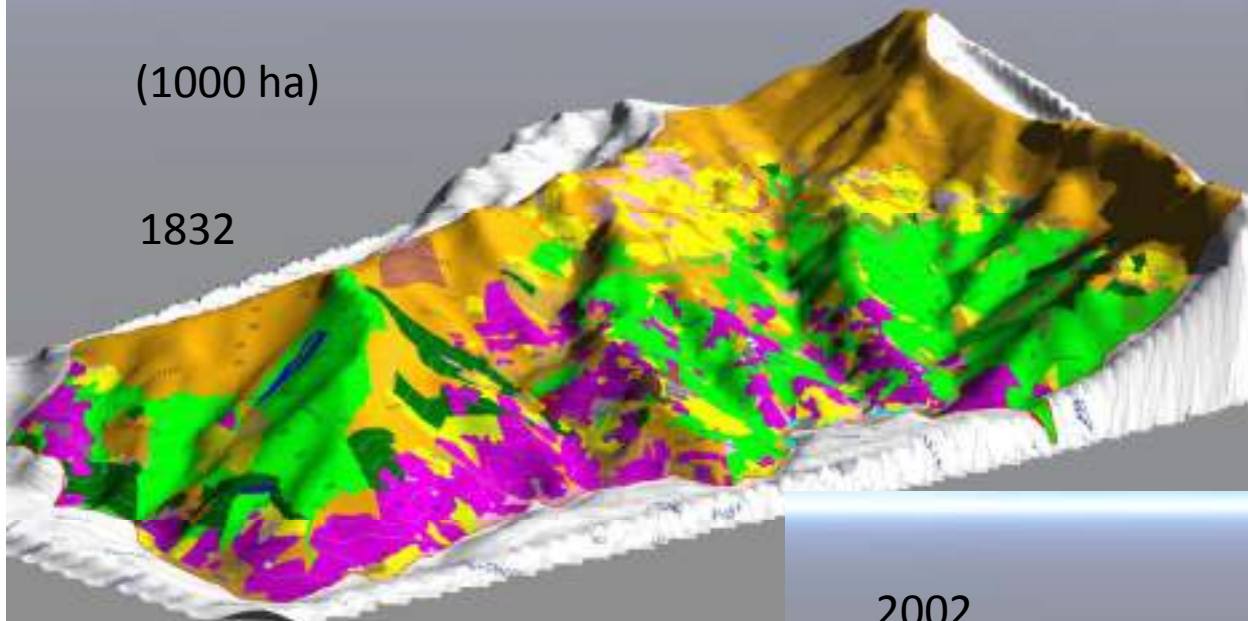
Total extension : 23.573 ha; ~ 1% of the region



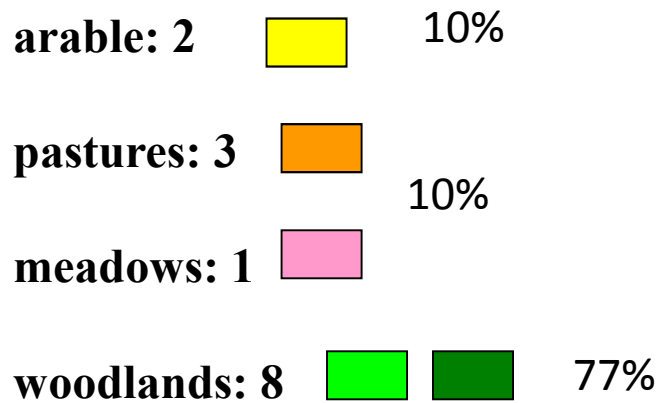
apuane regional park (tuscany)

(1000 ha)

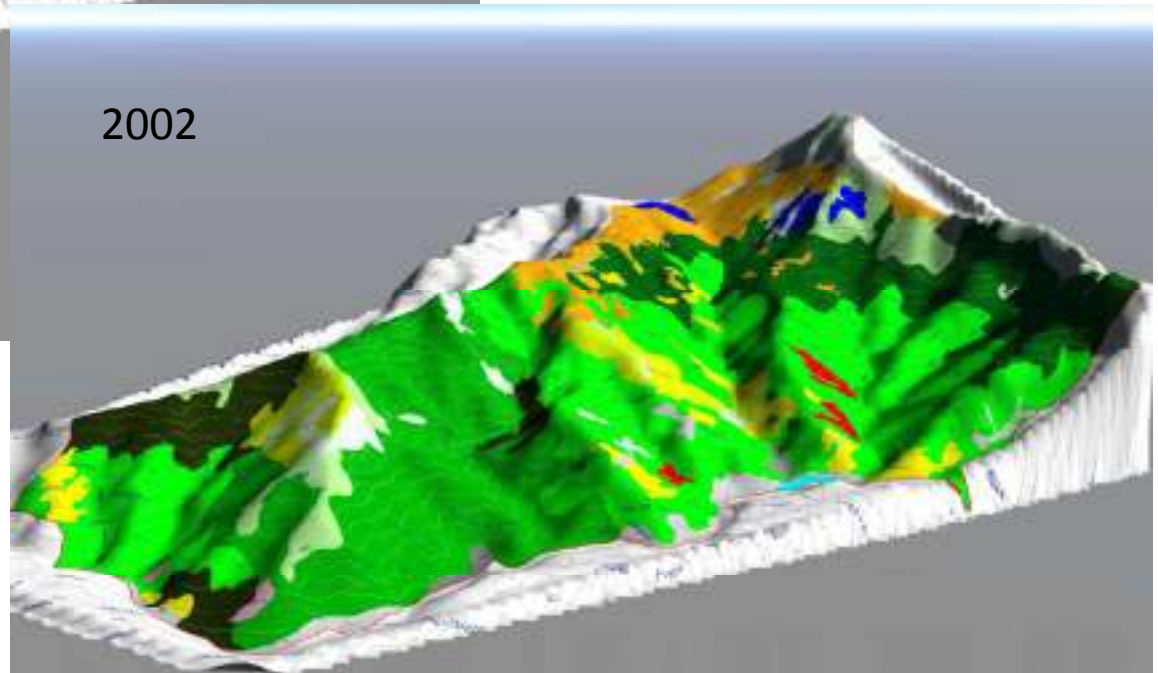
1832



Land uses 2002: **17**



2002



1900

M. FORATO
m. 1223

M. GROCE
m. 1314

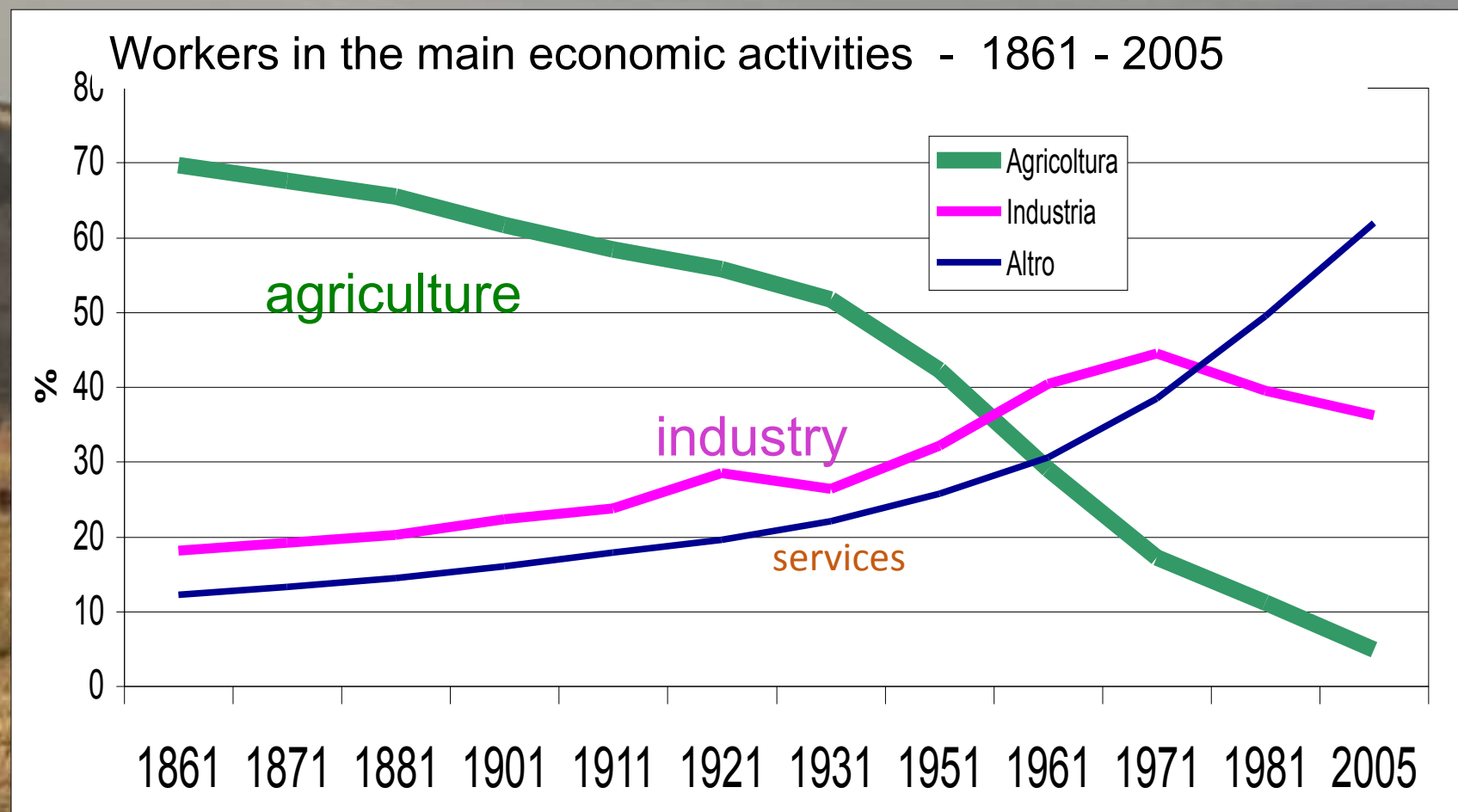
FOCE DI PETROSCIANA
m. 981

ALPI APUANE - CARDOSO (M. 270)

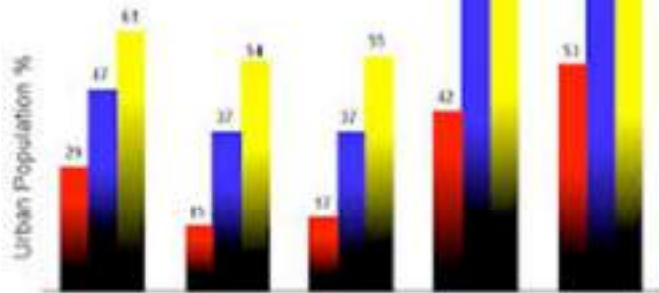
2004



Italy: Socio economic development

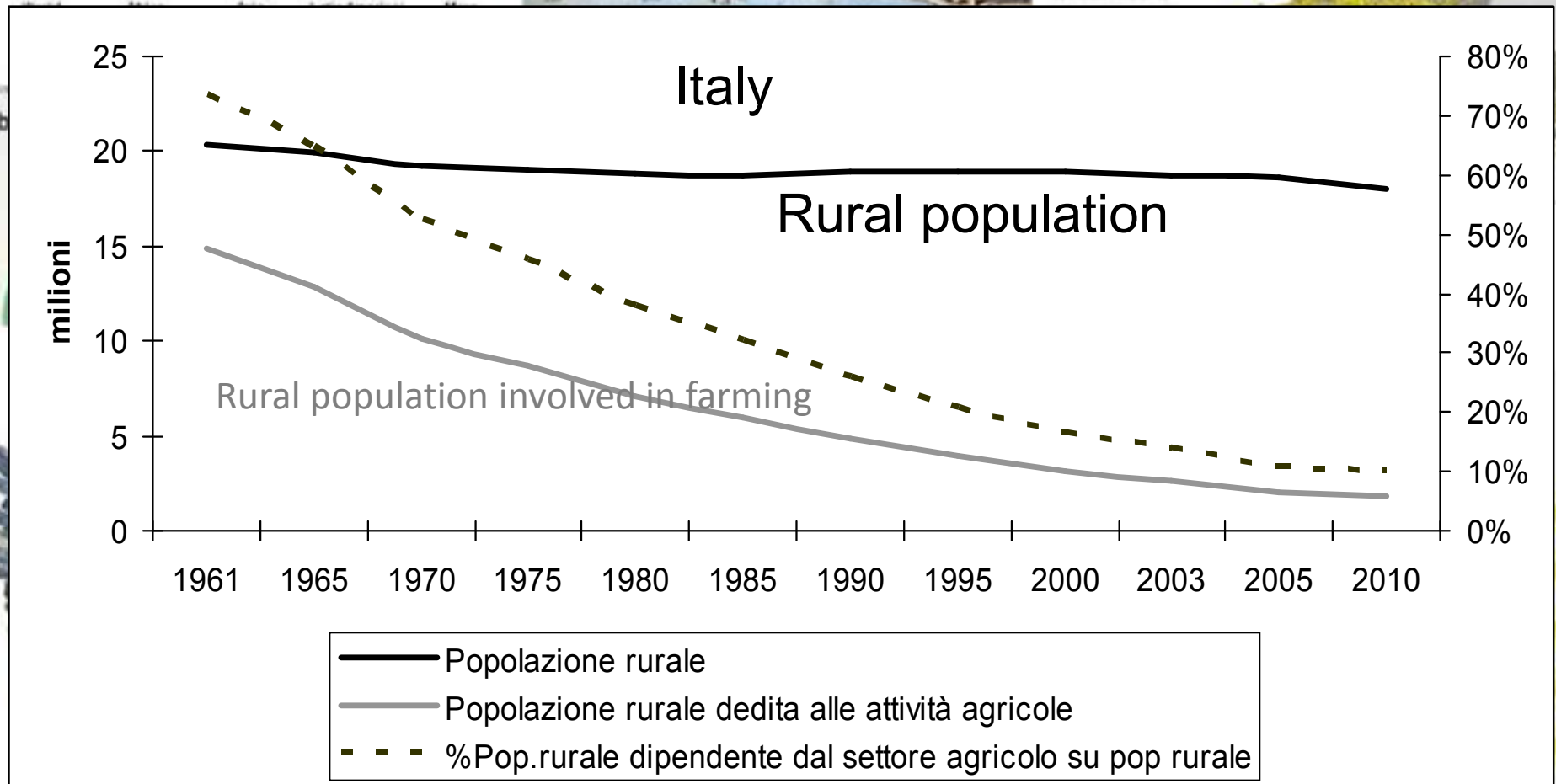


Trends in Urbanization by Region, 2003.



Europe 2011 :

- Urban population 41%
- Intermediate 35%
- Rural 23%





Nature conservation in EU: Habitat Directive 1992



The 'Habitats Directive' of 1992 identified at-risk species and habitats needing protection in each Member State.

Biogeographical region	Surface area % of EU territory	Number of habitats	Number of species
Northwestern	22.4	112	226
Western	22.4	112	226
Central	22.4	112	226
Eastern	22.4	112	226
Southern	22.4	112	226



Nature 2000 : “natural habitats”
in a cultural landscape
18%-20% of the EU territory



Designation of SCI:

“to maintain and restore, at a favourable conservation status, natural habitats and species of wild fauna and flora”



Habitats Directive

Birds Directive

Special Protection Areas

Alfa Diversity

Annex I:
Habitat Types
Annex II:
Species

National list of sites

List of Sites of Community Importance

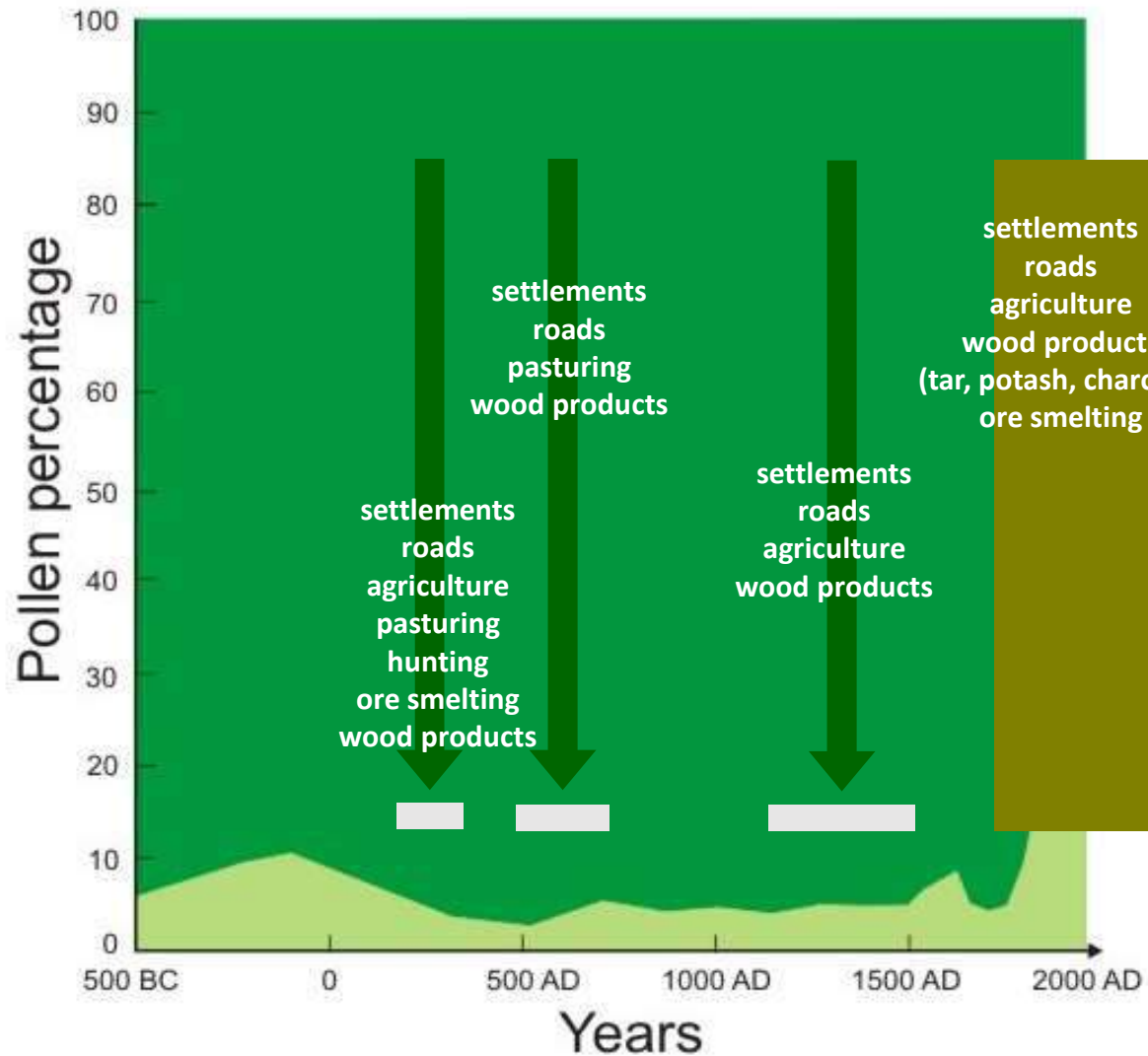
Special Areas of Conservation

Natura 2000





the "natural forest" of Białowieża - Poland



identified archaeological cultures

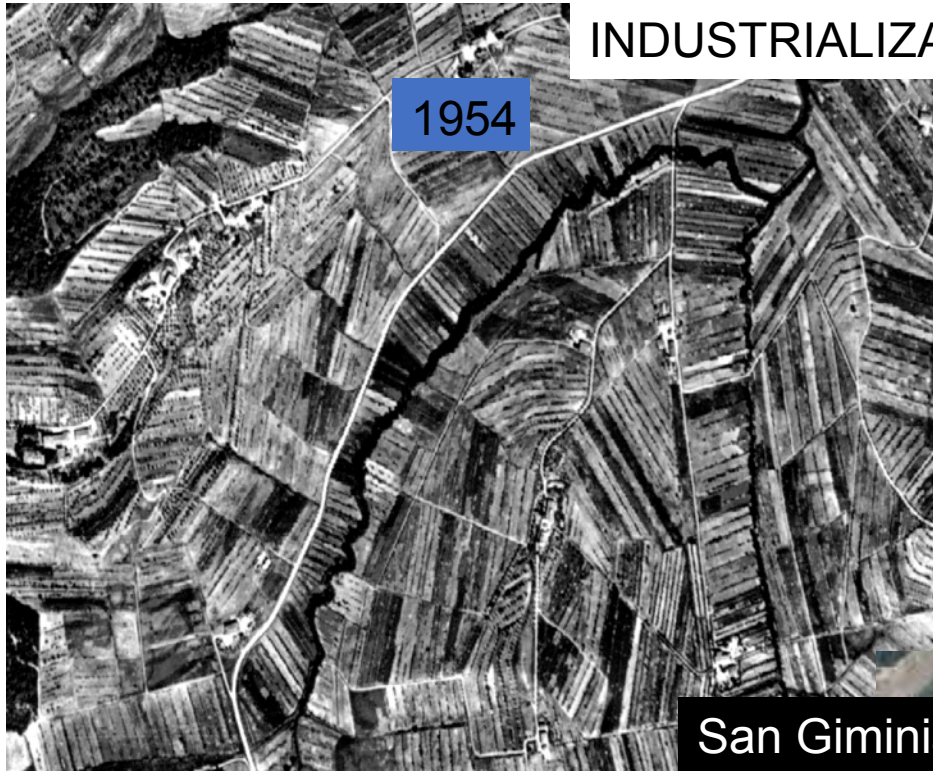
period covered by written sources

forests

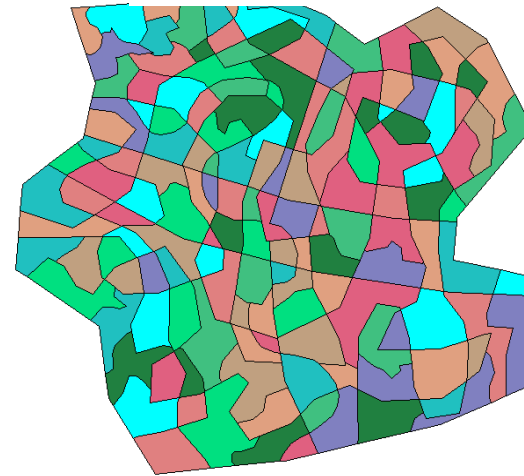
anthropogenic plants

INDUSTRIALIZATION OF AGRICULTURE

1954



Fine grained

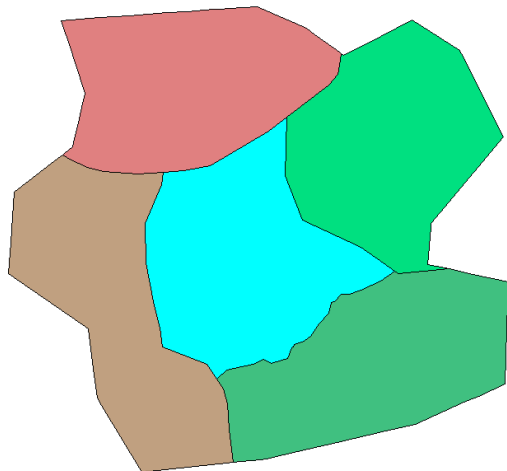


LEGENDA

- altofusto di cerro
- ceduo di cerro
- macchia mediterranea
- pascolo
- pascolo arborato
- rimboschimento di pino domestico
- roccioso
- seminativo
- seminativo arborato
- urbano

San Gimignano – Badia Elmi

Coarse grained



LEGENDA

- bosco
- pascolo
- roccioso
- seminativo
- urbano

2002



Industrialization

1977

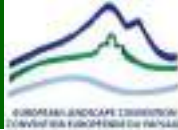


**Castello d'Albola,
Podere Marangole
(Chianti Siena)**

2007



Accademia dei Georgofili

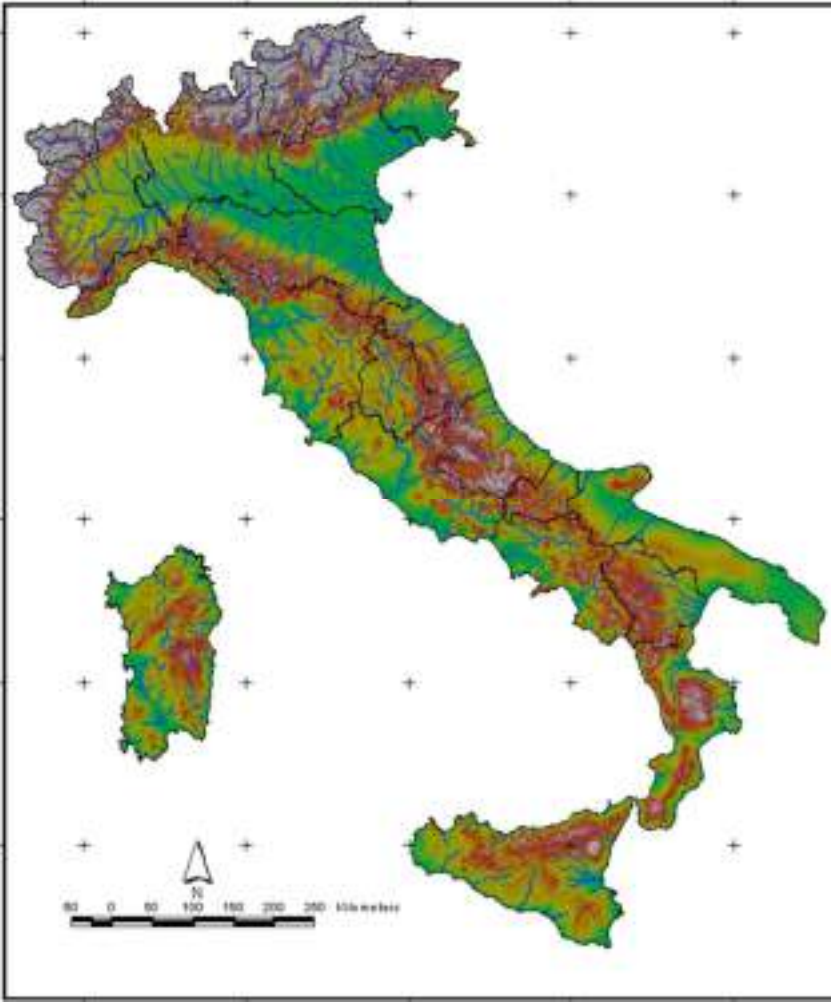
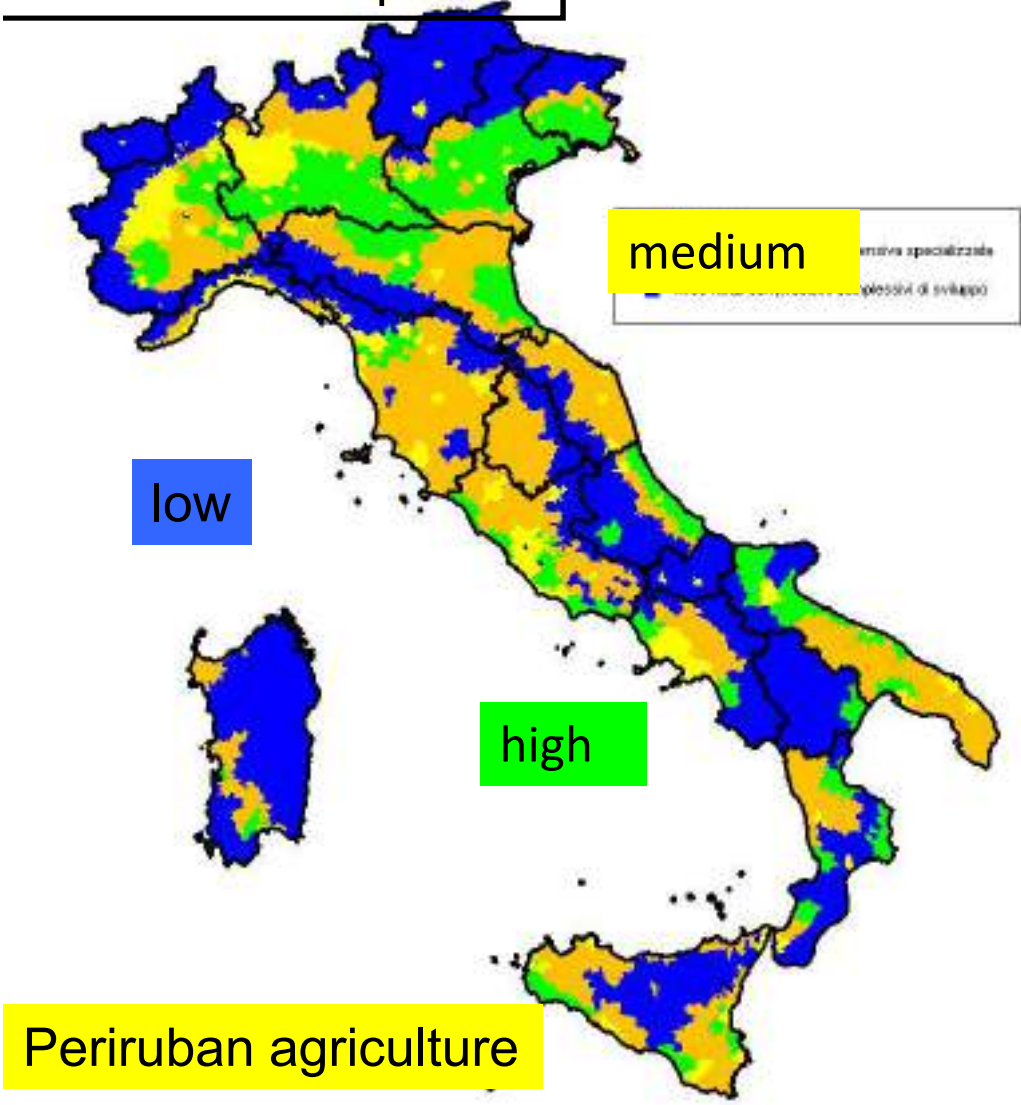


Technological development of agriculture

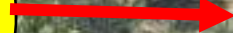


A succesfull story?

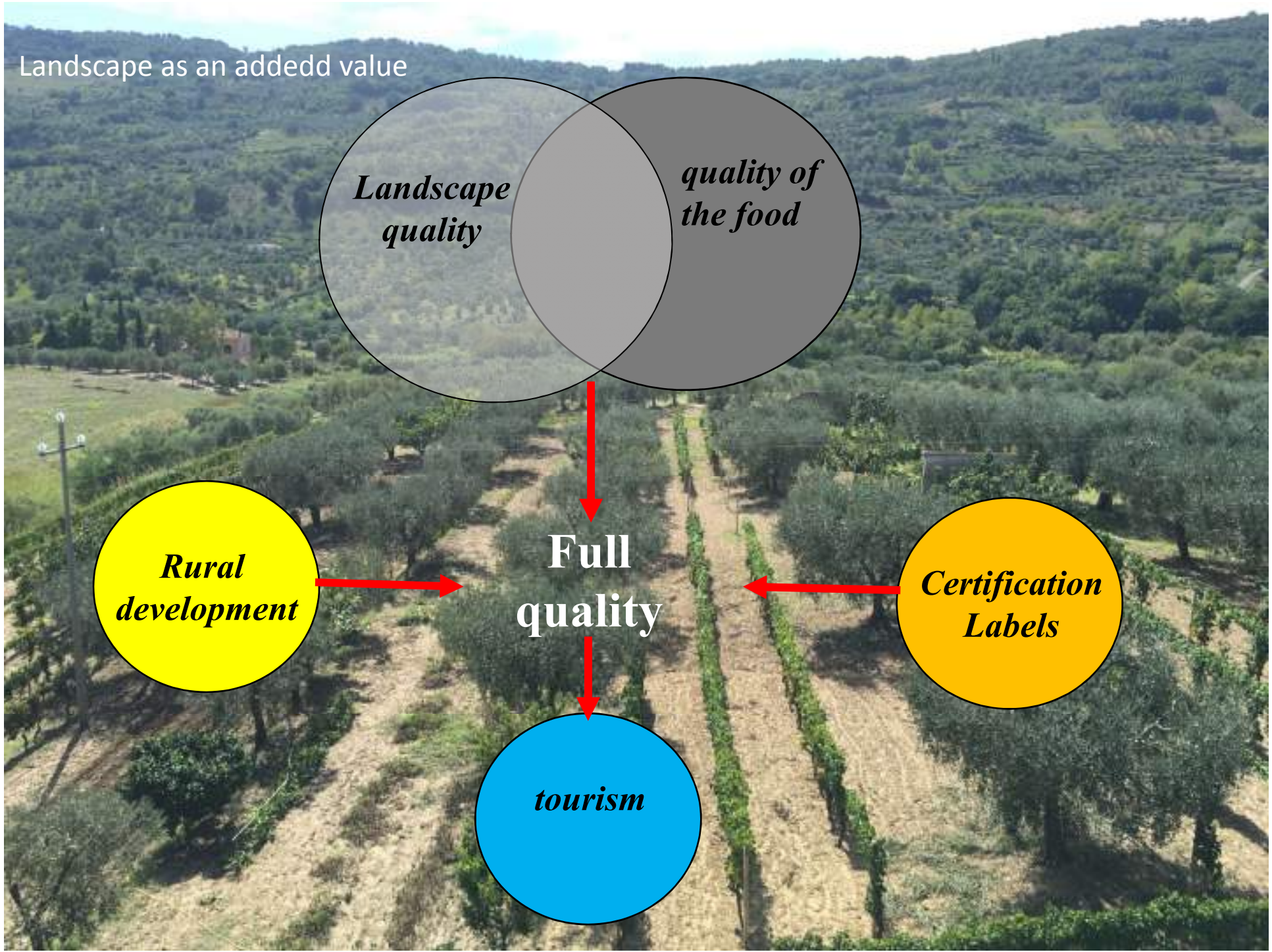
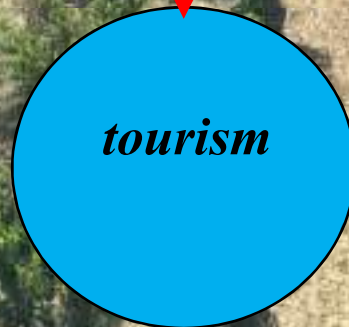
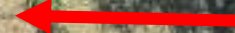
Level of development



Landscape as an added value



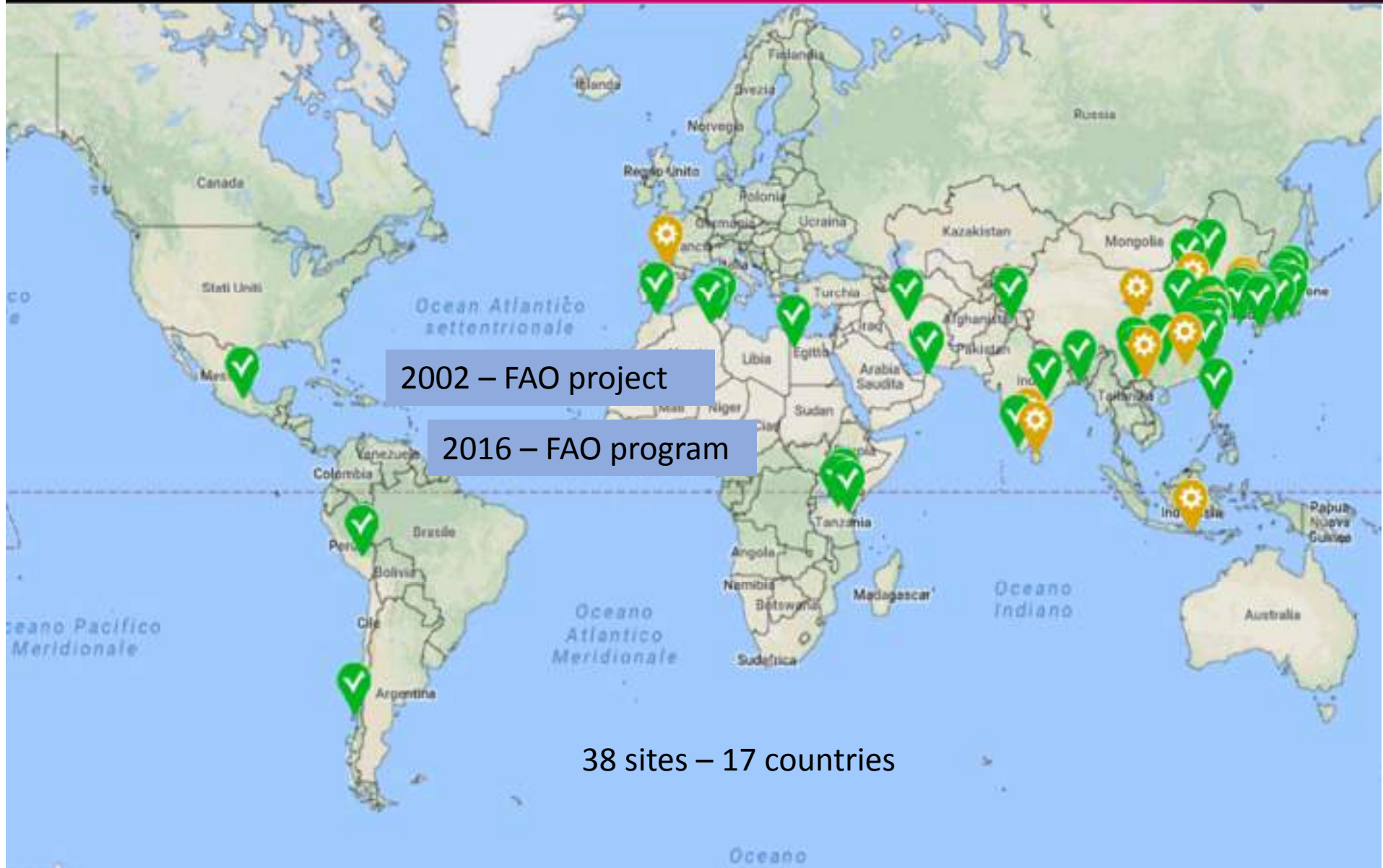
**Full
quality**





GIAHS

Globally Important Agricultural Heritage Systems



2002 – FAO project

2016 – FAO program

38 sites – 17 countries



GIAHS

Globally Important Agricultural Heritage Systems



Criteria for inscription

Preamble

- 1.** The proposed site should be of global importance. This is a composite criterion under which the overall value of an agricultural system with historical background and contemporary relevance is recognized as a heritage of human kind.
- 2.** The features of the system should be summarized in terms of their agricultural and cultural heritage value, their relevance to global concerns addressing sustainable development, biocultural diversity, including agro-biodiversity and ecosystems management.
- 3.** Five criteria have been developed to represent the totality of the functionalities, goods and services provided by the system. The criteria reflect the complex relationships and linkages between the system's elements as an integrative holistic system.
- 4.** The proposed GIAHS site will be assessed based on the criteria and an action plan. The assessment will take into account a wide variation in the specific features of the proposed site which has been formed and developed in different geographic, climatic, and socio-economic conditions.



GIAHS

Globally Important Agricultural Heritage Systems



Selection Criteria

1. Food and Livelihood Security

The proposed agricultural system contributes to food and/or livelihood security of local communities.

This includes a wide variety of agricultural types such as self-sufficient and semi-subsistence agriculture where provisioning and exchanges take place among local communities, which contributes to rural economy.

2. Agro-biodiversity

Agricultural biodiversity, as defined by FAO as the variety of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries. The system should be endowed with globally significant biodiversity and genetic resources for food and agriculture (e.g. endemic, domesticated, rare, endangered species of crops and animals).



GIAHS

Globally Important Agricultural Heritage Systems



4. Cultures, Value systems and Social Organisations

Cultural identity and sense of place are embedded in and belong to specific agricultural sites. Social organizations, value systems and cultural practices associated with resource management and food production may ensure conservation of and promote equity in the use and access to natural resources. Such social organizations and practices may take the form of customary laws and practices as well as ceremonial, religious and/or spiritual experiences.

5. Landscapes and Seascapes Features

GIAHS sites should represent landscapes or seascapes that have been developed over time through the interaction between humans and the environment, and appear to have stabilized or to evolve very slowly. Their form, shape and interlinkages are characterized by long historical persistence and a strong connection with the local socio-economic systems that produced them. Their stability, or slow evolution, is the evidence of integration of food production, the environment and culture in a given area or region. They may have the form of complex land use systems, such as land use mosaics, water and coastal management systems.



GIAHS

Globally Important Agricultural Heritage Systems



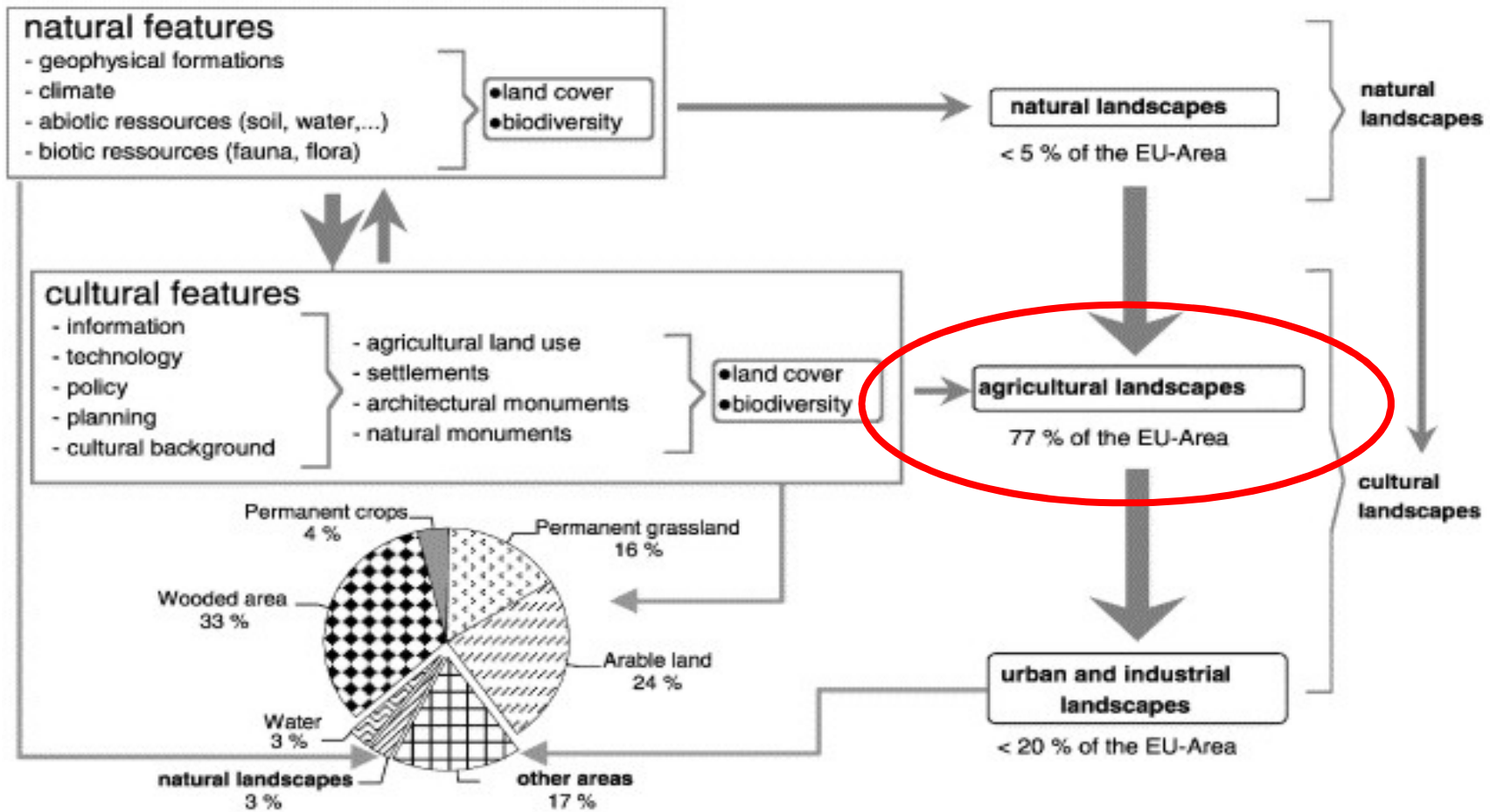
Action Plan for Sustainability of the System

An Action Plan for a **dynamic conservation** of the proposed GIAHS site must be developed with the proposal. The recommended items to be included in the Action Plan would be an analysis of threats and challenges and detailed descriptions of the policies, strategies, actions and outcomes which are already under implementation and/or will be implemented in the area by various relevant stakeholders to promote dynamic conservation of GIAHS with the following supplementary information:

- Identify and analyze threats and challenges, including socio-economic pressures and environmental changes to the continuity of the existence, sustainability and viability of the system;
- What are the proposed policies, strategies and actions and how will they respond to the threats as described;
- How these policies, strategies and actions will contribute to the dynamic conservation of the proposed GIAHS site;
- How multi-stakeholders are involved, including local communities, and support the implementation of the Action Plan at local, national and international levels;
- How policies, strategies and actions can be used to leverage funding and/or mobilize resources at the local, national and/or international level;
- How monitoring and evaluation of the progress and the effect of the implementation of the Action Plan will be undertaken.



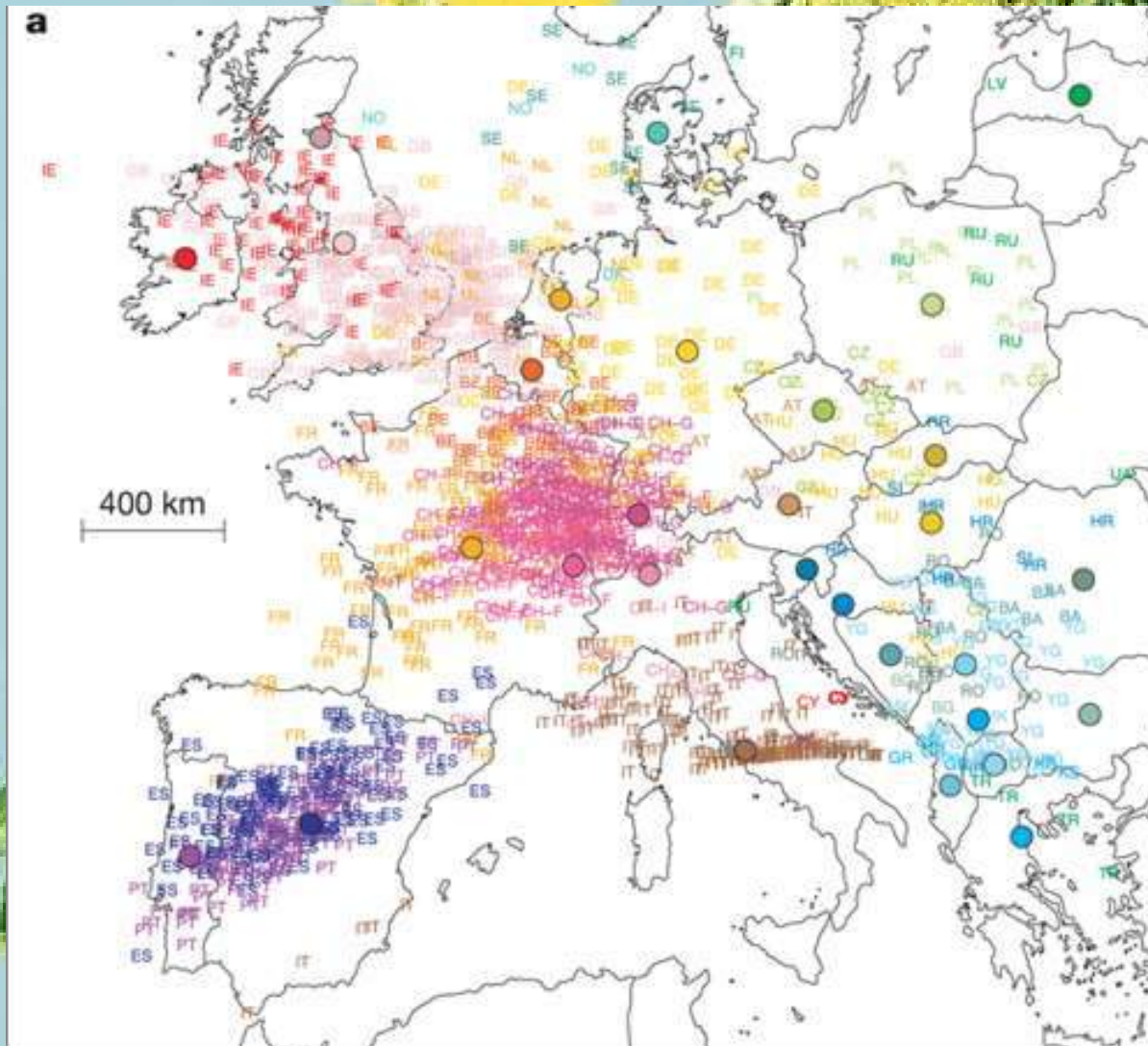
The potential of Europe





GIAHS

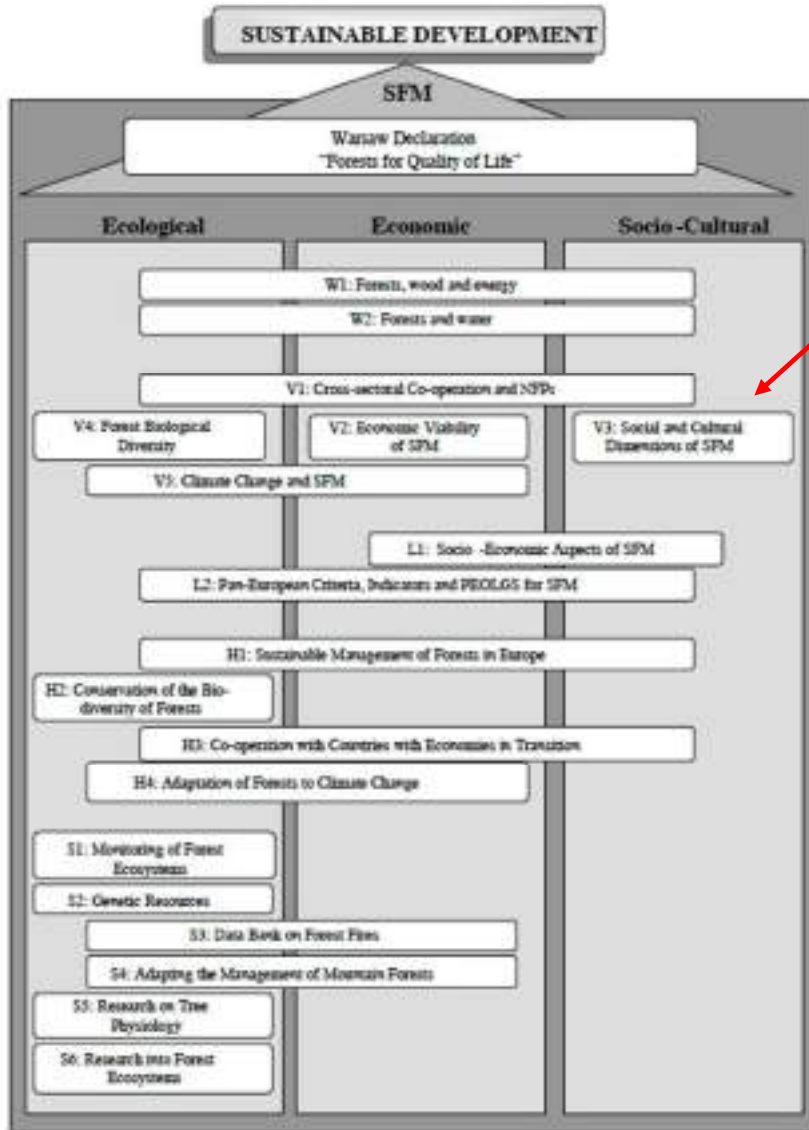
Globally Important Agricultural Heritage Systems



High Correlation
Between genetic
diversity and
geographic diversity
(Nelis et al. 2009)



Interministerial conference on the protection of forests in Europe (MCPFE now Forest Europe)



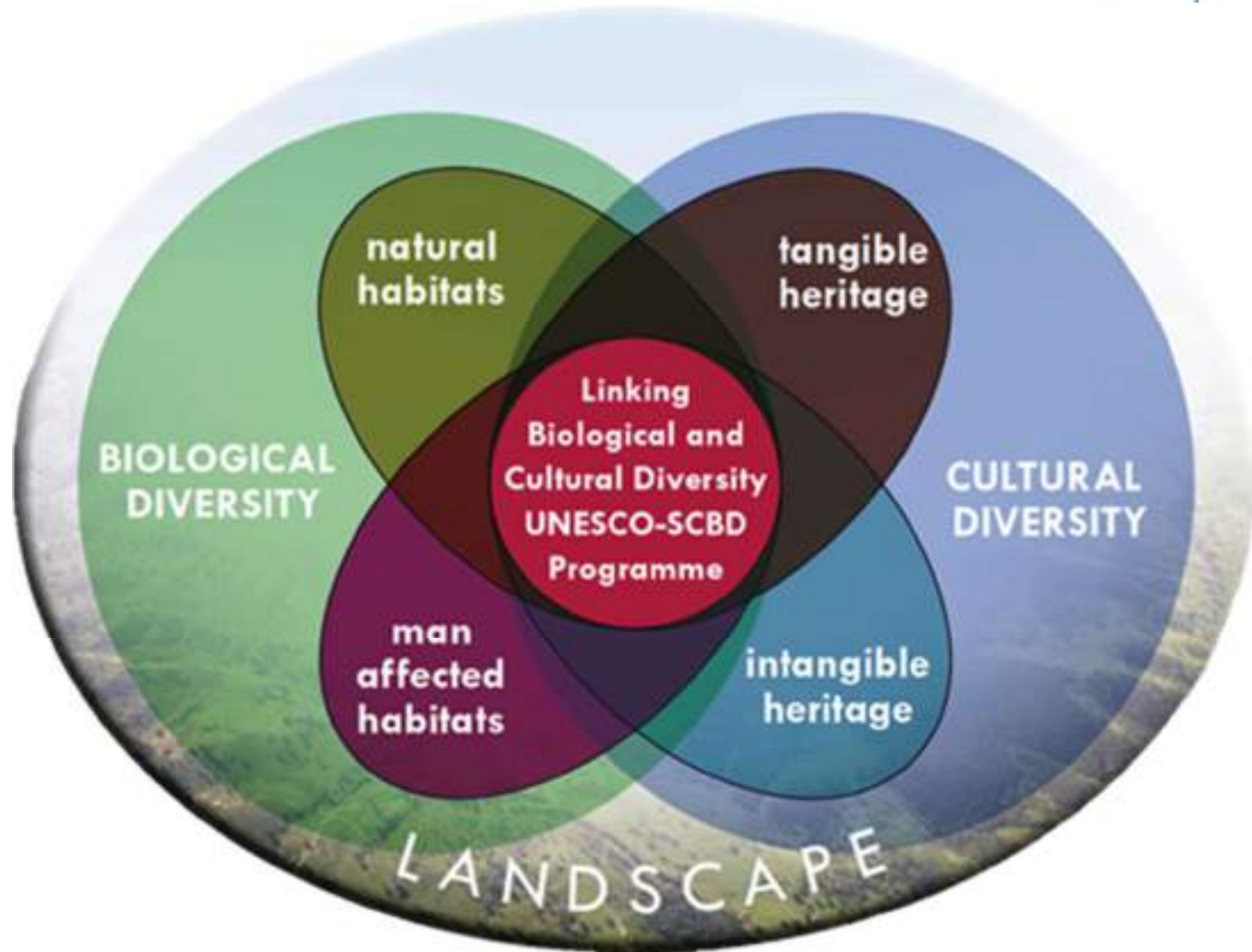
Vienna declaration 2003

MCPFE
Guidelines for the implementation of social and cultural values in sustainable Forest management



Linking Biological and Cultural Diversity

UNESCO-SCBD Joint Programme 2010





Linking Biological and Cultural Diversity

UNESCO-SCBD Joint Programme



1° Conference for the implementation of the UNESCO-CBD
JP on the linkages between cultural and biological diversity

Firenze 8-11 April 2014

Florence Declaration

“...The european rural territory is mostly a biocultural landscape..”



Ideal natural environment:
Biomass and consumers are in proper proportion in the different trophic levels



Man as a disturber?

CLIMAX



Field:
Crabgrass

Year 1
Crabgrass,
horseweed

Year 2
Ragweed,
heath aster

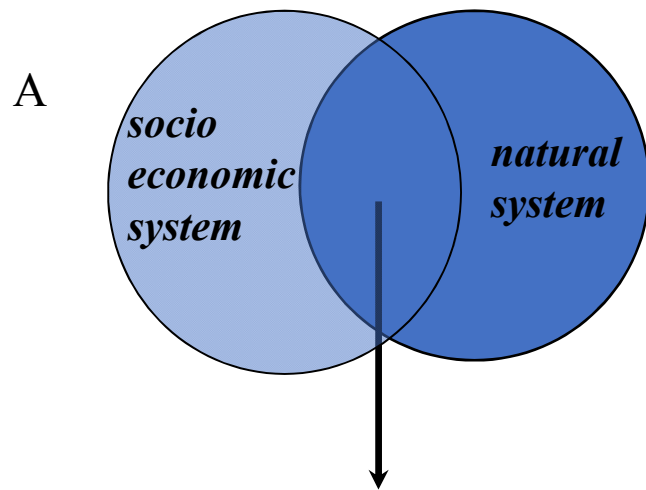
Years 3-25
Broomsedges,
perennial flowers,
shrubs, pines

Years 25-100
Pine forest,
hardwood
understory

Years 100-200
Remnant pines
with young oak
and hickory trees

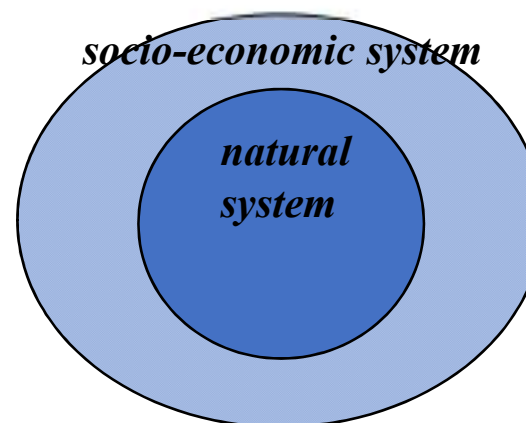
Years 200+
Oak-hickory
climax forest

The need for a paradigm shift:

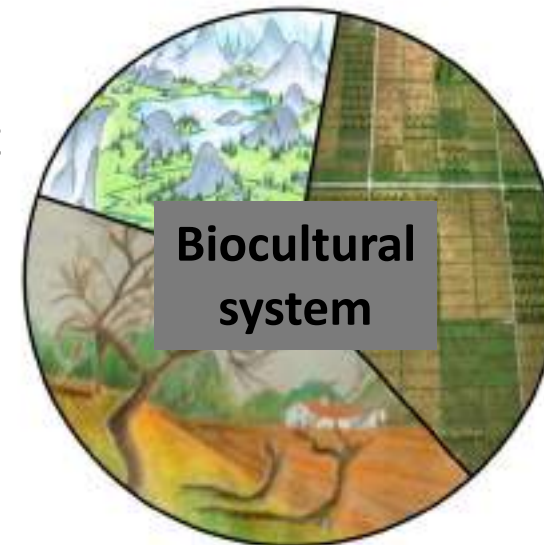


interaction

B



C

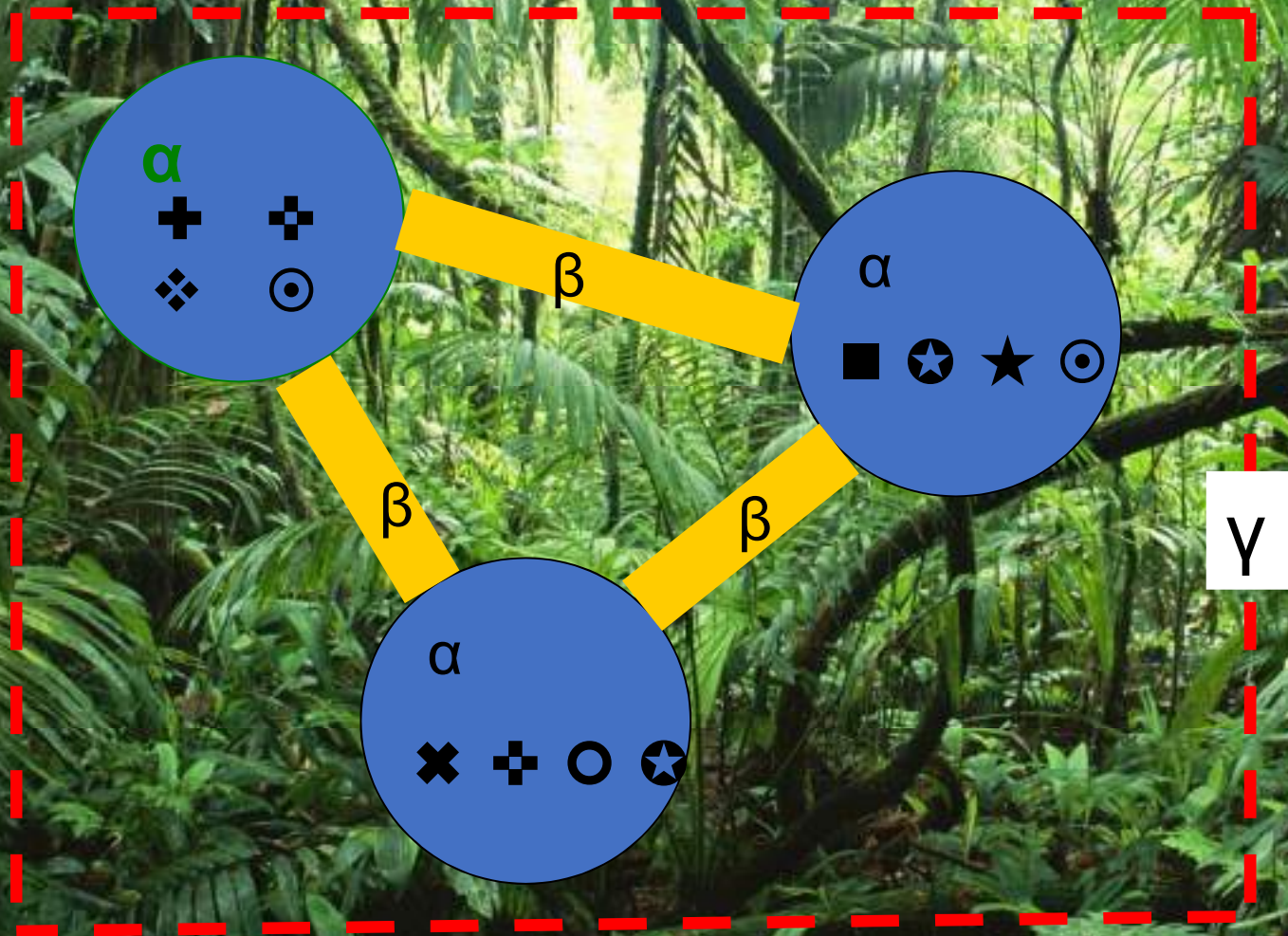


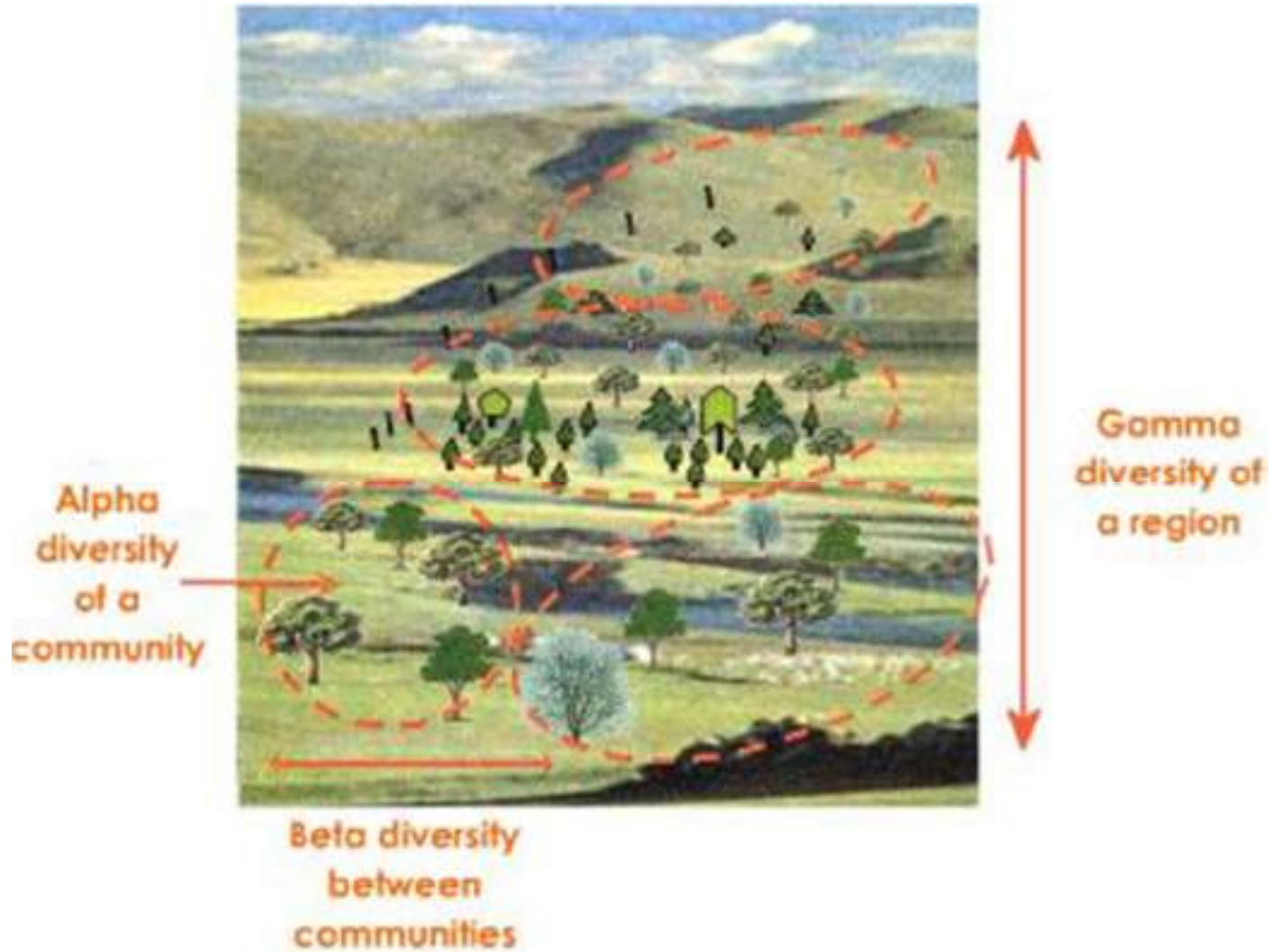
Biodiversity

α diversity: number of species within a given area

β diversity: relation species diversity and habitat diversity

γ diversity: geographical (measured at large scale)







European Landscape Convention (Firenze – 2000) Council of Europe - 35 signatory states



Art. 3 – Aims

The aims of this Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.

Art.6

- i) to identify its own landscapes throughout its territory;
- ii) to analyse their characteristics and the forces and pressures transforming them



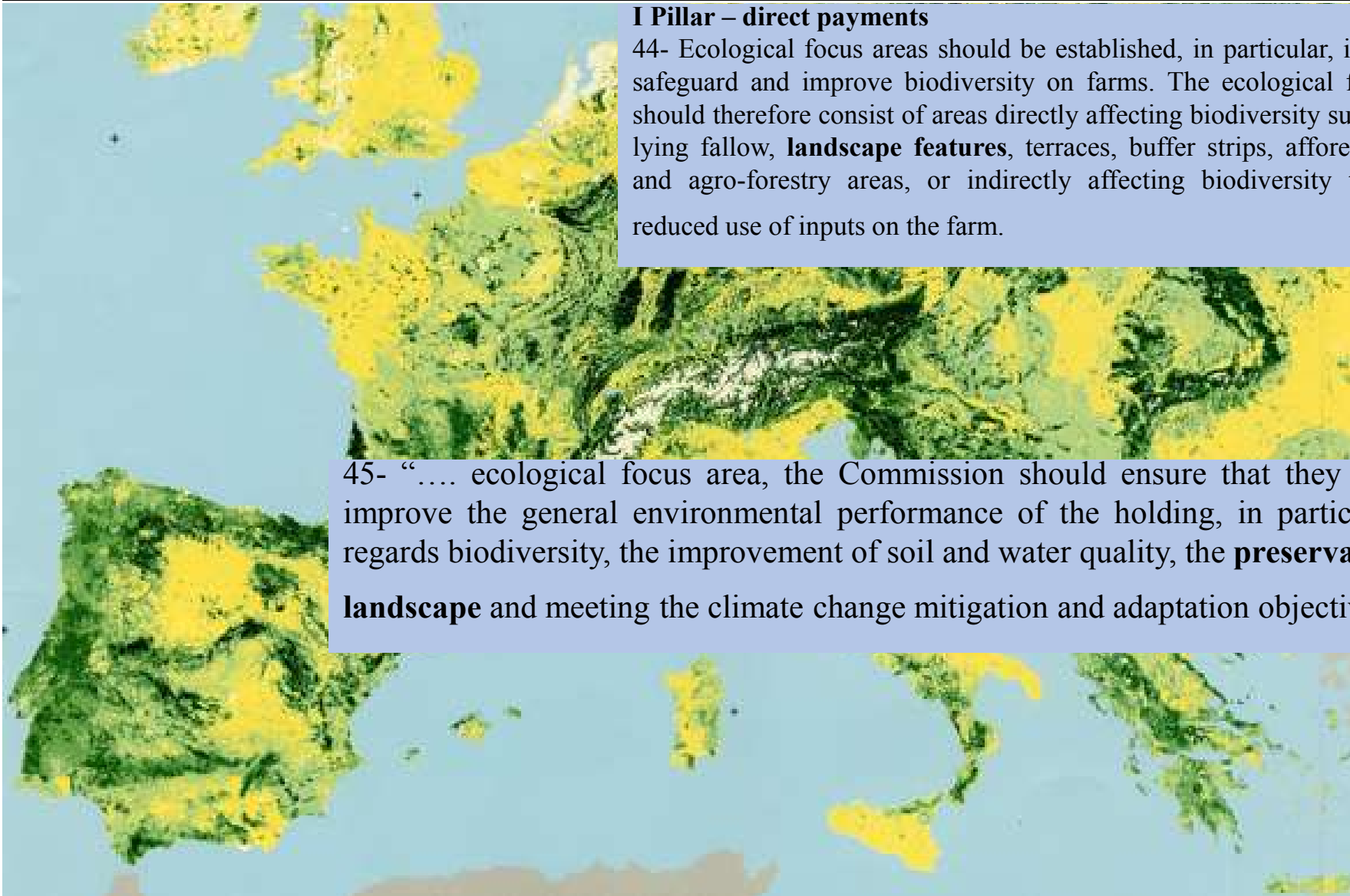
The Common Agricultural Policy



I Pillar – direct payments

44- Ecological focus areas should be established, in particular, in order to safeguard and improve biodiversity on farms. The ecological focus area should therefore consist of areas directly affecting biodiversity such as land lying fallow, **landscape features**, terraces, buffer strips, afforested areas and agro-forestry areas, or indirectly affecting biodiversity through a reduced use of inputs on the farm.

45- “.... ecological focus area, the Commission should ensure that they aim to improve the general environmental performance of the holding, in particular as regards biodiversity, the improvement of soil and water quality, the **preservation of landscape** and meeting the climate change mitigation and adaptation objectives.





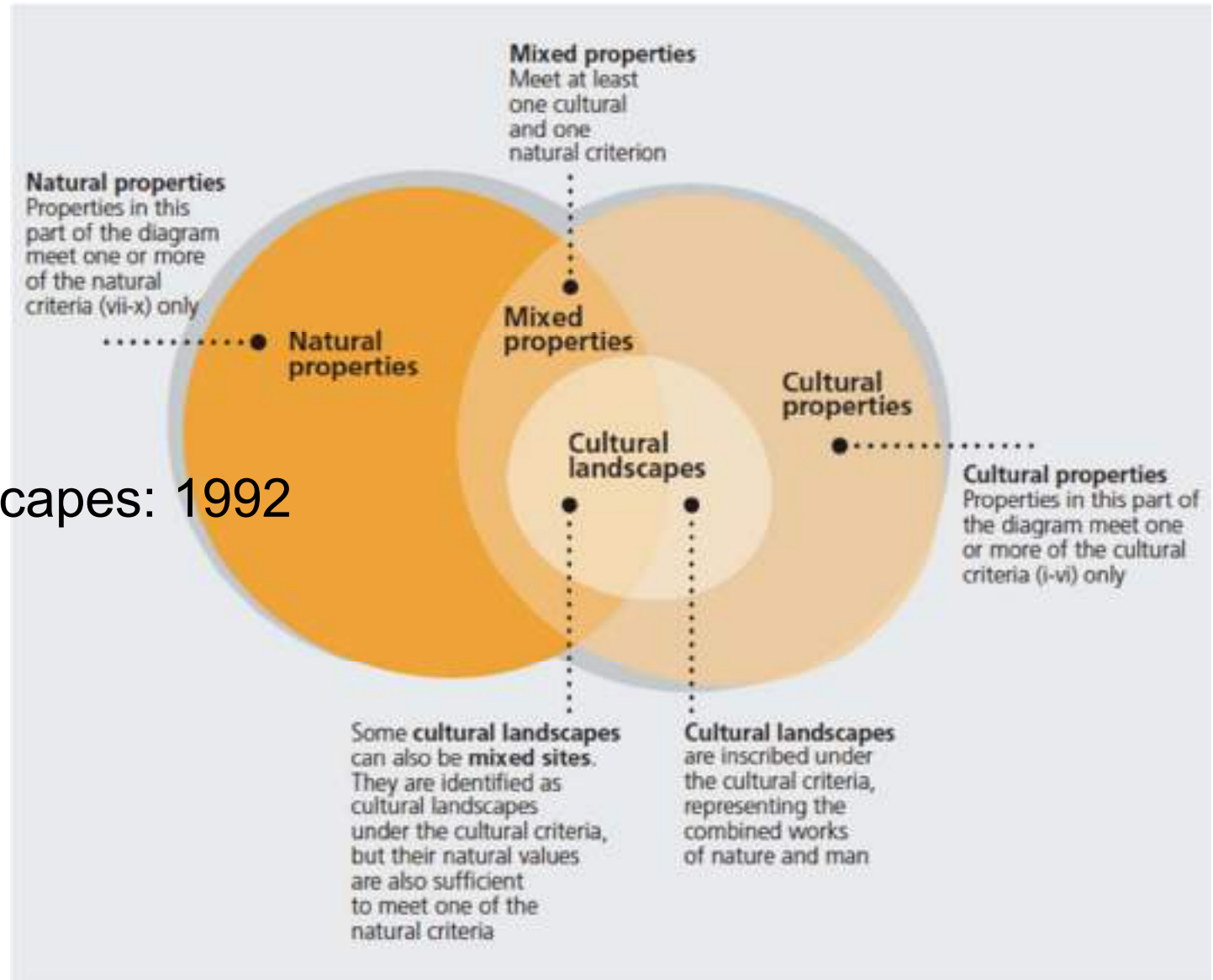
United Nations
Educational, Scientific and
Cultural Organization

I programmi internazionali

UNESCO
MAB Program
1971

UNESCO
WHC 1972

Cultural Landscapes: 1992





United Nations
Educational, Scientific and
Cultural Organization



World
Heritage
Convention

Rural landscapes in the UNESCO WHL

They are included among cultural landscapes in the category:
“organically evolved landscape”.

sub-category:

- continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time.

Main Elements of the application:

- Authenticity
- Integrity
- Attributes
- Management System



United Nations
Educational, Scientific and
Cultural Organization

MAB Programme

By focusing on sites internationally recognized within the [World Network of Biosphere Reserves](#), the MAB Programme strives to:

- identify and assess the changes in the biosphere resulting from human and natural activities and the effects of these changes on humans and the environment, in particular in the context of climate change;
- study and compare the dynamic interrelationships between natural/near-natural ecosystems and socio-economic processes, in particular in the context of accelerated loss of biological and cultural diversity with unexpected consequences that impact the ability of ecosystems to continue to provide services critical for human well-being;
- ensure basic human welfare and a liveable environment in the context of rapid urbanization and energy consumption as drivers of environmental change;
- promote the exchange and transfer of knowledge on environmental problems and solutions, and to foster environmental education for sustainable development.



THE THREE FUNCTIONS OF BIOSPHERE RESERVES:

3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation".

3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable".

3.3 "Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development".

• CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

4.1 "Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

4.2 "Be of significance for biological diversity conservation".

4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

4.4 "Have an appropriate size to serve the three functions of biosphere reserves"

GIAHS proposals in Europe

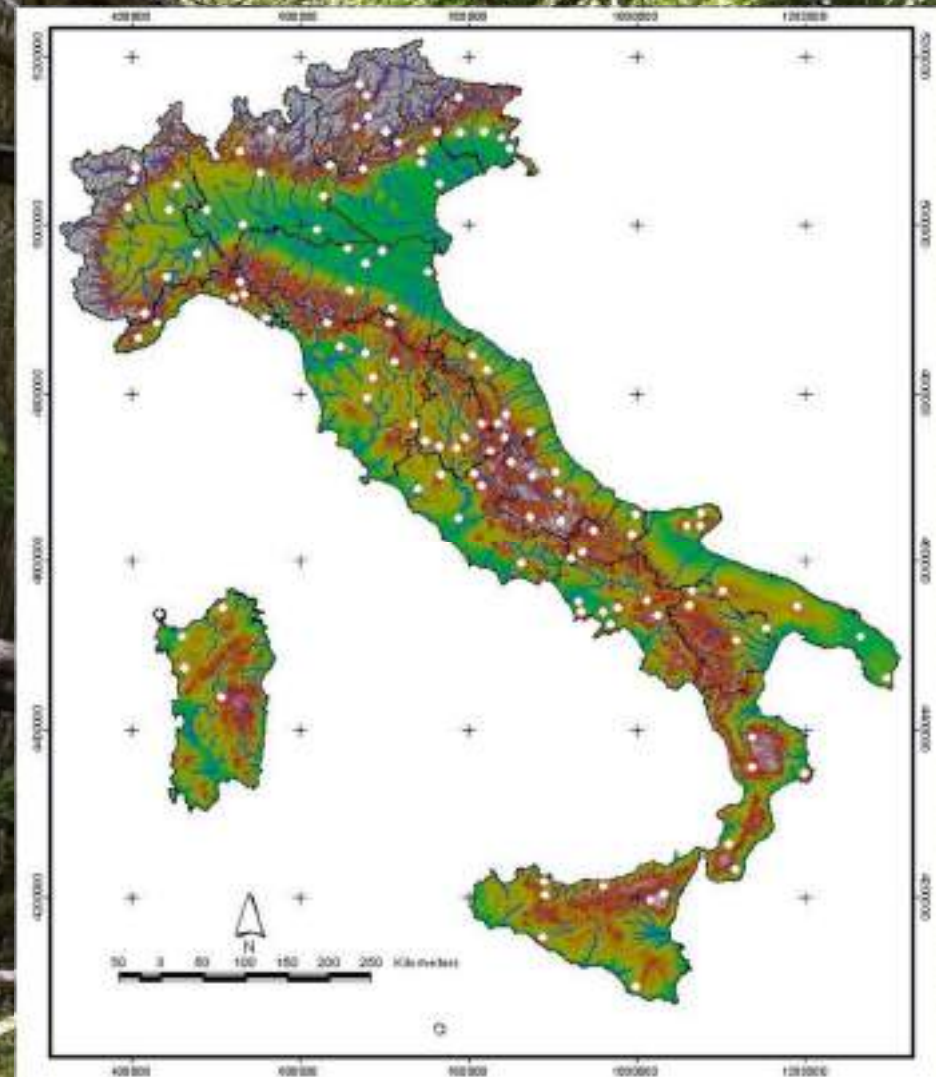
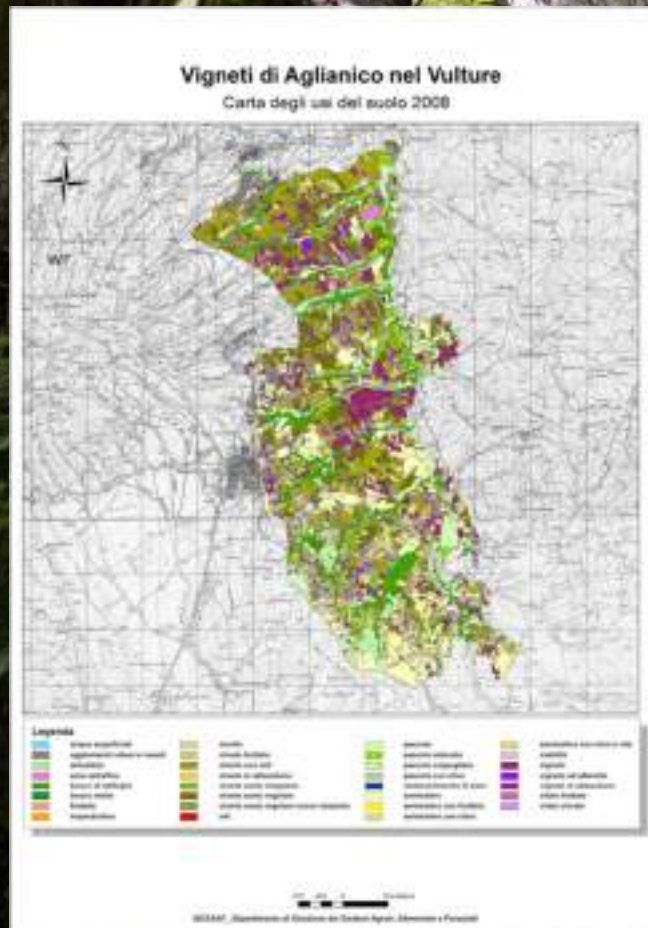
-2016: MOU FAO-ITALY

-2017: MOU FAO-SPAIN

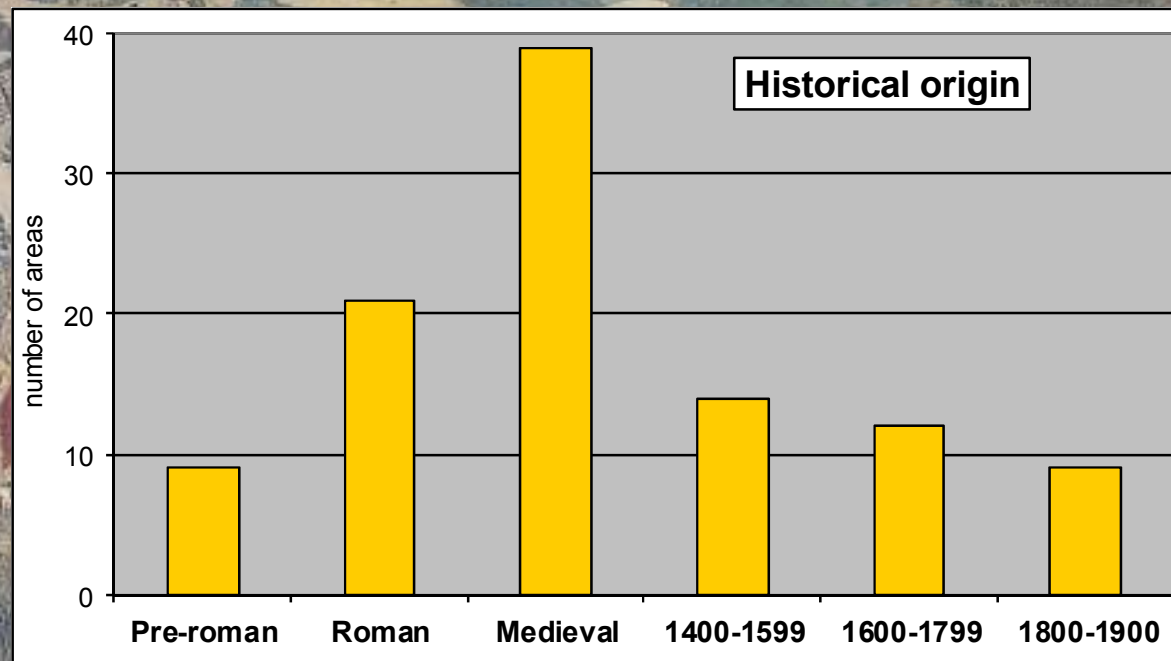


Italy (Ministry of Agriculture and Forestry) National register of Historical Rural Landscapes and traditional agricultural practices (2012)

-120 potential areas selected
-5 nominated



Historical origin of Italian rural landscape



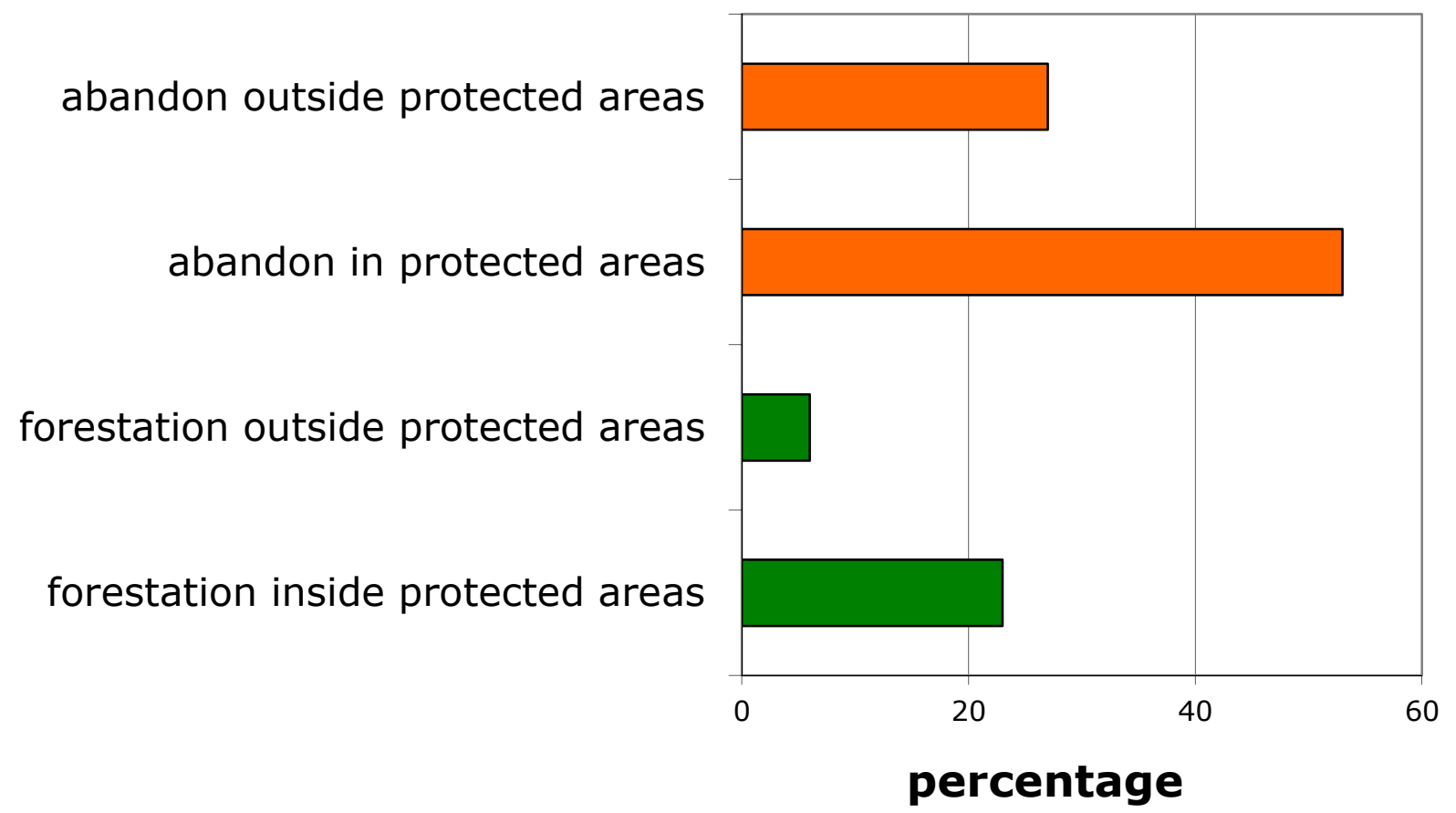
The wise management of the territory – A.Lorenzetti 14° century – Siena

1900

2004

Abandon in protected areas

protected areas



ALPI APUANE - CARDOSO (M. 270)



Monitoring tools



Historical terracing of Monte Somma - Naples
national register of historical rural landscapes

The matter of scale



Different standards
for cartographic
outputs

A vibrant rural landscape with green foliage, a blue sky with clouds, and a wooden fence in the foreground. A semi-transparent blue box is overlaid on the right side of the image, containing text.

National Plan for Rural Development

Landscape strategies:

Competitiveness

- *Integrate landscape in the development mode; local food, tourism, services*

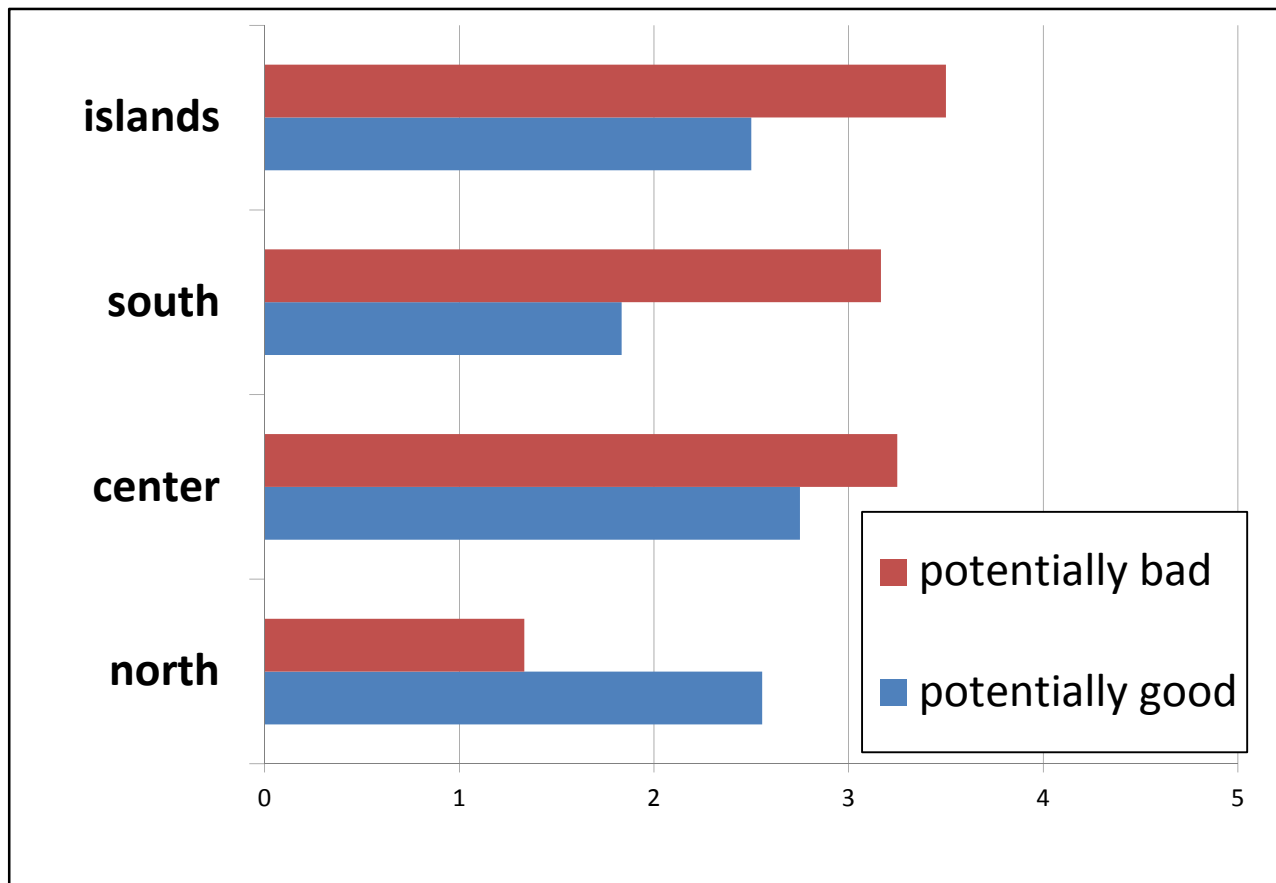
Environmental quality

- *Biocultural diversity and hydrogeological prevention*

Quality of life

- *Landscape for rural and urban population*

Assessment of landscape actions in the regional RDP



Landscape and well being - ISTAT

Cultural heritage

- **Built cultural heritage** : Number of archeological sites, architectural sites and museums per 100 km²

Rural Landscapes

- **Historical rural landscapes** : sites included in the national register of historical rural landscapes.
- **Abandonment**: amount of abandoned farmed land

Urban Landscapes

- **Density of historical gardens**: extension of green areas per 100 m² in main towns.
- **Historical buildings**: Houses built before 1919 in good conditions
- **Urban sprawl**: growth of urban areas

People perception

- Landscape quality



Landscape and economy: Tuscany

Tuscany 2009-2013

- Employees in industry: - 22.000
- Employees in services: - 12.600
- Employees in tourism : + 5.156
- Beds in agritourisms: + 40%
- Number of tourists in agritourism : + 14%

- Agriculture in GDP: 1,8%
- Tourism in GDP: 10,4%

•
(Agritourisms 1997-12 : + 367%)

Subsidies offered for landscape projects in 2016: 7.000.000 €

Requests sent to the regional government: 39.000.000 €

Landscape restoration project – Case Lovara

Cinque Terre National Park - Liguria

CULTLAB - www.landscape.unifi.it





Cinque Terre

Environmental
Disaster

October 2011

88% of landslides on
abandoned terraces
covered with forests





Il restauro paesaggistico di Case Lovara – proprietà FAI Punta Mesco – Cinque Terre



Restoration law of 2012



GIAHS in Cina

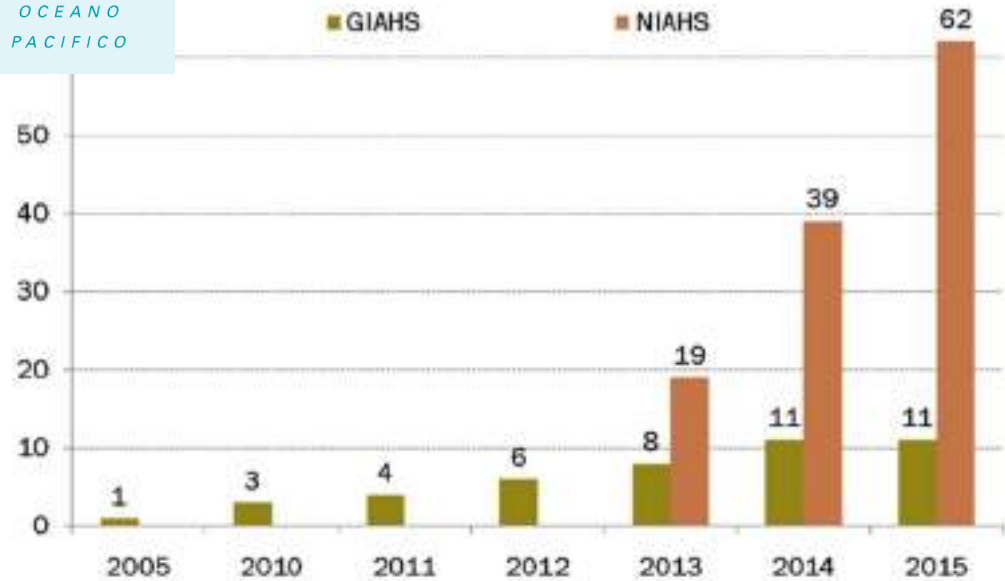


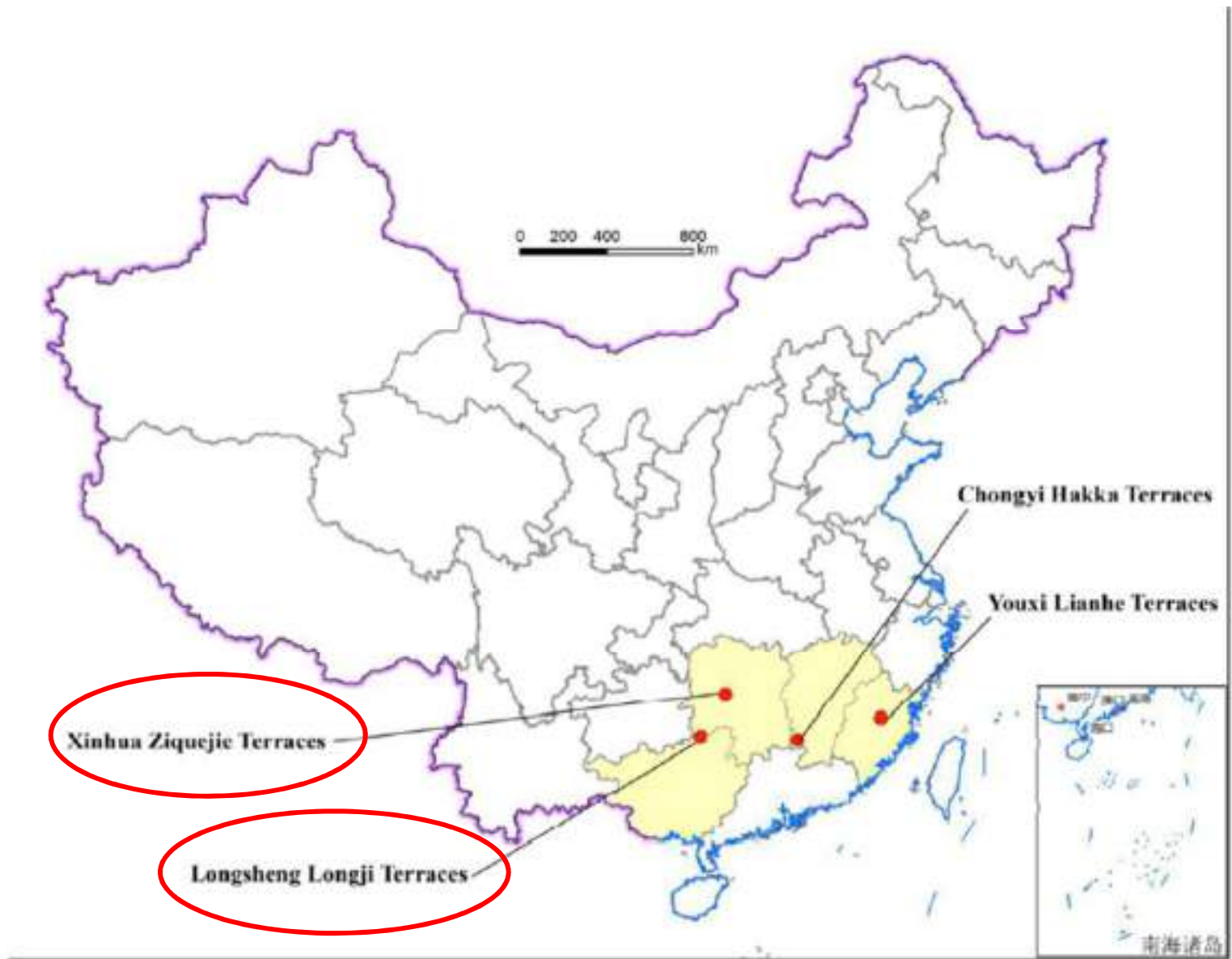
11 GIAHS Sites in China



GIAHS

NIAHS





Xinhua-Ziquejie risaie terrazzate







Longshen-Lonji









Added brand value to GIAHS products (rice fish cultural system)

Rice price (RMB)

-----The price comparison of rice and fish between 2005 and 2015

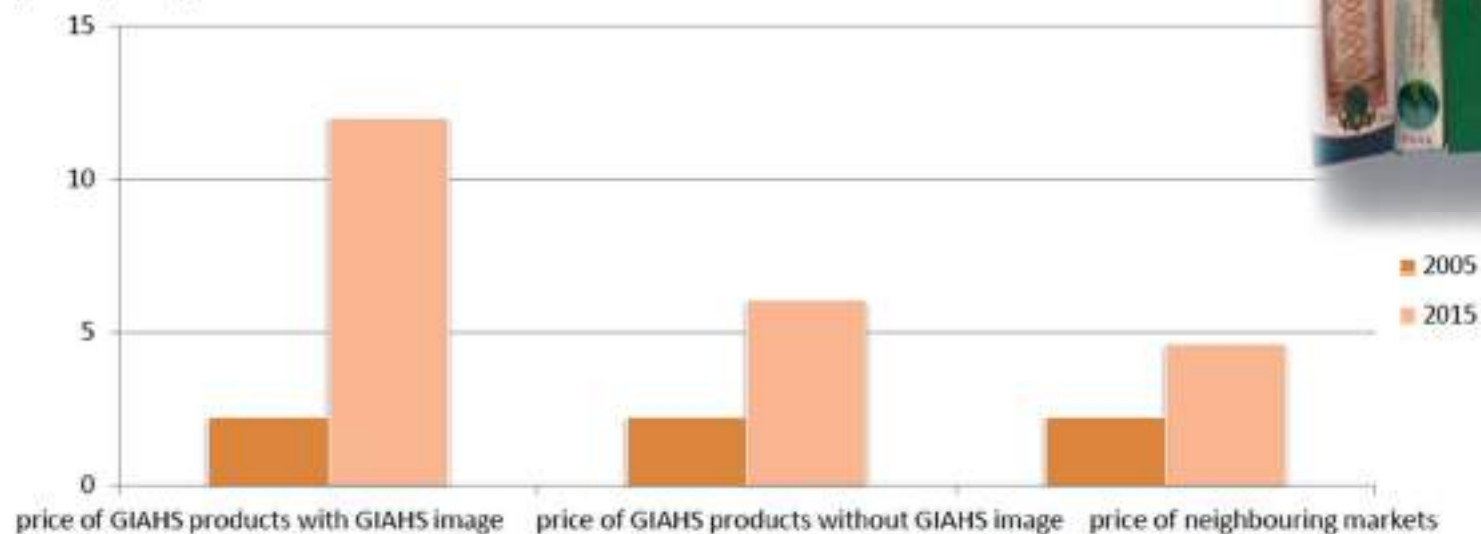


Figure 1. The prices of rice of GIAHS site and non-GIAHS site in 2005 and 2015

Fish price (RMB)

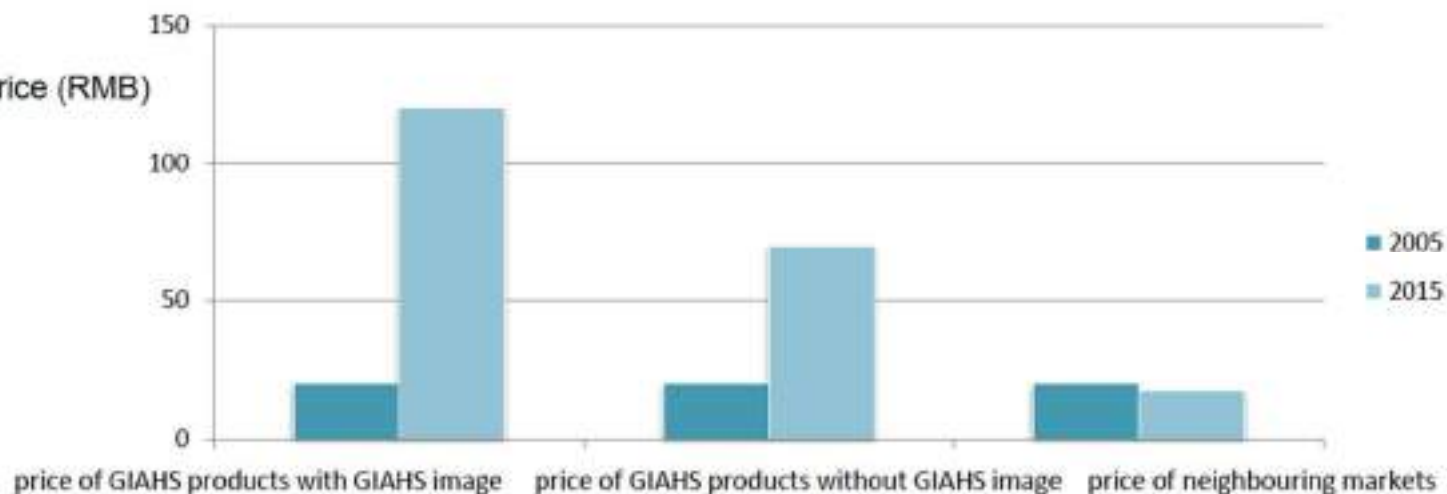
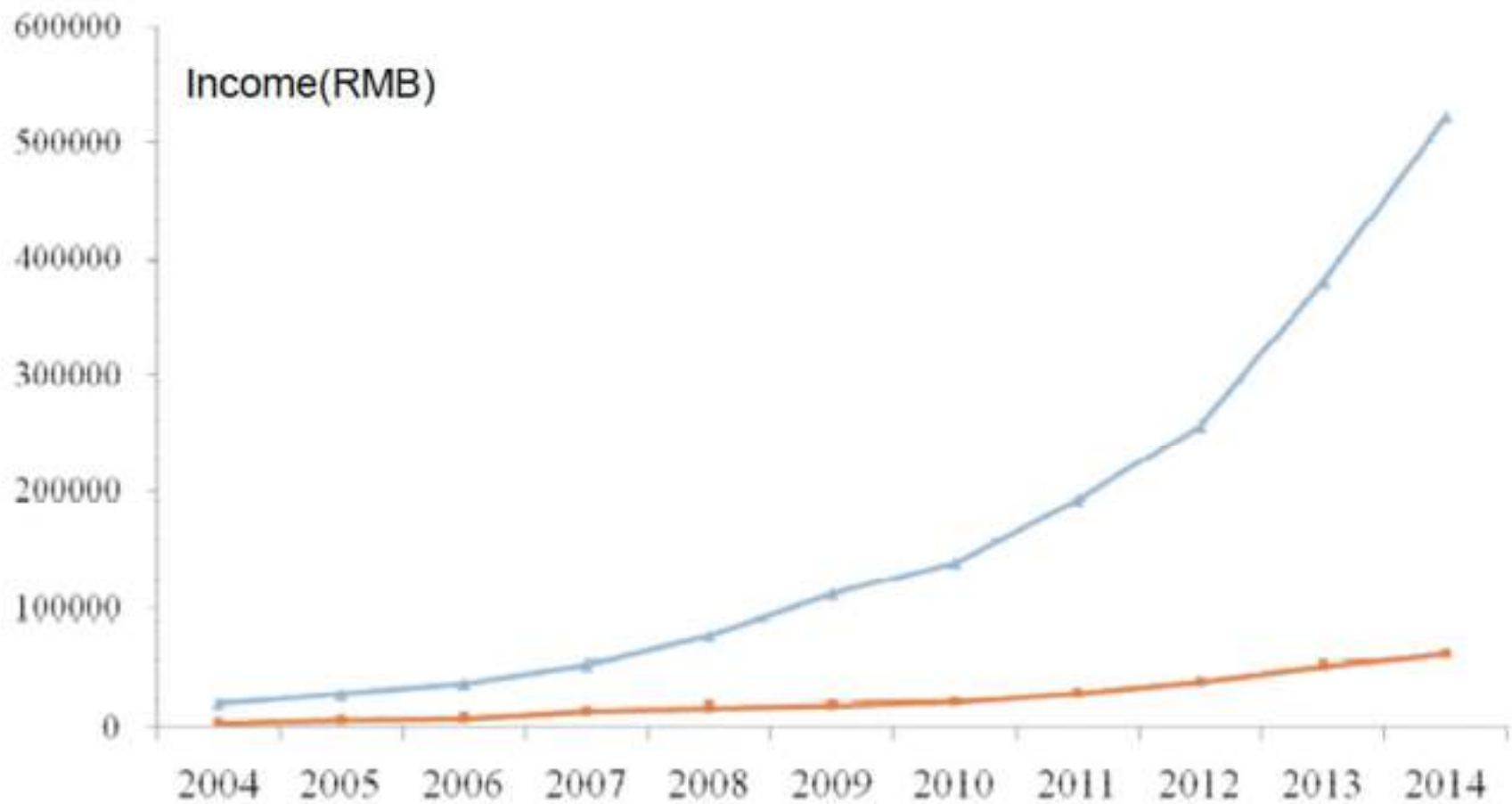


Figure 2. The prices of fish of GIAHS site and non-GIAHS site in 2005 and 2015 (Source: Beijing Union University)

Booming Tourism (Rice-fish system)

— domestic tourism income — international tourism income

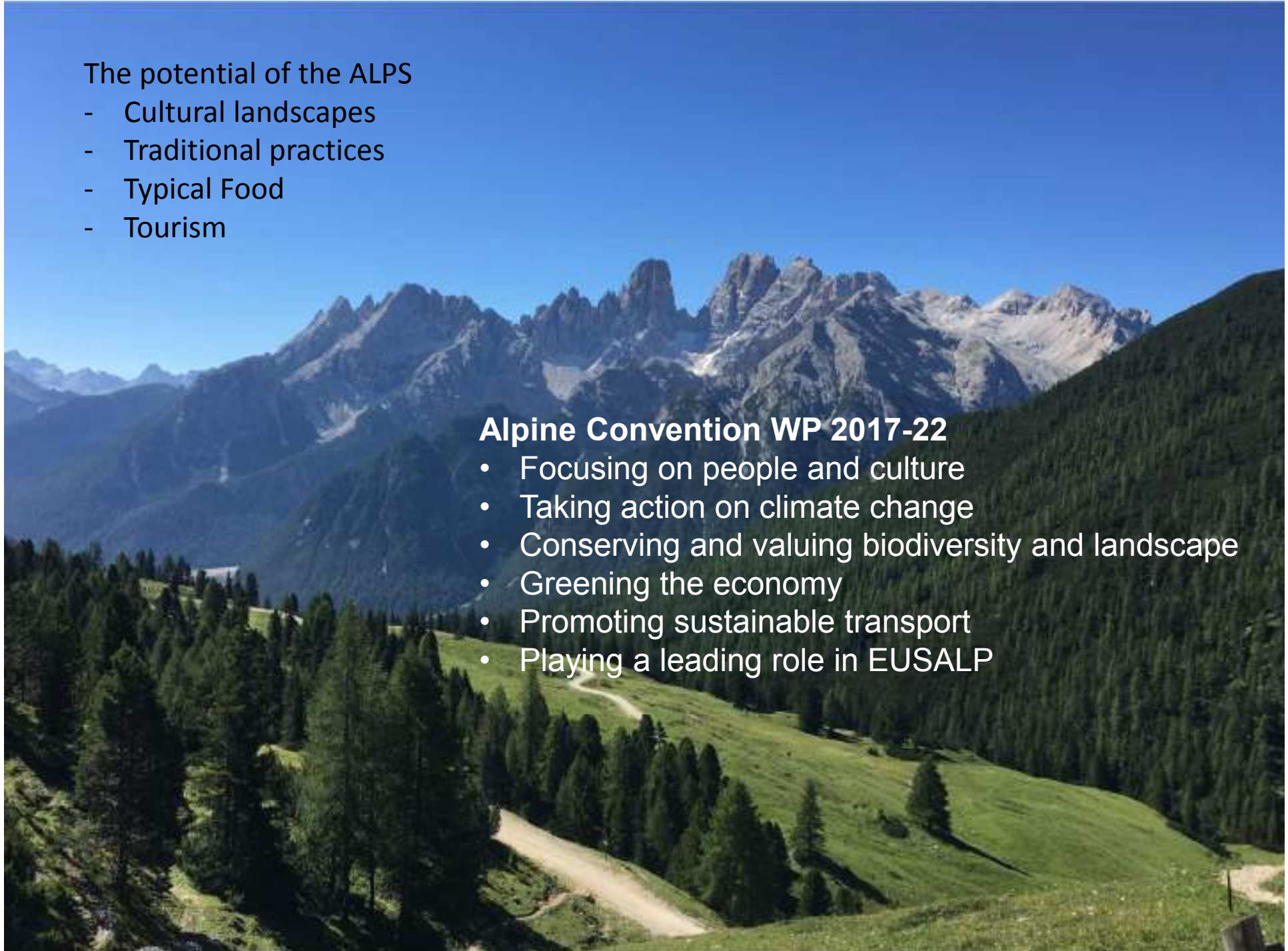


The potential of the ALPS

- Cultural landscapes
- Traditional practices
- Typical Food
- Tourism

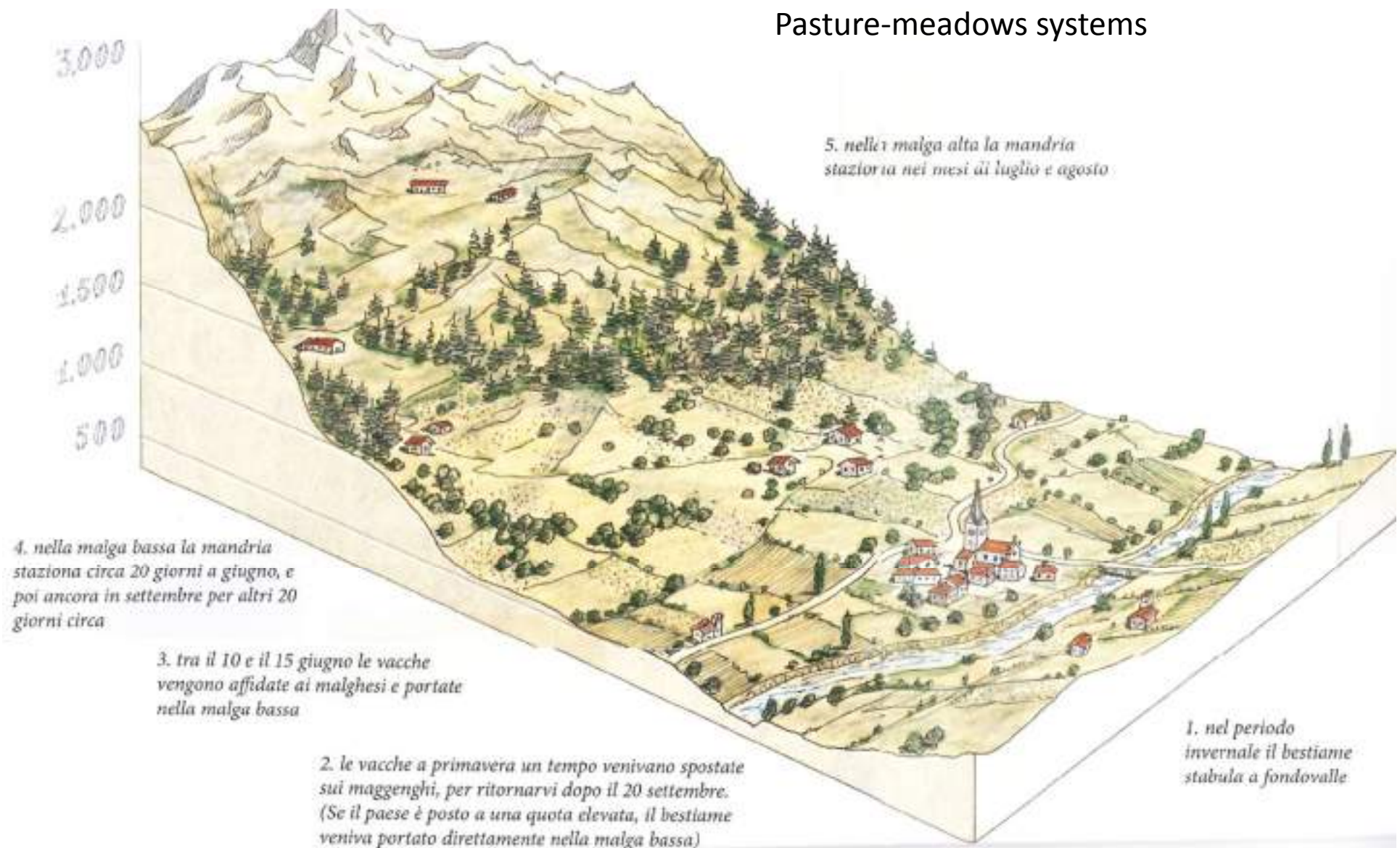
Alpine Convention WP 2017-22

- Focusing on people and culture
- Taking action on climate change
- Conserving and valuing biodiversity and landscape
- Greening the economy
- Promoting sustainable transport
- Playing a leading role in EUSALP





Pasture-meadows systems









Stables









