Knowledge of the flora and study of the vegetation dynamics on marine islets

NOSTRA Bonifacio – 4 and 5 June, 2014

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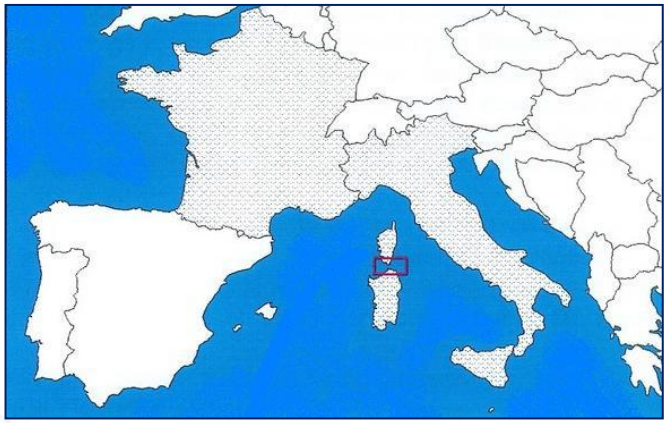
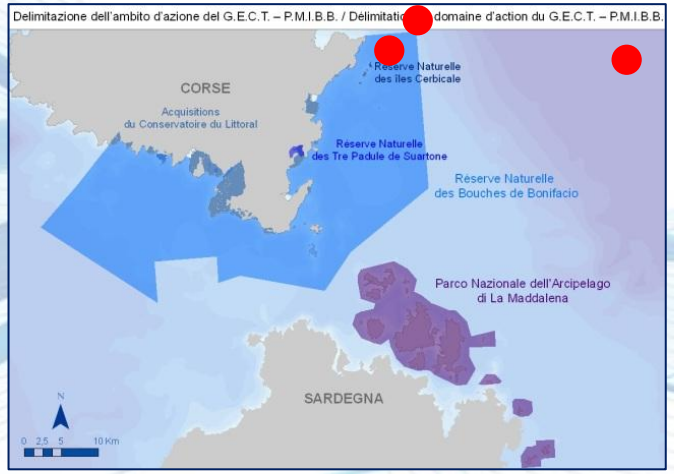
Localisation of the area





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Localisation of the area

Localisation of the area

- Farina Island
- Forana Island
  - Cerbicale
    - Maestro Maria
    - Piana
    - Pietricaggiosa Islands
- Vacca Rock
- Toro Islets
- Folaca Island
- Capu d'Acciaju Islets
- Porraggia Island
- Ratino Island
- Piana Island
- In Vachetta
- Lavezzi Islands
- Cala Sciumara Islets
- Fazzio Island
- Tonnara Islands
- Bruzzi Islands
- Moines Islets

Inventory

Islet Name	Surface area (m^2)	Surface area (ha)	N° of taxa
Lavezzu	729,370	**72.9**	**226**
Piana	64,500	**6.5**	**214**
Pietricaggiosa	45,800	**4.6**	**96**
Maestro Maria	28,200	**2.8**	**88**
Fazzio (small islet)	3,620	**0.3**	**48**
Fazzio (large islet)	12,130	**1.2**	**41**
Bruzzi	11,550	**1.2**	**24**
Grand Toro	16,200	**1.6**	**15**
Petit Toro	5,100	**0.5**	**10**
Folacchedda	990	**0.01**	**7**

Heritage Species

Protected

Endemic

Limited to the area **Rare**

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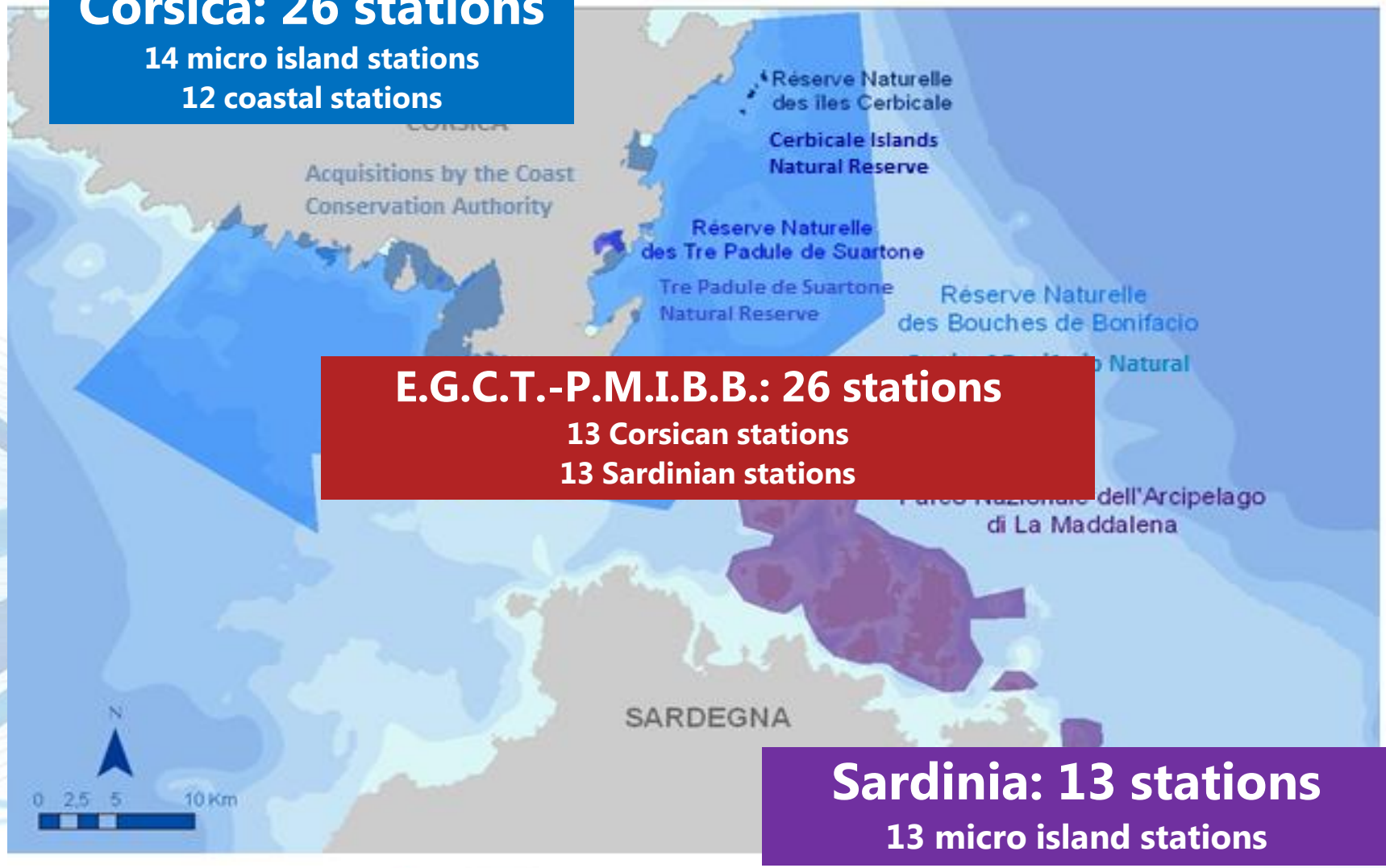
Monitoring a heritage species: *Silene velutina*



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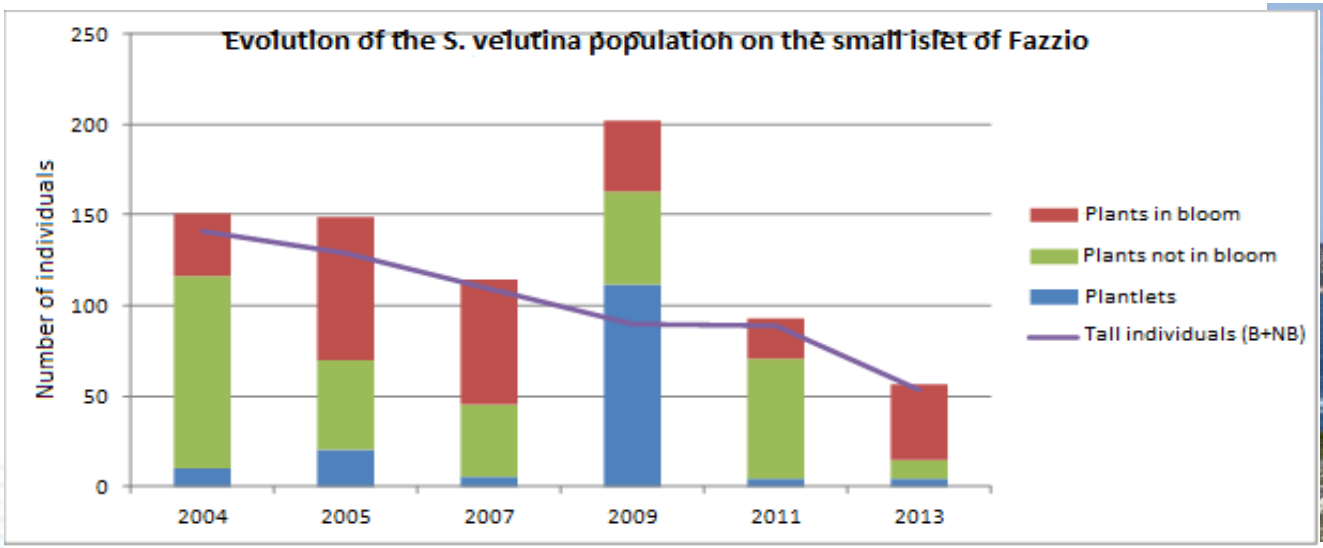
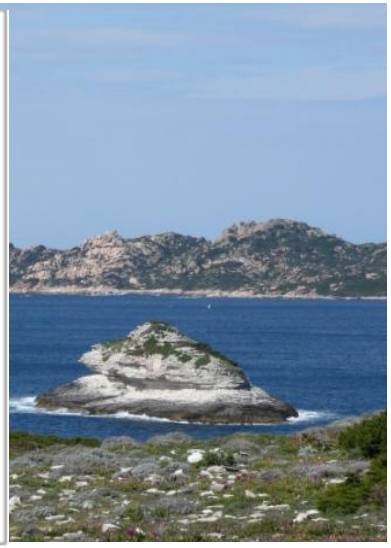
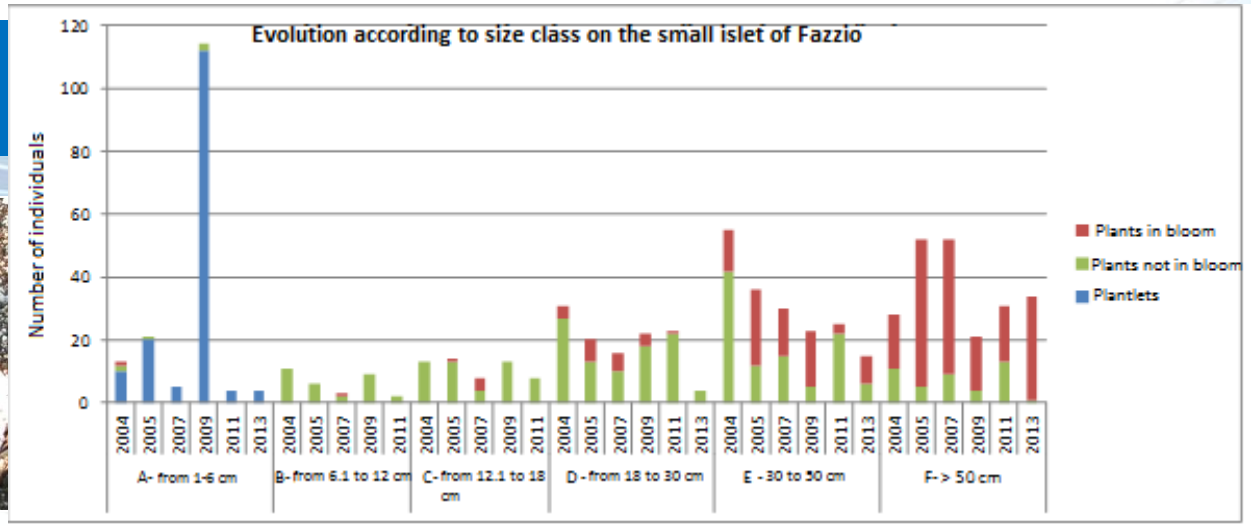




Decline in the population



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Monitoring a heritage species: *Silene velutina*

Population in 2013:

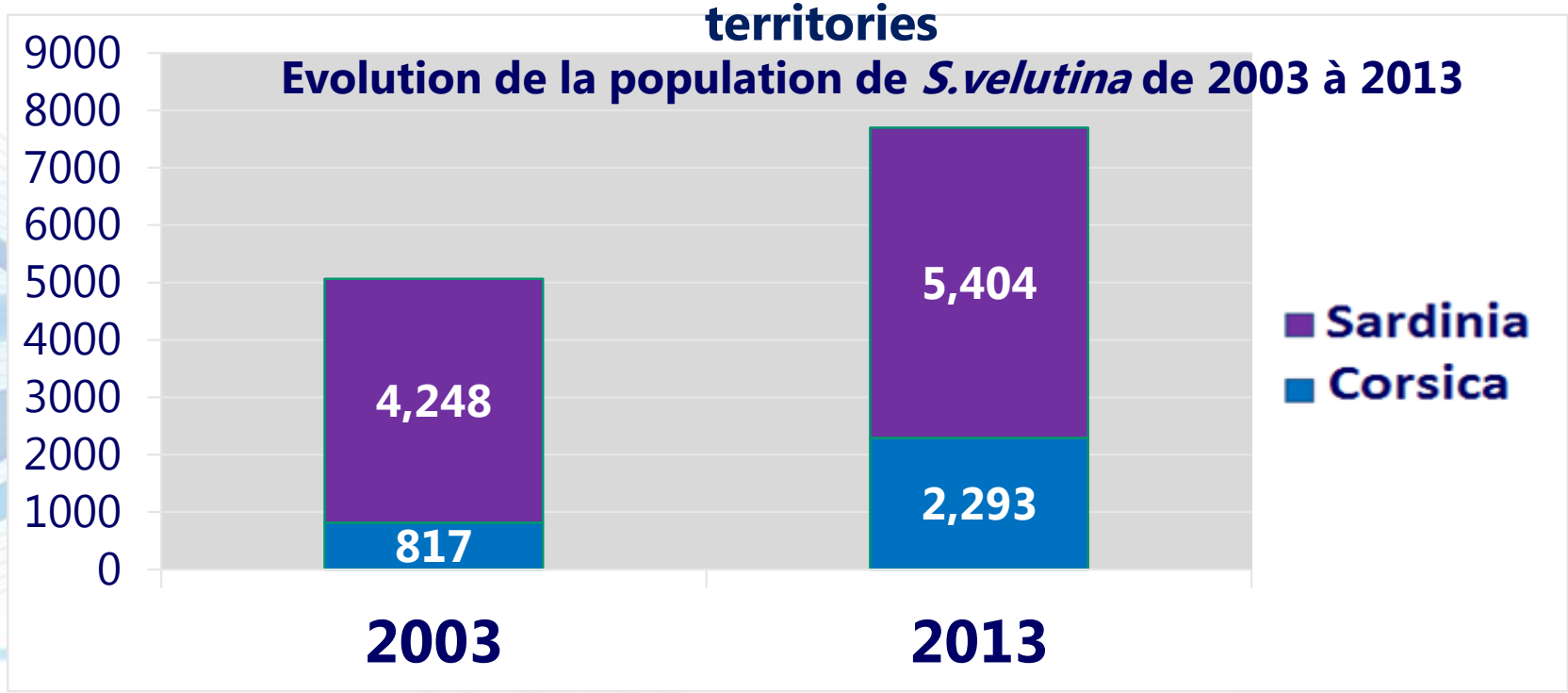
2,293 individuals in Corsica

5,404 individuals in Sardinia

7,697 individuals

In the EGCT-PMIBB territory

Monitoring of the population for more than 10 years in the territories



Changes in numbers - 4 trends:

drastic decline (Fazzio, Folaca)

decline (Ecueils d'Acciaju)

stability (Folaca, Folachedda and Cala Sciumara)

progression (Tamaricciu, Toro Islets, Silène and St Roch Islets)

Threats:

Presence of **breeding gulls**

Presence of ***Lavatera arborea***

Presence of **black rats**

Trampling

Substrate **Erosion**

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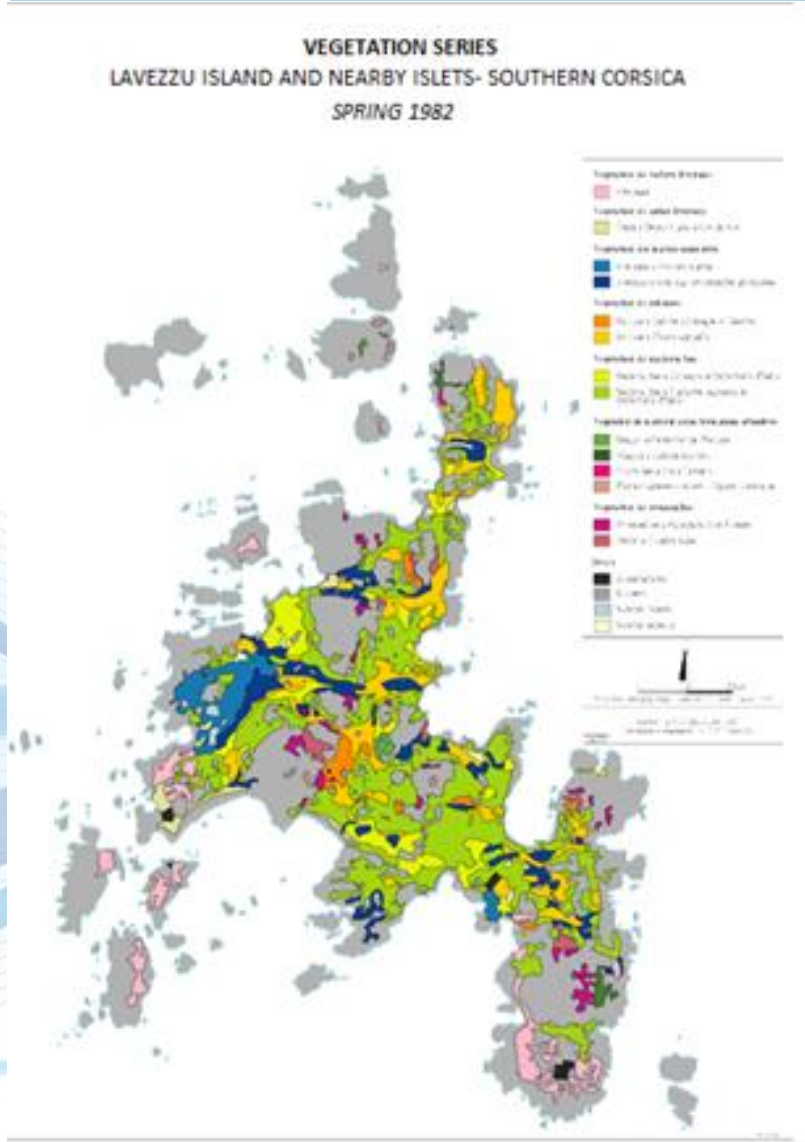
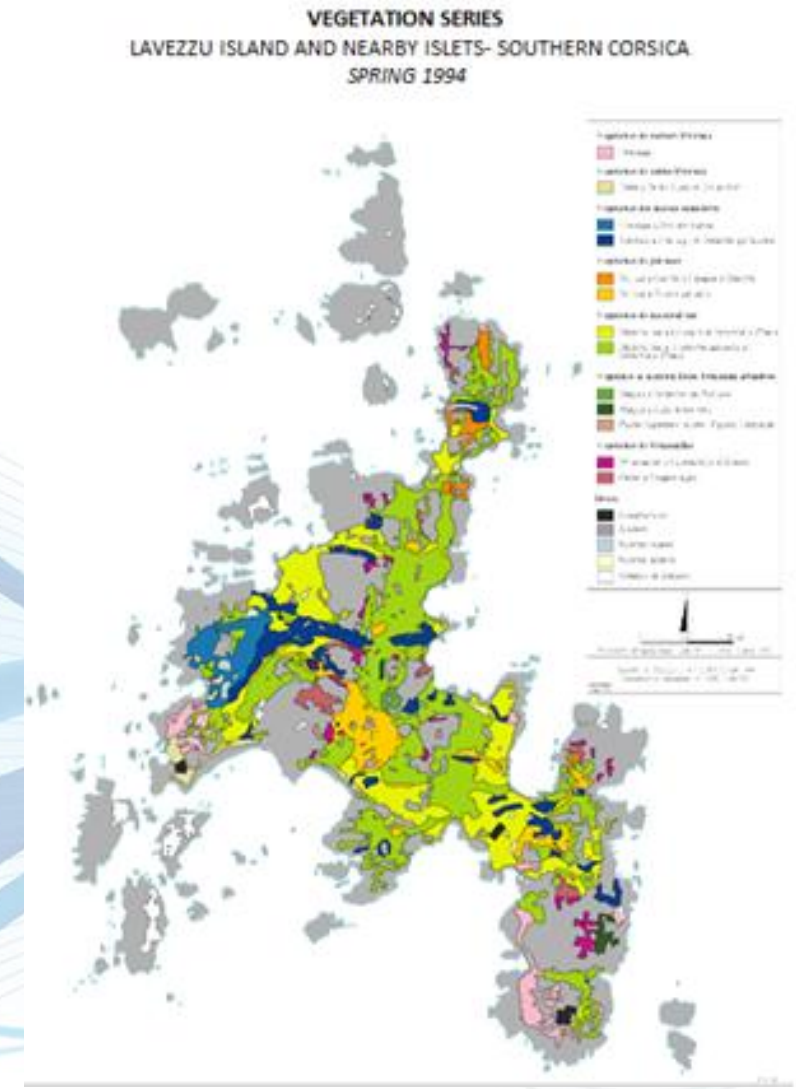


Study of vegetation dynamics on Lavezzu Island since 1982

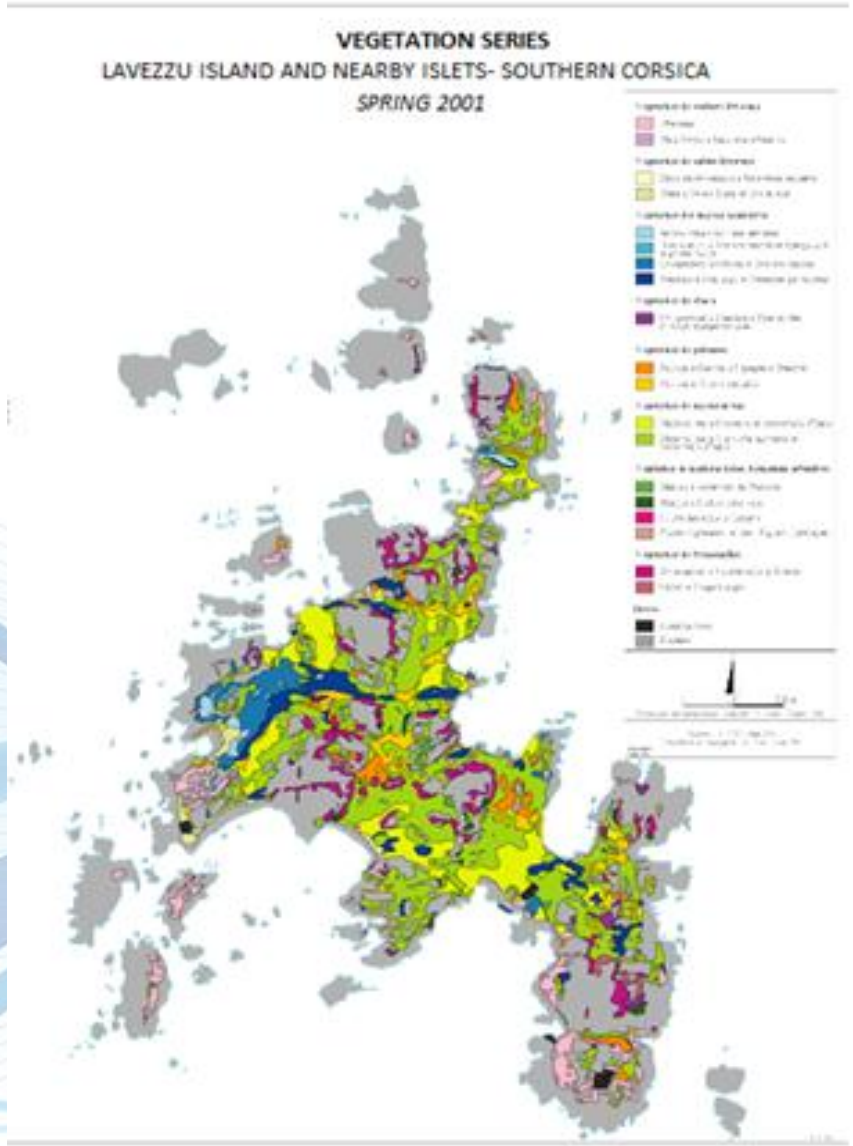
DUBRAY (1982)



Study of vegetation dynamics on Lavezzu Island since 1982

DUBRAY

CHALLIOU and LORIOT(1994)



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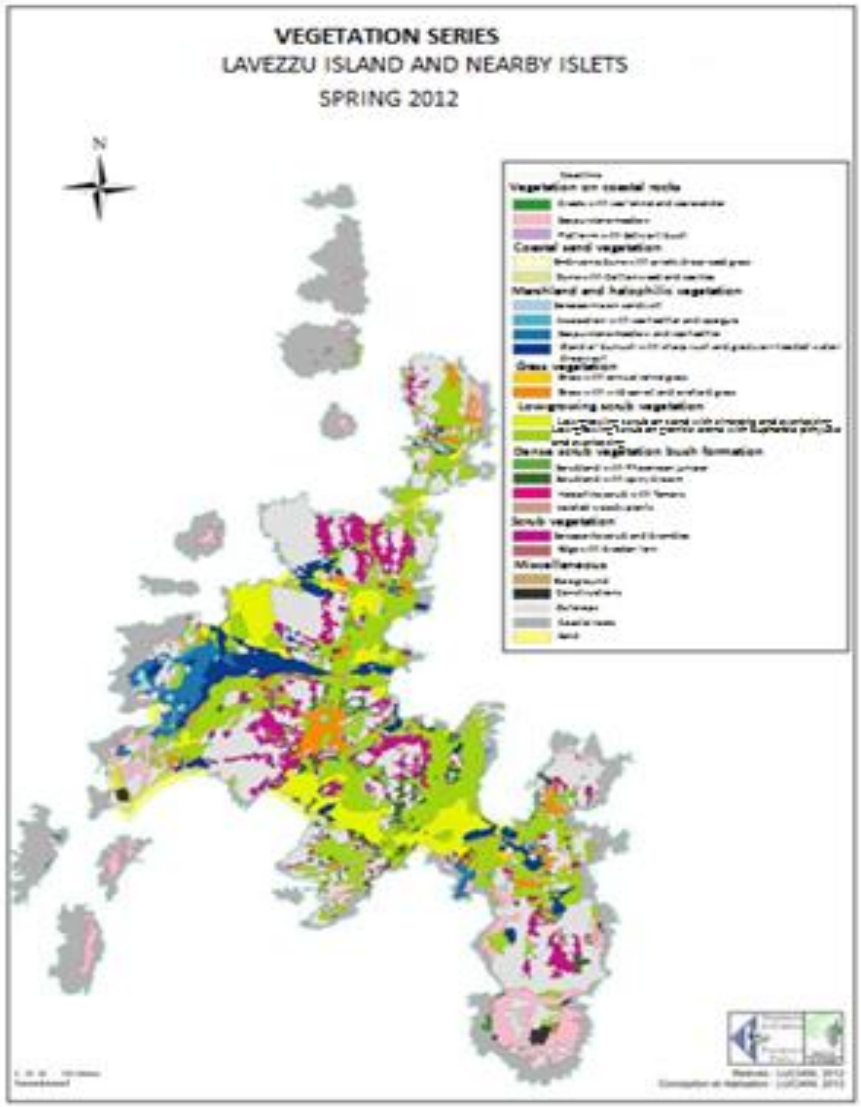
COIC (2001)

Vegetation dynamics



Study of vegetation dynamics on Lavezzu Island since 1982

DUBRAY (1982)

CHALLIOU and LORIOT (1994)

COIC (2001)

LUCIANI(2012)

30 year monitoring of the island's vegetation

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Vegetation dynamics: methodology

Phytocoenotic inventory and identification of vegetation series

Ground prospecting: creation of the vegetation unit map

Each unit is:

- **Attached to a vegetation series**
- **Characterised by a dynamic sequence**
- **Defined by one or several dominant or characteristic species**

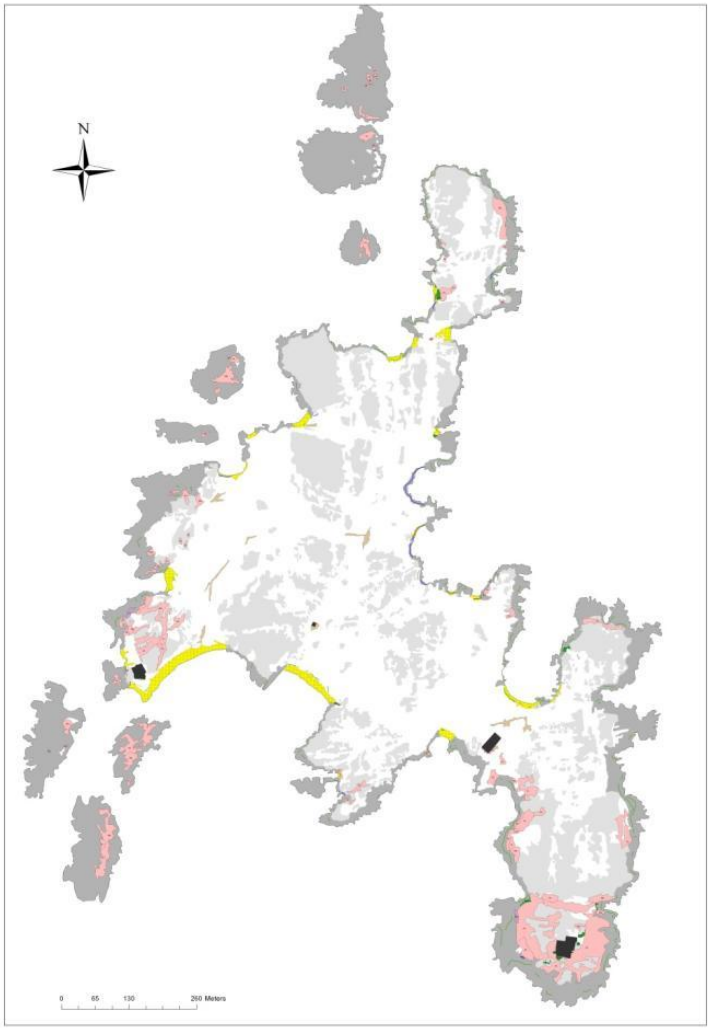
Entry of data into a GIS

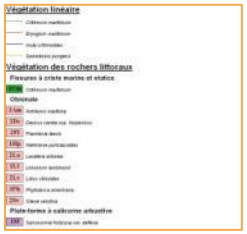
A **dynamic series** assembles various sequences of an ecological succession, that is the whole made up of an initial, stable vegetal grouping, in harmony with the environmental conditions, the groupings demonstrating progressive dynamics and those which derive from regressive dynamics (OZENDA,1982).

Dynamic Sequences:

Sequence 1 – Initial grouping
Sequence 2 – Substratum or superimposition grouping
Sequence 3 – Grouping of total substitution
Sequence 4 – Bedrock exposed

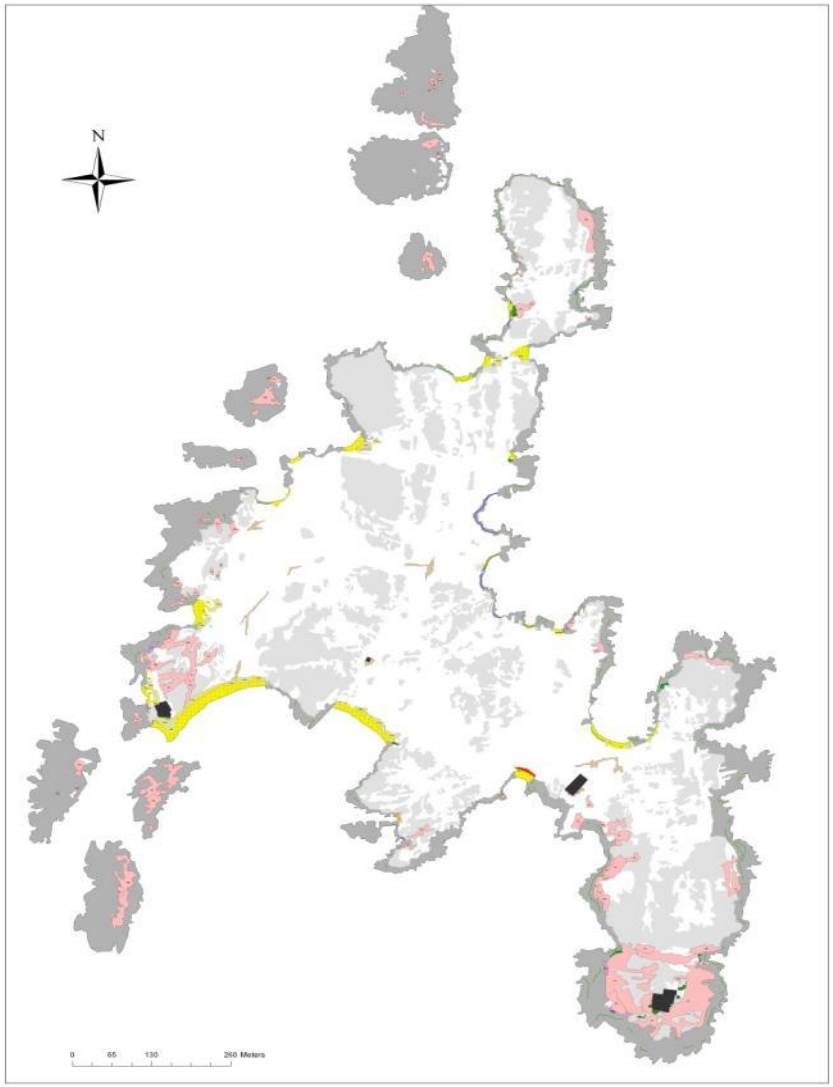
Cartography 2012: Vegetation series and dominant species





Coastal rocks

Vegetation dynamics: cartography 2012

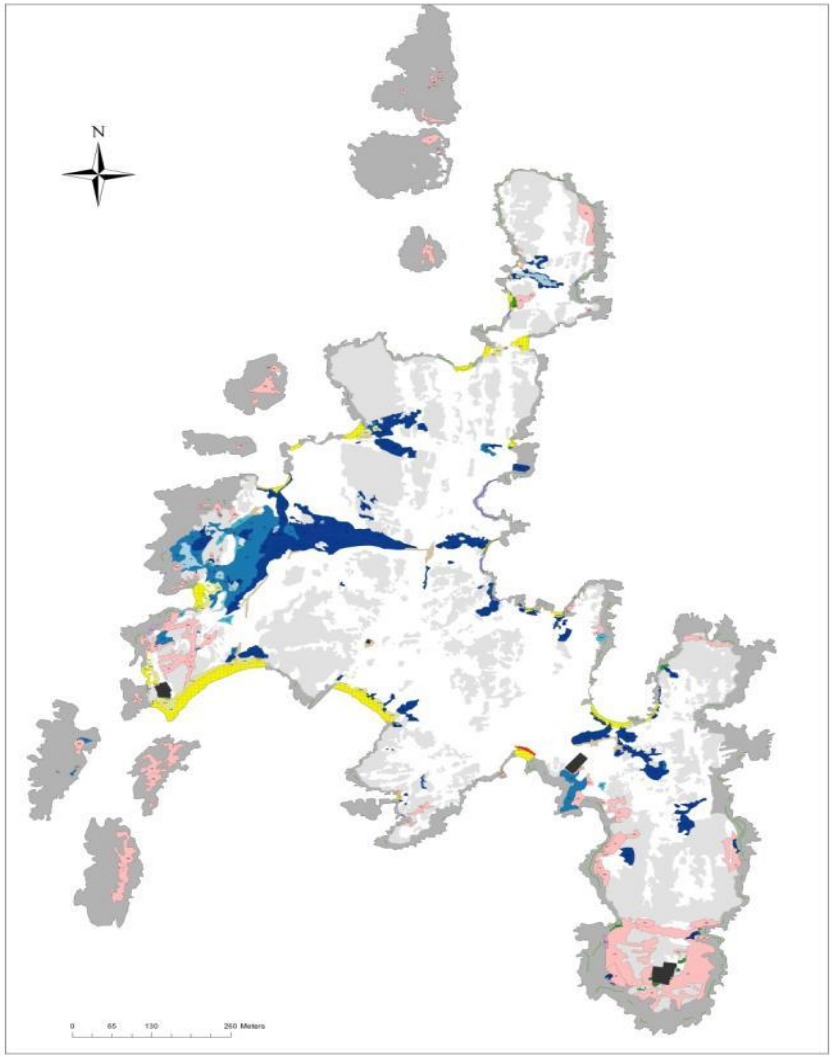


Cartography 2012: Vegetation series and dominant species

Coastal rocks

Coastal sand

Vegetation dynamics: cartography 2012



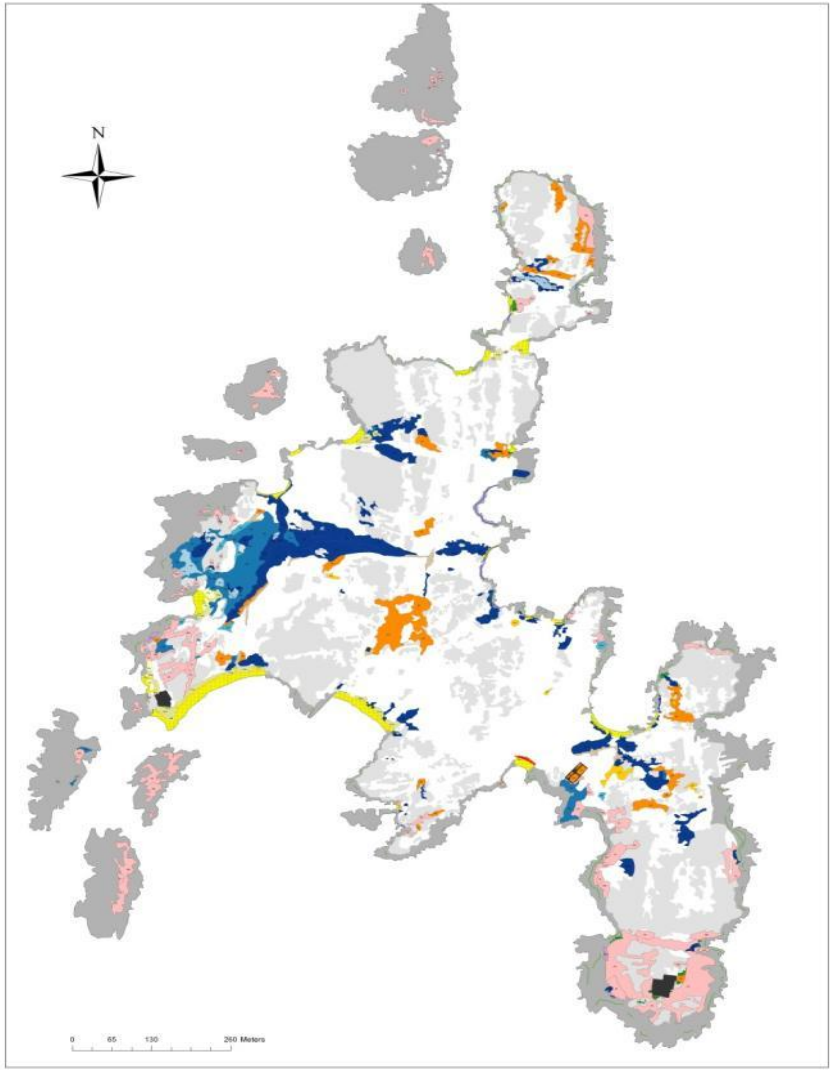
Cartography 2012: Vegetation series and dominant species

Coastal rocks

Coastal sand

Brackish and halophilic marshland

Vegetation dynamics: cartography 2012



Cartography 2012: Vegetation series and dominant species

Coastal rocks

Coastal sand

Brackish and halophilic marshland

Grass

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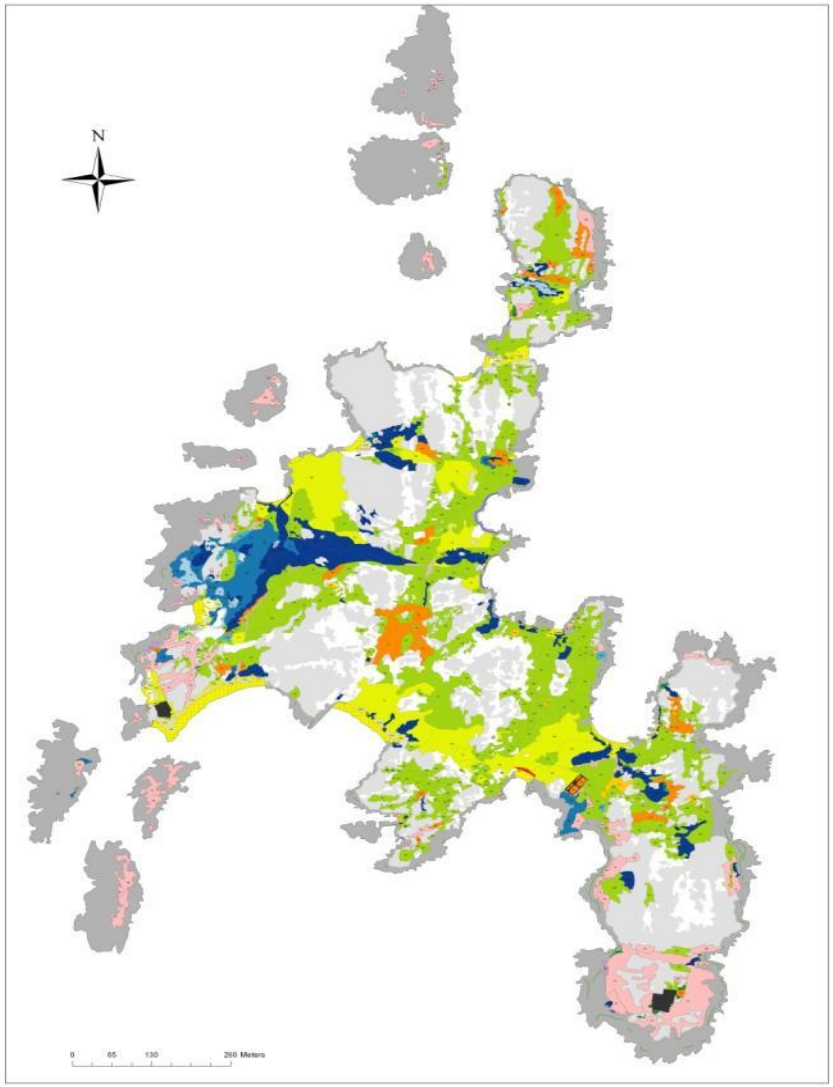
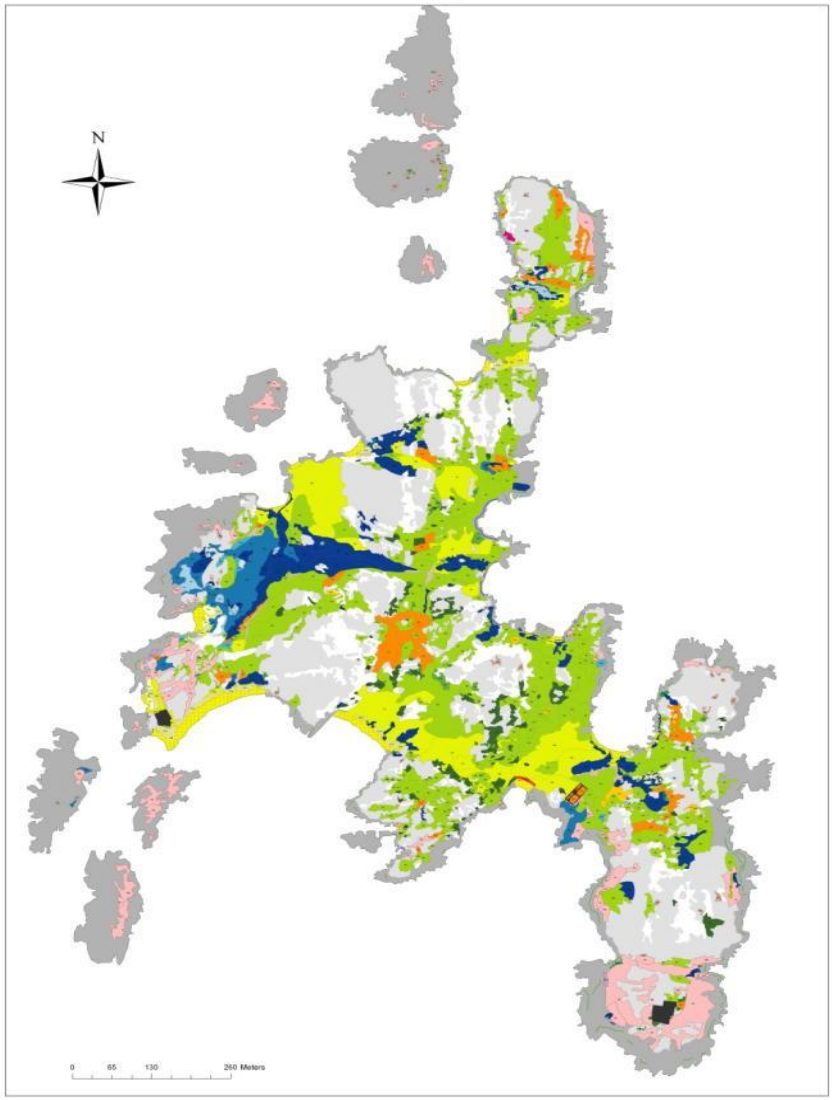
Vegetation dynamics: cartography 2012



Cartography 2012: Vegetation series and dominant species

Coastal rocks
Coastal sand
Brackish and halophilic marshland
Grass
Low-growing scrub

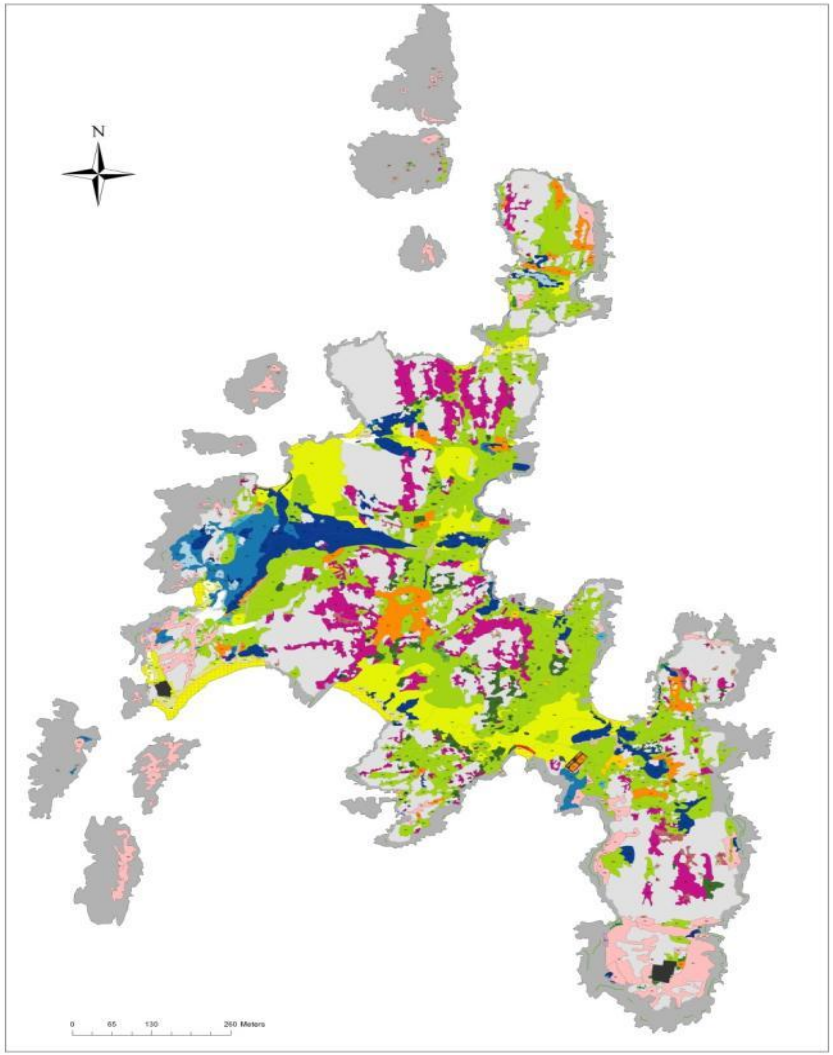
Vegetation dynamics: cartography 2012



Cartography 2012: Vegetation series and dominant species

- Coastal rocks
- Coastal sand
- Brackish and halophilic marshland
- Grass
- Low-growing scrub
- Dense scrub, bush formations

Vegetation dynamics: cartography 2012



Cartography 2012: Vegetation series and dominant species

- Coastal rocks
- Coastal sand
- Brackish and halophilic marshland
- Grass
- Low-growing scrub
- Dense scrub, bush formations
- Scrubland

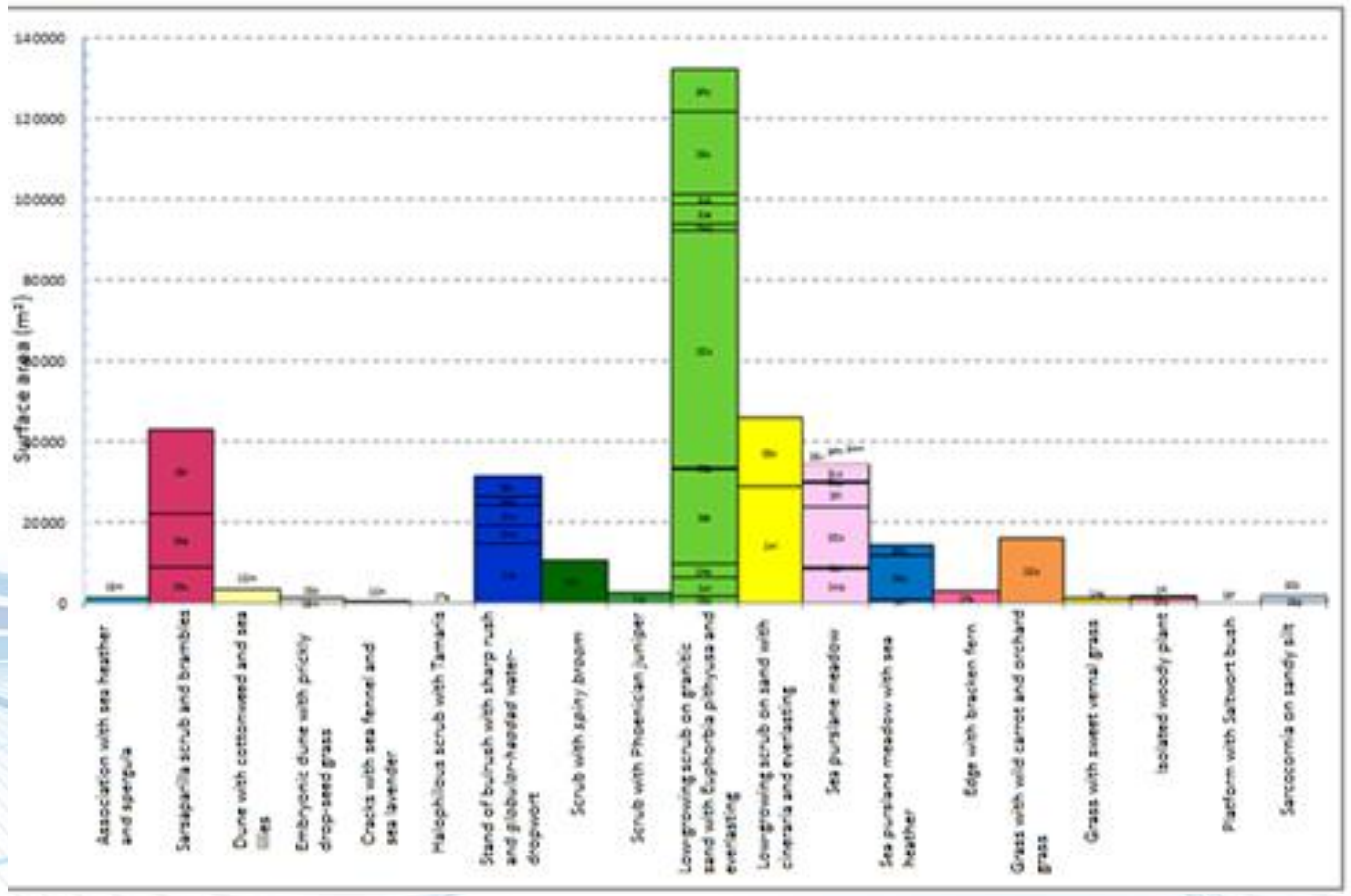
Vegetation dynamics: cartography 2012

Surface analysis:

Strong dominance of low-growing scrub (51.43%)

Significant Proportion of scrubland (12.37%)

11 vegetation series representing less than 1% each



Vegetation dynamics: cartography 2012

Diachronic analysis

Regression:

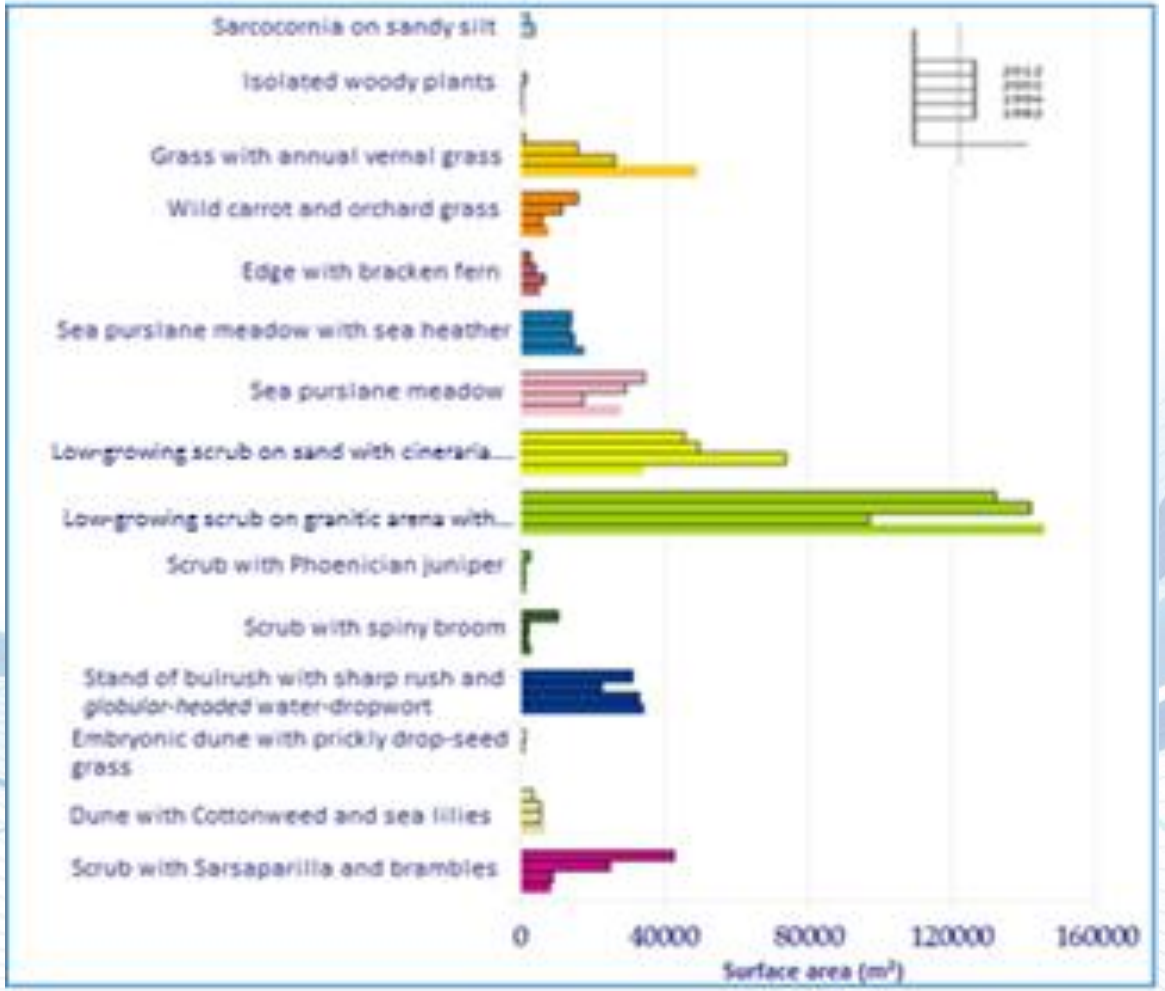
- Grass with sweet vernal grass
- Dunes with Cottonweed and sea lily

Progression:

- Grass with wild carrot and orchard grass
- Scrub with Phoenician juniper
- Scrub with spiny broom
- Sarsaparilla scrub and brambles

Stability:

- Sea purslane meadow
- Low-growing scrub on sand
- Bulrush stands



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Vegetation dynamics: variation of natural factors

Grazing on Lavezzu Island:

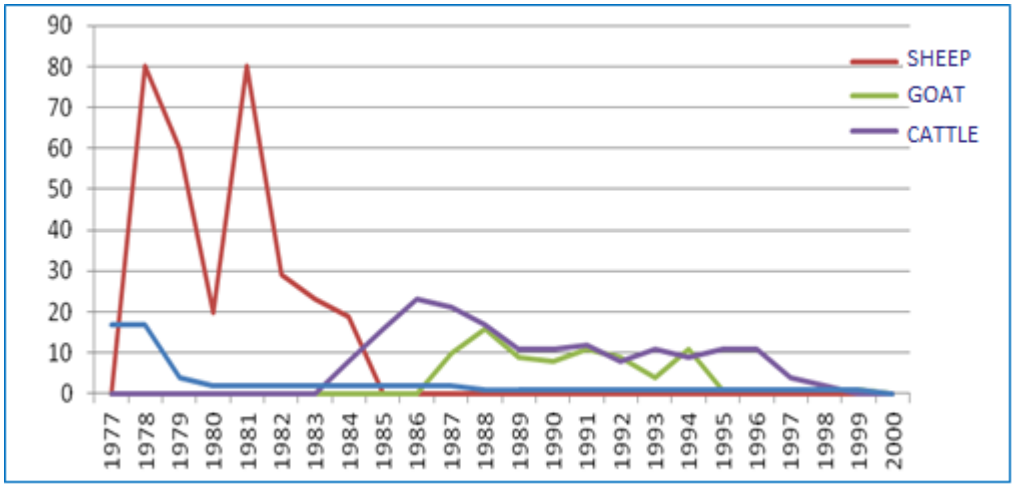
1977-1983 Strong sheep domination

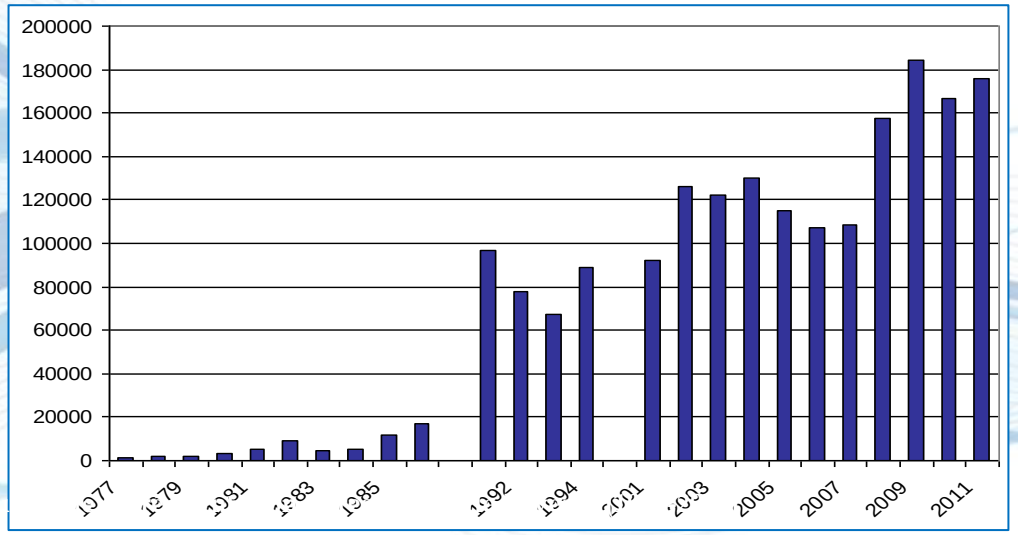
1983 Introduction of cattle
Lack of sheep

1986 Introduction of goats

1995 Absence of goats

1999 End of grazing





Visitors to Lavezzu Island:

1982 < 10,000 people
1994 65,000 people
2001 90,000 people
2012 175,000 people

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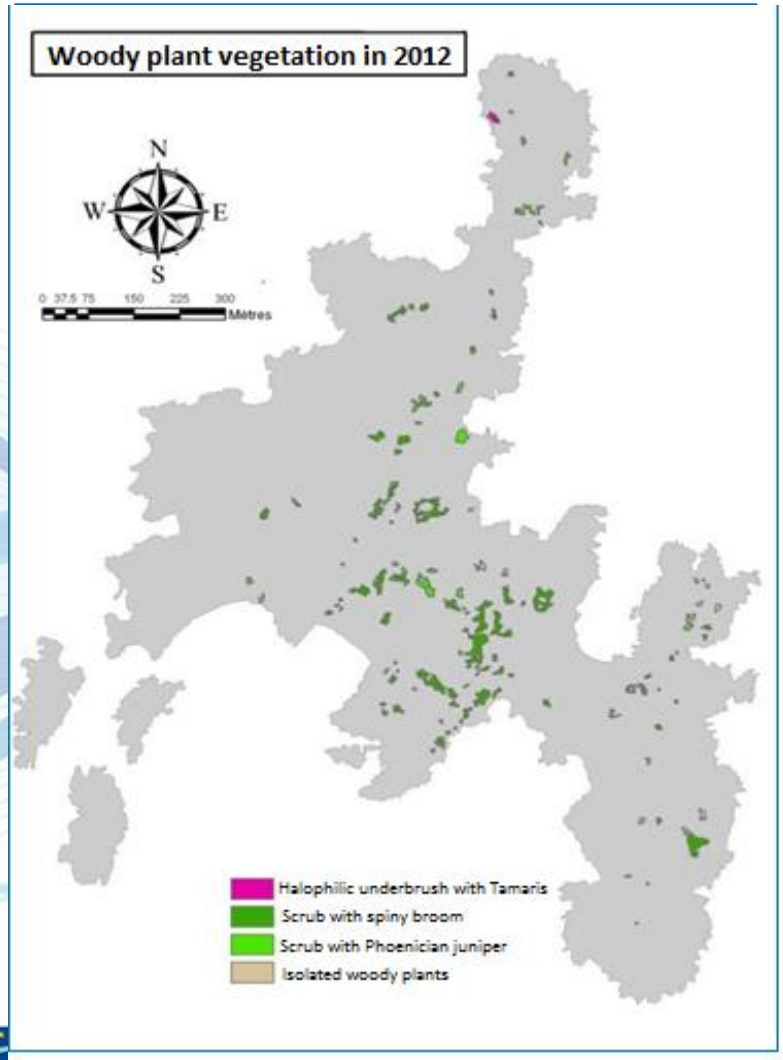
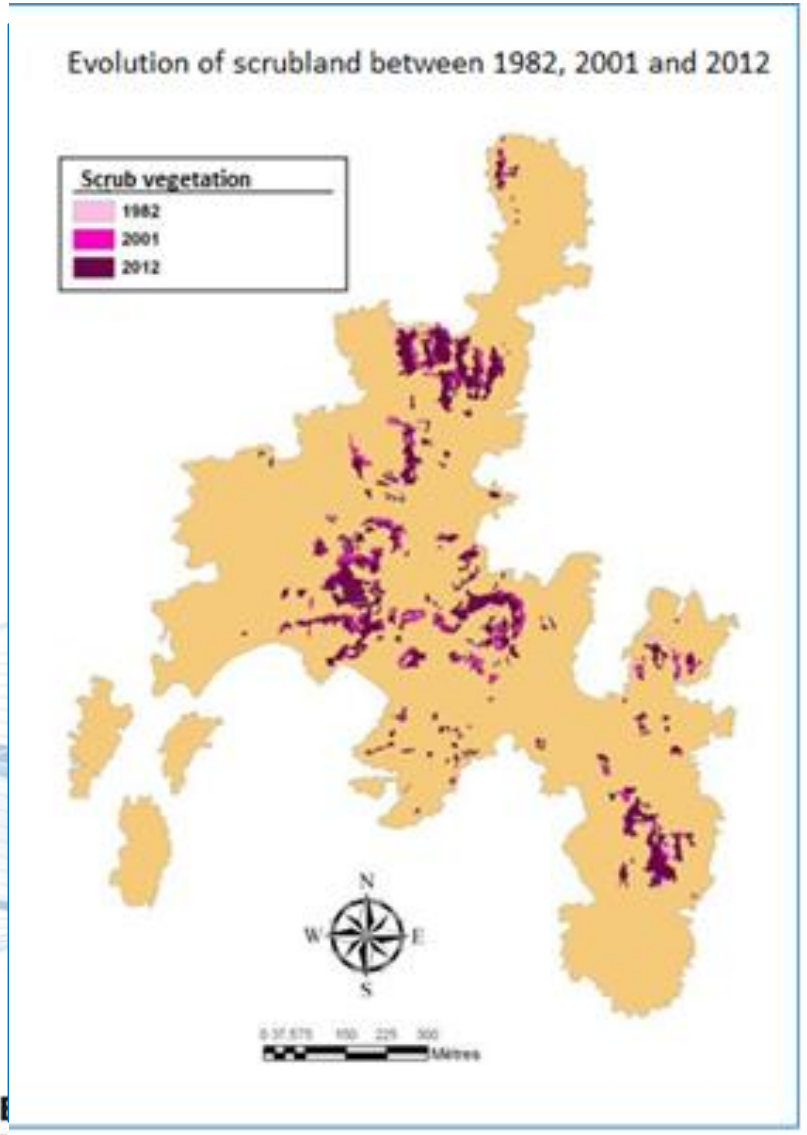
Vegetation dynamics: Analysis of the end to grazing

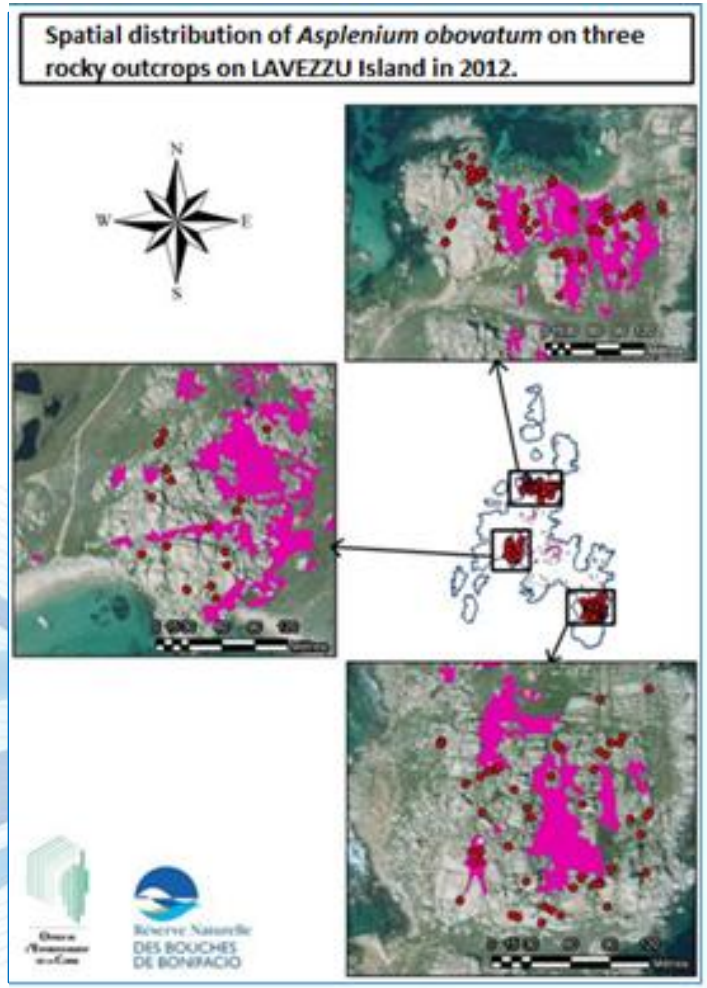
Progression of scrub with *Juniperus turbinata* and *Calicotome villosa*



Strong progression of scrub



Vegetation dynamics: Management measures



End of grazing=closing of environments:

-Development of woody plants

- Development of tall grasses

-Loss of biodiversity?

-Risk for the species with high heritage value?

+Positive effect on *Anthyllis barba-jovis*

No intervention
Reintroduction of grazing
Mechanical clearing

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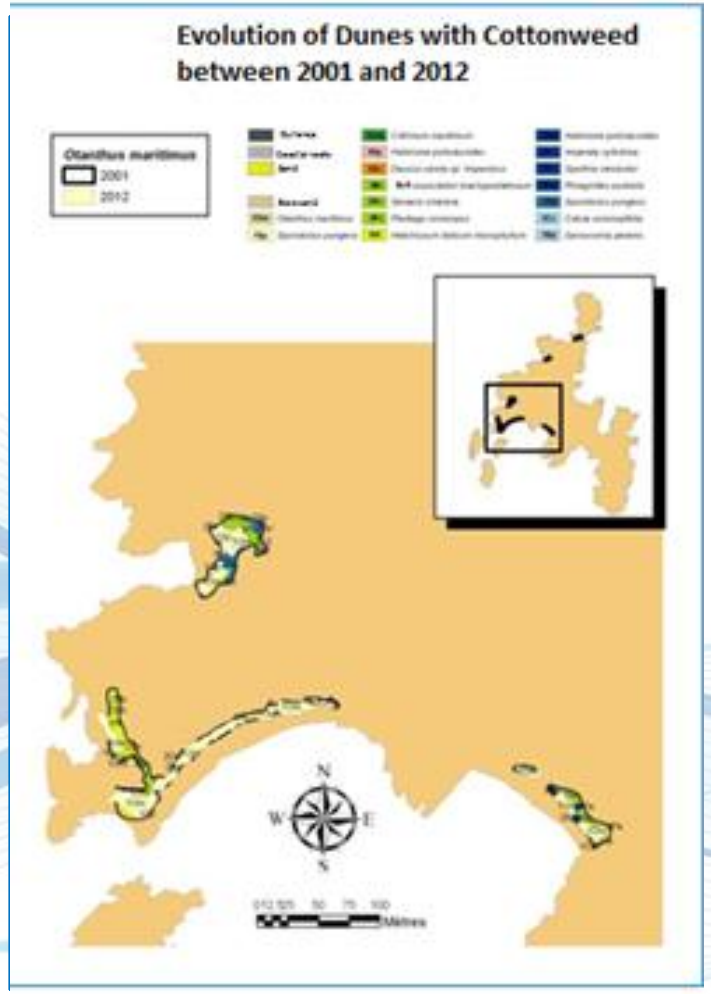
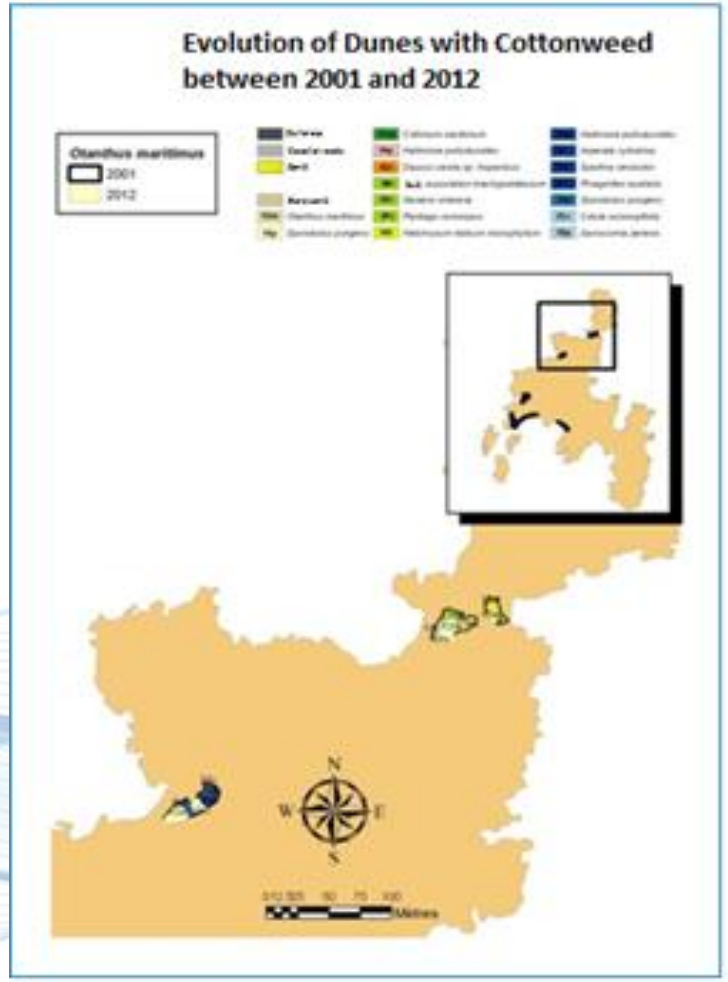
Vegetation dynamics: Analysing the impact of tourism

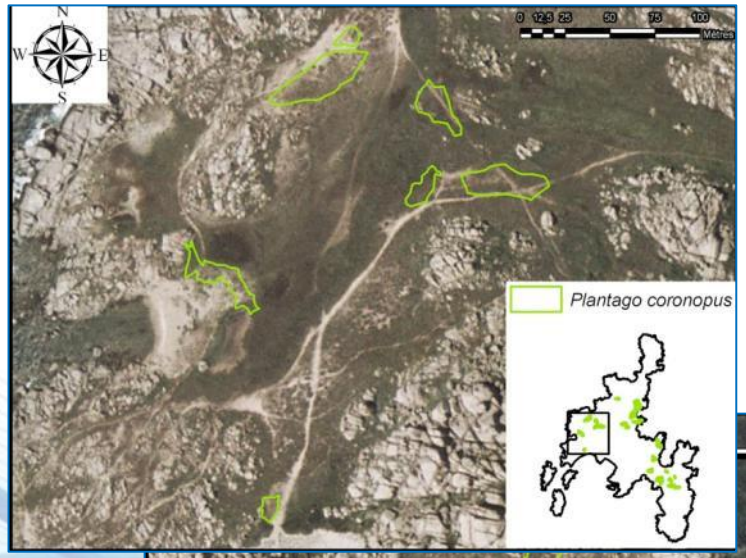
Fragmentation of dunes with *Othantus maritimus*

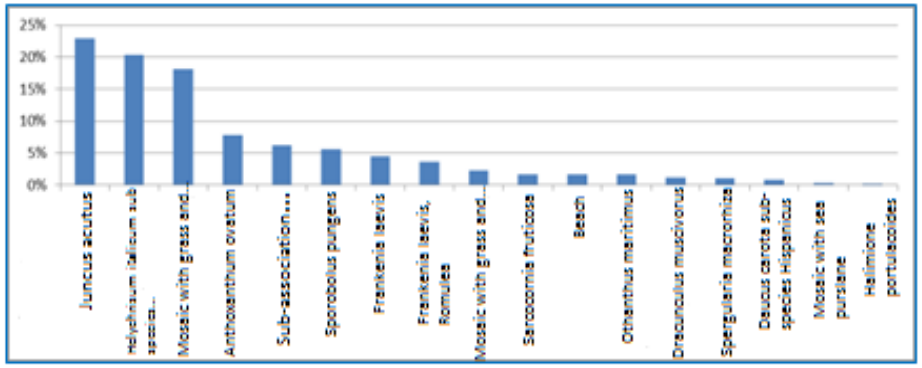


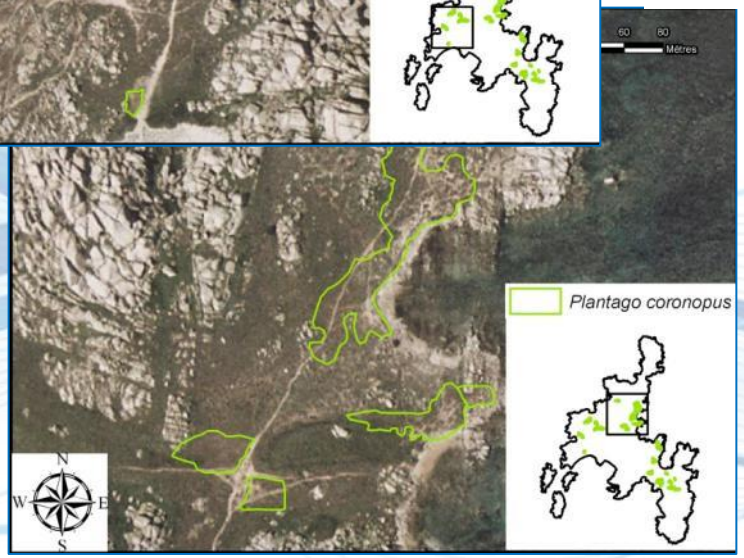


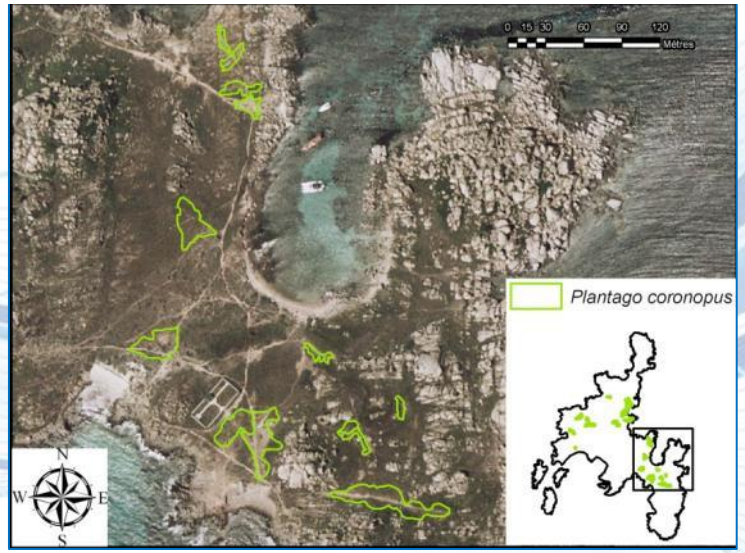
Vegetation dynamics: Analysing the impact of tourism

Apparition of a facies with *Plantago coronopus*









Increase in visitor numbers: impact of trampling

-Degradation of dune environments

-Degradation of areas attracting high numbers of visitors

Restricted access to fragile areas
Channelling of visitor traffic
Path maintenance

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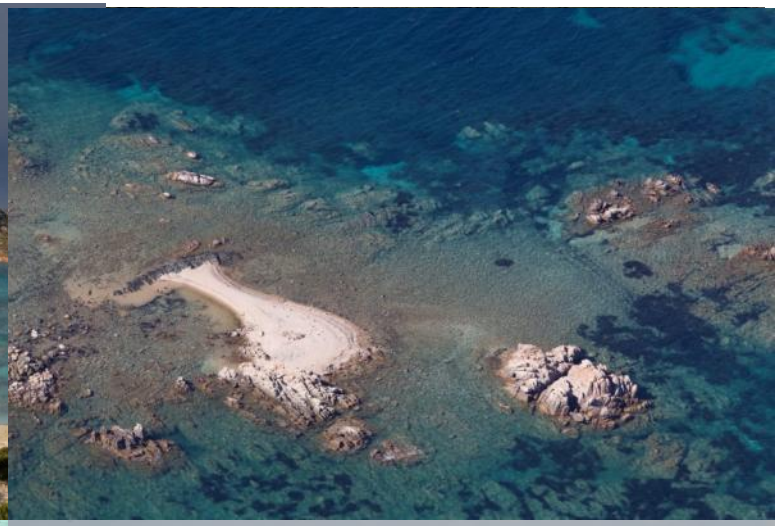




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