



# LIFE PonDerat

Eradicazione dei ratti e biosicurezza sulle Isole  
Ponziane: le strategie del progetto PonDerat

LIFE14 NAT/IT/000544

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Environment Direction  
Coordinating beneficiary



Department of  
Environmental Biology



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Protection and Research

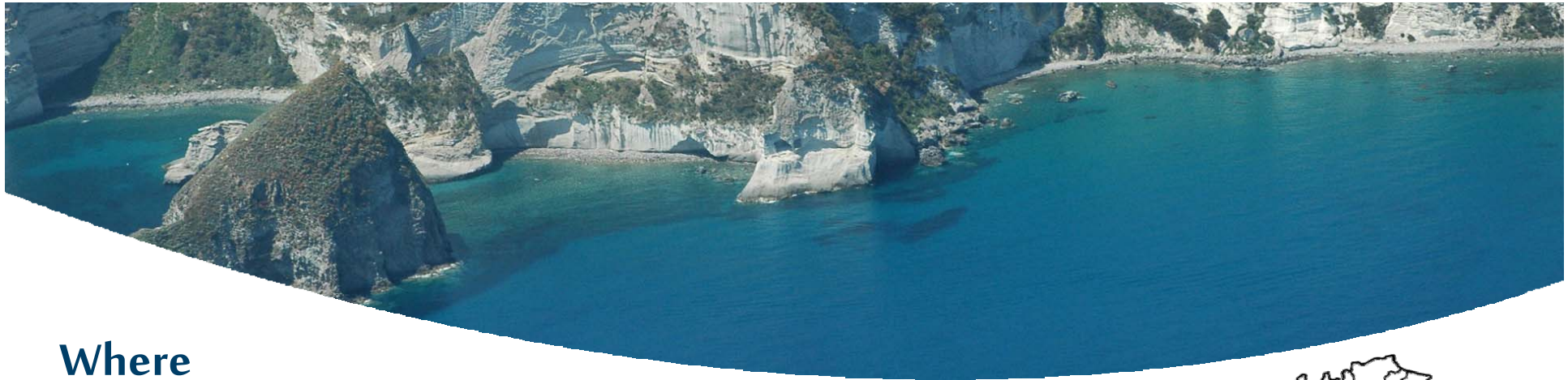


Nature and Environment  
Management Operators Srl



Nature Reserve  
Islands of Ventotene and Santo Stefano





## Where

### Ponziane Archipelago

- **Special area of Conservation (Habitats Directive):** Palmarola e Zannone
- **Special Protection Area (Birds Directive):** All the five islands



## Our aim



To protect **species** and **habitats** threatened by the presence of **invasive alien species**

**(IAS)**

IAS are species accidentally or deliberately introduced by men outside their native range.

They are one of the main causes of biodiversity loss!

Black rats



*Carpobrotus* sp.  
(Hottentot Fig)



Feral goats and mouflons





## The species we want to protect

Shearwaters and Mediterranean storm petrels

Rats eat their eggs and chicks

	Yelkouan shearwater	Scopoli's shearwater
Ponza	10-30	60-100
Palmarola	10-30	100-150
Zannone	1-10	24-30
Ventotene	70-100	90-150
S. Stefano	150-200	80-120

Reproductive success of Scopoli's shearwater

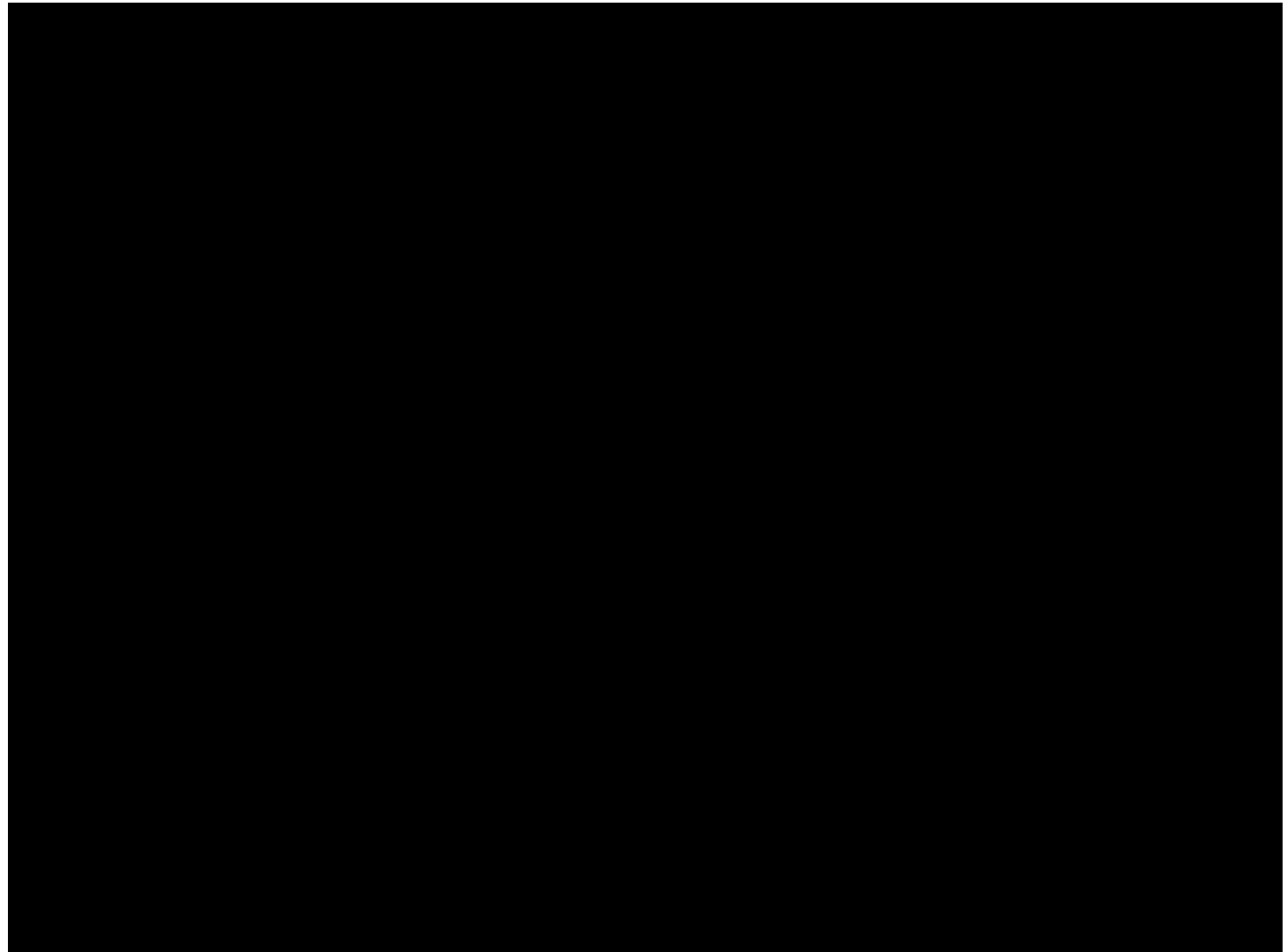
- on **Palmarola**: **11-13%** (2016-2017)

- on **Zannone** (rats eradicated in 2008): **over 90%**!



**Chick of Scopoli's  
shearwater predated by a  
rat**

**Archipelago Toscano National  
Park  
(Tuscany, central Italy)**





## The habitats we want to protect

*Habitats Directive 92/43/EEC*

1240 Vegetated sea cliffs of the Mediterranean coasts with endemic *Limonium* spp.

3170\* Mediterranean temporary ponds

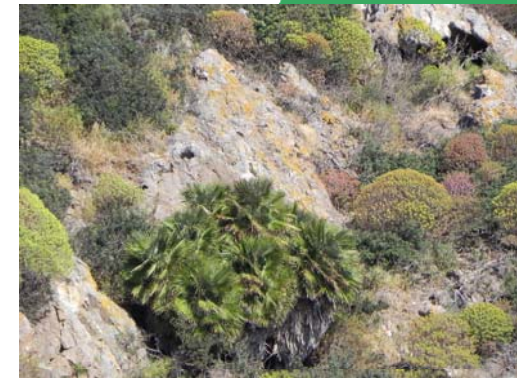
5320 Low formations of *Euphorbia* close to cliffs

5330 Thermo-Mediterranean and pre-desert scrub

6220\* Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea

9340 *Quercus ilex* and *Quercus rotundifolia* forests

**Threatened by feral goats and mouflons,  
rats, invasive alien plants**















## Not just a matter of biodiversity....

### Economic costs of rats



**Ventotene: 700 people**

**Rat-associated costs:** about 10.000 € per year!

3.000 €: cost of rat control sustained by the Municipality

2.000 €: value of damages to cultures and contamination of food

5.000 €: cost of rat control by private citizens

**Environmental impact:** 250 kg/year of rodenticides released into the environment (often without a protection)

**Zoonotic risk:** rat-associated diseases

**Tourist image and reputation** of the islands





## LIFE PonDerat: a complex project

26 actions

3 preparatory actions

5 concrete actions

4 monitoring actions

10 dissemination actions

4 management actions

1 October 2015

31 March 2020



54%





## Concrete actions



1. Eradication and control of **black rats**
2. Realization of **bio-security** systems to prevent rat re-invasion
3. Eradication of **feral goats**
4. Eradication of invasive alien plants (*Carpobrotus*)
5. **Fencing** a portion of holm oak forest on Zannone to exclude mouflons





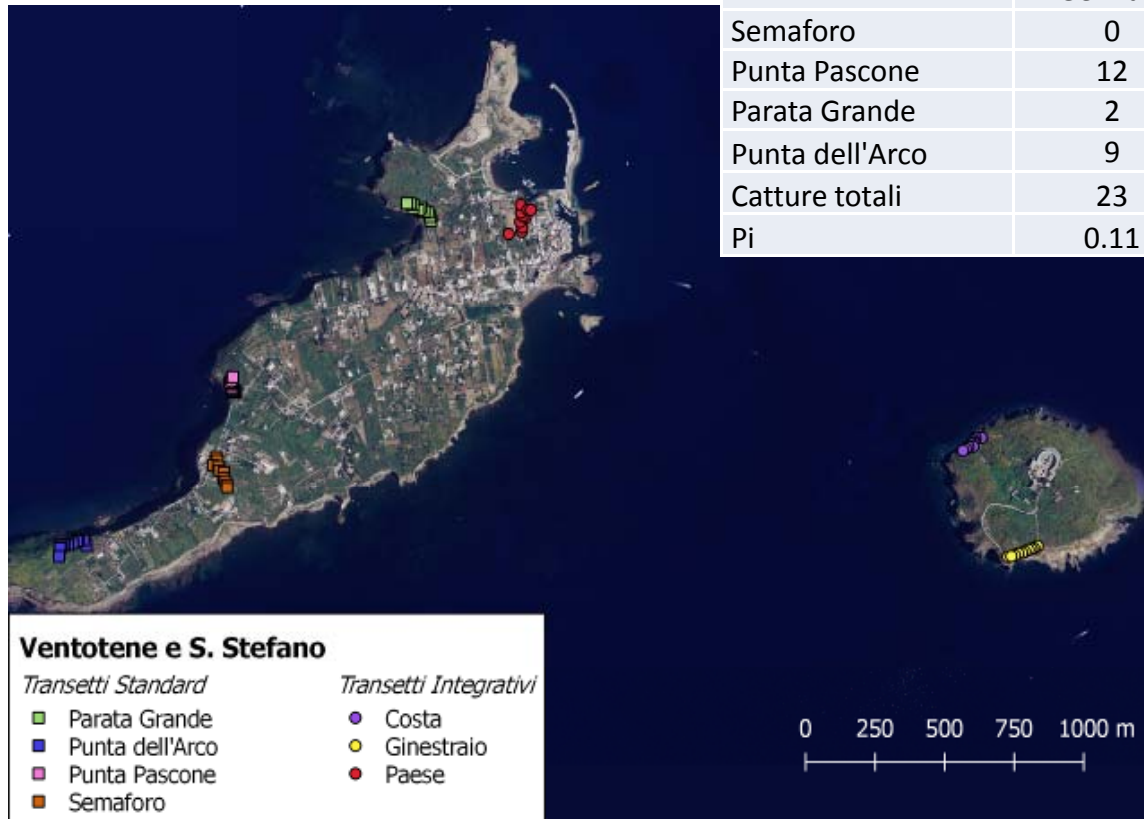
## Action 1

2 years of preliminary activities and planning

Transetti Standard Palmarola	Sessioni				TOTALE
	Aprile	Giugno	Settembre	Dicembre	
Casa Mazzella	8	7	18	5	38
Piana Viaggio	17	16	12	2	47
Forcina	2	9	5	1	17
Catture totali	27	32	35	8	102
Pi	0.19	0.23	0.25	0.06	0.18



## 2 years of preliminary activities and planning



Transetti Standard Ventotene	Sessioni				TOTALE
	Gennaio	Aprile	Giugno	Ottobre	
Semaforo	0	0	4	-	4
Punta Pascone	12	15	12	2	41
Parata Grande	2	4	13	7	26
Punta dell'Arco	9	16	22	10	57
Catture totali	23	35	51	19	128
Pi	0.11	0.19	0.27	0.13	0.17





1. **Eradication and control of rats** through the broadcast of rodenticide baits

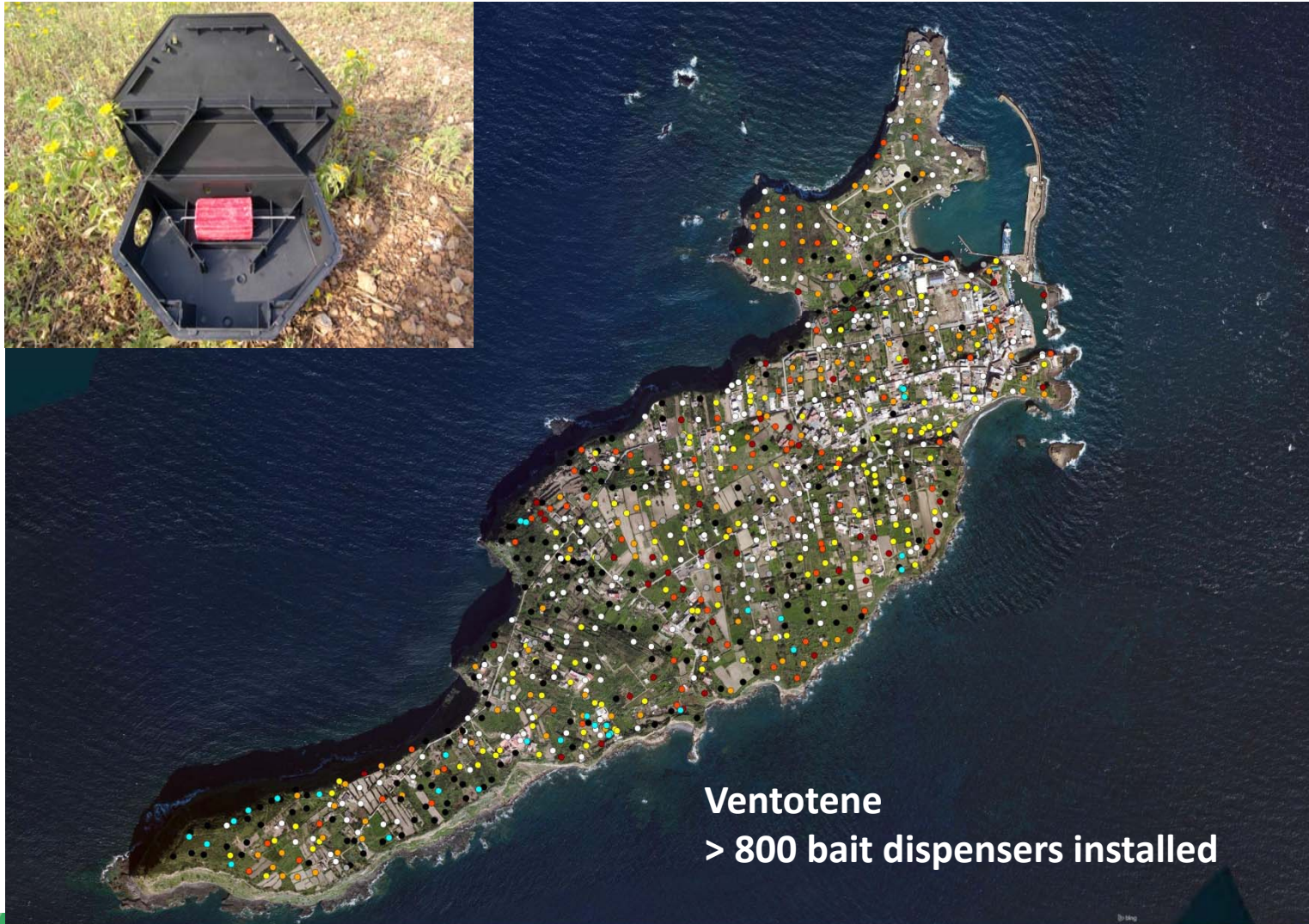
January–April 2018: work in progress

**Ventotene and Palmarola:** Total eradication

**Ponza:** local control

**Zannone and Santo Stefano:** no rats





**Ventotene**  
**> 800 bait dispensers installed**





## Legenda

Distribuzione aerea Ventotene

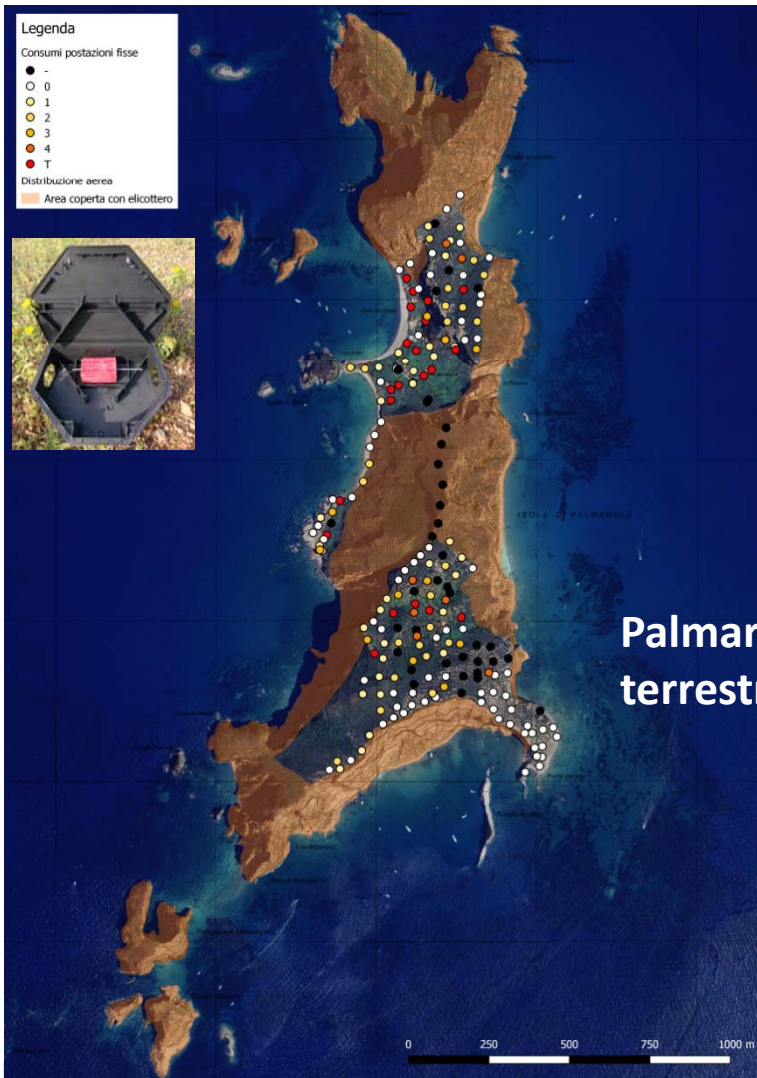
● Punti di rilascio esca



0 250 500 750 1000 m

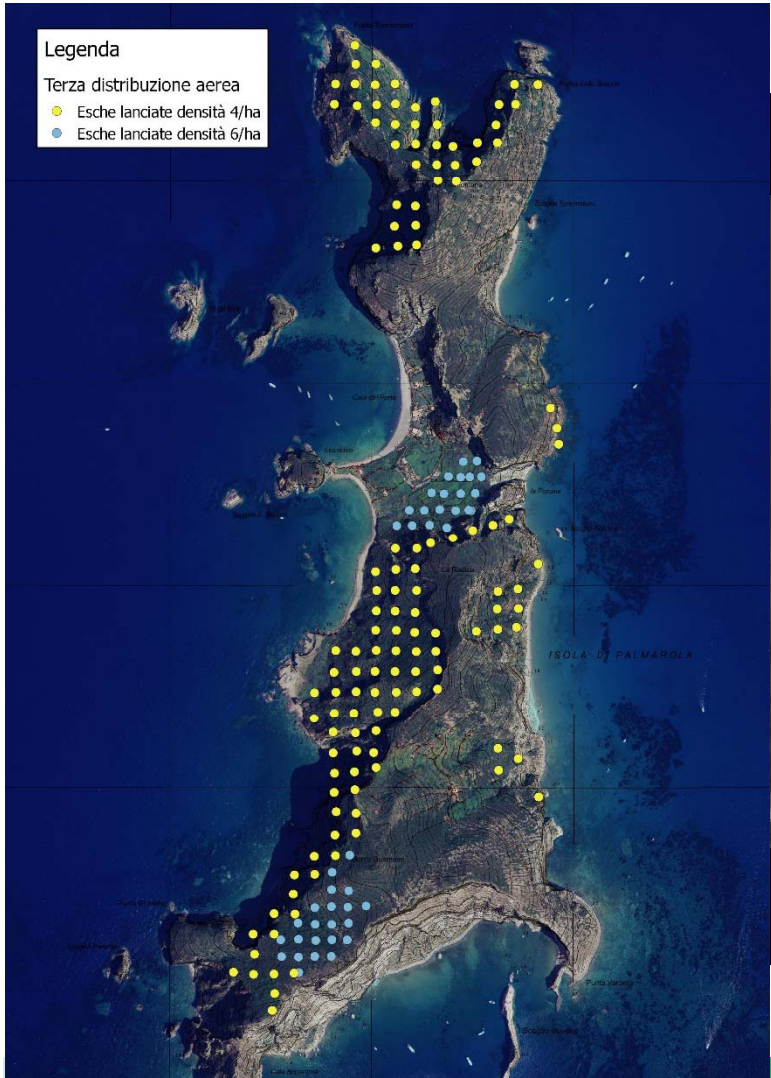






# Palmarola terrestrial and aerial broadcast









## 2. Bio-security

How to prevent rat re-invasion?

- **Permanent** control stations with rodenticide baits will be installed in main ports to **intercept any invader rat**
- **All the 5 islands!**



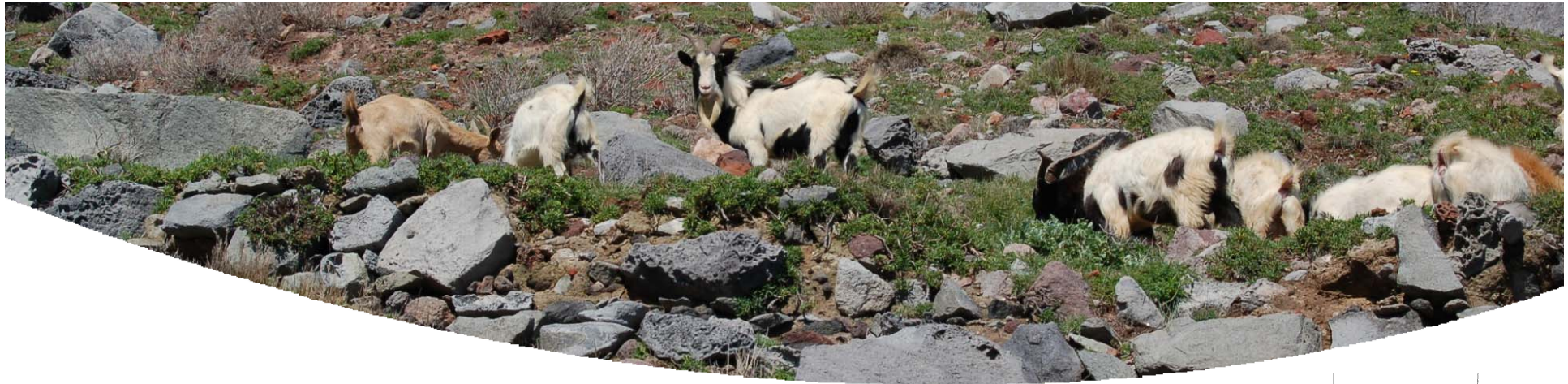












### 3. Eradication of feral goats on Palmarola

About 110 individuals in two groups

Capture with corral traps

Transfer to Ponza and sale to farmers





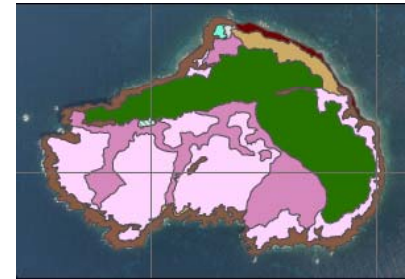
## 4. Fencing the holm oak forest on Zannone

35 hectares of evergreen *Quercus ilex* forest

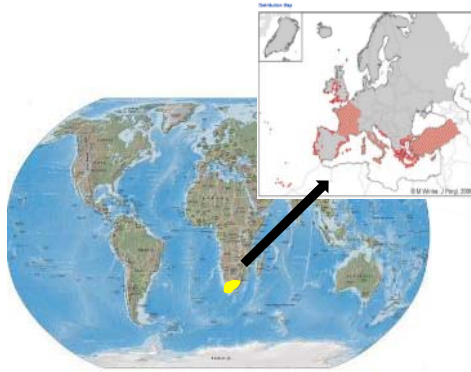
Around 40 mouflons at present

Browsing, trampling, nutrient accumulation

Fence: **3 ha** (10%)



## 5. Removal of *Carpobrotus* sp. (Hottentott fig)



Benefits:  
Recovery of natural vegetation  
Support to rat eradication



Bargaud island, National Park of Port-Cros (southern France). Project financed also by Fonds Européens de Développement Régional



LIFE13/NAT/PT/000458





## Monitoring: Permanent plots to evaluate the effects of removing alien species on biodiversity

❖ Plots where *Carpobrotus* was removed (size 2m\*2m)

RELEVANCIA: <input type="checkbox"/> 100%	Nº RELEV. 275	DATA: 12/06/2018
LOCALIDAD: <input type="checkbox"/> 100%	COORDENADAS: 36°53'52.6" N	-4°05'54.6" W
QUILÓMETROS: 26.0	ESPECIES: 156	INDIVIDUOS: 1200
SECTOR: 1	FILAS: 1	SUB-REPLICAS: 2
UBO VEGETACIÓN:	Letras: %	
COBERTURA TOTAL: % 95		
Solo: <input type="checkbox"/> 0%	Chuvia: <input type="checkbox"/> 0%	
Stra: <input type="checkbox"/> 0%	capata: <input type="checkbox"/> 0%	abaco: <input type="checkbox"/> 0%
Stra: <input type="checkbox"/> 0%	capata: <input type="checkbox"/> 0%	abaco: <input type="checkbox"/> 0%
SUPERFICIE RELEVADA: 200.0		
SURF:		
Dirección de viento: <input type="checkbox"/> 0%		
ESPESES DEL TAPETO DE CARPOBROTUS: 0.0		
COBERTURA DEL TAPETO DE CARPOBROTUS: 0.0		
NÚMERO DE ESPESORES DE CARPOBROTUS (POR M <sup>2</sup> ): 0.0		
COMPOSICIÓN FLORÍSTICA DE LA VEGETACIÓN INVASA		
Clase: 1% 2% 10% 20% 50% 75% 100%		
1. <i>Carpobrotus</i>	17	
2. <i>Stachys</i>	14	
3. <i>Stachys</i>	13	
4. <i>Stachys</i>	10	
5. <i>Stachys</i>	10	
6. <i>Stachys</i>	10	
7. <i>Stachys</i>	10	
8. <i>Stachys</i>	10	
9. <i>Stachys</i>	10	
10. <i>Stachys</i>	10	
11. <i>Stachys</i>	10	
12. <i>Stachys</i>	10	
13. <i>Stachys</i>	10	
14. <i>Stachys</i>	10	
15. <i>Stachys</i>	10	
16. <i>Stachys</i>	10	
17. <i>Stachys</i>	10	



❖ Plots in maquis, grasslands and holm oak forests ante- and after removal of feral goats, mouflons, and rats (size 5m\*5m)





## Monitoring: birds, reptiles, invertebrates





**Thank you for your attention**

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