



*Ministero dell'Ambiente
della Tutela del Territorio e del
Mare*

Rat eradication on Molara Island (MPA of Tavolara): experience feedback

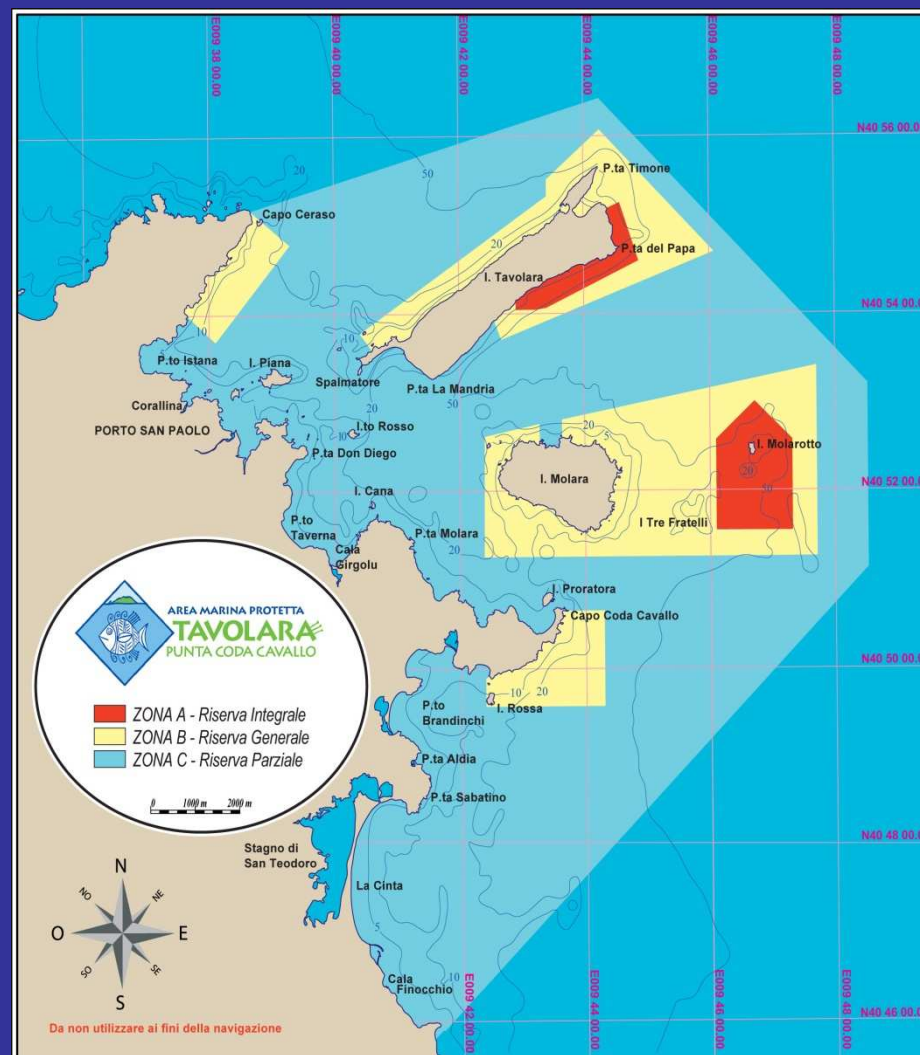
Mediterranean small islands meeting

Six Fours October 2009

Augusto Navone e Giovanna Spano



The Marine Protected Area
Tavolara - Punta Coda
Cavallo was established in
1997 and protects 15.000 ha
of sea and 40 km of coast.



In 2005/2006 we began a monitoring program for the three following marine bird species:

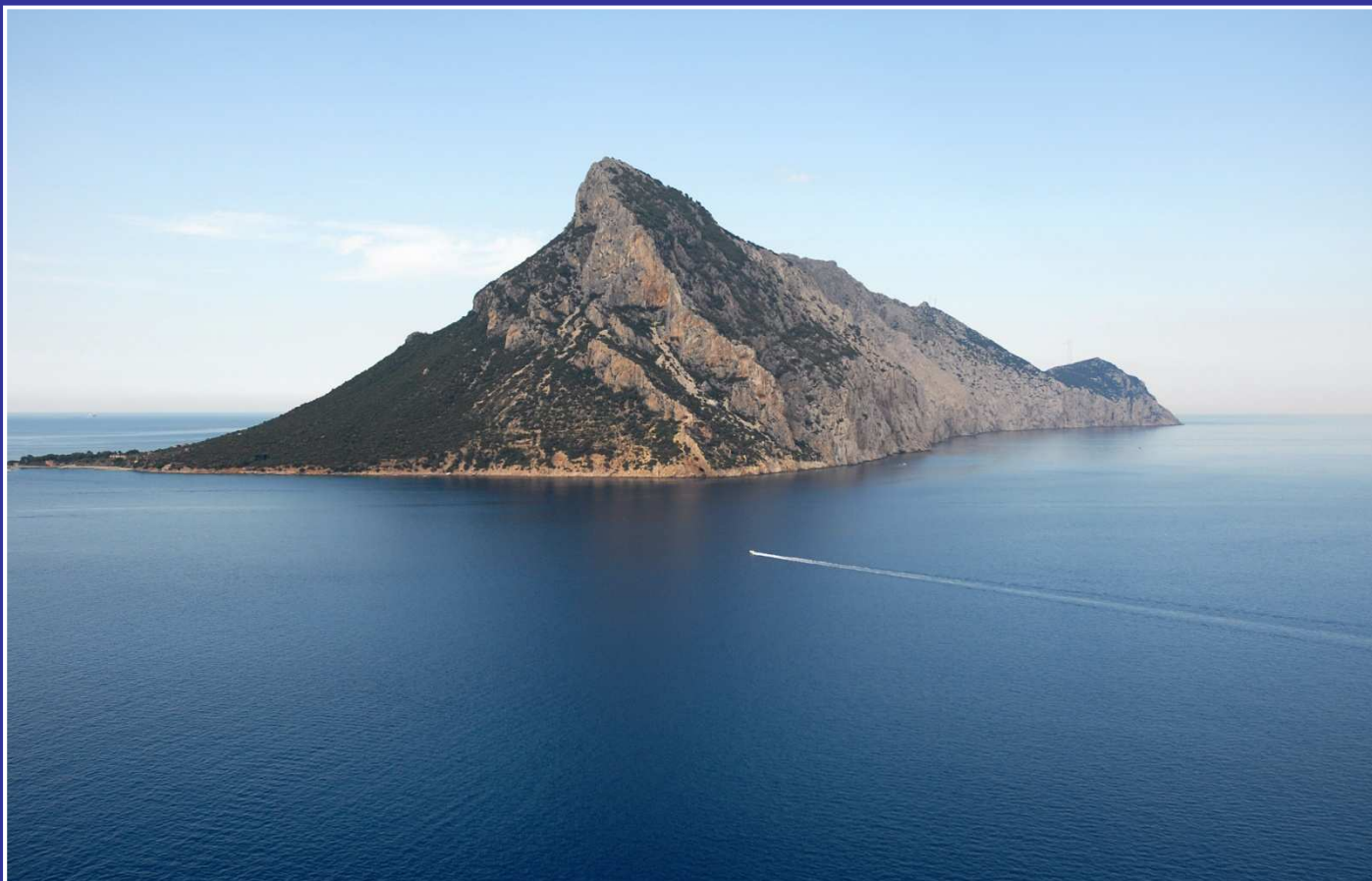
European shag (*Phalacrocorax aristotelis desmarestii*)

Audouin's gull (*Larus audouinii*)

Yelkouan shearwater (*Puffinus yelkouan*)



ISPRA (formerly INFS) promoted our monitoring project and insured scientific supervision, helping us in organizing the field activities.





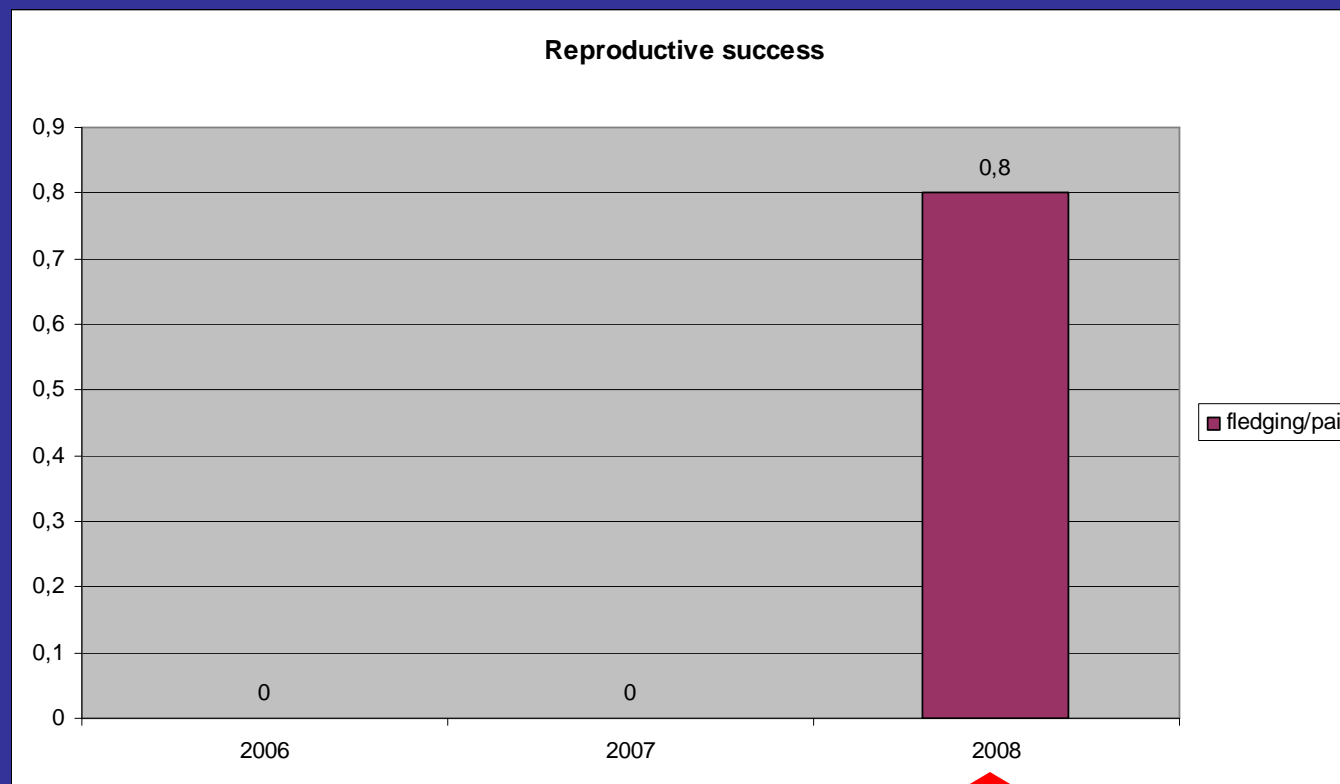
We immediately discovered that the black rat *Rattus rattus* preyed heavily on eggs and chicks of the Yelkouan shearwater.



This widespread terrestrial mammal has been introduced by man thousands years ago on the Mediterranean islands.

In the years 2006 and 2007, on the islands of Tavolara and Molara, the reproductive success of this bird was equal to zero.

On the right the number of fledging/pair in the years before rat control (2006/2007) and during rat control



To solve this problem we began to look for financial resources to control/eradicate rats and decided to start with Molara because it seemed to be more easy to treat.



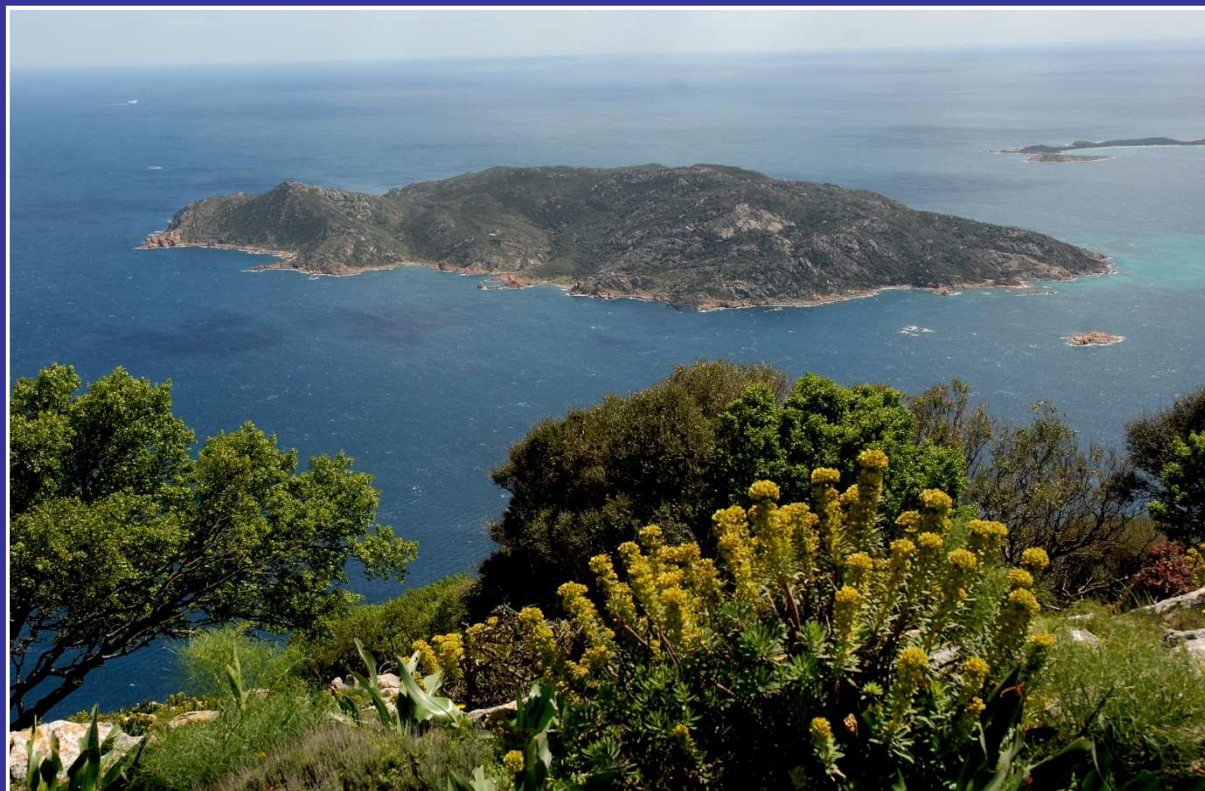
Tavolara has a surface of 600 ha and is 565 m high

Topography is steep and rugged

Human presence all year round

A military zone is present too.

So on 2008 we decided to run an eradication program on Molara (340 ha).



No other mammals were present on the island except free ranging cattle and goats.

The island hosts 300-600 pairs of Yelkouan Shearwaters on nests among fallen boulders of granite.



Mediterranean vegetation covers almost the whole island and few suitable paths are available



We began the work checking the amount of rats in the different habitats, using bait stations provided with corn, on five different transects.

We did pre-baiting for three nights before opening the traps.



We trapped for five nights, killing on March 0,75 rat x night / trap

The same trapping program was repeated at the end of August and we captured 0,35 rat x night / trap. As we thought the best time to run the eradication program was at the end of the dry season.



At the end of August we tested different kind of pellets and baits as we had decided to treat the island with aerial bait distribution, except for the coastal belt and the enclosures of the livestock. In the same time we had to prepare the fences and capture cows and goats, in the few places with permanent water sources.

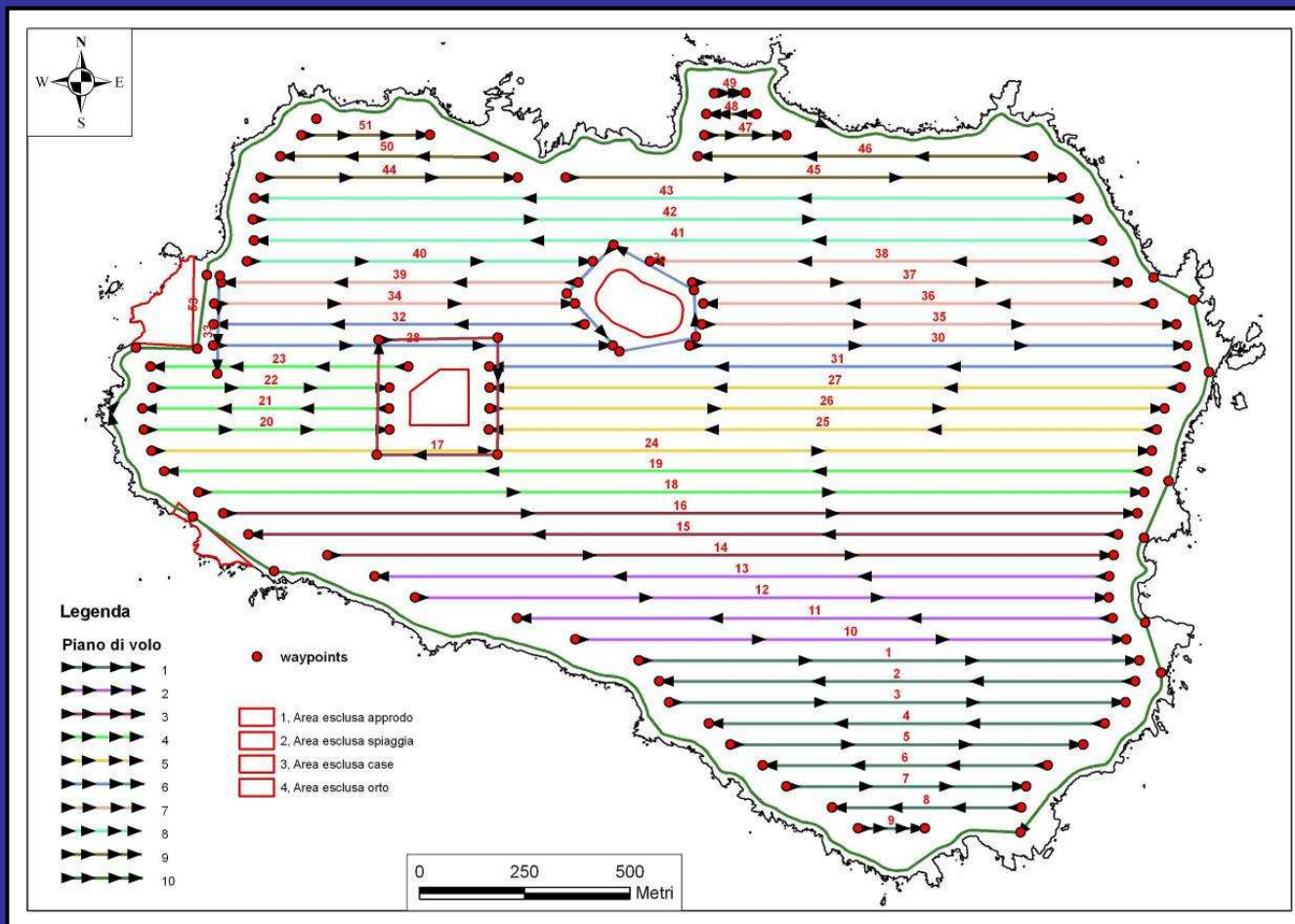


At the end of September we had 50 goats and 25 between cows and bullocks on the fences. Outside the fences there were still 5 cows and more or less 30 goats.

These animals were unattended by man since at least ten years, and to take care of them had been a supplementary cost for us.

In October Rodenticide pellets of Brodifacoum were spread from helicopters, along flight lines followed by GPS navigation system, on two sessions (10kg bait/ha for each distribution), with an interval of 20 days.





GPS tracks: in green coastal belt, in red livestock enclosures and sand beaches. On the coast pellets were delivered by hand, and on the buffer zones near the houses and the livestock fences we baited with waxed blocks inside bait stations.



Pellets were spread using a bucket suspended under the helicopter. The bucket was ordered from New Zealand

The bucket had a deflector, that spread pellets on one side only, preventing bait spread in the sea



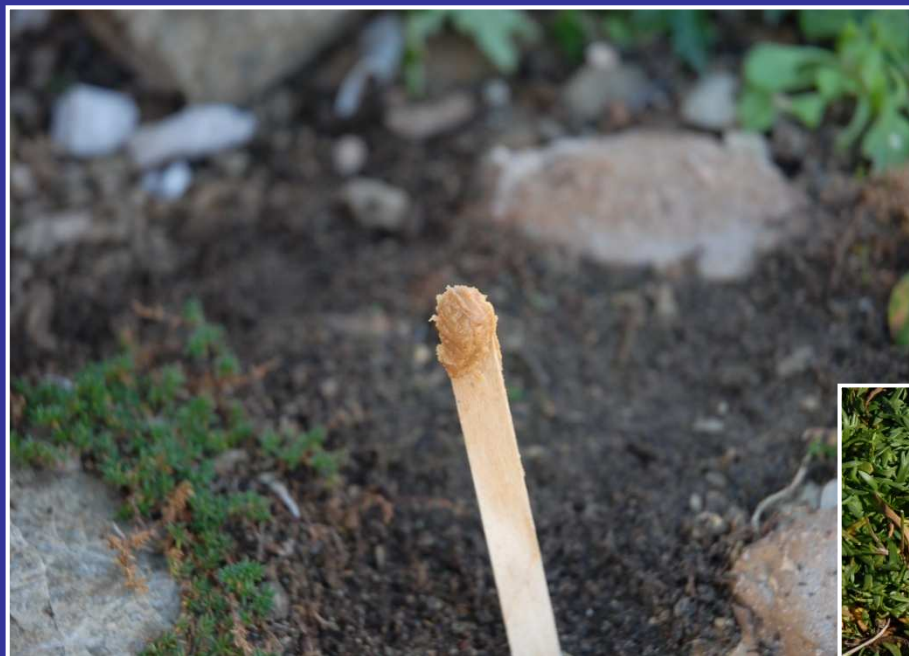


As obvious we had some technical problems



The aerial technique, probably new for the Mediterranean context, appears to be suitable for lowering monetary costs of restoration projects and actually made the Molara operation possible, as a ground-based bait delivery would have faced huge technical and economical constraints.

Island	Area (ha)	Nesting population (Cory's Shearwater)		Total cost	Cost/ha	Cost/pair (referred to current pop.)
		current	potential			
Zannone	103	27	100	(€ 41,000)	(€ 400 / ha)	(€ 1500)
Giannutri	240	100	thousands	€ 95,000	€ 400 / ha	€ 950
		Yelkouan shearwater				
Molara	340	425	1000	€ 95,000	€ 270 / ha	€ 310



Monitoring of the Molaria experiment is still in progress and the outcomes will be evaluated over the next years.



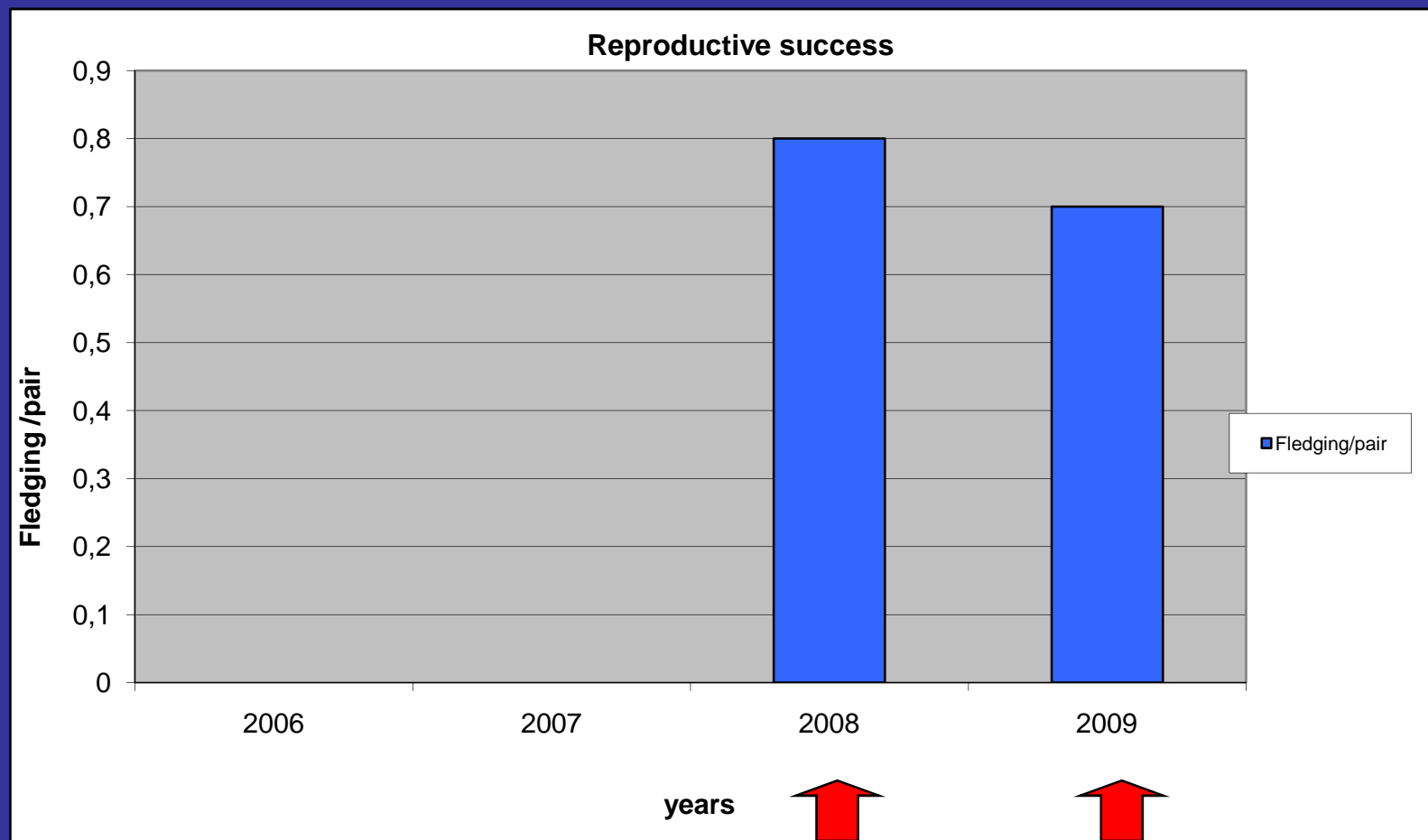
Now we have 23 monitoring stations, with gnawing sticks with peanut butter, wax blocks and brodifacoum baits.



During summer, when people arrives on the islands by boats and the risk of recolonization is maximum we added some rat-hotel



Till now, we didn't find any sign of rat presence.



Regarding the Yelkouan Shearwater, our conservation action has been the first significant one undertaken so far, its value being enhanced by Molara's position within the species core area.



Now we are beginning to work on the islets of the MPA, trying through this way to protect the results we seemingly obtained for Molara.

We want to obtain a belt of free-rat islands between the mainland and Molara to prevent new rat introductions. We also want to better understand rodent's movements inside the archipelago and eventually understand genetic dynamics.

At the same time we are working on Tavolara, to evaluate the feasibility of an eradication/control program.





***Grazie per la vostra
attenzione***