



LIFEEMYS - *LIFE 12 NAT/IT/000395*

**Ligurian Invasive Fauna Eradication
pro-indigenous *Emys orbicularis* restocking**

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Project data

Coordinator:

Costa Edutainment S.p.A.

Country: Italy

Start date: 1.07.2013

End date: 30.06.2016

Partners:

Ente Parco di Montemarcello Magra –Vara

Società Zoologica di Pistoia S.r.l.

Università degli Studi di Genova

Agenzia Regionale per la Protezione dell'Ambiente Ligure

Budget:

Original (49.53%): € 1,323.496

Total reported costs: € 1,216,427.38

Accepted eligible costs: € 1,053,472.20

EC contribution (49.53%): € 521,784.77





Project sites

The intervention sites are located in two wetlands of eastern and western Liguria:

- **Centa Plain (Savona)**
 - conducted campaigns to capture and translocate the non-native pond terrapins
 - implemented habitat restoration interventions and
 - restocked the remaining nuclei with young pond terrapins reproduced ex situ.
- waters of the **Magra and Vara rivers (La Spezia)**.
 - Conducted capture campaign to limit as much as possible the abundance of non-native pond terrapins.





Concrete conservation actions

The alien pond terrapins were

- **captured** through pots and traps fyke nets, and kept within two temporary enclosures.
- each individual was **marked with an identification microchip**
- **Veterinary** protocol DRA.



Transfer to an artificial pond inside Pistoia Zoological Gardens.

		
LIFE 12NAT/IT/0000395		
LIFEEMYS		
Ligurian Invasive Fauna Eradication pro indigenous <i>Emys orbicularis</i> restocking		
Report finale		
Attività Medico veterinarie 2013-2016		
Data di invio	30 Settembre 2016	
Versione	Unica	





Concrete conservation actions

At the sites of the Centa Plain (restocking area)

- We implemented **habitat restoration interventions**, to favor the survival and reproduction of both free-ranging and released specimens.

The interventions were aimed at **cutting off weeds and cleaning the riparian areas** for nesting and thermoregulation (basking).





Ex-situ conservation actions

Thanks to LIFEEMYS it has been possible to:

- **expand and improve the animal facility** located at Leca d'Albenga, to make a modular centre for the reproduction of the European pond turtle: **Centro Emys**.

In the open tanks of Centro Emys, in semi-natural conditions, are housed the breeders of *Emys orbicularis ingauna*.





Ex-situ conservation actions

New-born Emys are transferred to the Permanent enclosures of Acquario di Genova

- to grow in a controlled environment
- to overcome the delicate early stages of life.

They are then transferred back to Centro Emys at the age of about 2 years, to be acclimated to the natural conditions before release.





Concrete conservation actions

At the age of about 3 years, all the *Emys orbicularis ingauna* are prepared for release and individuals “**fit for release**” are provided with an identification microchip.

Radio transmitter to track the movements in the period following release are placed on some individuals. The radio, fixed to the carapace with glue, will come off after about six months.



Release of young pond terrapins has been a great opportunity to promote the Dissemination and awareness activities.





Communication actions

The data collected during the project, related to the presence and distribution of **all pond terrapins** in the areas of intervention, were included in the database Li.Bi.Oss, the Ligurian Observatory for Biodiversity, to increase the knowledge on the herpetological native and non-native fauna of Liguria.

Li.Bi.Oss. is a regional database, managed by ARPAL, which contains various information on species and habitats of the Natura 2000 network and the presence of non-native species.





Communication campaign

The **communication campaign** to raise public awareness on the issue of invasive alien species, with special attention to non-native pond terrapins:

- Identification and contact of project's stakeholders
- educational and awareness campaign with three main activities:
 - publication of a leaflet intended to stakeholders (veterinarians, shopkeepers, teachers).
 - publication of a booklet for schools.
 - educational exhibits at Pistoia Zoological Gardens, Acquario di Genova and Parco di Montemarcello Magra - Vara.

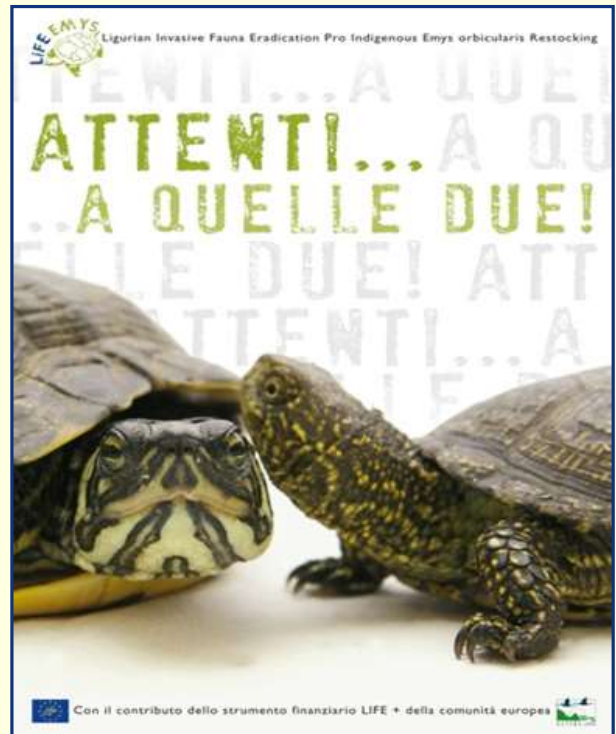




Communication campaign

The booklet:

- simple and direct style
- numerous color illustrations
- printed and distributed in **4.500 copies**.



It describes the **difficult relationship between Trachemys**, as representative of invasive alien pond terrapin, **and our Emys**, the European pond terrapin, forced to share its habitat with the larger and intrusive American cousin.

The final goal is to educate young people about responsible management of pets, promoting the concept that "a friend is forever" and should not be released into the wild.



Communication campaign

Leaflet: 9.000 copies intended for project stakeholders:

- Veterinarians and veterinary clinics
- teachers
- Animal shopkeepers.



Trachemys is forever!

Provides practical information for proper husbandry of the pet terrapins held at home essential for an informed purchase and to guarantee a good husbandry





Education

The **awareness-raising activities** implemented through educational paths set up at **Pistoia Zoological Gardens, Acquario di Genova and Parco di Montemarcello Magra - Vara.**

These include small artificial ponds that can accommodate some European pond terrapins as well as the non native north American terrapins captured during the project.

These **exhibits have become a fundamental tool** for telling the themes of the project and support the awareness activities, through themed meetings and guided tours.





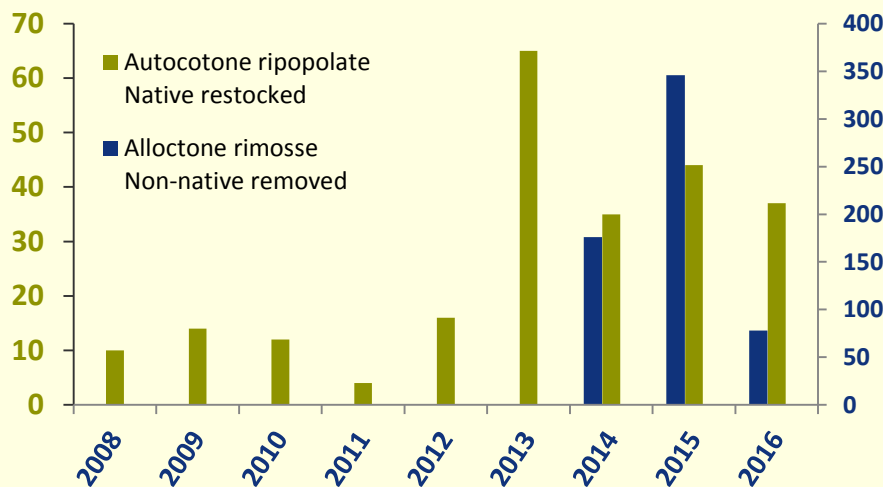
Veterinary protocols & DRA

	<i>Emys orbicularis inguana</i>	Invasive species
Total	181	600
Physical exam	181	585
Weight and measures	181	600
Bloodwork	89	204
Cites paperwork	0	503
Microchip	181	519
Herpesvirus	114	0
<i>Mycobacterium</i> spp	114	0
<i>Salmonella</i> spp.	65 tested all negative	12 suspects not confirmed
Fecal exam	122 (6 positive to coccidia)	275 tests (25 g-i nematodes)
Parasitic treatments	6 (coccidia)	25 (nematodes)
Antibiotic treatment	0	12 + 6 pulmonary flogosys 43 post-castration 12 salmonellosis suspicion
Topical treatments	16 Septicemic cutaneous ulcerative disease SCUD	30 cutaneous lesions and injuries
Surgical treatments	2 animals with abscesses (bite and microchip) 2 hook removal	5 abscesses: 2 single, 3 multiple 43 males castrations
Egg retention	0	7



Results

- Habitat restoration interventions on about **5,100 m²**
- **600 non-native pond terrapins were captured and translocated** from the intervention sites.
- **181 specimens of *Emys orbicularis ingauna* were released** in the restored sites (added to the 57 of the previous years, for a total of 237 individuals).



All data relating to the presence of native and non-native pond terrapins were uploaded in Li. Bi. Oss regional database, enriching our knowledge about the presence of these species in Liguria.



Results

Captures: 600 non-native pond terrapins

- **Expected 400 La Spezia: captured 482**
- **Expected 200 Savona: captured 118**

divided
in 4 species:

Taxon	Numero	%
<i>Graptemys pseudogeographica</i>	2	0.3
<i>Pseudemys concinna</i>	2	0.3
<i>Mauremys sinensis</i>	1	0.2
<i>Trachemys scripta elegans</i>	517	86.2
<i>Trachemys scripta scripta</i>	56	9.3
<i>Trachemys scripta troostii</i>	9	1.5
<i>Trachemys scripta</i>	13	2.2
TOTALE	600	100

Translocated to **Pistoia Zoological Garden : 585 alive**

503 *T. scripta elegans*

55 *T. s. scripta*

13 *T. scripta* (hybrids !?)

9 *T. s. troostii*

2 *G. pseudogeographica*

2 *Pseudemys concinna*

1 *Mauremys sinensis*





RESULTS

Including
NESTS and LIVE BABIES !!!



Largest Trachemys: **2,8 kg**
Smallest : **7 gr**

Cadi A. and Joly P. 2003. Competition for basking places between the endangered European pond turtle (*Emys orbicularis galloitalica*) and the introduced red-eared turtle (*Trachemys scripta elegans*). Canadian Journal of Zoology 81: 1392–1398.

2004. Impact of the introduction of the red-eared slider (*Trachemys scripta elegans*) on survival rates of the European pond turtle (*Emys orbicularis*) Biodiversity and Conservation 13: 2511–2518.

Problems

Opponents among:

- *Fisherman*
- *Citizen*
- *Park visitors*
- *animal activists*

Numerous Thefts





Considerations

Costs for capture and veterinary work	Maintenance for 3 years
55 euro/individual average	120 euro/individual average

Considering costs and resources needed, our experience demonstrates that, prior to START the “eradication phase”, a complete **feasibility study** should include:

- Estimation of abundance of alien animals
- Thorough physiography and sites accessibility analysis
- Identification of threats

in order to reach a complete removal (eradication) ...thus avoid further releases.

Where the above conditions are not met:

- **avoid captures from locations where eradication is not possible**
- **prevent further releases with strong education plans and communication strategies**



CONCLUSION

LIFEEMYS was a successful project:

- Different **techniques and expertise** were applied to remove alien terrapins **achieving the expected results.**
- These interventions favoured ***E. orbicularis ingauna*** **successful reintroduction**



Atollo



Bertavello senza esca



Nassa a doppio inganno con esca

I risultati dei progetti per la riproduzione

La rinascita delle Emys Orbicularis nelle zone palustri della Piana d'Albenga

La natura ha fatto il suo corso e premiato la pazienza degli studiosi. Ad Albenga è stata compiuta la prima osservazione di successo riproduttivo in natura delle testuggini palustri reintrodotte della specie «Emys orbicularis». Un risultato importante perché fa sperare nel possibile ripopolamento di questa specie nelle zone palustri della Piana albanese.

La testuggine palustre è originaria del territorio albanese, ma ritenuta virtualmente estinta fino agli anni



La Emys Orbicularis

ni '90 a causa delle fortissime alterazioni subite dal suo habitat naturale a partire dagli anni '60. Il progetto Emys, per la conservazione della testuggi-

ne, è stato ufficialmente formalizzato nel 2001 e promosso da molti partner (WWF, EAZA). Di recente ha dato origine al progetto europeo Lifeemys che è cofinanziato all'interno del programma Life+ e terminato a fine 2016. Ha coinvolto i biologi e gli studiosi dell'Acquario di Genova, ente capofila, quindi l'Arpal, l'Università di Genova (Distav), l'Ente Parco di Montemarcello-Magra e Giardino Zoologico di Pistoia, con il supporto della Provincia di Savona e della Regione Liguria. (16.8.)

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After life reports

1st **Emys babies** from a release site

Further monitoring + educational & awareness campaign are "a must"... for long term project sustainability



www.lifeemys.eu



THANK YOU !!!!

For information
cgili@costaedutainment.it