



Life TRACHEMYS LAYMAN'S REPORT

Project LIFE+Trachemys (LIFE09 NAT/ES/000529)



INTRODUCTION



Neonates of *Trachemys scripta* captured in the wild

Invasive species are one of the biggest problems for the conservation of biodiversity. In Mediterranean aquatic ecosystems, especially in coastal wetlands, American pond turtle (*Trachemys scripta elegans*) is probably a paradigmatic case of invasive species that causes the greatest impact. These turtles, massively sold as pets, have been frequently abandoned in nature and cause serious damage to native endangered species of tortoises (*Emys orbicularis* and *Mauremys leprosa*), by competition for food and by basking places and even for transmission of diseases.

The project involves the participation of 5 members (two in Spain and three in Portugal):

GENERALITAT VALENCIANA (coordinating beneficiary). Regional government of the Valencian Community.

VAERSA. Public enterprise serving the Generalitat Valenciana.

CIBIO-ICETA. Research Center attached to the University of Porto.

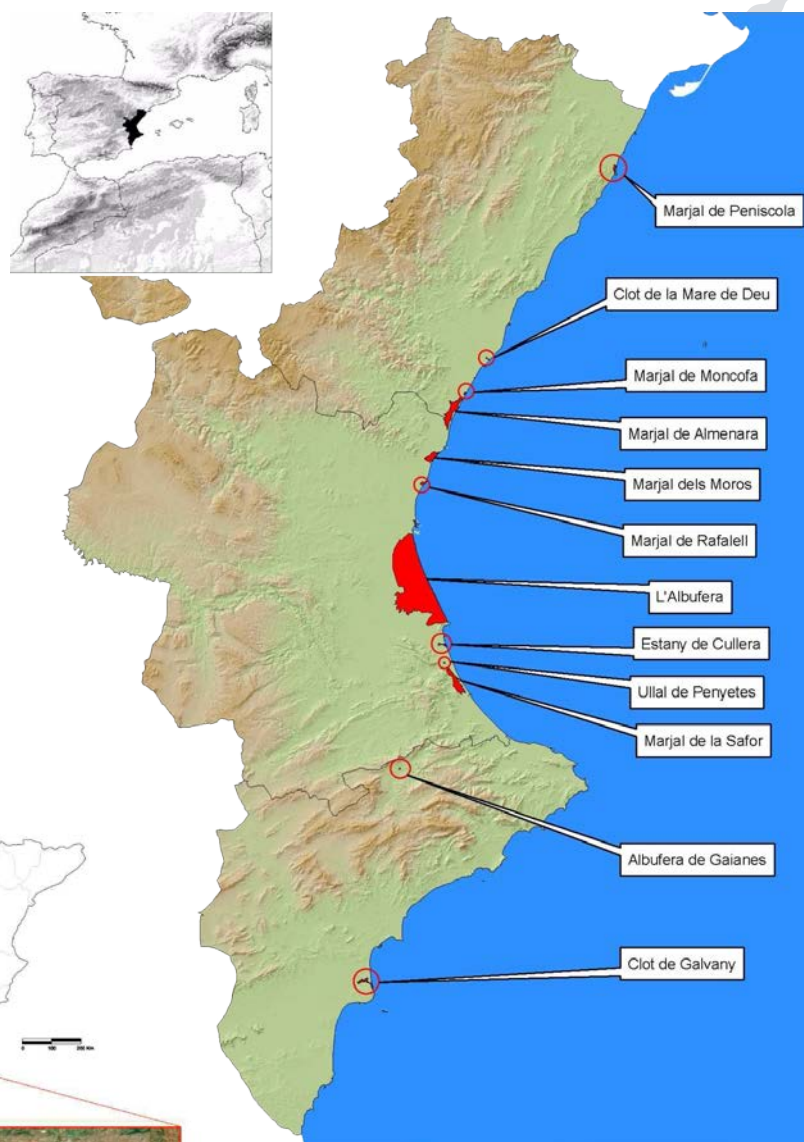
BIOLOGICAL PARK OF GAIA. Public entity managing several nature reserves and a recovery centre.

RIAS-ALDEIA. An NGO managing a wildlife Recovery Center.



The project has been developed between January 1st, 2011 and December 31st, 2013 in 33 Spanish wetlands (region of Valencia) and 5 in Portugal (Algarve).

The systematic work done in the region of Valencia (Spain) since 2003 has allowed to realize the process of invasion of exotic turtles in valencian coastal wetlands. The development of the project in Portugal has served us to test and apply learned lessons in an area where the invasive process is not yet very alarming.



A – PBG (C.2, C.7)
B – RIAS (C.2, C.7, E.2)

- 1 – LAGOA DE SÃO LOURENÇO (C.1, C.4, C.8, D.6)
- 2 – LAGOA DO GARRÃO (C.1, C.3, C.8, D.6)
- 3 – LAGOS DAS DUNAS DOURADAS (C.1, C.3, C.8, D.6)
- 4 – CANIÇAL DE VILAMOURA (C.1, C.3, C.8, D.6)



Saint Lourenço lagoon, one of the project sites in Portugal

Targeted species of the project are exotic invasive turtles (mainly *Trachemys scripta*) as well as native species (*Mauremys leprosa* and *Emys orbicularis*); targeted habitats are mainly natural eutrophic lakes (3150), coastal lagoons (1150), calcareous oligo-mesotrophic waters with Saint Lourenço lagoon, one of the project sites in Portugal (3140) and calcareous fens (7210).

Focused problems of the project are diverse, mainly including the expansion process of invasive freshwater turtles, trade and abandonment of pets in nature, the transmission of diseases on native species and the decline of populations of native tortoises.



Mauremys leprosa



Emys orbicularis



Trachemys scripta

PROJECT OBJECTIVES



Gaianes pond, Alicante, Comunitat Valenciana

LIFE+Trachemys project aims to **halt the biodiversity loss** caused by the presence of stable populations of exotic turtles in the wild. Project tools are the creation of a **strategy and methodology** for its eradication, the **conservation of native tortoises populations**, im-

plementation of **regulations on trade and pet ownership** and the **social awareness** about the problems of invasive species and the need of a responsible pet ownership.



Juveniles of *Emys orbicularis* breed in captivity ready for their reintroduction in the wild



Project team showing captured invasive exotic terrapins

Project means to achieve these objectives were:

- Three fieldwork teams of two people (two in the Valencian Community and one in Portugal) dedicated to the capture of exotic terrapins.
- Four Faunal Recovery Centers (two in Spain and two in Portugal) involved in the reception of exotic animals as well as native species breeding centers.
- Three research centers involved in the development of diverse research on native and exotic turtles.
- Three environmental education teams (one in the Valencian Community and two in Portugal) dedicated to the awareness of the problems of exotic invasive species and the production of teaching materials.
- A large network of volunteers participating in the capturing actions and the project results dissemination.



Emys orbicularis nesting corral at the El Palmar Center, Valencia, Comunitat Valenciana

PROJECT OUTCOMES



Penyetes Springs, Playa de Gandia, Valencia, Comunitat Valenciana

Main results of the project are:

Rules and regulations

Portugal: Decree No. 565/99 bans the trade and possession of any subspecies of *Trachemys scripta*.

Valencia (Spain): In addition to the ban on their trade, Regional regulation 10/2014 on the possession of the species obliges to sterilize and register the specimens acquired before 2012. Moreover, wildlife reserves have been created to protect two populations of European pond turtle, which were outside the prior nature reserves.



Legal inspection in a pet shop

Alert network

A new alert network for the detection of the presence of exotic turtles has been established, involving volunteers, environmental agents, nature parks staff, town halls officials, etc. Some of these groups are actively involved in the monitoring of native terrapin populations and on the control of invasive species.



Volunteers from the Group Scout La Canyada (Valencia, Comunitat Valenciana), members of the Alert Network



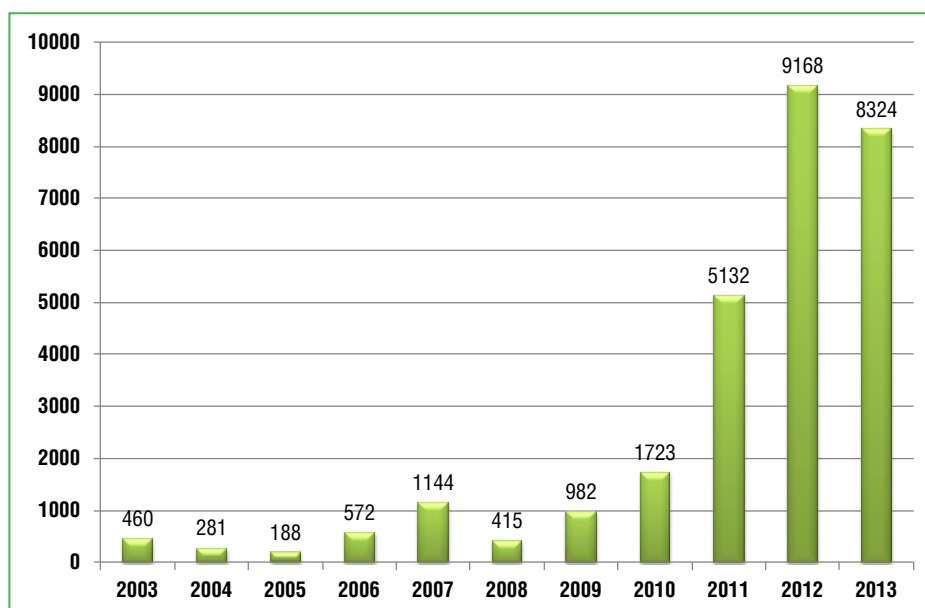
Setting traps in the Safor Marshland, Gandía, Valencia, Comunitat Valenciana

Capture and monitoring

23.000 exotic invasive specimens of tortoises have been caught in the wild during the project implementation. Its wide spreading has been stopped in some wetlands, while the native tortoise populations have also been recovered.

Table 1 Amount of exotic turtles captured along the project development

	2011	2012	2013	Total
Portugal	115	99	85	299
Comunitat Valenciana	5.132	9.168	8.324	22.624
Total	5.247	9.267	8.409	22.923



Graphic 1 Trend of exotic turtles captured in Valencia

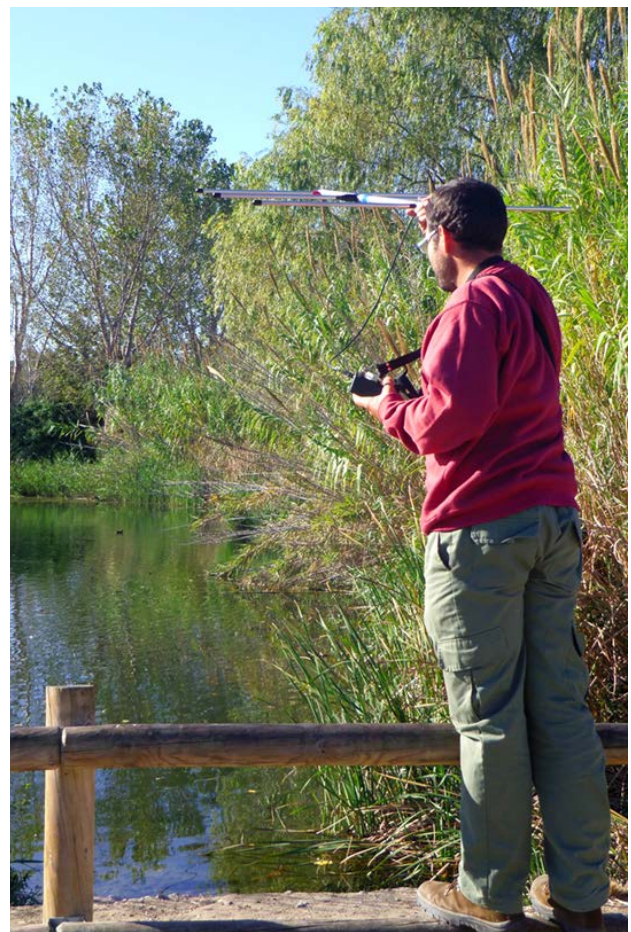


Testing a trap with turtles inside

Control techniques

Different nest location techniques have been tested: **dog training**, **ground penetration radar**, and gravid female **radio tracking**; as well as they can be applied depending on circumstances.

The diverse tested trapping methods (floating traps, baited traps, etc.) allow improving the effectiveness of catches.



Radio tracking action



Floating trap



Dog training for the location of nests of *Trachemys scripta*



Gun shooting test



Incubators

Recovering populations of European pond turtle (*Emys orbicularis*)

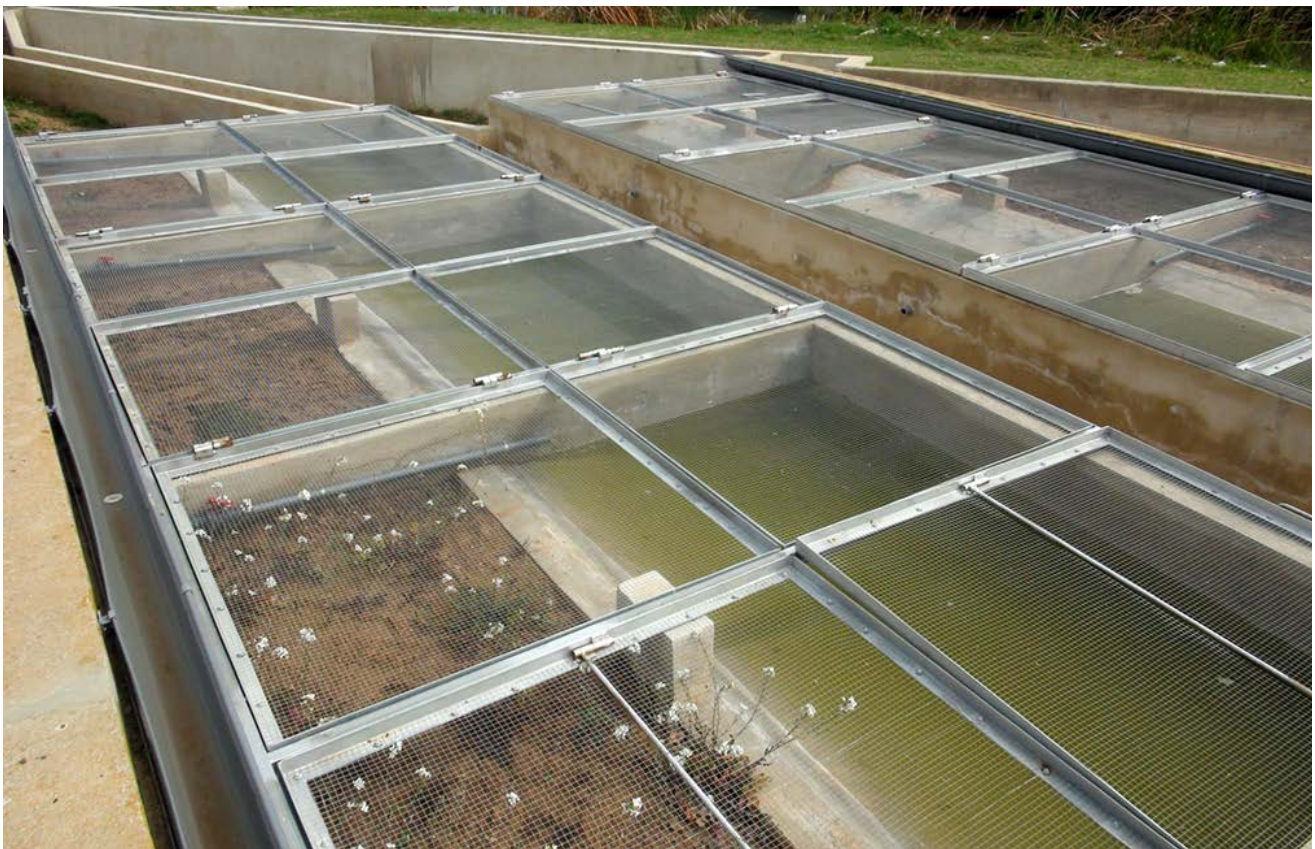
A **captive breeding program** has been established in order to design a protocol for the reproduction and **reintroduction** of *Emys orbicularis* in coastal wetlands. Wild parental have been bred and many juveniles have been reintroduced in some wetlands where this species was in decline, contributing to the recovery of the species. Also, the development of **molecular identification** techniques allows the project to assign the specimens of unknown origin their correct releasing.



Releasing juveniles of *Emys orbicularis* in the Tancat de Milia (Albufera Nature Park), Valencia



Facilities for captive breeding in RIAS-Aldeia Recovery Centre (Olhao, Algarve, Portugal)



Emys orbicularis outdoor nurseries El Palmar Centre (Valencia, Spain)



Theater play, *Mauro y Emilia*. Municipal Auditorium of V.N. Gaia, Portugal

Awareness campaign

The main goal of the project awareness campaign is to spread within the citizens the following message: **you should never abandon a pet in the wild.**

Specific awareness material and promotional activities have been designed and implemented for it. More than 250 activities involving 13,000 people have been done, as well as 282 press articles, reports in newspapers and magazines, and project presence in mass media (TV and radio broadcast channels).



Different project stickers
< Example of badge



Assistants to the Practical Workshop (*Tools for an effective control of exotic invasive turtles*). Valencia, September 2012

A **Practical Workshop** has been organized for the exchange of exotic invasive turtles experiences, with the participation of experts and managers; also a **Symposium on Freshwater Turtles Conservation** has been developed, specially focused on researchers and students.

Moreover, an **epidemiological study** has been also carried out, aiming the characterization of exotic invasive turtles and their implications in the conservation of native species and the effects of infectious diseases on human beings.

symposium on
freshwater turtles conservation

22 · 23 · 24 May 2013

Gaia Biological Park, PORTUGAL

Captive breeding programs
Population ecology and conservation genetics
Invasive species. Problems and solutions
Epidemiological issues
Conservation projects
Public awareness and policy

Information and pre-registration: life.turtles@parquebiologico.pt

Organization committee: LIFE TRACHEMYS (LIFE #09NAT/ES/000029)

Funding: CIGIO, LIFE

Partners: GENERALITAT VALENCIANA, cigro, vairsa, GRIAS, etc.

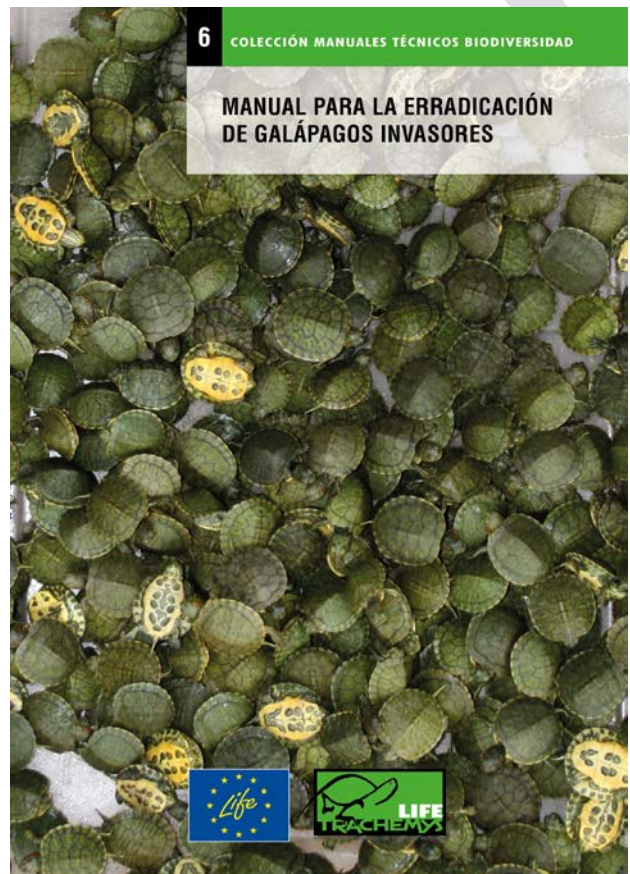
Poster for the Symposium on freshwater turtle's conservation



Capture of adults and juveniles of *Trachemys scripta elegans*

Handbook

An **exotic invasive turtle eradication handbook** has been produced as a final result of the project. The control strategy and methods of capture and eradication of exotic species are shown in it.



Handbook cover

CONCLUSIONS



Almenara lagoon, Castellón, Comunitat Valenciana

With invasive species is necessary to maintain a long-term effort to prevent a new start up of the process. Some project sites have shown a reduction in the degree of invasion (Peñíscola, Almenara and Marjal dels Moros in Spain, and also in Portugal), while in others (Marjal de la Safor), density is very high and actions shall be aimed to preserve the European pond turtle population present in this wetland.

The creation and energizing of a volunteer network involved in native turtles monitoring and exotic species control will be a key element as well as social involvement can be determinant for the success of the strategy.



Releasing two years old juveniles of *Emys orbicularis*



LIFE+Trachemys (LIFE09 NAT/ES/000529)

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GENERALITAT VALENCIANA

CONSELLERIA DE INFRAESTRUCTURAS, TERRITORIO Y MEDIO AMBIENTE

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CIBIO



PARQUE
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GAIA



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