

Trachemys scripta elegans and Other Invasive Species of Chelonians in Catalonia (North- Eastern Iberian Peninsula)

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Introduction

Red-eared slider (*Trachemys scripta elegans*) is a new species over the last 6 years in Spanish ecosystems. It lives in ponds, lakes, rivers, channels, marshes and reservoirs in all Iberian Peninsula. Sometimes, reproduction has been verified in Mediterranean ecosystem (De Roa, E. & Roig, J. M., 1998; Bertolero, A. & Canicio, A. 2000; Capalleras, X. & Carretero, M. A., 2000). Transmission risk of diseases (*Salmonella*, for example), competence or predation with other autochthonous species (both animals and vegetables) and habitat destruction are the principal consequences of invasive tortoises in Mediterranean ecosystems (Gómez de Berrazueta, J. M. & Pérez-Bote, J. L.; 2000). Capability of adaptation to new climate conditions is very high. Furthermore, North American turtles are a very dangerous invasive species in comparison to European or autochthonous species. In another hand, recently, more invasive turtles and tortoises have been found in the same natural parks. All turtles are located in areas with high human presence, near big cities (Barcelona (Central Catalonia), Girona (Northern Catalonia), etc...). Moreover, in Catalonia, there is a old tradition of releasing turtles and other pets. Up to date, the problem is getting worse and the solution remains unclear.

Material and methods

Selected area for this research was Foix Natural Park, a artificial pool located between Barcelona and Tarragona Provinces (Central Catalonia) and a very good place to observe invasive species (Martínez Silvestre, A.; 2002).

Methodology for detection of the presence of turtles was by direct visualization or capture. Visualization was made in 5 years with monthly runs using optic devices (terrestrial telescopes, binoculars, proto-zooms, etc). In this case, the identification of the species was *in situ* or over the photography. Capture was made by using net traps or box traps. Collaboration of local people was very important in to detect, capture and bring the turtles to park agents.

More over, some catching systems (net traps) have been tested in different places of Catalonia (North

eastern Iberian Peninsula).

Results

Trap systems is poor effective for capture and are each one could be adapted to different conditions of aquatic areas (Marshes, natural pools, ponds, rivers, etc...). Hand capture of migrating females for egg laying is more effective than trap systems.

Table 1 shows the maximum number of invasive individuals observed in one day for each year of research. Growing of turtles is evident.

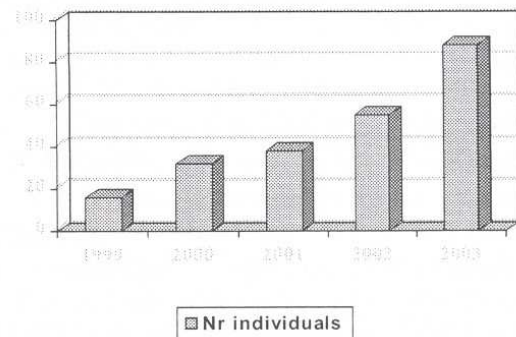


Table 2 shows the maximum number of species (including autochthonous) observed each year in Foix Natural reserve. Growing of species is evident.

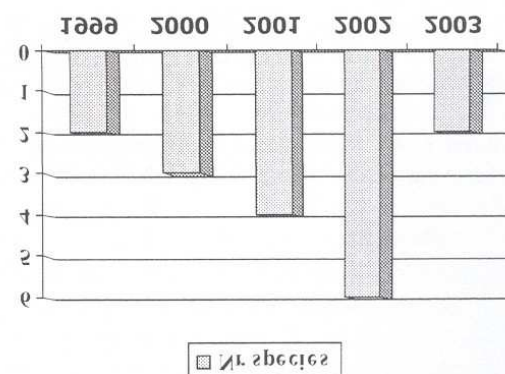
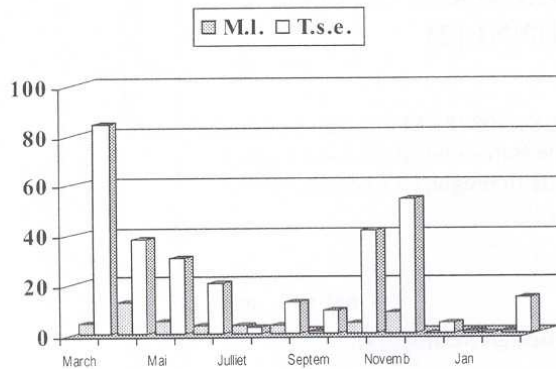


Table 3 shows the maximum abundance of *Trachemys scripta* versus *Mauremys leprosa* by direct observation in Foix Natural Reserve. *Trachemys scripta* is more conspicuous and is adapted to human presence. This species permits more approximation of watchers. However, traps capture more *Mauremys* than *Trachemys*. Real population of *Mauremys* can not be calculated only by direct observation.



Species detected in wild in Catalonia (CC=Central Catalonia; NC= Northern Catalonia; SC=Southern Catalonia):

-*Trachemys scripta scripta* (CC; Reproduction not confirmed)

-*Trachemys scripta elegans* (CC, NC, SC; Reproduction confirmed in all Catalonian territory).

-*Pseudemys floridiana* (CC, Reproduction not confirmed).

-*Graptemys pseudogeographica* (CC, reproduction not confirmed)

-*Emys orbicularis* (CC, NC, SC. Autochthonous and threatened. One population detected out of its Natural distribution area, probably relocated by people, reproduction in this area has not been confirmed)

-*Mauremys leprosa* (CC, NC, SC. Autochthonous.

Probably not threatened but vulnerable. Reproduction confirmed).

-*Chelidra serpentina* (CC, NC. Possible reproduction in wild conditions but not confirmed).

-*Pelodiscus sinensis* (CC. Reproduction not confirmed)

-*Cyclemis dentata* (CC. Reproduction not confirmed).

Discussion and conclusions

1) The catching system should be adapted to the zone (is not the same a river, a wetland or a reservoir).

2) Capture of invasive species is necessary. However, two years after captures, no significative decrease of wild population has been observed. When females go out of water for egg laying are more vulnerable, and its capture with hand is more easy. All people can collaborate in this action Successful percentage is very low.

3) When the presence of *Trachemys* in the wild is due to the release by owners, it is very important the application of a sensitisation campaign (Casanovas, R.,1998) as well as catching with tramps. Otherwise, it is not effective just catching.

4) *Trachemys scripta elegans* is not the only turtle caught or detected in Catalonia. In the period 1999 - 2002, the following species of turtles have been detected in wild: *Trachemys scripta scripta*, *Pseudemys floridiana*, *Graptemys pseudogeographica* and *Chelidra serpentina*. Population of invasive turtles is most conspicuous than autochthonous. Reproduction in the wild has not been observed in these species, but reproduction in natural conditions is recently published (Martínez Silvestre, A., *et al.*; 2001). So the danger for the Mediterranean ecosystems is increasing.

5) Wild population of *Mauremys leprosa* is stable but threatened.

6) For a conservation of autochthonous species, STOP world trade of invasive species is advised.

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