



# Red-eared slider turtle

*(Trachemys scripta elegans)*

## Managing a population of red-eared slider turtles on the Vieux Salins site in Hyères (Var department)

### Toulon Provence Méditerranée urban board

- The board manages the Vieux Salins site in Hyères with scientific and technical support from the Port-Cros national park, the town of Hyères and the Conservatory for the coast and lakes (CELRL), the site owner.
- Contact: Matthieu Lascève, Natura 2000 policy officer - mlascève@tpmed.org

### Intervention site

- The Vieux Salins are a unit of the former salt ponds in Hyères. With the Pesquiers salt ponds, they produced salt until 1995. Subsequently, the site was purchased by the CELRL in 2001. The site was initially managed by the Port-Cros national park, then in 2004 by the Toulon Provence Méditerranée urban board.
- Listed as a Ramsar and Natura 2000 site, it covers a total surface area of 350 hectares.

### Disturbances and issues involved

- Young red-eared slider (RES) turtles were imported massively to France as pets in the 1980s and 1990s. Numerous persons subsequently released the adult turtles to the natural environment.
- The European pond turtle (*Emys orbicularis*) is known to inhabit the Vieux Salins site. This turtle population is weakened by its isolated geographic situation, given that the site is placed between the sea to the south and a high-speed road and houses to the north. The population number has been estimated at 197 in 2005 (Joyeux, 2005), then 175 in 2011 (Joyeux, 2011) and finally 232 in 2015 (Perrot et al., 2016). The statistical tools and the degree of observation differed from one survey to another, making it difficult to identify a significant trend in the population and to determine the influence of the RES turtles on that trend.
- The RES turtles may be a limiting factor in the development of the population of the European pond turtles due to the probable competition, notably for sunning spots (Cadi & Joly, 2003).
- Observations of RES turtles laying eggs and the capture of juveniles and large females (25 cm and 2.5 kg) confirmed that the species has reproduced on the site.



1. Map showing the Vieux Salins site.

- Limiting the alien population would make it easier for the European pond turtles to use the local resources (food, nesting and sunning sites).

### Interventions

- A test to limit the alien population was launched by the managing entity in 2003. A shooting campaign eliminated a total of 117 RES turtles.

### Surveys of turtle populations

- Capture-mark-recapture (CMR) campaigns were run in 2005 and 2011 to estimate the population of European pond turtles, in the framework of the herpetological survey of the site.
- In 2005, four RES turtles were captured in the hoop nets used to capture the European pond turtles and two were captured while laying their eggs. In 2011, only one RES turtle was captured in the hoop nets.
- On the basis of visual sightings, the RES turtles were estimated to represent 32% of the total turtle population on the site.
- They would seem to be concentrated mainly on the eastern side of the site, whereas the European pond turtles are located primarily on the western side (see the graph below). The RES turtle population would appear to be growing and spreading to the west, while at the same time driving the European pond turtles from the eastern side.



## ■ Trapping

■ To facilitate the development of the European pond turtle population on the site, it was decided in 2013 to reduce the number of RES turtles.

■ Contacts were made with the local stakeholders involved in conserving the European pond turtle, namely the Mediterranean lagoon centre, CEN PACA (in charge of the national action plan for European pond turtles), the Tour du Valat biological centre, the Or River board, the Port-Cros national park and local naturalists. The purpose of the contacts was to gather information on management methods for RES turtles.

■ Hoop nets were not used given the lack of results in capturing RES turtles during the CMR campaign for European pond turtles in 2005 and 2011.

■ Fyke nets were preferred because they seemed better suited to the layout of the site, i.e. a straight canal with steep banks and a maximum water depth of 60 centimetres.

■ The system consisted of a seine net across the canal, rising from the canal bed to above the water level, and the Fyke net with several netted funnels leading in (60 cm diameter at the entry point) and a system hindering an exit once the turtles had entered. The Fyke nets were installed along the bank and the system as a whole was held in place with wooden stakes. The rear ends of the Fyke nets were strung up above the water level so that the captured turtles could breathe. Floaters were also installed in the Fyke nets, again to avoid drowning the turtles.

■ In May 2013, during a first test run, two Fyke nets were installed. Over the course of the operation, they were installed in five different spots.

■ Bait was not placed in the nets. Any fish captured were released, with the exception of pumpkinseeds (*Lepomis gibbosus*), an invasive alien species that was eliminated.

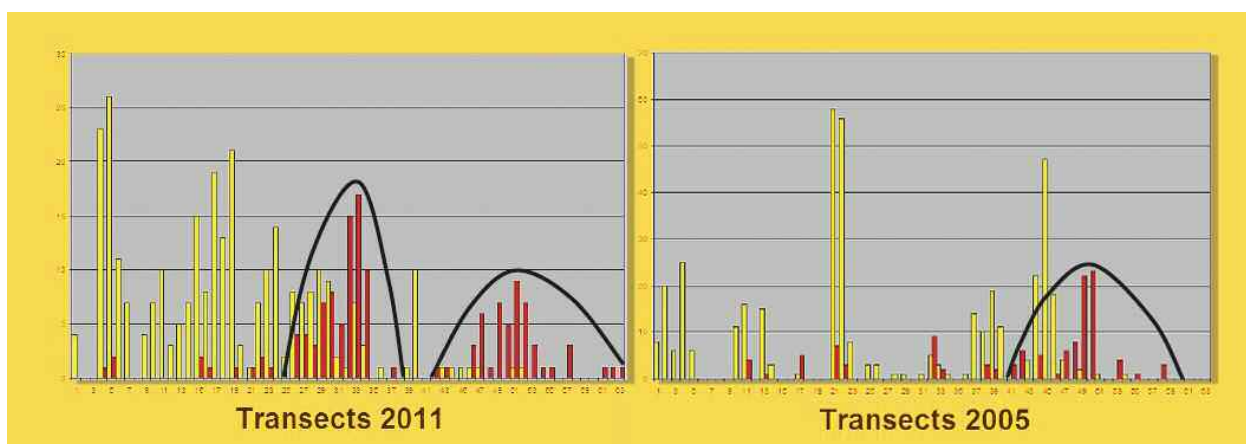
■ The traps installed on Monday were inspected daily in the morning until Friday, when they were “deactivated”. From 4 to 31 May 2013, the traps were in operation for 23 nights.

■ In 2015, the trapping campaign was carried out in parallel with the monitoring programme for European pond turtles. Trapping was done in sessions of four consecutive days each week, for a total of six sessions, using ten Fyke nets as per the recommendations of the national action plan for European pond turtles, i.e. three to four nets per kilometre of bank.

■ The RES turtles captured in 2013 were sent to the Turtle observation and protection station (SOPTOM) in Gonfaron. In 2015, they were eliminated on site.



2. Ring canal around the Vieux Salins site.  
3, 4. Setting up the Fyke nets.



Visual sightings of European pond turtles (in yellow) and RES turtles (in red) along east-west transects in 2005 and 2011.

## Results and costs

### ■ Results

- During the trapping campaign in May 2013, 73 RES turtles were captured.
- In 2015, 159 RES turtles were captured, including 81 adults, 59 juveniles and 19 of undetermined age.
- The trapping technique was clearly suited to the terrain, i.e. a canal with steep banks and shallow water.

### ■ Assessment

- The work in 2013 was considered a test phase during which the equipment and human resources were adjusted as needed, consequently a precise assessment is not available.
- The work in 2015 was carried out in the framework of the updating procedure for the document listing objectives for the Rade d'Hyères Natura 2000 site that is managed by the Port-Cros national park with State funding. The technical supervision of an intern and the purchase of part of the equipment was funded by the Toulon Provence Méditerranée urban board. The results are the following:
  - the preparatory work for the trapping campaign took approximately one week (contacts with the various partners, reconnaissance of the site, decisions on work techniques);
  - the trapping work required two technicians over six weeks, working two full days per week (setting up and taking down the traps on Monday and Friday) and three half-days (checking the traps on Tuesday, Wednesday and Thursday), for a total of 42 man days;
  - the end-of-project work required a further week (cleaning and repairing the material, drafting various articles, both scientific and for the general public);
  - the Toulon Provence Méditerranée urban board made available a technician for the field work and provided equipment for the trapping campaign (vehicles, wooden stakes, etc.);
  - the unit price for a Fyke net ranges from 100 to 175 euros, depending on the supplier.

Table listing the human resources used in 2015.

Work	Number of man-days
Preparatory work	5
Trapping	42
End-of-project work	5
Additional technical support	21
<b>TOTAL</b>	<b>73</b>

## Information on the project

- Articles were published in the local press (*Var Matin*, *TPM Mag*, etc.).
- Scientific articles were published in the scientific journal of the Port-Cros national park.
- A university student drafted a report in the framework of his Masters-2 studies (Perrot, 2015).



5, 6. RES turtles captured during the trapping campaign.

7. Article published in the Var Matin newspaper on 2 June 2013.

## Outlook

■ In 2017, a transect study was run, similar to those in 2005 and 2011, to detect any changes in the distribution of the two species. The initial results confirmed the continued presence of the two species along different sections of the canal, signalling that they both still co-exist on the site. Further analysis of the study results should provide more information on the conditions of the co-existence and on any trends.

■ The geographic isolation of the two turtle populations on this rather particular site, the success of the previous trapping campaigns and the ever-present need to protect the native species led to the decision to plan a new trapping campaign in 2018 in order to continue reducing the population of RES turtles.

■ Similar trapping projects will be carried out in the ponds of a tree nursery next to the Vieux Salins site where RES turtles have also been observed. Other trapping methods may be used in the ponds, e.g. sundeck traps or Fesquet cage traps (see the management report on the Mauguio Pond: <http://www.gt-ibma.eu/wp-content/uploads/2016/10/Trachemys-scripta-elegans4.pdf>).

■ If in the future further efforts are required, shooting may be tested in order to remove the last RES turtles from the site.

## Regulations

■ RES turtles may not be introduced into the natural environment (ministerial decree dated 30 July 2010). The species may not be imported into the European Union (EC 349, 25 February 2003) and it is also listed as an invasive alien species of Union concern (European regulation 1143/2014).

■ The European pond turtle is a protected species (decree dated 19 November 2007). Its capture and handling require an authorisation granted to a specific person by the Departmental territorial and maritime agency (DDTM). For the studies and work mentioned here, Matthieu Lascève (Toulon Provence Méditerranée urban board) was authorised to capture-mark-recapture living European pond turtles and to euthanise the captured RES turtles.

Authors: Doriane Blottière, IUCN French committee, and Matthieu Lascève, Toulon Provence Méditerranée urban board. January 2018.

### For more information

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