



# Red-eared slider turtle

(*Trachemys scripta elegans*)

## Managing alien turtles on the Étang de Mauguio Natura 2000 site in the framework of the European LIFE + LAG'Nature programme

### LIFE + LAG'Nature programme 2009-2013

■ The programme was coordinated by the Languedoc-Roussillon conservatory for natural areas (CENLR) and implemented in a partnership with five managers of Natura 2000 pilot sites, namely the board for the Camargue in the Gard department (SMCG), the inter-municipal board for littoral ponds (SIEL), the inter-municipal board for the enhancement, development and management of the Salses-Leucate Pond (RIVAGE), the board for the lower valley of the Aude River (SMBVA) and the Or Pond board (SYMBO).

■ The main objective was to create a network of demonstration sites in lagoon and dune environments in order to improve the conservation status of the habitats.

■ "Pilot" projects were launched, focussing on three aspects on the five Natura 2000 sites:

- restoration of lagoon, peri-lagoon and dune habitats;
- managing visits to the sites;
- managing invasive alien species, namely littoral flora (lily of the valley vine, pampa grass, Hottentot figs) and alien turtles.

■ The programme was funded by the Languedoc-Roussillon region, the LR regional environmental directorate, the Rhône-Méditerranée-Corse water agency and the departmental councils of the Aude, Hérault, Gard and Pyrénées-Orientales departments.

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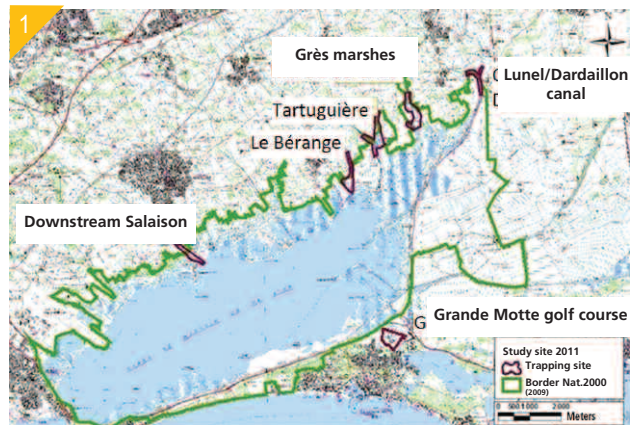
### Or Pond board (SYMBO)

■ The board for inter-municipal cooperation was founded in 1991 and groups 34 towns around the Or Pond.

■ It manages the document listing objectives for the Étang de Mauguio Natura 2000 site.

■ It is also the project supervisor for the management of alien turtles in the Or Pond in the framework of the LIFE + LAG'Nature programme.

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1. The sectors where trapping took place.

### Intervention site

■ The LIFE + LAG'Nature programme deals with five lagoon and dune Natura 2000 pilot sites in the Languedoc-Roussillon region, namely "Basse plaine de l'Aude", "Camargue gardoise", "Étang de Mauguio", "Étangs Palavasiens" and "Salses-Leucate".

■ SYMBO is in charge of managing alien turtles on the "Étang de Mauguio" Natura 2000 site, a 2 960 hectare lagoon surrounded by 2 000 hectares of wetlands.

■ The lagoon, located for the most part in the town of Mauguio, belongs to the French State (maritime public domain).

■ In 2011, management work (trapping) was carried out on five sites:

- sector 1: Grès marshes (town of Saint Nazaire de Pézan);
- sector 2: Bérange (town of Candillargues);
- sector 3: Tartuguières (town of Lansargues);
- sector 4: Lunel/Dardaillon canal (towns of Lunel and Saint Nazaire de Pézan);
- sector 5: Downstream Salaison (town of Mauguio).

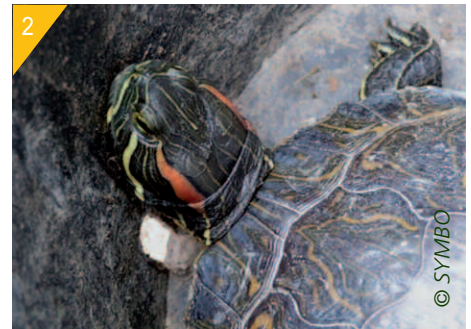
■ In 2012, sectors 1, 2, 3 and 5 were trapped, in 2013, sectors 1 to 4 and a new sector, the Grande Motte golf course (sector 6).

## Disturbances and issues involved

- Alien turtles (*Trachemys scripta elegans* and *Trachemys scripta troosti*) outgrew their welcome and were released by pet owners to the natural environment.
- Today, large population groups of primarily *Trachemys scripta elegans* (red-eared slider turtles) have been observed to reproduce in the Manguio Pond.
- Management of the species is an important ecological issue in that it can impact native turtle species, namely European pond turtles (*Emys orbicularis*) and Spanish pond turtles (*Mauremys leprosa*). The two species are listed in Annexes II and IV of the Habitats directive and are covered by national action plans.
- To date, the impacts have not been extensively studied and not a great deal is known, however a number of studies, including those by Cadi and Joly (2003, 2004) indicate that:
  - competition exists and is being won by red-eared slider turtles, particularly for access to sunning spots, which leads to loss of weight and higher mortality rate for European pond turtles;
  - exogenous parasites carried by the red-eared slider turtle are transferred to native turtles, including the European pond turtle.

## Interventions

- Since 2009, SYMBO has managed invasive alien turtles via the EU LIFE+ LAG'Nature programme in order to check the spread of the species and to assist the native species.
- To that end, it conducted trapping campaigns in two phases. Phase 1 in 2009 served to test different types of traps in order to select the most effective. This phase will not be discussed here.
- Phase 2, under way since 2010, includes large-scale trapping on the Étang de Manguio Natura 2000 site (the first year of Phase 2 will not be discussed here).
- The traps used were:
  - double-entry hoop nets, fyke nets and/or cage traps (Fresquet cages measuring 1 x 2 metres or 0.5 x 1 metre with one entry, made by a volunteer using a roll of wire fencing);
  - the traps were laid near the sunning spots;
  - they were not totally submerged;
  - bait consisted of frozen sardines and anchovy cream placed in little bags attached inside the hoop nets or to the nets.
- Each site was trapped four nights per week:
  - traps were laid on Monday;
  - they were checked each morning;
  - traps were removed on Friday;
  - trapping occurred on an irregular basis.
- Trapping occupied a SYMBO technician and two interns (students from a technical school).
- The captured turtles were measured and their sex determined.
- They were then sent to the "Tortue passion" centre in the Gard department.



2. Red-eared slider turtle (*Trachemys scripta elegans*).



Table listing trapping periods.

Year	2011	2012	2013
Period	February to July	End of May to July	Mid-April to September
Duration	20 weeks	8 weeks	20 weeks

## Results and assessment

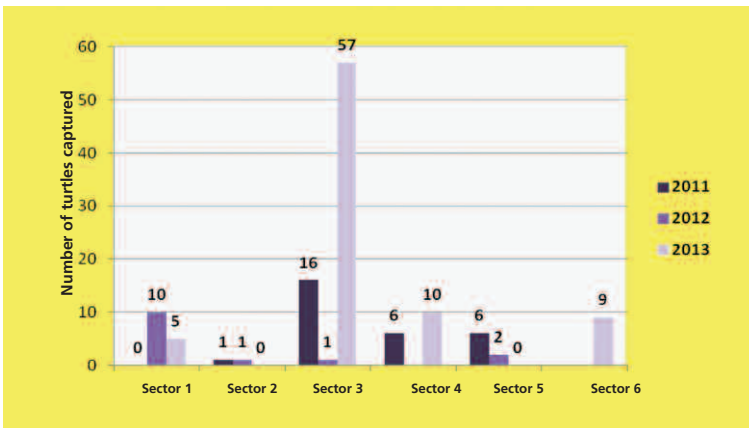
### ■ Results

- Differences in capture data between sectors from one year to the next are difficult to explain. Trapping pressure, annual variability in densities per sector, the layout of sectors, the types of traps used, etc. may have influenced the results.
- The Fresquet cage traps were used starting in 2012 and turned out to be very effective.

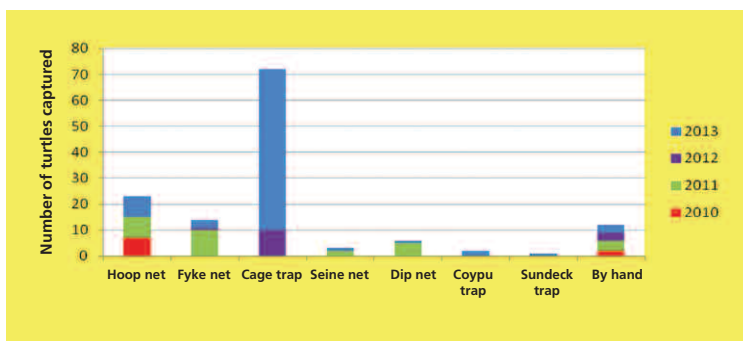


3. Checking a Fresquet cage trap.  
4. Checking a Fyke net.

Numbers of turtles captured per sector (2011-2013).



Captures per type of trap (2010-2013).



### ■ Assessment

- From 2010 to 2013, 133 alien turtles were captured (*Trachemys scripta elegans*, *Trachemys scripta troosti*).
- The estimated average cost per captured turtle was a total of 184 euros, including all equipment (traps, bait, etc.), travel costs and the payroll costs of the technician.

Results of trapping from 2011 to 2013.

Year	Sector 1			Sector 2			Sector 3			Sector 4		Sector 5		Sector 6
	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2013	2011	2012	2013
Weeks trapped	1	9	6	3	2	1	6	6	5	6	5	4	2	4
Hoop nets	23	-	5 to 10	14 to 24	6 to 15	12	24 à 25	0 à 25	0 to 14	18 to 27	12 to 15	21 to 27	16	14 to 16
Fyke nets	-	-	-	-	-	-	0 à 2	2	-	0 to 2	0 to 2	0 to 2	2	1
Cage traps	-	2	0 to 2	-	-	-	-	0 to 1	0 to 7	-	1 to 2	-	-	-

Table listing captures of European pond turtles.

European pond turtles captured	2011	2012	2013
New turtles	20 (+ 1 Spanish pond turtle)	63	51
Marked (recaptured) turtles	26	151	34

## Outlook

- The work will be pursued with the interns from the technical school and the SYMBO technician.
- The Fresquet cage traps should be used wherever possible in all the trapping sectors.

## Information on the project

- A number of articles were published in various media:
  - the regional press (Midi Libre newspaper);
  - the Lagunes bulletin;
  - the ONCFS book titled *Invasive alien vertebrates in the Loire basin (not including fish), Knowledge gained and management feedback* (Sarat, 2012);
  - the "Tortues d'Oc" internet site on the results of the trapping campaign in 2013 and the use of the Fesquet cage trap.
- A sequence on the work was aired in 2010 on a regional television news show.
- Participation in a sequence aired on the ARTE channel during a show on invasive alien species.
- Reports on the work during meetings with elected officials, land owners (private, the Seaside and Lake Conservation Trust, etc.) and managers of the sites in question.
- Informational meetings with professional fishermen and certified trappers on species identification and on how to increase trapping pressure.
- Workshops on aquatic turtles for school classes during projects on bullfighting traditions in the Camargue.
- For the past five or six years, an annual role game and project on European pond turtles has been under way with a high school in Montpellier.

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## For more information

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