



# Global Re-introduction Perspectives: 2011

More case studies from around the globe  
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## Re-introduction of African spurred tortoise in North Ferlo, Senegal

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### Introduction

African spurred tortoise (*Centrochelys sulcata*, Miller, 1779) populations have decreased all over Africa. The main causes of this Sahelian species extinction are desertification, overgrazing, fragmentation of habitats and collection for the illegal animals trade. This species is classed as Vulnerable in the Red Book of IUCN and listed on CITES Appendix II. In July 2006, SOPTOM association released 24 African spurred tortoises in the North Eastern Senegal (Reserve of Fauna of North Ferlo), the last region of the country where this species still living in the wild. Each individual was fitted with a transmitter and a daily localization by radio-telemetry was made for two years to ensure a good adaptation of the group to the natural environment. The two years that followed, daily monitoring was stopped and there were just routine observations without human intervention (to ensure good survival was not due to human intervention). In 2010, after four years of study, the survival rate for this group was over of 80%, which shows the effectiveness of this method in the conservation strategy of the African spurred tortoise. In parallel, awareness and support of local populations have been conducted to raise awareness on biodiversity protection.

### Goals

- Goal 1: Sustain the latest African spurred tortoise wild population in Senegal.
- Goal 2: Monitoring the released population to ensure a good adaptation to the wild environment.
- Goal 3: Awareness of local populations to the effects of desertification and overgrazing on the Sahelian environment.



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African spurred tortoise (*Centrochelys sulcata*)  
in mud © L. Garrigues/SOPTOM

### Success Indicators

- Indicator 1: Releasing a first African spurred tortoise population reared in captivity.
- Indicator 2: Survival and a self-sustaining released population.

- **Indicator 3:** Interest of the local community (mainly young and shepherds) about tortoises and about our work by visiting us in the “tortoise house”, awareness house near the re-introduction zone.



Raising awareness with school children

## Project Summary

**Feasibility:** Ferlo region in north-eastern Senegal is a typical but very enclave Sahelian region where live

the Pulani, an ethnic group of nomadic shepherds, with vast herds of zebu cattle, sheep and goats that affect the natural resources of the area. Ferlo zone is divided into two Reserves of Fauna (Reserve of Fauna of North Ferlo and Reserve of Fauna of South Ferlo). The government wishes to be more involved in protecting its biodiversity. The re-introduction of iconic species like this tortoise species in the North Reserve (which is managed by the National Parks) is therefore a local and national desire. In Dakar, Senegal there is the “tortoise village” which is an awareness and tortoise breeding’ center. It is jointly managed by SOPTOM and the Senegalese Association SOS Sulcata, and one of its aims is rearing an African spurred tortoise population for future release in the Ferlo. The biggest threats for African spurred tortoise are overgrazing with the large numbers of cattle in the Ferlo zone, habitat fragmentation and collection for the exotic animal trade. Preliminary studies in this last area in Senegal where the African spurred tortoises is still found in the wild (Cadi & Devaux, 2003) shows there is less than 1 tortoise/km<sup>2</sup>. This species is more represented in captivity (for local customs or as pets) than in the wild.

**Implementation:** There is one 600 ha area in the Reserve, protected from livestock by a fence, near the village of Katané with a high biodiversity. This area was ideal for a release site for our population of *Centrochelys sulcata*. The 24 tortoises from the tortoise village were tracked for several months in quarantine and underwent genetic and health tests to ensure their health and geographical origin. Some genetic differences were reported between Eastern and Western wild populations in the species’ geographic range (Devaux, 2000). On 8<sup>th</sup> July 2006, selected individuals were released in the North Ferlo Faunal Reserve, at Katané after undergoing the final steps (e.g. measurement of weight, size, installation of transmitter, etc.). The Pulani local population had very well received this program and residents of nearby villages have often provided assistance to the smooth running of daily monitoring activities.

**Post-release monitoring:** Monitoring of the re-introduced population was done in two parts over a four year span. The first two years, from 2006 to 2008, the

# Reptiles



**Typical burrow of African spurred tortoise**

monitoring was done daily by telemetry jointly by scientists from the North and Senegal National Parks guards. Each individual was fitted with a transmitter and with help of a local tracker (poacher reconverted) we found the tortoises daily. After two years of follow up, the survival rate of this population was 90%. It is very encouraging because it means the good adaptation of this species

to the harsh natural conditions. Growth and weight of each individual were measured regularly and were good, which shows a good diet. All behaviors observed in wild populations have been in this population (digging burrows to spend the dry season, feeding and mating) and in the same frequencies to the wild population.

From 2008 to 2010, the population was monitored by regular observations without any human intervention to ensure that these very encouraging results were not due to human interference. In 2010, at the end of these two phases, the survival rate of the population was 80%, which is still very encouraging. Mortalities were recorded exclusively due to fighting between males, which results in one tortoise turning on its back and this the main cause of adult death in the wild. The results of this re-introduction is very promising for the future of wild African spurred tortoise in Senegal and is an example of a sustainable conservation strategy for this species in Africa. These results lead us to continue and extend the experience. It is planned to re-introduce a new population of *C. sulcata* in June 2011.

## Major difficulties faced

- The lack of protected areas for wild fauna. The Sahelian environment in Senegal is highly degraded particularly because of overgrazing. Wild populations of *C. sulcata* are struggling to find food and rest areas. Only protected areas may allow a successful re-introduction and these areas are still too few.
- The increasing human population in the reserve and its settlement near water points

## Major lessons learned

- The involvement of local human population is essential to sustain and make such a re-introduction program successful.
- Even if they are bred in captivity, spurred tortoises can adapt to the local dry climate.

- Even though some of the individuals wander away from the protected area, most of the group stays near the water pond.
- The protocol during release in regard to sex ratios has to be carefully decided as many males result in fighting and stress for the population.

## Success of project

Highly Successful	Successful	Partially Successful	Failure
	√		

### Reason(s) for success/failure:

- The good adaptation of the released population of African spurred tortoise in wild conditions. All natural behaviors have been observed, digging good burrows to spend the dry season, feeding with a good growth and mating with egg shells found every year in the nests.
- The good participation of the human population in the project which show the interest in this project. Every year, after the wet season, tortoises wander away to the fence to eat grass and local children and shepherds warn us of their locations.

## References

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