

## The SOKAKE Project: Conservation of Radiated Tortoises, *Astrochelys radiata*, in Southern Madagascar

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**ABSTRACT.** – The French association SOPTOM was created in 1986 with a goal of studying and protecting turtles. It developed an original concept in tortoise and turtle protection called the Village des Tortues (Turtle Village) and established a center at Gonfaron in southern France. In the late 1990s it became interested in the tortoises of Madagascar, and in 1999 launched the “SOKAKE project” in conjunction with the Association de Sauvegarde de l’Environnement and established a Turtle Village at Mangily-Ifaty, near Toliara in southwest Madagascar. The goal of the center has been to receive tortoises confiscated by the authorities, to participate in the conservation of *Astrochelys radiata* and *Pyxis arachnoides*, and to help develop ecotourism in the region and community outreach and awareness programs to help stem local tortoise poaching.

**KEY WORDS.** – Reptilia, Testudines, Testudinidae, *Astrochelys radiata*, Radiated Tortoise, confiscations, poachers, Turtle Village, Mangily-Ifaty, Madagascar

The Radiated Tortoise (*Astrochelys radiata*) is a beautiful terrestrial tortoise that can grow to 18 kg and lives in prickly savannah regions amongst the cacti and baobab trees. Once very common in southern Madagascar, its area of distribution has been reduced considerably over the last 150 years. The cause of its decline is first and foremost a result of poaching for trafficking and local consumption as certain ethnic groups still eat this tortoise. Its liver is considered a delicacy and is consumed throughout the country during celebrations on special occasions such as Easter and Christmas. The destruction of its habitat through urbanization and desertification due to charcoal production and fires is also responsible for its decline.

According to our studies, which are detailed in a recently published monograph in conjunction with Roger Bour from the Natural History Museum in Paris (Devaux 2010), the residual area inhabited by *A. radiata* is now reduced to a coastal strip between Itampolo and Tsiombe, and the maximum density of the species, previously 60 tortoises/ha, has fallen to between 10 and 30 tortoises/ha at the best sites. Bearing in mind that between 20,000 and 50,000 tortoises are removed from their natural habitat each year, it is clear that this species is in serious decline.

The French association SOPTOM (Station d’Observation et de Protection des Tortues des Maures) was created in 1986 by English and French naturalists and biologists. In 1988, it began to develop an original concept in tortoise and turtle protection called the Village des Tortues (Turtle Village). The concept was as follows: to carry out field conservation projects, it takes financial resources, but unfortunately, individual states do not always have the necessary finances, and at the Rio Congress in 1992 it was stated that “as far as possible, associations should

take responsibility for protecting species”. Consequently, our idea was therefore to open a rescue center for tortoises and turtles that would be open to the public and financed by our visitors. This concept, which was first applied to our facility in Gonfaron, southern France, in 1988, has been a great success, as today we welcome 110,000 visitors a year who finance our protection programs. As a result, we created other Turtle Villages at Moltifao on the island of Corsica (France) and Noflaye in Senegal. In the late 1990s we developed an interest in the tortoises of southern Madagascar, and in 1999 we established a Turtle Village at Ifaty in southern Madagascar. We are also trying to create one near Marrakesch in Morocco and hope to create others in Australia and perhaps in Florida.

This concept has also been applied in Italy, Spain, Costa Rica, Vietnam, South Africa, Australia, and Malaysia by other organizations. At the same time, several new associations devoted to protecting tortoises have also arisen. There are currently several young researchers, students, and enthusiasts dedicated to studying and protecting tortoises all over the world. The first naturalists and researchers who inspired us to protect tortoises were Archie Carr, followed by Peter Pritchard, Jacques Fretey, Lee Durrell, Indraneil Das, Gerald Kuchling, John Behler, and many more. Today, we are both optimistic and pessimistic in equal measures. The herpetology world has now taken action to “save the turtles” as shown by the excellent work carried out by the Turtle Survival Alliance (TSA), but some of this action is a little late. Action was needed already 30 years ago because today most tortoises and turtles are in serious decline and the future is very worrying.

In 1999 SOPTOM launched the “SOKAKE project” (*sokake* is the local name for the Radiated Tortoise) in con-



**Figure 1.** Entrance to the Village des Tortues (Turtle Village) at Ifaty. Photo by B. Devaux.

junction with a local association, the A.S.E. (Association de Sauvegarde de l'Environnement - the Environmental Safeguard Association) that is chaired by Professor Daniel Ramampihelika and monitored by a group of Scientific Advisers, including Roger Bour, Gerald Kuchling, and Peter Pritchard. It comprises several initiatives, including first and foremost the establishment of a Turtle Village at Mangily-Ifaty, located 35 km north of Toliara in a natural biotope where the Spider Tortoise, *Pyxis arachnoides*, can still be found. The team at the center currently consists of six people: three keepers and three wardens. SOPTOM ensures financial support for the Village at Ifaty, but assistance is also provided by the Turtle Survival Alliance, Amneville Zoo, and Salamandre-Nature. The Village encompasses 15 ha and is situated 500 m from the Ifaty lagoon, a savannah with baobab and umbrella trees. It includes approximately 24 enclosures and is equipped with quarantine space, hatching areas, and nurseries for juvenile tortoises. There are currently (2013) about 2200 Radiated and Spider Tortoises at the Village.

A special enclosure for *P. arachnoides* was created by the TSA in order to study all three subspecies of *Pyxis* at the same site. There is also a large information room, accommodation for permanent staff and eco-volunteers, a reception room for schools, and in 2010 we opened a Tortoise Clinic, which allows us to carry out biological and pathological studies.

The center was created to house tortoises seized by authorities during poaching checks and to raise awareness amongst the local Malagasy people, as well as foreigners. In 2009, we received 300 Radiated Tortoises that were transferred by the Madagascar Fauna Group from a holding facility at Ivoloina located on the eastern coast of Madagascar, and in 2010, 400 Radiated Tortoises were transferred from Malaysia, where they had been confiscated from the illegal international pet trade.

The Turtle Village also aims to create jobs, improve the local economy, and form an impressive tourist destination in southern Madagascar. Importantly, we work closely with the Minister of the Environment, Madagascar National Parks (previously ANGAP), and the Département de l'Environnement des Eaux et Forêts.

The SOKAKE project includes other objectives, of which the most important is to reduce trafficking of southern Madagascar tortoises. With this in mind we carry out programs to raise awareness in schools and villages, and we conduct “information patrols” with 4x4 vehicles across the entire south to distribute information. We also organize conferences, congresses, and meetings between specialists and the authorities. An important initiative is arranging meetings with traffickers to try and convert them into craftsmen, fishermen, or farmers. Over the past 14 years we have managed to change mentalities in a sensitive way by raising awareness; for example, in Toliara there are fewer women selling turtle soup and fewer men cutting up sea turtles in the markets. Plus, there are fewer traffickers and the number of tortoises being poached appears to be much reduced. Representatives from the State have increased their efficiency on the ground and the number of initiatives to stop poaching. Surveillance for poachers in the tortoises' natural habitat is the most efficient method to stop poaching, and as a result of increased surveillance efforts, the sale of tortoises to the capital city (Antananarivo) and certain civil servants has almost disappeared. The situation is of course far from perfect, but has definitely improved when compared to the 1990s.

The SOKAKE project includes a “reintroduction” phase because the tortoises at Ifaty are not intended to stay there permanently. We are not a zoo, but rather a confiscation and transition center. The villagers in the south do not understand why the tortoises stay in Ifaty and are not placed immediately back into nature. For the past



**Figure 2.** Marked Radiated Tortoises at the Village des Tortues (Turtle Village) at Ifaty. Photo by B. Devaux.

10 years, we have been looking for suitable release sites so that these tortoises can be put back into their original biotope with favorable conditions. Finding a release site is difficult because of the continued threat posed by poachers. We do not want the tortoises to be poached again.

We have examined several areas, but few have been adequate because they are too close to villages with herds of cattle and goats passing through, damaging habitat. Ultimately, we chose the Lake Tsimanampetsotsa Reserve (now a National Park) that is located about 150 km south of Toliara. This Reserve is 250,000 ha and includes a remarkable natural biotope situated between the sea and the Mahafaly Plateau. This program is being conducted with the support of the public authorities, Madagascar National Parks, and the Département de l'Environnement des Eaux et Forêts. A student from Germany worked on a study at the Reserve on the reproduction of *A. radiata* (Hammer 2013, this volume). Although a few native wild tortoises still remain at the Reserve, our Scientific Advisers and the authorities still consider this to be the ideal location to release previously confiscated tortoises.

Therefore Antoine Cadi, the SOKAKE Project Mission Coordinator, will lead the necessary local initiatives over the next few years in preparation for the release. From 2010 to 2011, two students worked on an inven-



**Figure 3.** Three caretakers at the Village des Tortues (Turtle Village) at Ifaty, Daniel, Mamie, and Jean. Photo by B. Devaux.

tory of the flora and fauna of the Lake Tsimanampetsotsa Reserve. We have placed 100 *A. radiata* in quarantine at Ifaty that will be subject to health testing before they are returned to the wild at the Reserve. Over the coming year, in collaboration with TSA Madagascar, we hope to release 50–100 of these tortoises fitted with tracking devices and plan to follow them over two years to study how they adapt to this biotope. To ensure that this release is successful, we are encouraging the local villagers to participate. A “Mr. Tortoise” will be selected from each village to oversee the tortoises at the Reserve. The animals will also be monitored by National Park Officers, because the biggest threat is still from traffickers coming from the capital. This release is therefore experimental; if the results are good we will look for other sites and will continue to release tortoises from Ifaty.

The World Wildlife Fund Madagascar has also suggested other areas for release that are located towards the eastern edge of the tortoise's range. Releases are symbolic and can send a strong message to the people through the media. It is essential to inform the local people, as well as the whole of the Madagascan population, that these tortoises are now monitored and protected and that this natural heritage must be conserved for everybody's benefit. By protecting the tortoises, the local economy also benefits through tourism. Despite all this it is still difficult to make people understand, not just in Madagascar, that animals are more valuable alive than dead. In our project, there is a strong emphasis on raising awareness amongst the villagers and getting them involved in the program.

We have several initiatives involved in tortoise conservation in the south with the main principle being to change ways of thinking through sharing information, conducting local initiatives, and media involvement. We support research and zoo techniques, including pathology, biology and husbandry; foster visitor relations and support the regional economy by creating jobs and developing tourism; and we build contacts and collaborations with other associations, both in Madagascar and abroad, and with public authorities. Reducing trafficking and poaching is the most urgent concern, to achieve this we need to raise awareness amongst the villagers and the authorities, and encourage more stringent checks and controls.

However, the real problem is poverty and the economic situation in Madagascar, which is currently suffering from political instability and a lack of tourists. If there were more visitors to Madagascar, particularly to the south that offers marvelous places to visit, there would be a better economy. Developing tourism opportunities that foster a respect for nature would improve the situation of the island's fauna, which would then be less subject to poaching.

If we want to help Madagascar, we need to visit in fairly large numbers, so that we can improve the standard of living of the villagers in the south and avoid the temptation for them to sell the local wildlife. Finally, trade in these species remains the biggest problem because it is fueled not only by the high local and regional demand for tortoise meat for





**Figure 4.** Turtle collectors, nearly always very poor, usually carry poached tortoises on poles on their shoulders—this one was near Cap Sainte Marie. Photo by B. Devaux.

consumption, but also by the demand of overseas collectors and enthusiasts that keep creatures in tanks and who are prepared to pay “any price” to have an *A. radiata* in their house. To halt the depletion of exotic wildlife, including tortoises, we must refuse to trade in these creatures. Internet sites are part of the problem, with hundreds of them offering tortoises for sale, including some of the rarest species, such as *A. yniphora* and *A. radiata*. So it is clear that Madagascans themselves are not solely responsible for all the problems regarding tortoises. The pet trade problem stems mainly from rich countries and individuals that are willing to pay astronomical prices for several species (e.g., over \$10,000 USD for *A. yniphora*). This demand explains why sought-after wildlife is poached, trafficked, and depleted. We must face up to these problems if we are to safeguard the endemic Madagascan wildlife that is so extraordinary.

#### RÉSUMÉ

L’association française, SOPTOM, a été créée en 1986 dans le but d’étudier et de protéger les tortues. Installée

dans le Sud de la France, elle a réalisé un centre d’accueil et d’information à Gonfaron nommé “Village des Tortues.” Dans les années 1990, elle s’est intéressée aux tortues de Madagascar, et en 1999, avec une association de Toliara, l’Association de Sauvegarde de l’Environnement elle a créé un “programme SOKAKE” et un Village des Tortues à Mangily-Ifaty. Le but de cette centre est de recevoir les tortues saisies par les autorités, de participer à la conservation des *Astrochelys radiata* et *Pyxis arachnoides*, et de favoriser le développement éco-touristique de la région, tout en réprimant les trafics de tortues.

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