

## **Captive reproduction of *Geoclemys hamiltonii* – and its chances for an ex situ assurance colony in Europe?**

### **Introduction:**

Since 1975 *Geoclemys hamiltonii* is listed as Cites 1. In The Netherlands the species was protected by Dutch law since 1975; since a few years however also Cites listed.

This Asian fresh water turtle species occurs in India and Pakistan.

Despite Cites protection large numbers are still offered on the Chinese food markets.

For many years the species turned out to be impossible to reproduce, this probably due to improper housing and feeding.

### **Captive reproduction:**

Since 1993 a few breeding results are registered at few private locations in Europe and since 1998 at Rotterdam Zoo. However at these locations the reproductive rate is high.

Private breeder and ESF-studbook keeper Harry Rotmans acquired a male in 1972 and a female in 1973. Both specimens were wild-caught. They were housed in a 3.7 x 0.8 metres aquarium and developed well. The water-part measured 2 x 0.8 metres. The couple was housed together with 1.3 *Cuora trifasciata* and 1.2 *Cuora amboinensis kamaroma*. The land-part contained a 17 cm high layer of sand. No interactions has been observed between the 1.1 *G. hamiltonii* and the two other turtle species.

Some reproductive data of this pair:

Year	number of hatchlings
1993	6
1994	22
1995	18
1996	28
1997	15
1998	34

On the ESF internetsite [www.studbooks.org](http://www.studbooks.org) you will find an extensive article about these breeding results.

### **Some brief reproductive data at Rotterdam Zoo:**

Since 1984 the species is in the collection; several individual animals arrived into the collection from privates and confiscations during the eighties. Some of the animals turned out to be in a poor condition and finally one survived and is still in the collection. In 1996 the zoo received 4 one year old captive born animals from private breeder Harry Rotmans. In 1998 we also received the adult wild caught breeding couple from him on loan.

Between 1999 and 2003 57 hatchlings were produced by the adult couple. During 2001 and 2002 the female was not in optimal condition, so reproduction did not occur.

In 1999: 21 hatchlings, 2000: 16, in 2001 and 2002 none and 2003: 20.

Male and female are separately housed during winter and are brought together in early spring.

The vivarium they occupy measures 3.5 x 2 x 2,5 metres. Three parts of the floor surface is a concrete floor; one part is water with a depth of 30 cm. On the land part a sand/peat heap is present for egg laying. The female produces two to three clutches per year with a maximum of 26 eggs per clutch. The incubation period is relatively short; 48 days at 28, 48 days at 30, and 42 days at 32 degrees centigrade.

The adults show a peaceful and quiet character and are very tolerant towards other turtle species.

The Rotterdam Zoo pair is housed together with 3.2 *Chelodina mccordi* and 1.1 *Hydrosaurus pustulatus*. No interactions has been observed between *G. hamiltonii* and the *Hydrosaurus*.



### **Captive reproduction in Europe:**

Since 1995 at two private locations in Germany and Austria reproduction is registered. At the location in Germany the production was not proceeded due to the death of one of the sexes.

It can be expected that some not registered breeding occurred over the last decade, but the genetic basis however can be considered as very small.

The offspring from these two private collections and from Rotterdam Zoo were transferred to other private collections and zoos.

### **Chances for survival within ESF and EAZA:**

The Rotterdam Zoo offspring is offered on the EAZA-surplus/wanted-list for several years, response however was very low. In 2001 8 hatchlings moved to Walsrode in Germany and 6 very recently to the Universeum in Goteborg, Sweden.

To improve the genetically basis it is very necessary to enlarge the number of founder animals by import from range countries. At the same time the offspring from the three breeding European pairs have to be housed at a larger number of European collections.

Both suggested actions require more capacity within the private and zoo sector.

Import from new founder stock is practically possible, but only feasible if more privates and zoos are interested in housing this very interesting and attractive species.

From Rotterdam Zoo a large number of hatchlings were transferred to private collections in The Netherlands, including ESF studbookkeeper Harry Rotmans.

Offering the hatchlings to the pet market is not an option for Rotterdam Zoo; therefore other ways have to be explored to establish a larger and genetically sound ex situ population within the European Zoo community and the private sector organised within the European Studbook Foundation.

For Rotterdam Zoo it would be very undesirable not incubating the eggs in 2004.

With this brief reproductive report and update on the ex situ status of the species within Europe I hope to have given food for some thoughts. I strongly urge privates and zoos to take this beautiful and endangered turtle species in their collections.

Only by expanding the European ex situ population this species can be offered a better chance for survival.

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