

# Assurance colony for *Kachuga trivittata*, update March 2004

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## CONSERVATION STATUS OF *KACHUGA TRIVITTATA*

The status of *Kachuga trivittata* is the most precarious of all the endemic turtles in Myanmar. *Kachuga trivittata* is listed as “endangered” in the 2000 IUCN Red List of Threatened Species. However, the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group & Asian Turtle Trade Working Group (2000) proposed (pp. 160): “*Actually a candidate for CR (critical) or EX (extinct), considering that no animals have been reliably recorded since 1935 despite mass trade of riverine turtles from MM (Myanmar) to CN (China).*”



Fig. 1: *Kachuga trivittata* female #5, Yadanabon Zoo, July 2003

## *KACHUGA TRIVITTATA* IN CAPTIVITY

No live *K. trivittata* were recorded between 1935 and 2002. Accordingly, until 2002 the species was not represented anywhere in captivity. The first live specimens recorded in Myanmar for 67 years were the two females and one male found in the Mahamuni Paya pond in July/August 2002 (Kuchling et al., in press; see Table 1). These three specimens were transferred to Yadanabon Zoo in Mandalay. However, there were no suitable facilities (ponds) for the maintenance of river turtles at Yadanabon Zoo and the turtles were moved several times between the elephant bathing pond and a preliminary ground pond. Unfortunately, the male (# 4) disappeared during November or December 2002. The larger female (#5) had a severe inflammation of the knee joint with osteomyelitis in January 2003, but recovered fully after antibiotic treatment.



Fig. 2: *Kachuga trivittata* nale #4, Mahamuni Paya pond, July 2002

A *K. trivittata* enclosure with a larger ground pond was built at Yadanabon Zoo in February 2003, with emergency funds donated by BTG Studios, Sydney and by Allwetterzoo Münster. Since that time, the condition of the two remaining turtles from the Mahamuni Paya improved.



Fig 3: *Kachuga trivittata* enclosure under construction, Yadanabon Zoo, February 2003

Yadanabon Zoo acquired further specimens of *K. trivittata* over the last six months: a juvenile male from the Dokthawady River in October 2003 (Thin Thin Khaing (1) and Ni Ni Win, unpubl.) and an adult male and an adult female which were confiscated from an illegal turtle trader at the Chindwin River in March 2004 (Tint Lwin, unpubl.). Table 1 summarises the data of all live *K. trivittata* known around the world.



Table 1: live *Kachuga trivittata* found since 2002

	date acqu.	from (locality)	CL mm	sex	current location
NY	Jan. 2002	Guangzhou market, China	?	juv. fem.	Bill McCord, NY
#4	July 2002	Mahamuni Paya, Mandalay	270	male	disappeared, Yad. Zoo
#5	Aug. 2002	Mahamuni Paya, Mandalay	420	female	Yadanabon Zoo
#6	Aug. 2002	Mahamuni Paya, Mandalay	282	subad. fem.	Yadanabon Zoo
HK	May 2003	Guangzhou market, China	?	juv. fem.	Hong Kong, private
#8	Oct. 2003	Dokthawady (fisherman)	198	juv. male	Yadanabon Zoo
#15	Mar. 2004	Chindwin, confisc. (trader)	310	male	Yadanabon Zoo
#16	Mar. 2004	Chindwin, confisc. (trader)	515	female	Yadanabon Zoo

Fig. 4: *Kachuga trivittata* juvenile male #8, Yadanabon Zoo, February 2004Fig. 5: *Kachuga trivittata* enclosure, Yadanabon Zoo, Mandalay, February 2004

## MAINTENANCE OF *KACHUGA TRIVITTATA* AT YADANABON ZOO

Yadanabon Zoo, an entity of the Nature and Wildlife Conservation Division, Myanmar Forestry Department, currently houses five *K. trivittata*: two adult females, one adult male, one presumably still subadult female and one juvenile male (Table 1). After some initial problems the two turtles remaining from the 2002 acquisition are growing satisfactorily and are healthy and in a good condition (see Table 2).



Fig. 6: *Kachuga trivittata* enclosure, Yadanabon Zoo, Mandalay, January 2004

Table 2: Morphometric and growth data of *Kachuga trivittata* at Yadanabon Zoo. CL = carapace length; PL = plastron length; SW = shell width; SH = shell height.

<i>K. trivittata</i> #	Mass (kg)	CL (mm)	PL (mm)	SW (mm)	SH (mm)
<b>male #4</b> 28 July 2002		270	242	219	110
<b>female #5</b> 07 Aug. 2002 09 Feb. 2003 19 July 2003 24 Jan. 2004	~11.5 11.0 13.05 13.25	420 442 450	368 394 397	353 335 344	170 178 180
<b>female #6</b> 07 Aug. 2002 09 Feb. 2003 19 July 2003 24 Jan. 2004	~4.5 3.8 7.4 7.4	282 358 366	263 325 335	231 277 282	108 147 151
<b>male #8</b> 10 Feb. 2004	1.085	198	176	175	90
<b>male #15</b> 20 Mar. 2004	~4.9	310	275	245	
<b>female #16</b> 20 Mar. 2004	~22.9	515	490	415	220

## ASSURANCE COLONY FOR *K. TRIVITTATA* AT YADANABON ZOO

Five of the seven captive *K. trivittata* known around the world are at Yadanabon Zoo (Table 1). *Kachuga trivittata* is in dramatic non-cyclical decline and close to extinction in the wild (Kuchling et al., in press). Of the world's top 25 most endangered turtles (TCF, 2003), this species is arguably in the top two that most desperately need a captive assurance colony in order to survive. The second in this group is *Rafetus swinhoei*, like *K. trivittata* a large, Asian river turtle.

### *Existing Facility and Expertise*

The captive colony of *K. trivittata* at Yadanabon Zoo was created in an ad hoc fashion even though there were no adequate holding facilities available, because I unexpectedly found three specimens of this extremely rare species in 2002. The construction of the *K. trivittata* enclosure in 2003 was an emergency action. With the two females in their care now for one and a half years, the staff at Yadanabon Zoo demonstrated that they can successfully maintain the species. The challenge now is to set up an adequate assurance colony at Yadanabon Zoo which allows the captive specimens not only to survive, but also to reproduce successfully.



Fig. 7: Sandy area for future nesting, *Kachuga trivittata* enclosure, Yadanabon Zoo, Mandalay

### *Need to Expand Facility*

There are four major reasons why additional ponds and enclosures are imperative for the proper assurance colony management of *K. trivittata* at Yadanabon Zoo:

- 1) The option is needed to separate males and females on a seasonal basis.
- 2) In the case of new acquisitions from future confiscations, new arrivals have to be quarantined. This is presently not possible.
- 3) Should captive breeding be successful, it will be necessary to have separate ponds to raise hatchlings and juveniles.
- 4) The captive stock originates from at least two separate wild populations (upper Chindwin River and Dokthawady River). These groups should be separated until a genetic study has established if these groups should be treated as separate management units or if they can be treated as one.



### ***Facility plan and costs***

*Kachuga trivittata* reaches over half a meter carapace length and is a river turtle which lives in deep river sections (Kuchling et al., in prep.). Shallow, stagnant ponds are not very suitable because of their high daily temperature fluctuations. Ponds have to be deep enough (at least 1.5 m, but preferably deeper) and there must be a possibility to change water or at least to flush fresh water through. These requirements make a breeding facility for *K. trivittata* more expensive than it would be for many other freshwater turtles.

Kuchling (2003) proposed a plan for four new ponds and enclosures with water supply, filtration and glass viewing panels with a price tag of US\$ 56,000. Until now this sum could not be raised. However, time is pressing to expand the existing facility. Two more ponds are urgently needed, in order to be able to quarantine turtles and to be able to separate the sexes. A much reduced version of the original plan which could still cater for these necessities would cost US\$ 10,000. As immediate help, half this sum could still provide at least one additional pond and enclosure.

## **CONCLUSION AND OUTLOOK**

**Yadanabon Zoo cares for the only known males and the only adult females of *Kachuga trivittata*, one of the world's rarest and most threatened turtles. It would be a conservation tragedy not to use this group to set up an exemplary assurance colony.**

**The Nature and Wildlife Conservation Division, Myanmar Forestry Department, and Yadanabon Zoo have the will to establish and run the assurance colony programme. Missing are only the funds to build the necessary facility.**

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