REPTILIA (2001). vol.18, 13 - 15.

CONSERVATION

Vietnamese turtle in grave danger of extinction

By D. Medina López, J. Soler Massana and A. Martínez Silvestre

In 1945, about 43 percent of Vietnam was forested. This has since changed, in large part due to war. On 2 May 1965, the United States officially entered the Vietnam conflict with troops, but during the years before that (1962–1964) it was already involved in undercover military activity there. This included experimentation new chemical weapons, such as napalm, phosphorous bombs, and defoliant herbicides (Agent Orange), designed to defoliate the tropical jungle that concealed the enemy troops. Thousands of hectares of jungle were in fact destroyed.

The use of these chemical weapons during the war, followed by aggressive exploitation of the jungle and extensive subsistence farming by the mostly rural population after the war, reduced the area covered by jungle to only 10 percent. Today, Vietnam has 11 national parks and 91 protected areas, which together represent only 4.1 percent of the country's territory.

The large-scale destruction of natural habitat caused virtually irreversible damage to the autochthonous fauna, turtles being among the groups of animals most affected. Experts of the IUCN (The World Conservation Union) are studying the grave situation of the turtles of southeastern Asia, which has been caused not only by the turbulent history of the region, but also by the harvest of enormous numbers of turtles for traditional medicine, the pet trade, and mostly for human consumption as a regional dish. Frightening is the estimate that some 28,000 tons of turtles are currently being taken from the wild and sold each year, and that if this continues, these reptiles will disappear from the continent within the decade.

In Vietnam, turtles are generally not well protected. Of the country's 23 turtle species, only nine are included in the Vietnam Red Data Book of Endangered Wildlife, and of these, only two (*Indotestudo elongata* and *Pelochelys cantorii*) are specifically protected by Vietnamese law. The turtles captured are used for food and in traditional medicine, and, in smaller numbers, as pets. A very small percentage of these turtles reach Western countries.

In 1999, a specimen of *Annamemys annamensis* — a pond turtle (family Bataguridae) endemic to Vietnam — was donated to the Center for the Recovery of Amphibians and Reptiles in Catalonia (CRARC) in Masquefa (Barcelona), Spain. *Annamemys annamensis* is found only in central Vietnam, and is in grave danger of extinction. It is known to inhabit marshes and slow-moving streams far from areas inhabited by humans. Described by Siebenrock in 1903, the species has been known by the names *Cyclemys annamensis*

and *Mauremys annamensis*, but today is classified as *Annamemys*.

Description

The carapace of *Annamemys annamensis* is only slightly domed, and juveniles have three weak dorsal keels. Carapace coloration is brown to black. The plastron has an orange-yellow ground color with black blotches on each scute forming two well-defined longitudinal bands. Coloration of the head (similar to that of *Cuora amboinensis*) is dark with three longitudinal yellow stripes on each side. The first stripe originates at the nostril and passes over the eye and to the neck; the second stripe also originates at the nostril, but passes through the orbit and the tympanum to the neck; the third stripe originates below the nostril and runs along the upper jaw to the neck. The color of the iris is bright yellow with a horizontal black stripe that includes the pupil. The top of the head and neck is dark; the underside is pale.

The plastral formula based on the relative lengths of sutures between pairs of homologous scutes is abd<pect>fem>an>hum><gul (the humeral and gular sutures are more or less equal in length and shorter than the anal suture, which is shorter than the femoral suture, which is shorter than the pectoral suture which is longer than both the abdominal and femoral sutures). In any case, the pectorals, abdominals, and femorals are often very similar in length.

The extremities of *Annamemys annamensis* are well adapted to an amphibious lifestyle. The feet have interdigital membranes for propulsion in the water, but these are not as developed as the webbing in turtles that are more aquatic, such as the Chinese softshell *Pelodiscus sinensis* of the family Trionychidae. Although the low carapace of *Annamemys annamensis* provides the hydrodynamics necessary for agility in the water, the robust head and jaw musculature, together with the strength of the extremities, suggest a terrestrial lifestyle.

Sexual dimorphism in *Annamemys annamensis* is not pronounced; it is really noticeable only in the tail, which in males is larger and more robust at the base.

The captive specimen at CRARC measured 176 millimeters in total carapace length and 149 millimeters in width, with a maximum height of 69 millimeters. It weighed 846 grams.

Alimentation

The diet and life cycle of *Annamemys annamensis* in the wild are unknown. In captivity, it accepts fruits and vegetables (tomato, apple, cucumber, lettuce) and meat and fish, demonstrating an omnivorous character similar to that of other Asian pond turtles such as *Cuora amboinensis* and *Cuora galbinifrons*.

Pattern and coloration on the head of *Annamemys annamensis*, which is very similar to that of *Cuora amboinensis*, another Asian pond turtle.

Behavior

Like many other members of the family Bataguridae, *Annamemys annamensis* is a timid and distrustful turtle. It basks on logs and branches, but never lets down its guard, and is always prepared to jump into the water at the first sign of danger or human presence. Toward turtles of other species it does not show hostility, territoriality, or any type of competition — only indifference.

Status

Annamemys annamensis is one of the turtles of southeastern Asia whose delicate situation needs to be made known. Vietnam signed the Washington Convention (CITES) in 1984, but *A. annamensis* is not listed as endangered. The current status of the population is unknown, as is the outlook for the future; very few specimens were sighted in 1998 and 1999. The immediate causes of the turtle's scarcity are collection from the wild and habitat destruction due to deforestation. In the past, these turtles were captured for local consumption, but today most are sold to dealers. *Annamemys annamensis* is common in the illegal trade of northern Vietnam and is seldom seen in the pet markets of Hanoi, but it can be found in regional pet markets of eastern and central Vietnam. The commercial exploitation of this turtle could lead to the disappearance of wild populations.

Since a report by HENDRIE (2000) calling attention to the critical situation of turtles in southeastern Asia, recommendations have been made for the conservation of several turtle species in various zoological institutions, to maintain sufficient genetic variety to rescue populations from a very uncertain near future. ■

Acknowledgments

The authors would like to thank biologist Eva Pallàs for contributing graphic material.

Bibliography

HENDRIE, D. B., 2000. Status and Conservation of Tortoises and Freshwater Turtles in Vietnam. *Chelonian Research Monographs* 2: 63–73.

WELCH, K. R. G., 1994. *Turtles, Tortoises, and Terrapins: A Checklist.* KCM Books. 7–8.

MERCHÁN, M., 1992. *El maravilloso mundo de las tortugas.* Ediciones Anticuaria, Madrid. 245 pp.

ERNST, C. H., and BARBOUR, R. W., 1989. *Turtles of the World.* Smithsonian Institution Press. 136–141.