

CAPTIVE BREEDING OF *ELAPHE RUFODORSATA* AND *RHABDOPHIS TIGRINUS* FROM THE KOREAN PEOPLE'S DEMOCRATIC REPUBLIC

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Several specimens of living snakes were collected on 9th June, 1980, by Zbigniew Szyndlar about 50 km SW of Pyongyang in the vicinity of Taesong-ho Lake. They belong to the commonest species from this region — *Elaphe rufodorsata* and *Rhabdophis tigrinus*. Rice fields are their typical habitat and they spend majority of time laying in the water.

Three females of *E. rufodorsata* (Plate 1) were placed in the terrarium of size 70 x 45 x 63 cm. The snakes got used to new conditions very quickly and began to eat frogs almost immediately thereafter. A month later they were bold enough to approach my hands searching for food and sometimes all three tried to swallow the same frog. This species constricts larger prey and swallows it as a rule from the head (Plate 2). Only smaller frogs can be eaten from behind. In the middle of July they began to refuse offered frogs, only occasionally eating young specimens. The snakes were however very thick and it was clear they were pregnant. It is quite possible that during constriction of prey the embryos could be damaged. This species is especially remarkable in being ovoviviparous, but there is not much information about this (Fitch 1970). Bannikov *et al.* (1977) state that this species gives birth to 8-20 young of size 165-180 mm at the end of October, whereas Terentiev and Chernov (1949) report about 8-10 young at the end of September, and up to 21 according to data of Pope (1935). Each of my females of size 50-60 cm produced 7 young on 2nd September, 29th September and 7th October respectively. The babies hatched in the oviducts of the female and the egg membranes emerged after the hatchlings. In the first two broods there was one embryo dead though fully developed, length 182 mm and 158 mm respectively. Freshly born snakes were shedding within 1-2 hours and they started to feed on small frogs after 2-3 days, constricting their prey in the same way as adult specimens. When disturbed they vomited a frog even when almost completely swallowed. Although this species is specialized in feeding on fish and amphibians, one of my females, however, eats weaned mice from tweezers even just before shedding. Also, a juvenile *Natrix natrix* kept in the same terrarium once was swallowed and then vomited. The preferred temperature of these snakes is 25-28°C in my terrarium.

R. tigrinus has been much more studied, especially in Japan. It is one of the several members of the aglyptic colubrids being potentially venomous and there is one report on human death caused by this snake (Mittleman and Goris 1978; see also Minton and Mebs, 1978). Two specimens were brought to Poland. The female of about 1 m long laid 2 eggs on 13th June in the bag during the journey back to Poland and were destroyed, then 13 eggs on 1st July which were incubated and 12 eggs on 18th July in the water pot which were also lost. In total it laid 27 eggs. Bannikov *et al.* (1977) report about 18-22 eggs depending on the size of female (see also review by Fitch). Fitch writes that at room temperature (20-30°C) incubation averages 37.6 (29 to 45) days. Trutnau (1979) refers to Emilianov that incubation is about 46-47 days. According to my records the first snake hatched on 3rd August (after 34 days) and two others the day later (Plate 4). Unfortunately some eggs dried when I was out of Krakow and others were killed during checking the stages of the embryos' development. Their size was within the average size of hatchlings (150-170 mm) known from the literature. The eggs were incubated in a big jar with earth and Sphagnum moss at about 20°C at night and about 30°C during the day. Such changes seem to be very important for the embryos. With eggs of *Chelydra serpentina* incubation at constant temperatures of 20°C and 30°C resulted in females, whereas 26°C produces males; between these temperatures a mixture of males and

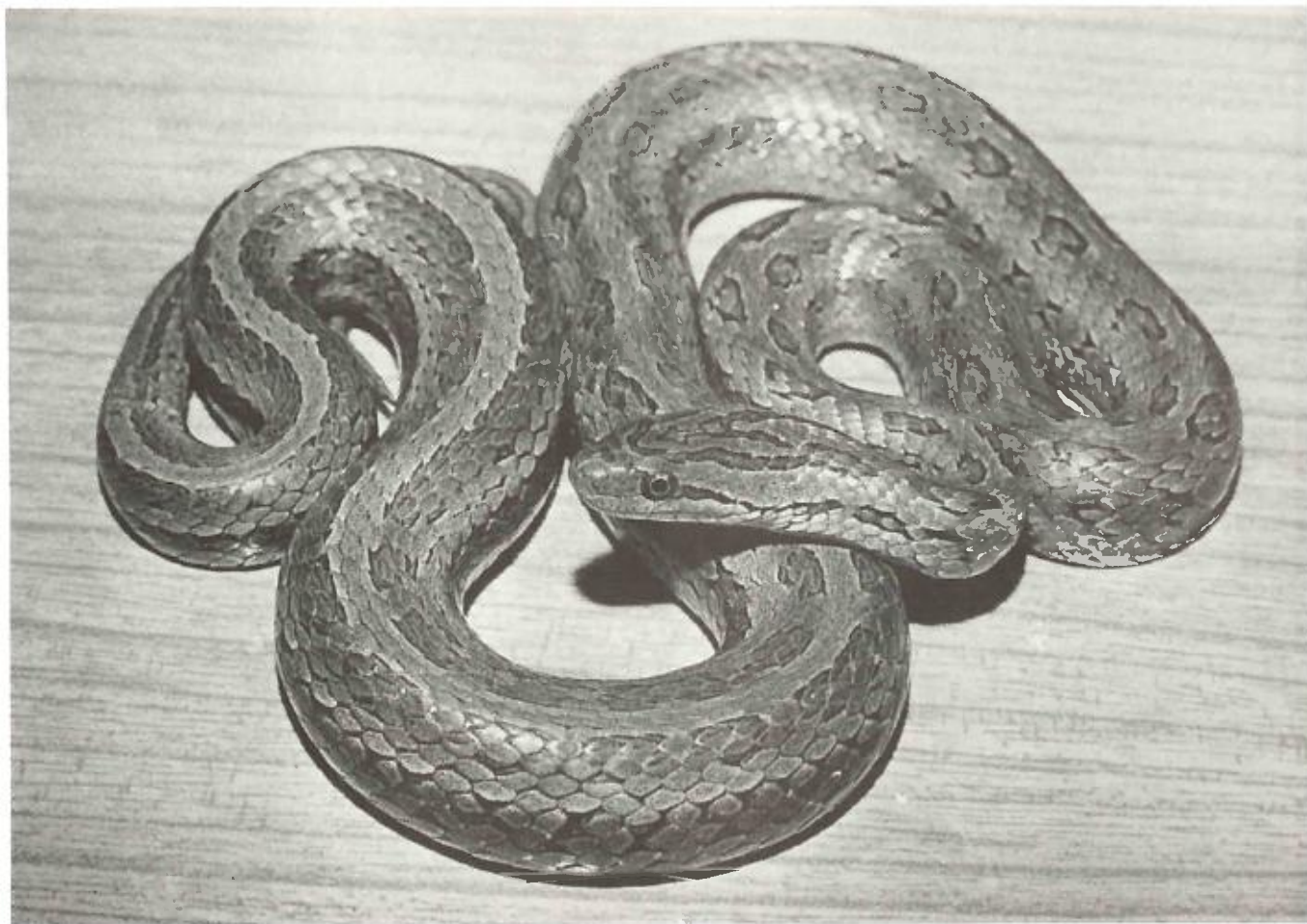


Plate 1. Adult female *Elaphe rufodorsata*

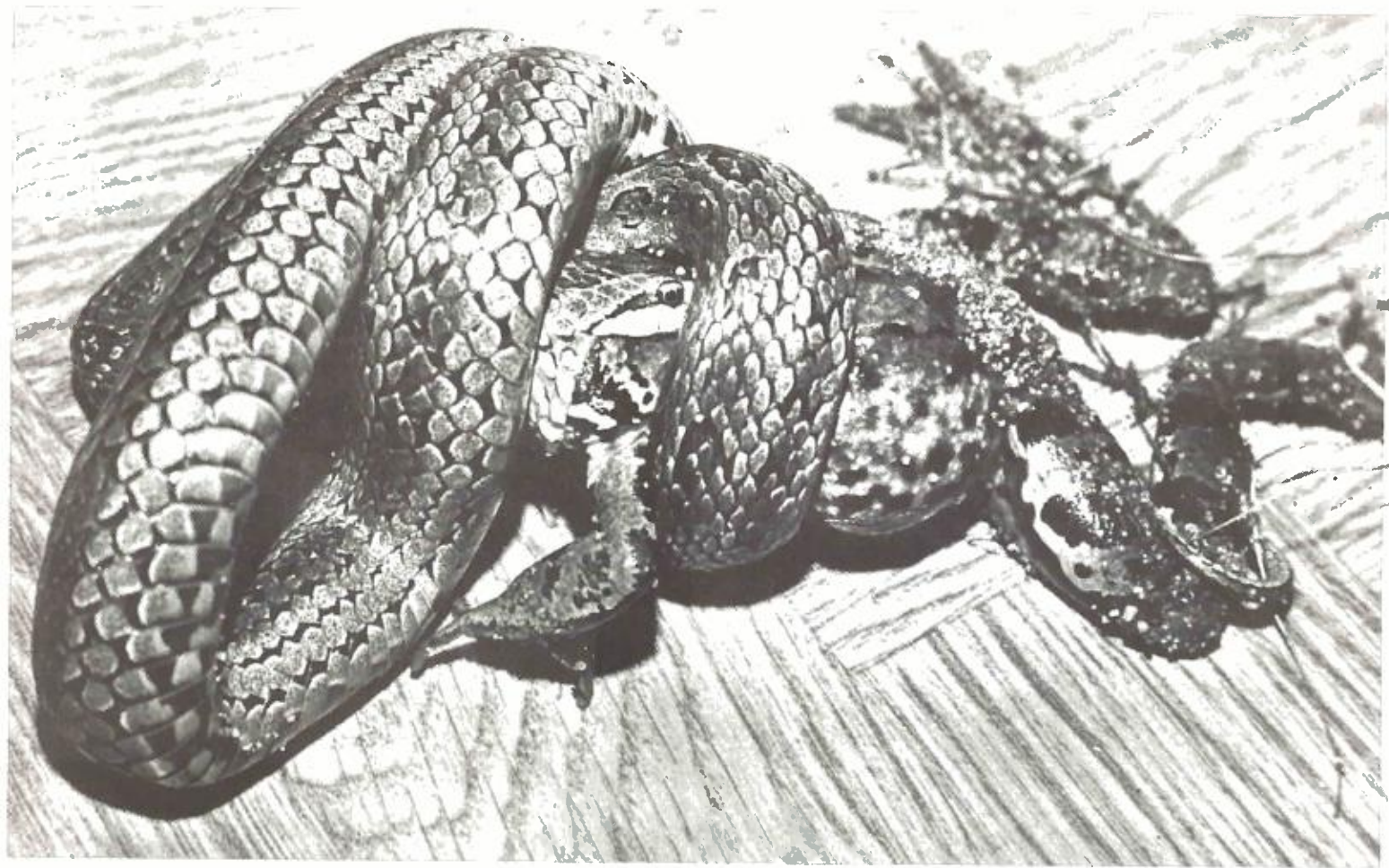


Plate 2. *Elaphe rufodorsata* swallowing adult frog, *Rana temporaria*



Plate 3. *Elaphe rufodorsata*, juvenile aged 10 days



Plate 4. *Rhabdophis tigrinus* hatching from egg.

females will be produced (Yntema 1979; see also Limpus and Miller, 1980). Hatchlings began to feed on tadpoles of *Bufo viridis* 2 days later, catching them in a dish of water. The first shedding occurred on 10th August. They became used to captive conditions quickly and it is very exciting to see animals with such an excellent appetite. It was impossible to put one frog in terrarium, I had to give them all food at the same time; they also took frogs from my hands. Sometimes serious biting during competition for food took place, and they were so keen to feed that they would do so with milky eyes just before shedding. This species usually eats frogs from behind and when the prey is too large it is left. When this happens the frog dies quickly, suggesting that the venom is quite strong. These snakes also eat small fish and newts.

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