

B REEDING THE YELLOW RAT SNAKE AND GREY RAT SNAKE

ELAPHE OBSOLETA QUADRIVITTATA AND ELAPHE OBSOLETA SPILOIDES

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TAXONOMY

Family *Colubridae*, Subfamily *Colubrinae*. The genus *Elaphe* is comprised of about 40 species, including *Elaphe obsoleta* which contains five subspecies: *Elaphe obsoleta lindheimeri*, *Elaphe obsoleta obsoleta*, *Elaphe obsoleta quadrivittata*,



Neckbite during mating. Photo: Chris van Kalken.



Elaphe obsoleta rossalleni, and *Elaphe obsoleta spiloides*. I keep the yellow rat snake (*Elaphe obsoleta quadrivittata*) and grey rat snake (*Elaphe obsoleta spiloides*).

DISTRIBUTION

The yellow rat snake is found in eastern North Carolina and the coastal plains of South Carolina and Georgia southward to Florida. The grey rat snake can be found in the southern part of the United States. With its northern limit in Indiana, it also occurs in north east Florida, western Georgia, Alabama, Mississippi, eastern Arkansas, southern Illinois, western Kentucky and western Tennessee.

HABITAT

The yellow rat snake inhabits a region with a milder climate in winter than the grey rat snake. The summers are warmer and moister than the summers in the grey rat snake's distribution range. The winters are milder, daytime temperatures don't drop below freezing point. In the distribution range of the grey rat snake, on the other hand, it can freeze severely even during the day. In summer the distribution area of the grey rat snake is dryer than that of the yellow rat snake. In their respective distribution areas both snakes are found mainly in wooded habitats, but may also be seen in more grassy areas.

APPEARANCE

Adult yellow rat snakes have, as the name implies, a yellow ground colour, over which there are dark longitudinal stripes. Often a faint pattern of saddle-shaped markings can still be seen along the back. When they hatch juvenile

yellow rat snakes have this pattern which is replaced by the adult pattern in the second half of their first year. Newly hatched yellow rat snakes have a grey background colour, similar to the colour grey rat snakes retain all their life. Grey rat snakes also retain their juvenile saddle-shaped markings.

BEHAVIOUR

Interestingly, of the four animals that were acquired (two pairs) three were aggressive when purchased. The snake that has never bitten was the only wild-caught animal, the three aggressive ones were all captive bred. The yellow rat snakes feed both less frequently and less enthusiastically than the grey rat snakes. They are also shyer in their behaviour.

HOUSING

Both pairs are kept under the same conditions. The cage of the yellow rat snakes is a little smaller than that of the grey animals because these animals are a little smaller. No winter period is simulated, the daytime temperature is about 28°C in summer and 26°C in winter. At night the temperature drops to about 18°C. Both cages are in an attic that is seldom visited during the day. The cages are illuminated and heated with a 60 Watt Philips Halotone incandescent lamp that is connected to an adjustable dimmer. An advantage of this lamp is that it emits a little UV.

In both cages there is also a modest water container. The bedding consists of a compressed wood granulate that is normally used as cat litter. The day length is regulated via a timer: 16 hours on in summer, 10 hours on in winter.

All animals are fed with mice and rats. Only the wild caught yellow rat snake occasionally refuses to feed on dead prey. During these periods (sometimes for up to four months), the animal hardly lost any weight despite the fact that no other prey is offered.

DISEASES

For quite a while after being purchased, the wild caught animal had problems with worms and flagellates. The flagellates were killed by administering a single dose of Metronidazole at 200 mg per kg body weight, with a similar dose two weeks later. Getting rid of the worms was a lot more difficult. Levimasol and Panacur at the right dosage were not effective, after several months the animal still suffered from a lot of roundworms. Administering 240 mg Niclosamide and 30 mg Oxibendazole per kg body weight twice over an interval of ten days finally got rid of the parasites.

BREEDING

The only stimulus I used was to separate the males from the females. On June 10th 1998 the first and only mating I observed occurred between the yellow rat snakes. After exactly one month the female became restless and four days later she laid nine eggs. I found the eggs the next morning and removed them from the female. She aggressively defended the eggs. The eggs measured 3.5 by 1.8 cm and weighed between 9 and 13 grams. The eggs were not stuck together. Two days later she laid another small, sand coloured egg which spoiled within two weeks and was not fertile.

The grey rat snakes mated on March 1st 1999 and the 30 eggs were laid on April 22nd. These

eggs were slightly larger than those of the yellow rat snakes, about 4.1 by 2.2 cm. On this occasion I was present when the eggs were laid. I removed the eggs without any problem from beneath the female while she was laying and place them directly in the incubator.

All the eggs were buried to a depth of one to two centimetres in a mixture of sand and potting soil. They were place in a home-made incubator at a temperature of 28 to 29 degrees Celsius (yellow rat snakes) or 29 to 30 degrees Celsius (grey rat snakes). Every other week the soil was sprayed with water to keep it moist. Every two weeks I inspected the eggs by digging them up. With the grey rat snakes eggs two collapsed after about two weeks. One was not fertilised, the other contained a dead twin embryo. Probably one of the embryos had died, killing the other as well.

After 50 days I opened a heavily dimpled egg by cutting off the top. It contained a live embryo. Judging by the remains of the yolk sac this egg should hatch several days later. I carefully placed the opened egg in a moist tray in the incubator. This way I could view the development of the young snake and determine the moment of hatching quite accurately.

After 59 days for the yellow and 54 days for the grey rat snakes several eggs were pushed to the surface of the substrate by the movements of the young. I carefully covered them again. The same day the eggs were slit, which could be observed by the foam, leaking egg albumen, on the soil. I manually opened all but two eggs. Those two hatched themselves while I was opening the other eggs. In two-thirds of the young remains of the yolk sac were clearly present. After binding





the umbilical cord, the remains of the sac were removed. I placed the neonates in separate containers. They all weighed between 6 and 11 grams and were about 20 cm long. Of the nine yellow rat snakes that hatched, one died after about a month. All 28 young grey rat snakes are still alive at the time of writing (two weeks after they hatched).

In the mean time I have also observed mating between the yellow rat snake male and the grey rat snake female. Notably, the male used a "neck bite" in this case. At the time of writing it is apparent that the grey rat snake female is indeed pregnant from the yellow rat snake male.

LITERATURE

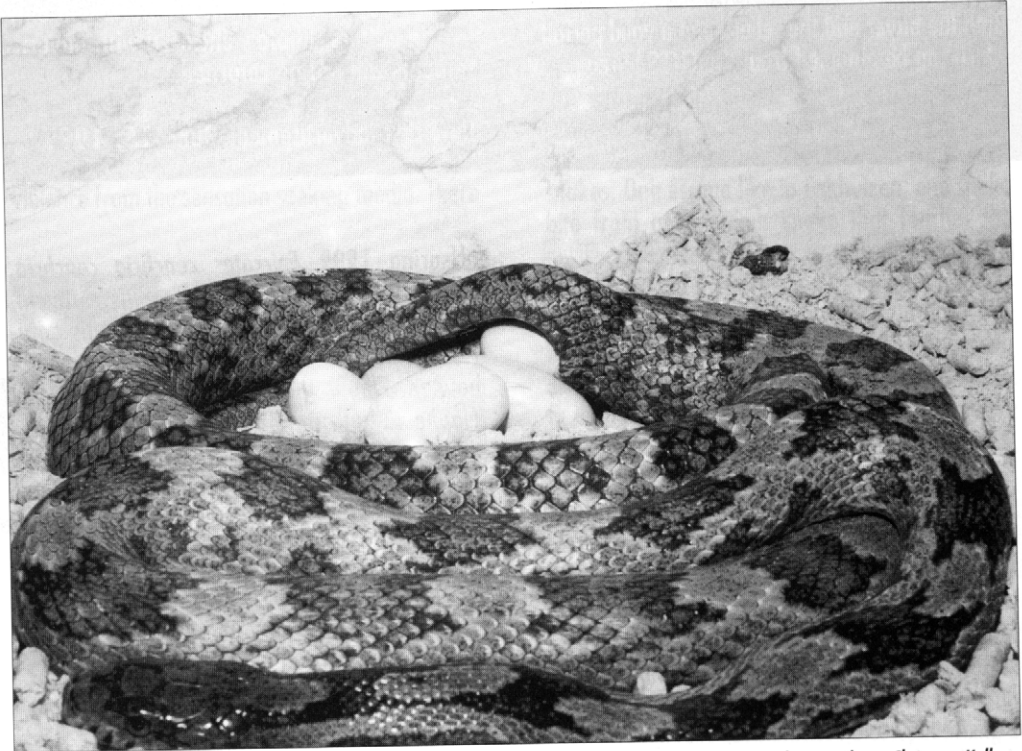
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Translation: Ron Winkler

Corrections: Lawrence Smith



Grey ratsnake during egg laying. Photo: Chris van Kalken.