LAMPROPELTIS TRIANGULUM ELAPSOIDES, THE SCARLET KINGSNAKE.

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INTRODUCTION

I had already bred these bright coloured snakes in 1981 but I had not observed any copulations (that year) and as I wanted to write an article as complete as possible I now write about the breeding results of 1982. Concerning 1981 I shall only mention that from one copulation period (the snakes were put together for only one week) two layings were produced: The first consisted of nine eggs, the second six eggs. All these eggs hatched. The feeding of the young will be mentioned below. First some information about the genus *Lampropeltis* in general.

THE SPECIES WITHIN THE GENUS *LAMPROPELTIS*

Lampropeltis triangulum is the biggest representative of the genus *Lampropeltis* (a genus that has a large distribution; from south Canada south to the north west of South-America), it has the greatest number of subspecies: 23. This species is the only one that occurs in South-America (see Map 1.) Other species within the genus *Lampropeltis* are *Lampropeltis getules* (with about 9 subspecies), *Lampropeltis calligaster*, *Lampropeltis pyromelana*,



Map 1. Distribution of *Lampropeltis triangulum*. From: Williams, 1978.

Lampropeltis zonata and *Lampropeltis mexicana* (all having a number of subspecies).

LAMPROPELTIS TRIANGULUM

The nominal form, *Lampropeltis triangulum triangulum* has a northern distribution occurring in southern Canada, and the United States south of the Great Lakes. This subspecies has saddle shaped spots that are brown red coloured, because of this colouration it looks like *Elaphe vulpina*. Another subspecies with similar markings though brighter coloured is *Lampropeltis triangulum syspila*, which also occurs in the United States. Most other subspecies have red-white-black or red-yellow-black rings around the body.

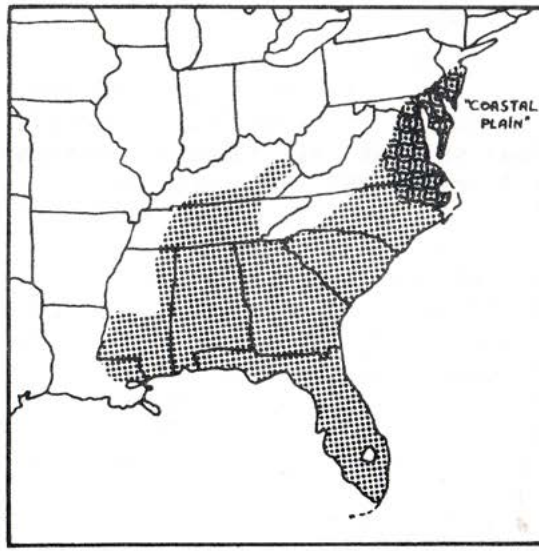
Habitat.
Lampropeltis triangulum lives in all kinds of habitats. Some occur in the Mexican sierras, like *Lampropeltis triangulum nelsoni* and *Lampropeltis triangulum arcifera*. Some occur in open grassland, pinetree forests, parks, savannahs, prairies and rainforest-like areas, like *Lampropeltis triangulum blanchardi* and *Lampropeltis triangulum abnorma*. Some subspecies occur at up to 3000 meters. The biggest subspecies are: *Lampropeltis triangulum macropholis* (northwest South-America) which can grow up to two metres and *Lampropeltis triangulum abnorma* (west Guatemala to northwest Honduras) which can reach a maximum of 165 cm.
By mentioning the smallest subspecies we arrive at the snake that this article is about.

LAMPROPELTIS TRIANGULUM ELAPSOIDES

This snake is the smallest *Lampropeltis triangulum* and also the smallest within the whole genus. The longest male which has been found was 55.8 cm, the longest female 55.1 cm.

Description/Nomenclature.
Supralabial shields 7-7, infralabial shields 8-8, (sometimes 9-9), preocular shields 1-1, postocular shields 2-2, loreal shields 1-1, temporal shields 1+1 (1+2), ventral scales 152-194, subcaudal scales 31-51, dorsal scales 179, number of dorsal scale rows at mid-body 19, sometimes 17.
This snake was called *Lampropeltis doliata* by Linnaeus in 1766. It has also been called: *Coluber elapsoides* (Holbrook, 1838); *Calamaria elapsoides* (Holbrook, 1842); *Osceola elapsoides* Baird & Girard, 1853) and *Lampropeltis coccinea* (Cope, 1861). After that the genus became *Ophibolus* (Yarrow, 1883): a genus name with different species and subspecies.
Due to Wright and Bishop (1916) the snake was re-

turned to the genus *Lampropeltis* and this has remained so ever since, though the species and subspecies names have changed several times. The species name *doliata* was only recently changed to *triangulum*. *Elapsoides* has now become a subspecies of *Lampropeltis triangulum*.
The Scarlet king snake or Eastern milk snake as this snake is known in the United States occurs from North-Carolina, Tennessee, Kentucky, to south Florida and Key West, west to the Mississippi river (see Map 2.). This snake is often mistaken for the venomous *Micrurus fulvius* (coral snake). The latter has almost the same distribution (in *Micrurus* the red rings are touching the yellow rings; the head is black coloured). The adult *Lampropeltis triangulum elapsoides* are red brown to scarlet red, black and yellow banded (see Fig. 1.). The red rings touch the black ones, the head is mainly red coloured. New born snakes are red-black-white banded (see Fig. 3.). The white bands turn yellow later. The relationship with the nominal form *Lampropeltis triangulum triangulum* is re-



Map 2. Distribution of *Lampropeltis triangulum elapsoides*. From: Conant, 1975.

markable. The northern area of *Lampropeltis triangulum elapsoides* distribution is shared with *Lampropeltis triangulum triangulum*. Both survive very well. Even stronger are intergrades known as "Coastal Plain Milksnake". In the northwest an intergrade of *Lampropeltis triangulum elapsoides* x *Lampropeltis triangulum syspila* occurs.

Habitat/Food.
Lampropeltis triangulum elapsoides occurs up to a height of 300 metres. They live in open pine-tree forests where they hide under loose bark from fallen trees, under rotten tree trunks, under the ground and between the roots. They become especially active at twilight, but also appear after rain by day. After heavy rain or a flood they can be found between loosened bark from standing dead pinetrees some distance above the ground. The eggs are laid in rotten pinetrees or about 30 cm under the ground between tree roots.
Food consists mainly of lizards (e.g. *Lygosoma laterale*, *Eumeces* and *Sceloporus*), small snakes, young nest-mice, fish, earthworms, and insects.

THE TERRARIA

The two terraria I use for *Lampropeltis triangulum elapsoides* are very similar. They measure 45x30x45 cm (lxwxh) and are attached to each other (glass on glass). The bottom is chipboard which has been painted. The front has a sliding door. The lay out consists only of a small tree trunk (hiding place) and a small waterdish. The temperature during the biggest part of the year by day is about 26^{0}C, by night about 22^{0}C. Light from outside shines in both terraria.



Fig. 1. *Lampropeltis triangulum elapsoides*, adult. Foto: C.A.P. van Riel.

MY SPECIMENS

I own one pair, both snakes arriving on 2 February 1981. The male is heavier and longer than the female. Both animals readily took nest mice (Max. 6 days old). The smallest mice are eaten alive, the bigger ones strangled first. In 1982 the male ate 27 mice and slought 8 times, the female ate 62 mice and slought 9 times. When the animals shed their skin I sprinkle them a few times a day. The snakes are active during twilight and in the night. When they are disturbed they shake their tail and take a defensive position, however, they seldom bite.

THE BREEDING

The method to encourage breeding in these snakes is the same as I used with *Elaphe guttata guttata*

(van Riel, 1977). I do not use artificial light in the terraria, except for the months February, March, and April. On 1 February 1982 three fluorescent lamps (true lite, 20 Watt) were placed together over both terraria, plus one 25 Watt bulb, all were left on for 16 hours a day. The temperature was raised a few degrees by this lighting.
At the end of March both snakes became very restless becoming active during the day, the male already refused food for some weeks by then.
On 4 April the female was placed with the male. Copulations followed almost immediately. The next day, 5 April, the female was taken out of the terrarium and returned to her own terrarium.
The male accepted food again in July. The female continued eating until 12 April, sloughed 4 May (she had become thicker already) and on 14 May four eggs were laid in a dish with sphagnum, which I had placed in the terrarium. The snake did not lay any more eggs, this being very few compared with 1981 (9 and 6 eggs).
On 18 May the female ate again and on 21 June she sloughed. As with previous breedings, I removed the eggs from the terrarium and placed them in a can with damp sphagnum on the bottom, I also put damp sphagnum on the eggs. A stone flowerpot was put over the can with a thermometer. The temperature between the eggs was kept at 27-28^{0}C (day and night). This can (with flowerpot) was placed in a plastic aquarium with about 8 cm of water in its bottom. The water was heated by an aquarium heater with a thermostat. On the aquarium a glass plate was put leaving some space between the aquarium and the glass plate. Every day the eggs were inspected. During an inspection on 8 July I saw the eggs were empty, four very small snakes being found under the sphagnum.
The snakes weighed about one gram and were placed



Fig. 2. *Lampropeltis triangulum elapsoides*. Foto: C.A.P. van Riel.



Fig. 3. *Lampropeltis triangulum elapsoides*, juv. Foto: C.A.P. van Riel.

in separate terraria in which I placed a small flowerpot (hiding place) a water dish and some damp sphagnum (which seems to make the first slough easier). Unfortunately I did not write down the dates of these sloughings. The problem now was to find suitable food for these tiny snakes. Nest mice of one day old were far too big. Insects were tried, like crickets, daddy long legs and flies, also worms; even fish (guppies) and pieces of meat. Nothing of the kind were accepted by the snakes. The smallest lizards I could get were also far too big. Mice legs that I offered were refused as well. I then waited a few weeks before commencing force-feeding with mouse-legs (from mice approximately 5 days old). I used the following method. First I opened the mouth with a stick, then placing a mouse-leg in the mouth. I pushed it with a saté-stick further into the throat. I always included some vitamin D_3 with calcium and sometimes some vitamin B-complex. After feeding so for about three months (some of the snakes were already sold to other snake-keepers by then) the snakes took mouse-legs by themselves. The legs were placed in the opening of the flower-pot. This force-feeding and the eating of mouse-legs by the snakes themselves as mentioned above took place in 1981. The four young snakes of 1982 I mentioned in this article after being force fed with mice legs, moved to another snake-keeper. Concerning the young of 1981 I want to mention that at this moment (beginning of 1983) some of the snakes are only just now taking one day old mice. The white colour of these young has now turned to yellow, like the adults.

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