LITERATURE

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Natural history and captive breeding of the California king snake *(Lampropeltis getulus californiae);* Frank Clarke. The Herptile, 1987, Vol. 12 (3): 96-100.

Californian king snakes are one of the smallest of the *getulus* group, most adults averaging 1 m in length. The author describes the way he keeps his snakes and gives a full account of breeding. The incubation material was vermiculite. The eggs hatched after 65 days.

The Coral snake question; Gareth M. Evans. The Herptile, 1987, Vol. 12 (3): 105-107.

In this article on mimicri the author shows that this phenomenon is not quite as simple as it seems. King snakes immitate the colour patterns of the Coral snakes, but King snakes do not always live in the same region as Coral snakes. To get an optimal use of mimicry it is necessary that there are more Coral snakes (poisonous) than King snakes (not poisonous) in the same region, for this increases the chance that a predator has an unpleasant experience with a Coral snake, and leave look alike King snakes in peace.

Yet, this theory is not that logical. A predator is not very likely to survive an encounter with a Coral snake. Perhaps the mimicry of the Coral snake is based on the mildly venomous back fanged South American false corals (such as *Erythrolamprus aesculapii).* In that case predators will survive a bite and King snakes might profit by their similarity of colour patterns.

But this theory has his own problems. False corals are restricted to Central and South America, whereas King snakes are probably of North American origin. And there are some other facts which make this theory doubtful. Most of these species are nocturnal and fossorial in habit. Would-be predators are most likely to be met in the dark. In such circumstances bright, warning colouration will prove of little use - not least as the vast majority of nighttime predators depending on large numbers of retinal rods, possess monochrome vision. Since tricolours are in no way unpalatable and are themselves active hunters, why they should advertise their presence at all (thus attracting predators and alerting prey animals) remains hard to understand. Taking everything into consideration perhaps the one explanation most wholly consistent with the known facts is the least remarkable. During the daylight hours these snakes burrow or hide beneath logs, bark or stones. Should a diurnal predator happen upon such a resting serpent, it will suddenly be presented with a dazzling couloured sight. The effect of such un unexpected appearance may well be to startle the predator into temporary inactivity affording the snake vital moments in which to make good its escape. Moreover it has been observed that a moving Scarlet king snake, when viewed in subdued lighting, tends to assume an anonymous grey appearance as the bands blur, rendering it difficult to see.

The use of frozen fish to test chemoreceptive preferences of Garter snakes; C. Macias Garcia & H. Drummond. Copeia, 1988 (3): 785-787.

The authors examined the effect of frozen fish on food preferences of *Thamnophis melanogaster.* Guppies, *Poecilia reticulata*, were:

1. killed by freezing in plastic bags at -16°C and thawed ten months later;
2. left in water in a -16°C freezer until dead (at 2-3°C) and then removed before freezing.

The snakes clearly preferred fish which had not been frozen and thawed (2).

Captive breeding of the Durango mountain king snake *(Lampropeltis mexicana greeri)* and the Arizona mountain king snake *(Lampropeltis pyromelana)*; Robert Applegate. The Herptile, 1987, Vol. 12 (4): 140-148.

The author has bred *Lampropeltis mexicana greeri* often. In 1983 however something went wrong: out of 40 eggs only one hatched. Perhaps the temperature during the winter was too high. After a relatively consistent 'hibernation' temperature of 10-13°C from November until March breeding results are generally good. *Lampropeltis pyromelana* is better proofed against relatively high temperatures. In contrast with *Lampropeltis mexicana greeri,* which produces two breedings each year, *Lampropeltis pyromelana* lays eggs only once a year.

Asiatic colubrids - Part I; Trevor Smith. The Herptile, 1987, Vol. 12 (4): 149-160.

The author gives some differences between American and European *Elaphe* on the one hand, and Asian on the other. Furthermore, he gives some details on the climates in Asia. In schedules he gives average minimum and maximum temperature, the average humidity, the average photoperiod and precipitation.

Dynamic spatial ecology of the Water snake, *Nerodia sipedon*; Harry M. Tiebout, III & John R. Cary. Copeia, 1987 (1): 1-18.

Home range, habitat and substrate choice, perch height, relative insolation, and activity of *Nerodia sipedon* were analyzed for seasonal and daily temporal patterns. Spatial ecology was quantified by radio-tracking ten females during two active seasons in south-eastern Wisconsin. Dead cattail clumps were the most utilized substrate. Water (surface and submerged) and grass (dead and alive) were also preferred to a lesser extent. Mean perch height was 10.9 cm above water,without strong differences within daylight hours. Snakes were generally more active during April when they dispersed from the hibernaculum. Individual snakes differed significantly in activity; nevertheless, more active snakes did not utilize a larger area than their less active conspecifics.

Water relations and nitrogen excretion in embryos of the oviparous snake *Coluber constrictor*; Gary C. Packard & Mary J. Packard. Copeia, 1987 (2): 395-406.

Eggs of *Coluber constrictor* were incubated on substrates of vermiculite at water potentials of -150 kPa, -550 kPa, and -950 kPa. Neither survival of embryos nor growth in dry mass of the bodies was affected by hydration of the environment. Eggs on the wet substrate (-150 kpa) however absorbed large quantities of water and increased in mass by 54% over the first 42 days.Eggs on the intermediate (-550 kPa) and dry substrates (-950 kPa) increased in mass only 25% and 7%.

Geographic variation in body size of green snakes *(Opheodrys aestivus)*; Michael V. Plummer. Copeia, 1987 (2): 483-485.

A total of 582 museum specimens of *Opheodrys aestivus* was examined and grouped according to five geographic localities throughout the species range: Kansas, Virginia, South Texas, North Florida and South Florida. In addition, 180 living and museum specimens from White County, Arkansas, were examined. Snout-vent length differed between males and females (although there was one exception). Snakes from South Florida were proportionately larger than others.

The evolution of viviparity: ecological correlates of reproductive mode within a genus of Australian snakes *(Pseudechis: Elapidae);* Richard Shine. Copeia, 1987 (3): 551-563.

Five species of large venomous snakes of the genus *Pseudechis* are oviparous, whereas one *(Pseudechis porphyriacus)* is viviparous. Significant differences in adult body size, sexual size dimorphism, seasonal timing of reproduction, and size of eggs and offspring were not found. The only unique characteristic of the viviparous species is its occupancy of cold climates.

The gathered data falsify several hypotheses on morphological and ecological consequences of the evolution of viviparity. Hypotheses on selective forces for the origin of viviparity are much more difficult to test. Whether the ecological differences between *Pseudechis porphyriacus* and its congeners plays an important role in the evolution of viviparity in their genus, or reflect modifications subsequent to the development of viviparity, remains unclear.

Colubrid snake venoms: immunologic relationships, electrophoretic patterns; Sherman A. Minton & Scott A. Weinstein. Copeia, 1987 (4): 993-1000.

Venom of colubrid snakes is secreted by Duvernoy's gland which may or may not be associated with enlarged, grooved posterior maxillary teeth. Duvernoy's secretion (= venom) was collected from ten species of colubrid snakes. Oral secretions were also obtained from one colubrid and one boa which lack Duvernoy's gland. Several antivenoms reacted with secretion of colubrid snakes. Strong reactions between all colubrid venoms of African and Australian elapids support common origin of at least some colubrid and elapid lineages.