

**MAINTENANCE, FEEDING, AND GROWTH
OF A JUVENILE EASTERN COTTONMOUTH,
AGKISTRODON PISCIVORUS PISCIVORUS,
DURING ITS FIRST EIGHTEEN MONTHS
IN CAPTIVITY**

By: Pete Strimple, 5771 Sidney Road, Cincinnati, Ohio 45233, USA.

Contents: Maintenance - Feeding and shedding - Growth - Final Comments - Acknowledgements - Literature.

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On 6 May 1987, I received a juvenile Eastern cottonmouth, *Agkistrodon piscivorus piscivorus*, from Jim Harrison. This specimen, a male, was collected on 28 March 1987, in Jasper County, South Carolina. It was found at approximately 7:00 P.M., coiled on the center line of Route 17, approximately four miles north of Hardeeville.

The information provided in this paper was obtained between 6 May 1987 and 6 November 1988 (550 days) and corresponds to the snake's first 18 months in captivity in the author's collection. Prior to my receiving this cottonmouth, Jim Harrison informed me that it fed twice for him, accepting a small mouse at each feeding. These feedings, however, are not taken into account in this report.

Although it was impossible to accurately determine the age of this specimen at the time of its collection, a rough estimate can be given. Considering that most neonate cottonmouths average between 25 and 33 cm (10-13 in) in total length at birth, and that this specimen measured 33.5 cm (13.2 in) in total length when received, it seems reasonable to conclude that this specimen had not grown much since its birth and, therefore, was most likely born in the fall of 1986.

MAINTENANCE

Upon receiving this specimen, I transferred it to a small plastic container, measuring 31.5 x 17 x 9 cm (12.4 x 6.7 x 3.5 in) and assigned it an inventory number (A.p.p. #2). As is the case with any snake that is received into my collection, a 'feed and shed' card and an 'inventory' card were started for this cottonmouth. In addition, a 'growth record' card was also started, to record the length and weight measurements that were to be taken.

After approximately three months, the young cottonmouth was transferred to a larger plastic container, measuring 33.7 x 26.0 x 8.9 cm (13.3 x 10.2 x 3.5 in), and six months later to an even larger one, measuring 40 x 27.3 x 16.5 cm (15.7 x 10.7 x 6.5 in).

In all three of these cages, newspaper was used as the substrate and a ceramic water bowl, large enough to allow soaking, was available at all times. In the two smaller containers, a retreat box was provided in the form of the plastic bottom of a two liter pop bottle; this plastic bottom was removed from the bottle section, inverted, and had an entrance hole cut out. In the largest container, a piece of cork bark was provided for shelter.

The room (a basement) in which this snake is kept, is lighted by six 2.4 m (8 ft) fluorescent tubes which are controlled by timers, facilitating the maintenance of a diurnal

light/dark cycle. The length of the light cycle is adjusted at approximately monthly intervals, the minimum being 8L:16D in winter and the maximum being 14L:10D in summer. These changes approximate the local seasonal changes that occur in the Cincinnati area.

| | | | |
|------------|------------|------------|-----------|
| 200587 1sm | 160987 2rp | 280288 1rf | 150788 2m |
| 290587 1sm | 240987 1m | 020388 1br | 210788 1m |
| 090687 1sm | 300987 3mf | 100388 1m | 050888 1m |
| 190687 1sm | 021087 1sm | 180388 s | 160888 2m |
| 250687 1sm | 081087 s | 300388 1m | 250888 1m |
| 020787 1sm | 101187 4mf | 060488 1m | 030988 1m |
| 110787 1sm | 171187 4mf | 040588 s | 160988 s |
| 190787 1rf | 051287 1rp | 050588 2m | 170988 1m |
| 270787 1rf | 111287 1rf | 160588 2m | 280988 1m |
| 030887 1m | 181287 s | 250588 2m | 051088 1m |
| 180887 s | 201287 1rf | 030688 2m | 101088 2m |
| 200887 1m | 301287 1rf | 200688 2m | 241088 2m |
| 260887 1m | 090188 1rf | 010788 s | 011188 2m |
| 090987 2rp | 210188 1rf | 020788 2m | 061188 s |
| 130987 s | 050288 s | 100788 1br | |

Table 1: Feeding and shedding data from a juvenile Eastern cottonmouth, *Agkistrodon piscivorus piscivorus*, during its first year in captivity. (mf- mouse fuzzy, sm-small mouse, m-adult mouse, rp-rat pinkie, rf-rat fuzzy, br-baby rat, s-sloughing).

The containers in which this cottonmouth has been kept were not provided with supplemental heat, as the ambient temperature ranged from 21-27°C (70-80°F). This temperature range has proven to be quite satisfactory for this species, at least for those specimens that have been maintained in my collection.

FEEDING AND SHEDDING

There is little doubt, in the author's mind, that this cottonmouth (or any other juvenile cottonmouth) would have readily fed on small fish or frogs. However, it has been my experience that it is not very difficult to induce juvenile cottonmouths to begin feeding on pinkie or fuzzy mice. Moreover, Jim Harrison informed me that this snake had already accepted a small mouse at each of two separate feedings. For these reasons, and because small snakes will grow more quickly if fed mice, it was decided to offer mice as a first meal.

After a settling-down period of approximately ten days, the specimen was offered a small, frozen/thawed mouse, which it refused. Four days later, a small, freshly-killed mouse

was offered, using a long pair of forceps; the mouse was readily accepted. From then on, the juvenile cottonmouth fed regularly on the following rodents: fuzzy, small and adult mice and pinky, fuzzy and baby rats.

During the 550 days of this study, a total of 49 feedings were recorded, which is an average of one feeding every 11.2 days. Shedding occurred a total of ten times, an average of once every 55 days. Feeding and shedding data are given in Table 1.

| Date | Total length (cm) | Weight (g) | Date | Total length (cm) | Weight (g) |
|--------|-------------------|------------|--------|-------------------|------------|
| 060587 | 33.5 | 31.0 | 140188 | 44.4 | 72.8 |
| 280587 | 34.3 | 34.5 | 280188 | 45.1 | 75.5 |
| 180687 | 34.9 | 37.7 | 140288 | 45.3 | 74.9 |
| 300687 | 35.4 | 42.1 | 270288 | 46.0 | 72.3 |
| 160787 | 36.1 | 48.4 | 150388 | 46.8 | 81.3 |
| 300787 | 37.0 | 53.8 | 290388 | 47.7 | 87.2 |
| 130887 | 38.1 | 54.8 | 130488 | 48.9 | 92.9 |
| 260887 | 39.2 | 55.9 | 300488 | 49.3 | 98.7 |
| 150987 | 40.6 | 60.0 | 130588 | 50.1 | 103.9 |
| 300987 | 41.2 | 59.5 | 110688 | 50.5 | 107.3 |
| 151087 | 41.5 | 63.9 | 150788 | 51.6 | 116.8 |
| 311087 | 42.2 | 64.4 | 140888 | 52.4 | 123.9 |
| 151187 | 42.7 | 65.9 | 130988 | 53.7 | 135.8 |
| 301187 | 43.5 | 66.9 | 011088 | 54.9 | 145.3 |
| 151287 | 43.9 | 67.8 | 061188 | 56.4 | 156.3 |
| 291287 | 43.9 | 71.2 | | | |

Table 2: Growth data from a juvenile Eastern cottonmouth, *Agkistrodon p. piscivorus*, during its first year in captivity.

GROWTH

The procedures used to measure and record the growth of this specimen are similar to those I have used in other studies on crotalids (Strimple 1985a & b, 1987a & b, 1988). In the present study, however, weight and length measurements were taken twice per month for the first year, and only monthly thereafter.

Weights were obtained using an Ohaus triple beam balance, and are recorded to the nearest 0.1 g. Weights were taken prior to feeding so that the measurements were not biased by the weight of the food items. Total length measurements were obtained by a

variation of the technique described by Quinn and Jones (1974) and are reported to the nearest 0.1 cm. Table 2 lists the exact measurements and the dates on which they were taken.

As can be seen from the data in Table 2, this specimen increased 125.3 g in weight during the first 18 months in captivity, an average of 7.0 g/month. During the same period, the snake increased its length by 22.9 cm (9.0 in), an average of 1.3 cm (0.5 in)/month. These figures calculate out to a weight/length ratio of 5.5 g/cm.

FINAL COMMENTS

Growth studies on captive reptiles can be useful tools for determining the growth potential of these specimens. Data collected in these studies can also be used to estimate the time it would take a specimen to reach breeding size, under optimal conditions.

However, caution should be exercised not to use these data as a comparison to the potential growth of wild specimens. Captive specimens usually eat larger amounts of food at more frequent intervals than do wild specimens. Moreover, captive reptiles frequently feed year-round (or nearly so), something that rarely occurs in the wild, at least in temperate regions like the United States. Therefore, it is to be expected that captive specimens typically grow at more accelerated rates than do their wild conspecifics.

This author encourages herp hobbyists to maintain accurate records on the feeding and shedding of all of their specimens, and growth records on at least some of them. The information that is collected will not only be of use to you, but also to other people who maintain the same species in their collections.

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LITERATURE

Quinn, H. and J.P. Jones. 1974. Squeeze box technique for measuring snakes. *Herp. Review* 5(2):35.

Strimple, P. 1985a. Report on the feeding and growth of newborn Southwestern speckled rattlesnakes (*Crotalus mitchelli pyrrhus*). *The Forked Tongue* (Newsl. Greater Cinti. Herp. Soc.), 10(8):9-10.

Strimple, P. 1985b. Report on the feeding and growth of a juvenile Western twin-spotted rattlesnake (*Crotalus pricei pricei*). *Ibid.*, 10(10):7-9.

Strimple, P. 1987a. Report on the feeding and growth of a Western twin-spotted rattlesnake (*Crotalus p. pricei*) during its second year in captivity. *Ibid.*, 12(2):5-7.

Strimple, P. 1987b. Report on the feeding and growth of a juvenile mottled rock rattlesnake, *Crotalus lepidus lepidus*, during its first two years in captivity. *Ibid.*, 12(6):8-11.

Strimple, P. 1988. Report on the feeding and growth of a mottled rock rattlesnake *Crotalus l. lepidus*, during its third year in captivity. *Ibid.* 13(1):9- 11.

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