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VaraNews

VaraNews is published by Varanix©, the Varanid Information eXchange, dedicated to the responsible captive care of monitor lizards through education and the open exchange of all information pertaining to Varanidae

General Info

This issue has taken on the primary theme of notes on reproduction of the Nile *(niloticus)*, Timor *(timorensis)*, and water *(salvator)* monitor. We begin with the zoo breeding news below, followed by a call to readers who may be able to shed some light on a parasite problem in a green tree monitor.

Captive Breeding News: Malayan water monitors

Mike Fost sent in the following report which appeared in the September 1992 AAZPA Communiqué.

> "Four Malayan water monitors (*V. s. salvator*) hatched at the Sedgwick County Zoo & Botanical Garden between 2 and 11 May after nearly eight months of incubation. Thirteen eggs were laid on 10 September 1991, with five proving to be fertile. The eggs were incubated on a vermiculite medium (1:1 - water: vermiculite ratio) at 82 - 84F. **The success of this breeding is thought to be attributed to seasonal photoperiods, availability of daily and seasonal temperature fluctuations, provision of thermal gradients through use of basking lights, and separation-reintroduction.** Two notable observations were made: 1) nest excavation and 2) post-oviposition defensive behavior towards anyone approaching the nest site. It is believed this represents the fifth captive breeding of this taxon in the Western Hemisphere. *(J. Ettling)*"

Unidentified Parasite in the Green Tree Monitor, *V. prasinus*

About a year after acquiring a male *V. prasinus*, Zuzana Kukol reports finding what she termed "noodle" parasites near the front legs of her monitor. The description below is based on her notes.

November 1991: I received a *V. prasinus* from a dealer in Florida. The monitor was skinny (about 80 g / 2.8 oz), had a wound on his tail, had worn down the upper tip of his snout from rubbing the cage walls (while at the dealer for several months), displayed evidence of incomplete sheds and had mites. He was only interested in eating small lizards, showing no interest in pinkies (even though the dealer said he was "eating pinkies like popcorn"). I put him in a bare cage to make it easier to eliminate the mites. He was given warm baths daily to help his shedding condition.

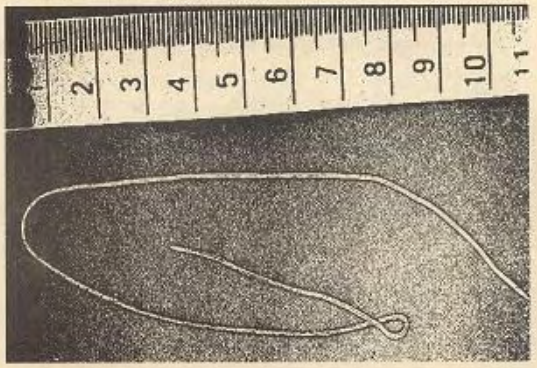
My veterinarian gave him Ivermectin (orally) two weeks apart, antibiotic shots (Tribrissen®) for his tail wound and Betadine® and antibiotic cream for external treatment of the wound.

Dec 91: He was doing much better a few weeks later, his weight was up to almost 130 g (4.6 oz) and he started accepting dog/cat food & raw meat. Once I stopped feeding him small lizards, he was treated with Flagyl® and Panacur® to get rid of possible intestinal parasites.

Jan 92: Since his health had improved, the cage was furnished with live plants & sphagnum moss to help keep humidity high; weight was up to 190 g (6.7 oz).

For several weeks in the spring I often saw him basking under the heat lamp with his hemipenis everted, a "ritual" he has since stopped. He has not exhibited any snout-rubbing.

Summer 92: I discovered a bump near his right front leg. Assuming it to be a tumor, I took him to my vet, who thought it might be an infection due to a possible internal injury. The monitor was given Baytril® for a week with no results and we decided surgery should be performed.



Instead of finding infected tissue, the vet found an 11-inch (28 cm) long parasite, resembling a thin, white noodle.

The *V. prasinus* had not come into contact with any other animals in my house.

Preparing to take him to the vet six weeks later for removal of the stitches, I noticed a similar bump on his left side (photo above). Surgery was performed, and a similar, though smaller, parasite was removed. He was given Ivermectin after the second surgery.

Six weeks later no new bumps are evident, hopefully because he is free of them and not because they are deeper in his body where they can't be seen.

Zuzana ends her report with: "I am hoping somebody who reads VaraNews might know more."

Notable Publications

Observations on the Reproductive Biology & Growth of the Water Monitor *(V. salvator)* at the Madras Crocodile Bank

[Hamadryad 15(1):1-5]

The Abstract on page 1 of this paper by Harry Andrews and Maren Gaulke:

> *"Reproduction in the water monitor lizard,* V. salvator (Laurenti, 1768) *started in 1987, and within a year (1987-88) seven clutches were produced with an internesting interval of 3 months. The average clutch size was 13.8, size and weight of eggs varied considerably even within one clutch. Viability of each egg was determined by candling. The incubation period was temperature-dependent, sexing at hatchling and yearling stages proved to be difficult."*

This study begins with the Madras Crocodile Bank's acquisition of 3:3 (3 male, 3 female) adult water monitors wild-caught in north-eastern India. They were housed in an outdoor pen with four small ponds, climbing branches, vegetated hiding places and an exposed sandy section. A varied diet included small fish, rats, and crabs.

Mating activities began shortly after the monitors became accustomed to their new home. Within a two year period, two females laid three clutches each, a total of 76 eggs in all. Clutch size ranged from 7 to 17 eggs. All eggs were artificially incubated at one of three temperature ranges, two clutches each at: 25-30 C (77 - 86 F), 31-32 C (87.8 - 89.6 F), or 32 - 33 C (89.6 - 91.4 F). Hatchlings emerged after 9, 8 and 7 months, respectively.

A total of "20 vigorous juveniles" hatched; 16 were still alive at the time of publication. Average total length after two years exceeds one meter. A variety of attempts at sexing were made unsuccessfully. However, the authors report that at two years of age the males are large enough to be identified by their bulging hemipenial pockets. A larger enclosure is planned for the future.

(The back cover of this issue of Hamadryad shows a close-up profile of a large water monitor with a smaller monitor grasped in its jaws.)

The Madras Crocodile Bank was founded as a breeding center for Indian crocodiles nearing extinction, one of the goals being to release surplus animals back into the wild. Starting with twenty five crocodiles in 1976, there are now over six thousand! Another goal is to spread environmental awareness about crocodiles and the importance of preserving them. As you've just read, they are also breeding water monitors. Turtles, the "crocodile's environmental partner", round out the list.

Annual subscription to Hamadryad is $25. For more information about this, and other publications (esp. crocodile-related), contact:

Madras Crocodile Bank Trust
Post Bag: 4
Mahabalipuram Tamil Nadu 603104
INDIA

The Social Hierarchy of the Water Monitor, *V. salvator*

[Hamadryad 16(1,2):10-20]

The Abstract on page 10 of this paper by Jennifer Daltry (Dept. of Zoology, Univ. of Aberdeen, Scotland) sums up this study on 17 water monitors, also undertaken at the Madras Crocodile Bank.

> *"Water monitors of both genders and all age classes will organize themselves into a dominance hierarchy. This is based upon aggressive behaviours involving the characteristically sharp teeth and claws. Animals of inferior status respond to aggression with flight, whereas lizards of similar rank typically respond with warning displays and will fight if the aggressor persists in offence. The largest individuals tend to be the highest ranking, irrespective of their gender. Water monitors probably have some ability to recognise other members of the local hierarchy in order to quickly respond in a manner appropriate to their social status. Aggressive interactions are undoubtedly detrimental to the monitors' health. In order to maximise 'output' in captive breeding programmes for this species, such*

interactions should be minimised through careful attention to enclosure design, stocking density and feeding regime."

The author studied a group of 17 water monitors (mix of captive-bred and wild-caught), housed in an outdoor enclosure measuring 5.73 m (18.8 ft) in diameter. A large, S-shaped pond was set in this circular pit, the remaining land area being 75% sand and 25% grass shaded by trees.

Illustrations accompany the discussions of aggressive behavior, serving to depict each posture described: threat walk, feigned attack, persecution (both short and long pursuit), straddling and shaking. Responses to aggression include: flight, warning displays (e.g., arching and inflating the neck, arching the back, full extension of the limbs to raise the body as far above the ground as possible) and fighting.

Some interesting observations on responses to aggression were reported. If the pond was nearby, the fleeing monitor would dive in and swim underwater. They were never observed to seek out a burrow in response to aggression from another monitor. (They were unable to climb up the tress, the trunks having been fitted with broad metal collars.) This is contrasted to small monitors using the burrows when approached by a human.

Size was a significant factor in social ranking, whereas gender was not. Aggression and dominance are closely related (though the dominant monitor, a male over twice as long as the next largest... 120 cm vs. 53.5 cm (47 in vs. 21 in) SVL (snout-vent length)... was rarely seen to be aggressive. A gravid female exhibited increased aggression conciding with trial digging of the nest chamber, even to the point the dominant male became less aggressive toward her.

The relationship of the feeding regime and aggression was studied. The monitors were fed almost daily for a 2-month period in 1990. The diet of rats, frogs, fish and mole crabs was gradually reduced and offered less frequently over the 2-month time period. The highest frequency of aggressive attacks followed a period where the monitors had not eaten for 8-12 days. The highest ranking monitors displayed an uncharacteristic territorial response to lower ranking individuals during "food shortages".

At feeding time, rank was put aside when even the smallest juvenile would tail-slap the head of the dominant male to gain possession of food. This is contrasted to Auffenberg's observations of the Komodo monitor maintaining their social order by their relative distance from the prey.

The conclusions of this study are then applied to proper captive management of water monitors (most of which applies to any monitor), essentially on how to minimize aggression (which means healthier animals).

"Aggression can be minimized by reducing the stocking density and by keeping animals of greatly differing body size in separate enclosures. Enclosures should have ample vegetation, rocks and mounds in order to screen monitors from another's view. A large body of water provides a useful escape route for individuals receiving aggression. It is also advisable to ensure that the monitors are fed as frequently as possible to reduce aggressiveness - provided they do not become obese."

The author ends this informative paper with special thanks to Deputy Director of the Croc Bank, Harry Andrews.

Notes on Reproduction in South African Water Monitors, *Varanus niloticus niloticus*

[Journal of the Herp. Association of Africa 28, 1982]

This 4-page paper by William Branch and Hennie Erasmus is a report on observations on reproduction of the Nile monitor made in the Transvaal and Cape Province regions of South Africa. (In this homeland of the Nile monitor, it is referred to as a water monitor, or water leguaan; not to be confused with *Varanus salvator*, the "water monitor" referred to in the US.) Fifty years prior, Raymond Cowles had made the same observations, nothing having been published on this topic since.

The first reported instance occurred in August 1973, when a female *V. niloticus* was observed excavating a tunnel in a living termite nest in open grassland 18 km (11 miles) east of Pretoria. She remained near the nest for the most part of two days. After she had left, thirty-three eggs were uncovered, of which 13 were collected, half-buried in moist sand and incubated at 30 C (86 F). The first egg was found slit 129 days later on December 23rd, eight more successfully hatching over the next few days.

In July of the same year, a clutch of 21 large, dried eggs was found in a dead termite nest, this time 20 km west of Pretoria. Nineteen of them had successfully hatched, two had not. This site was not far from the Crocodile River, which was inhabited by a thriving population of *V. niloticus*, who also hibernated in the crevices of a nearby cliff from May to August (winter).

In August 1981 another clutch of large, dried eggs, thirty-six in all, was discovered in a dead termite mound in the Addo Elephant National Park, Sundays River Valley, Eastern Cape Province. Based on a greater familiarity with other reptiles in the area capable of laying eggs this size, the authors deduced that this clutch, too, must have been *V. niloticus*. (They note that the possibility of them being those of the rock monitor, *V. exanthematicus albigularis*, cannot be totally excluded, though there had been no previous accounts of such an occurrence.)

Discussion of these observations compared to others previously recorded begins with the difference in incubation times; the 129 days at 30 C is contrasted with the incubation period reported for wild Zululand *V. niloticus*, for which Cowles' calculations indicate to be 9 - 10 months. The authors surmise that the growth rate of the eggs hatched in captivity (less than half the time for those in the wild) is accelerated by constant incubation temperatures. (To verify this hypothesis, comparative measurements of temperatures and humidity need to be made on termite nest interiors.) Also noted in this report is the 171 - 175 day incubation period for V. *e. albigularis* reported by Shaw in 1963.

On the use of termite nests by other monitors, the Lace monitor *(V. varius)* in Australia is also reported to use them, though details are scarce. Mangrove *(V. indicus)*, and the water *(V. salvator)* monitors are reported to prefer "mounds of decaying vegetation, rotting timber, hollow logs, etc." Female Mertens' water monitors, *V. mertensi*, apparently go to the effort of constructing a mound of decaying vegetation, depositing the eggs and then sealing them in (as opposed to the Nile monitor who leaves the nest repair work to the termites).

Not only do the termites then maintain the proper humidity and temperature requirements for the monitor eggs (conditions one can assume to be similar to those of the termite eggs), but the termite soldiers also protect them against small egg-eating predators. This is in addition to the protection afforded the eggs by the rock hard consistency of the repaired and dried termite mound itself.

The following monitor-related references were listed in the bibliography:

Cowles, R.B. 1930. The life history of *Varanus niloticus* as observed in Natal, S. Africa. *J. Ent. Zool.* 22(1):1-31.

Fitzsimmons, V.F.M. 1962. *Snakes of Southern Africa.* Purnell, Cape Town. 423 pp.

Funk, R.S. & P.R. Vilaro. 1980. An English translation of Mertens' keys to the monitor lizards, with a list of currently recognised species and subspecies. *Bull. Chicago Herp. Soc.* 15(2):31-46.

Gadow, H. 1901. *Amphibia & Reptiles.* The Cambridge Natural History, MacMillan & Co., London. 8, viii + 668p.

Gow, G.F. & S. Swanson.1977. *Snakes & Lizards of Australia.* Angus & Robertson, London. 168 p.

McCoy, M. 1980. *Reptiles of the Solomon Islands.* Wau Ecology Inst. Handbk. No. 7. vi + 80p.

Shaw, C.E. 1963. Notes on the eggs, incubation and young of some African reptiles. *Brit. J. Herpetol.* 3(4):63-70.

Smith, M.A. 1935. *The Fauna of British India including Ceylon and Burma. Reptilia & Amphibia 2. Sauria.* London. Taylor & Francis. xiii + 440p.

Editor's Note: Some of the most thorough work on the Nile monitor was done by Raymond Cowles. **The Zulu Journal** (paperback, pp. 267, University of California Press. 1959) is a book "based on notes and collecting journals prepared in the field during two trips to South Africa, one in 1925-27 and one in 1953, and on boyhood recollections of the early 1900's" (taken from the Introduction). The book offers an insight into the habitat in which the Zululand Nile monitor thrives. If you can find a copy of the book, do not hesitate to grab it.

Reprints

Note the incubation periods and temperatures reported in the previous paper and those in the following two articles: 129 days @ 30 C (86 F); 120 - 126 days at 86 F; and 93 - 99 days at 90 F (32.2 C).

Incubation of Nile Monitor, *Varanus niloticus*, Eggs

[This article by Floyd Olmstead, which appeared in Notes from NOAH 14(12), reports on the successful hatching of eggs laid by a wild-caught female.]

Before moving to Ohio, I was the part-time manager of the reptile department at one of the world's largest and most exotic pet stores. On 29 December 1986, the store received a shipment of reptiles which contained a couple of Nile monitor lizards. Surprisingly, for wild-caught specimens they appeared to be in excellent health and of exceptional color. I was reasonably certain they were both females. The two monitors, between 2-1/2 and 3-1/2 ft TL, were set up immediately in a sizable enclosure for display and were given water.

After about 48 hours I offered them several freshly killed mice. They showed no interest in the food until I animated the mice by holding them by their tails. This made sense, though field studies indicate that in the wild most monitors, as well as *Tupinambis*, feed a great deal on carrion. Both monitors ate six mice by this method. The smaller of the two seemed bloated from the time of arrival. Since she was relatively small and ate very well, I dismissed the possibility that she was gravid. But I decided to separate the two after they had eaten so I could keep an eye on her.

A couple of weeks went by; her appetite, behavior and feces seemed normal. On 15 January 1987, much to my surprise, she proved to have the condition that I had logically determined was not possible, for on that date she dropped 13 healthy-looking eggs. I realized that the chances of the eggs producing healthy offspring were very low due to the obvious stress that a wild-caught specimen goes through during capture and transport. However, I decided to incubate the eggs.

One friend received 3 eggs to incubate. A fellow employee and I each took 5 eggs. I had no idea what I was in for. As common as the Nile monitor is, I figured two or three phone calls would get all the information needed to successfully incubate the eggs. I called personnel at several of the country's leading zoological institutions only to find that there is nothing documented on this species [with regard to captive breeding]. The professional advice I was given over the phone confused me even more, with suggested conditions for egg incubation ranging from 75 to 95 F. An almost infinite variety of substrates was suggested, and incubation times

ranging from 3 to 9 months - and everything in between - were given.

After digesting this information, I set up the eggs in what I thought was a safe and logical manner. I took a 2-1/2 gallon aquarium and placed an inch of fine grade hardwood mulch on the bottom. Over that, I placed a half-inch of sphagnum moss. Then I poured 8 oz. of water into the aquarium until I could see the mulch was saturated. Then I lightly misted the moss and placed the five eggs, generously spaced, on the moist sphagnum. Since I planned on having the humidity higher than you would normally incubate python eggs, I sprinkled a light layer of sphagnum moss over the eggs to absorb excess water that might drip from the top and possibly damage the eggs. I then placed the glass canopy on the aquarium and placed the incubator in a wooden enclosure just far enough from the light to maintain a stable temperature of 90 F (32.2 C), with a gradual fluctuation of no more than 2-3 degrees (F). Maintaining these conditions was very easy. By pouring a little more water onto the substrate and misting the surface every five or six days, I was able to produce a stable environment for the eggs to incubate.

Being the impatient person that I am, after 2 months I decided to open an egg to see if they were even fertile. Finding a developing embryo, my curiosity was satisfied. With 4 eggs left, it was just a matter of being patient for however long it would take.

The eggs were dropped on January 15th and the first baby Nile poked its head out of its egg on Easter Sunday at 10 AM, April 19th, for an incubation period of 93 days. The second Nile showed its head and was completely out on the second day. On the 25th I decided to carefully pip the remaining two eggs. One monitor's head popped out of the opening almost immediately. After waiting three more days, I opened the remaining egg, only to find a fully-developed but dead baby. The yolk sac was empty. My guess is that the baby developed normally but was not strong enough to emerge from the egg and, once its nourishment [yolk sac] was used up, died.

All the babies ate one pinky mouse within four days of hatching - one even ate within a couple hours. I have been feeding them at least once every 72 hours and each is eating several fuzzies, or one small hopper, at each feeding. All are doing fine.

[Regarding the other eggs from the clutch: all embryos taken by one of the other individuals died, the incubation conditions not known. The eggs taken by the third individual all hatched.]

In summary, my experience with Nile monitor eggs suggests that they require a somewhat higher humidity than do python eggs. This high humidity, coupled with an incubation temperature of 90F, results in an incubation period of 90 days.

Notes on Breeding the Nile Monitor, *Varanus niloticus*, in Captivity

[This article, authored by Blue Enright, appeared in a 1989 issue of the Ontario Herp Society News]

At the Minolta Aquarium and Reptile World in Niagara Falls, Ontario, we have a pair of Nile monitors. The female is approximately 4 ft TL and was rescued from a traveling reptile show several years ago. The male [donated from a private collection] is 3-1/2 ft TL. They are housed in a triangular cage 4 feet high with sides approximately 5 x 6 x 10 feet long. The cage is equipped with one 150-watt heat lamp on a timer, with fluorescent lighting consisting of one cool white tube and one Phillips TL20W/09N ultraviolet tube. The monitors are kept on a 3 - 4 inch deep bedding, a 50/50 mix of medium size bark chips and cypress mulch.

During the month of March 1988, we noticed, or rather heard, a very loud commotion coming from the cage somewhat similar to a freight train crashing through a building. Upon investigation, I found the "Niles" had trashed their cage and were now quietly indulging in what comes naturally when "boy meets girl". All seemed normal for several weeks, copulation being observed many times.

In early April we observed both lizards piling up most of the bedding material in one corner of the cage. When we leveled off the bedding, they piled it up again. This continued until finally we left them alone, although still on exhibit. The cage, I must admit, looked awful. On April 24, 1988, fourteen eggs were laid in the middle of the pile of bedding and were promptly moved to the incubator and set up at 30 C (86 F). We lost two eggs the first day, as they were quite badly collapsed when we took them from the nest mound. With extremely hot weather and high temperatures inside our building during the summer, we encountered a malfunction with the incubator in trying to maintain an even temperature. During this time, five more eggs were lost. On August 21, 1988, two eggs hatched, two more hatched on the 23rd and the remaining three hatched on the 27th. The eggs, when placed in the incubator, were approximately 1-3/4 inches long and grew to almost 2 inches. Upon hatching, the young monitors all ranged in size from 6-1/2 to 7-3/4 inches TL.

Incubation time was 120 to 126 days. All young started eating right away, after staying in the incubator for several days. They were started on a gruel mix of pinkies, dogfood and raw egg. After several days, live pinkies were offered and quickly eaten. The monitors are now between 10 and 12 inches long and feeding very well. After several inquiries, we believe this to be the first Canadian captive propagation of this species. In closing, all I can say is that the adult pair is copulating on a regular basis and we expect more eggs and, hopefully, more hatchlings this year.

Translation: german -> english

Care and Reproduction of the Timor Monitor, *Varanus t. timorensis*

A translation of the article by Hans-Joachim Behrmann, "Haltung und Nachzucht von *Varanus t. timorensis*", published in Salamandra 17 (3/4): 198-201. 1981.

Translated by Paul Gritis
Dept. of Biology, Lehigh Univ.
Bethlehem, PA 18015

Translator's Note: Comments in brackets [ ] are my own, text in parentheses ( ) was included in the original text.

On March 9, 1978 I received two male and one female *Varanus t. timorensis*, and received two additional females on April 20, 1978. The sexes can be distinguished by external morphology: males are evident from the larger head and by the thick base of the tail. But these characteristics are not 100% absolute, for I later acquired a specimen that externally resembled a female (small head and narrow tail base) but later by eversion of the hemipenis was proven to be male. The animals had been poorly fed and were very timid. They ranged in length from 35 - 40 cm (13.8 - 15.7 in). The animals were kept together in a terrarium measuring 200 x 60 x 50 cm, which was ventilated on both side walls. Furnishings consisted of bog pinewood and corkbark, which was used by the animals as sleeping and hiding quarters. The water container, which was generally used [by the lizards] every day, measured 40 x 30 cm. Fine sand served as substrate and was kept dry. Heating and lighting were provided by a 60-watt spotlight, a 100-watt Elstein-beam [?a brand name] and a 40-watt "True Light" tube. I did not heat the substrate directly; the air temperature was 30 C (86 F) and the ground temperature was 35 C (95 F). The terrarium was not heated at night. At that time the terrarium temperature fell to the ambient room temperature (20 - 25 C). Of all the heat sources, the animals preferred the Elstein-beam. There did not seem to be a pecking order, for the animals freely lay next to and atop each other while basking.

Considering the underfed condition of the lizards, I fed them daily: grasshoppers, naked mice [?pinkies], fish, or eggs. After the animals had grown noticeably, feeding was restricted to three times weekly. I could not observe [courtship?] among the animals, however after a short time there was obvious interest in the females by the males. At first, copulation could not be observed due to the animals' shyness (at the slightest disturbance the animals ran to their shelter). However, the animals soon became more calm, began feeding from forceps, and when disturbed retreated more slowly to their shelter. At this point copulation could often be observed.

At the end of August 1978, one of the females began to dig intensely in one corner of the terrarium; the substrate there did not appear different from the rest of the terrarium. Two deformed eggs were laid on both September 4th and 6th, 1978. I then examined the substrate and found three snow-white, well-formed eggs. I placed these eggs in a box, 15 cm in diameter and 12 cm high, filled with sphagnum moss. The box was warmed to 30 - 34 C and a relative humidity of 95%. The eggs were neither weighed nor measured for fear of damaging them. After 14 days the eggs coalesced. As to the cause of this, I opened one egg and determined that it was infertile. The remaining two eggs developed well. By the beginning of December 1978 the volume of the eggs had doubled, and they were now a dirty-white in color. On December 8, 1978 I noticed during the daily inspection that the head of a small monitor was emerging from an egg. After about five minutes the animal had emerged, for an incubation period of 93 days. The animal was about 14 cm long.

Grasshoppers and crickets placed in the terrarium as food were accepted after three days. On December 14th, 1978 the second hatchling looked out of the egg. It did not emerge until the next day, after an incubation of 100 days. This hatchling was about 15 cm long and also soon began feeding. The hatchlings had dark brown crossbands and were spotted with bright yellow, as contrasted to the adults which were similarly spotted but with faint yellow. The young have a more slender body shape. After three months they had grown to about 20 cm and their volume had approximately quadrupled.

Editor: Paul notes length measurements are not specified as SVL or TL. With an adult TL of 60 cm (24 in) and the tail typically 1.5 times that of the SVL, measurements are probably total length.

Méli–mélo

Komodo monitor, *V. komodoensis*

Thirteen baby Komodo monitors successfully hatched during September and October after an incubation period of 237 days at 28 - 29C (82.4 - 84.2 F) at the National Zoo in Washington, DC. The parents were a gift of Indonesia in 1986. We hope to have more details in the next issue. [seen in *The Vivarium* 4(2), Herp News Around the World]

Surprise? .... Not!

Glancing through the appendices of *Gray's Monitor Lizard*, there is an interesting description of a mammal whose range and food resources overlap those of the book's subject. The description:

> *Cosmopolitan, opportunistic species, preying on* V. olivaceous *(probably most important of all predators at least on adults) and competing with it for some larger forest fruits; most important factor is this species capacity for destroying natural habitats* .

There are no prizes for identifying this unendangered beast: *Homo sapiens*.

Literature Cited

Auffenberg, W. 1988. *Gray's Monitor Lizard*, p. 381-382. University Presses of florida, 15 NW 15th Street, Gainesville, FL 32603

Inquiries & Membership

One-year membership in Varanix is:

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Messages may be sent via modem:
(Please specify "monitor" as the keyword/subject)

- Herpetology Online Network: (215) 464-3562
  Send mail to "Greg Naclerio"
- CompuServe: User ID - 71320,721
- Internet: 71320.721@compuserve.com
  gjn@triple-i.com

Tel. (310) 768-8669
[Due to odd hours and a busy schedule, phone calls may not be returned for 2 weeks or more. Lengthy questions should be sent electronically or by mail.]

Editorial submissions

May be in electronic form (preferred), typed, or written. PC/Mac diskettes acceptable, in ASCII, Word, WordPerfect or RTF format. Please indicate any special conditions of publication, such as withholding mention of name/organization or giving credit to a person/publication.

Translations of non-English articles must be accompanied by a copy of the original paper, including bibliography.

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(some issues may only be available as photocopies)
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This is your last issue of VaraNews if the mailing label says:

exp. 2(6)

No additional reminders will be sent due to the time and expense in doing so.

Species Resource Panel

The individuals below have volunteered to field specie-specific questions. Please recognize that everyone has a busy schedule and is not able to spend great hours each month in this service. In the case of a panel member returning a phone call, you are asked to pay for the call. You are still encouraged to submit questions for readership response in this newsletter.

• Savannah *(exanthematicus)* White-throated *(albigularis)*	Mark Bayless 1406 Holly St. Berkeley, CA 94703
• Dumeril's *(dumerilii)*	Mike Fost Zoo Atlanta, Reptile Dept. 800 Cherokee Ave. SE Atlanta, GA 30315-1440 (404) 624-5618 (daytime EST)
• Nile *(niloticus)*	Greg Naclerio <address to left>
• Yellow *(flavescens)*	Ennis Berker 9603 Woodlawn Dr. Portage MI 49002
• Mangrove *(indicus)*	Joel Shaner 110 Long Pine Dr. Madison Hts., VA 24572

Monitor Rescue Program (MRP)

This volunteer-sponsored program was established to place unwanted monitor lizards in the permanent homes of experienced varanophiles. For a copy of the program description, send a legal-size SASE to Varanix, attn: Monitor Rescue Program.

All other questions should be directed to the MRP Administrator:

Wanda Olson
4099 Timberline Dr.
San Jose CA 95121
(408) 274 9020, (408) 274 2555

VaraNews is the newsletter of Varanix, the Varanid Information eXchange. Varanix was founded to promote responsible care of varanids in captivity through education and the open exchange of information.

A primary function of the eXchange is to build a collective knowledge base that will serve to increase our understanding of Varanidae. The goal of these efforts is to improve their chances of survival, both in captivity and in the wild.

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Ads / Notices

Reasonable-length line ads are free and should relate to the audience of this newsletter. Notices will be included as space allows. Varanix is not responsible for the quality of merchandise advertised and reserves the right to refuse any ad deemed inappropriate. You are encouraged to inform Varanix of your satisfaction/dissatisfaction with a product or service. Your comments will remain confidential.

Note on publication sales thru VaraNews.

Requests are often received regarding the availability of publications through Varanix. This service has been investigated, but generally is not feasible due to the competition from mail order booksellers and larger herp societies who buy in large quantities and are able to offer discounted prices. We will continue to look into opportunities as they arise.

Captive Breeding: The Magazine

The first issue (Oct 92) of this new quarterly magazine featured articles on: hatching colubrid eggs, the birth of Columbian rainbow boas at the Vancouver Aquarium, the captive husbandry and reproduction of the blood python, captive reproduction of Gila monsters, and breeding of the jungle carpet python. Each article includes details of the captive parameters that went into the success. Articles are accompanied by color photos.

One year subscription is $20. Captive Breeding, P.O. Box 87100, Canton, MI 48187. (313) 454-0700.

§ PUBLICATIONS §

Write or call for a free booklist from the following vendors unless otherwise noted.

Herpetology Books - Paul Gritis, 1731 W. Market #12, Bethehem, PA 18018 USA (215) 867-9723

Herpetological Booksellers, P.O. Box 1906, Palm City, FL 34990-1906.

The Guide to Keeping Monitors. $5.99. The Reptile News Press, 17603 E. Tennessee Dr., Aurora, CO 80017. (303) 751-6923.

This booklet provides hard-to-find information critical to the successful captive care of monitors, including discussion of food, housing, heat, and health care. "This is a nice booklet for those new to the hobby and should reduce early mortality of captive monitors." [Mark Miller, VaraNews 2(2)]

§ WANTED §

Information on Dumeril's (*V. dumerili*) or black roughneck (*V. rudicollis*) monitors. Also information on incubation of monitor eggs, such as temperature, humidity, substrate, reports on successful/unsuccessful hatchings. Mike Fost, Zoo Atlanta Reptile House, 800 Cherokee Ave., SE, Atlanta GA 30315-1440. (404) 987-3933

GUEST SPEAKERS wanted for Minnesota Herp Society: Please give me a call if you would consider speaking about monitors at one of our monthly meetings. Bill Moss (612) 488-1383.

Blue Ridge Herp Society, P.O. Box 727, Brookneal VA 24528.

§ ANACONDA TO ZOOXANTHELLA §

To contact another member about other herps or ?

I am working on a study of the African monitors *V. exanthematicus* & *V. albigularis* to improve husbandry techniques. Mark Bayless (address, page 7)

HerpNet is an electronic forum that allows anyone with an interest in reptiles/amphibians to participate in a network of professional & amateur herpetologists, veterinarians, etc. HerpNet can be accessed at any modem speed. (215) 464-3562. Settings: N-8-1-F

Varanix Coffee Mugs

On one side is the original Varanix logo in black& green. The other side has the specie names' text piece shown below.

COST: $5.95 per cup. S&H: Add $3.50 for the first cup and $1.50 for each additional cup. Please allow 3 - 4 weeks for delivery. (Shipping rates are for the US only.)

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   acanthurusprimordiusdumeriliflavescensrosenbergi
    timorensisbrevicaudagiganteusglebopalmaspenceri
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karlschmidtiocellatusnebulosustorribengalensispunctatus
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