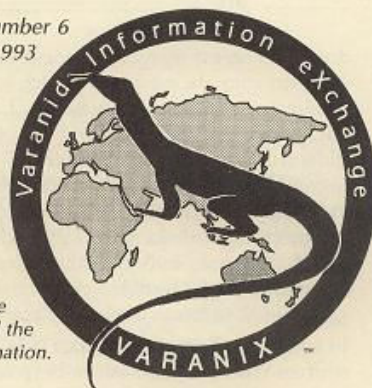


VaraNews

Volume 3 Number 6
1 December 1993



— Varanews is the newsletter of Varanix™, the Varanid Information eXchange.
— Varanix was founded to help promote responsible captive care
of monitor lizards through education and the
open exchange of information.

■ General

See the next to last page for general information about Varanix

This issue features notes field observations of the mangrove monitor in the Mariana Islands, captive enclosure tips and various tidbits of information about the black roughnecked monitor, *Varanus rudicollis*.

Newsletters: To those of you who notice that Varanews does not typically show up the first day of the publication month, thank you for the compliment of looking forward to its arrival. As the third week rolls around and your faith (in receiving the newsletter) is severely in question, you might want to call and find out when the latest issue was sent. As soon as the first message begins, press 3 to hear the most recent mailing date of Varanews.

It is always the *intent* to have Varanews to you by the middle of every even-numbered month. Due to "external" forces (primarily, the demands of the job that pays the bills), I have less control over my time and whereabouts than I need. And the tradeoff in the recent move to bulk mailing (to reduce expenses and stamp-sticking time) adds to the delivery time. Efforts are continually underway to make schedule. Regardless, every issue will be sent and a late issue does not affect the target date of the following issue; it remains the beginning of every even-numbered month. (Philosophically considering the context of Varanix, it makes more sense to be the tortoise than the hare!) naclerio

Acquiring a New Monitor: Purchase & Parasite Prevention

Michael Fost

In Varanews 2(6):1-2, Zuzana Kukol reported that a monitor received in November 1991 from a Florida dealer was in less than perfect health. She writes, "[it was] skinny... had a wound on its tail, had worn down the upper tip of his snout... had incomplete sheds and had mites". Despite the dealer's claim, the monitor showed no interest in newborn mice, but began feeding on small lizards. Later, in summer 1992, two encysted roundworms were found under the skin and removed surgically. [They were later

identified as a spirurid nematode of the genus *Hastospiculum*. Varanews 3(2):1]

This incident suggests at least two lessons that may benefit readers. Lesson 1 (here comes my entry for the understatement-of-the-year contest): There are a lot of animal dealers out there who care more about making a sale than they do about the health or honest representation of their "merchandise". Last year, a friend received a Nile monitor from a mail order dealer. Both of the monitor's front legs were broken, one required amputation. Beware of buying reptiles sight unseen.

Lesson 2: Fecals, fecals, fecals. It is important to identify the parasite(s) when treatment is required. Many parasitic worms remain in the gut of their host and can, in general, be detected by examination of feces under the microscope. They can then be treated by oral "dewormers". Some others, however, migrate through the host's body at different stages in their development. Some encyst under the skin, in muscle, or elsewhere. These wandering worms are quite dangerous, as they may puncture a lung, the intestine, whatever gets in their way. In humans, mobile worms cause river blindness, elephantiasis and other diseases. Encysted worms, like in the *V. prasinus*, are less accessible to medications and can be difficult to treat. (The guinea worm in humans is removed surgically or is slowly twisted around a small stick as the female protrudes her full uterus beyond the surface of the skin... but that's another story.)

So what can we do? Check those fecals. Check new acquisitions twice. It is wise to check six months to a year later and annually after that. Check fecals following treatments. Note that in the case of the *V. prasinus*, the parasites turned up about six months following the second treatment with Ivermectin, which is generally effective against roundworms. I once had a tegu die nine months after "successful" treatment for strongyloid nematodes with Thiabendazole. This death would have probably been avoided by further fecal exams.

Once the infectious organism has been identified, it is important to use the appropriate drug and correct

dosage. It seems many herpetoculturists randomly deworm animals, a practice which is likely non-productive and potentially harmful. Flagyl® won't kill tapeworms, Panacur® probably won't either. Ridworm® contains Thiabendazole - recommended to combat nematodes, but not used for Trichomonads, Coccidia, or many other pathogens. Ivermectin is toxic in many (all?) turtles, and overdose may be lethal in other herps. Always consult a knowledgeable veterinarian to avoid using guess work to treat suspected parasites.

In summary, buy your reptiles from reputable sources. The classified ads in herp society bulletins and newsletters are a starting point. (I have also personally had dependable results with Zoo Herp in Sandy, Utah, run by Louis Porras.) Proper care of captives includes regular fecal examinations and appropriate action to eliminate parasites.

While we're talking fecals...

Dale McGinnity, Curator of Reptiles at the Nashville Zoo, shares some of his notes on 3 black roughneck monitors, *V. rudicollis*, received in 1991. In summary:

- 15 Oct 91 Three black roughnecks acquired: 2 adult females in 2 ft (106 cm) TL range, 1 juvenile male approximately 21 in (53.3 cm) TL; all underweight but well-hydrated
- 17 Oct 91 Direct fecal smear; hookworms found; no observable protozoans
Sodium nitrate floatation smear; entire coverslip covered with hookworm ova and larvae
- 18 Oct 91 All three treated with 200 mcg/kg Ivermectin® [adult weights approx. 2 lb (900 g); juvenile .7 lb (317 g)]
- 31 Oct 91 Second Ivermectin treatment [13 days following first treatment]
- 11 Nov 91 Fecal clean [11 days following last treatment]
- 15 Dec 91 Fecal clean [6 weeks following last treatment]

Captive notes on 3 *V. rudicollis* at the Nashville Zoo

Dale's notes continue on subsequent observations of copulation and egg laying activity. The adult females were placed on exhibit in January 1992; the juvenile male joined them the following May. Beginning on 3 July 1992 through September 1993, between 30 and 40 eggs were found, many on top of the substrate and infertile. Copulation had been recorded numerous times over the same period, the first observation on 6 July 92.

An 11 egg clutch deposited on 2 February 93 resulted in 3 live hatchlings, the first emerging on 4 July 93, the others on the following 2 days. One hatchling was perfect, another had one blue eye, and the third exhibited deformities in the spine, tail and one foot. The latter 2 hatchlings spent a couple of days in a 15 gallon aquarium on moist paper towels so their yolk sacs could be absorbed clean. Their furnishings were then changed to dark hardwood mulch, moss, corkbark and a large, shallow water dish. As of September 93, all three

were doing well and growing fast on vitamin-dusted crickets. Four eggs were still being incubated.

While we're talking captive breeding...

Chris van Kalken of the Nederlandse Doelgroep Varanen/Dutch Varanid Association reports about an NDV/DVA member's recent captive breeding success with the mangrove monitor.

"Copulation was seen shortly after putting the male and female together, the female being introduced in the male's cage. Six eggs were laid and were put in an incubator immediately after deposition. (This was the second clutch laid by this couple; the first clutch was eaten by the male.)

On October 20th, five months after deposition, four monitors hatched at almost the same time. The young were about 25 cm (9.8 in) long, black with pale yellow dots and a pink-reddish throat. Juvenile *V. indicus* also sometimes have a touch of blue on the tail. Though their father had, these hatchlings did not. All four monitors are doing fine. One interesting note is that one day during the incubation period, a malfunction in the incubator caused the temperature to rise to 40 C (104 F) for at least a few hours. As far as we can tell, it didn't influence the young at all."

NDV/DVA, Ibisdreef 44, 3564 RC Utrecht, Netherlands

Q & A

In response to reader questions in Varanews 3(5):

1. My monitor is constipated. What do I do?

Bill Leonard: Gently feel the abdomen for hard spots, i.e., large blocks of solid uric acid or hardened feces, and gently massage these back toward the vent, carefully massaging them out. Have your monitor screened for internal parasites. Try feeding small meals more often as opposed to large meals.

Mark Bayless: Soaking in warm water may help.

2. Question about allowing a savannah monitor free range in the house.

Mark B: Though a savannah monitor can be allowed to roam free in a room, it will generally seek a dark, secure place as a hide spot. Since these are usually the cooler places in the home, the monitor could get a chill. The more obvious concern, of course, is the possibility of escape or injury.

4. I would like to take my savannah monitor out on a harness on warm days for some natural sunlight. How do monitors respond to a leash/harness? Does soaking in warm water help shedding?

Bill L: If your savannah is greater than 24 in TL and fairly tame, a nylon figure-eight harness with a light nylon lead works well. If the monitor is not fairly tame, it may simply roll to try and free itself.

Mark B: When I've tried leashing mine, they run as far away from me as fast as possible. Soaking in warm water helps shedding.

6. Questions on beef heart in the diet for a young savannah monitor.

Mark B: Feeding too much organ meat (heart, kidney, etc.) can tax the monitor's liver. Vitamin dusted crickets and pinkie mice are usually taken by young savannah monitors.

Bill Leonard also described his experiences with two recent acquisitions: a juvenile male *V. niloticus* (15.5 in/39.4 in TL) and a juvenile *V. indicus* (19 in/48.3 cm TL).

"My Nile monitor is housed in a 48 x 24 x 20 inch wooden enclosure with a screen front and top. Heating is via a 60-watt incandescent Chromalux full-spectrum bulb in a standard reflector fixture. There is also a 2-ft long adjustable heating pad under one end of the cage.

The temperature gradient ranges from 82 F (27.8 C) to 100 F (37.8 C) with a nighttime drop to a low of about 78 F (25.6 C). The monitor generally basks several (2-3) times per day under the spot lamp.

Substrate consists of 2-3 inches of cypress mulch, in which he enjoys burying himself. His hide spot is a large terra cotta flower pot broken in half lengthwise, which is where he spends most of his time. He also has access to a large stainless steel water dish in which he defecates at least once daily.

The monitor was determined to be male by hemipenial eversion during defecation. He is fed at least twice weekly and meals consist of whole, pre-killed mice and small rats, vitamin-fortified strips of chicken, chicken hearts and gizzards (all cooked), canned dog and cat food, and hard-boiled eggs. Foods are dusted with Tetra® Repti-cal every other meal. He also undergoes periodic 1-2 week fasts, no more than once every 60 days. In the five months I have had this Nile monitor, he has grown to approximately 24 in/61 cm TL.

My *V. indicus* is housed and fed in similar fashion to the Nile monitor. She has shown similar growth patterns, growing from 19 in to 28 in (71 cm) TL in roughly four months, and seems to be constantly shedding. Contrary to the Nile monitor, the mangrove monitor only rarely defecates in the water.

As a final note, I initially attempted housing these two monitors together but the Nile monitor proved to be too aggressive."

Publications

Ft. Worth Zoo Reports Significant Lizard Breedings, AAZPA Communiqué October 1993

Four green tree monitors (*Varanus prasinus*) hatched between 25 April and 22 May from a clutch of four eggs laid on 26 October 1992 at the Fort Worth Zoological Park. Breeding was observed on 28 September and 1 October, and the clutch was laid on exhibit in a sphagnum-lined nest box. This is the

third US zoo breeding of this varanid, Dallas Zoo having succeeded in 1978 and Riverbanks Zoological Park in 1992. However, it represents the first reported 100 percent hatch rate. (sent in by M. Fost)

Reptiles magazine, vol. 1 num. 2, Dec 1993

The feature article of this second issue is entitled *Popular Monitor Species*. Author Michael Balsai begins with a general overview of the monitor family, Varanidae, followed by general guidelines on captive care, including housing, heating, lighting, handling, health, feeding and breeding. The last few pages offer a few paragraphs on each of the more commonly kept species (*exanthematicus*, *niloticus*, *salvator*, *indicus*, *dumerilii*, *rudicollis*). The article's 14 color photos are highlighted by the magazine's 2-page centerfold of a juvenile Dumeril's monitor.

The author does a good job of touching on the many considerations when caring for monitors in captivity. Since the article is worth reading and available, only a few excerpts will be listed below (in kind of a "pass-along" response to some member questions).

Housing: "Eventually, a monitor will need more space and an enclosure the size of an average-sized room would probably not be too large!"

"Remember, a captive monitor lizard has nothing better to do all day than look for a way to escape, and this must be prevented at all costs."

Avoiding snout rubbing on glass/plexiglass sides: "... it may help to place some black tape or a sheet of dark paper across the lower couple inches of glass."

Temperature: "Try to create a gradient within the cage so that one end is the warmest, and the opposite end is the coolest. If the lizard spends most of its time in the cool area, the cage is too warm, and if it is always in the basking area, it is too cool."

Health: "Healthy monitors will immediately flick their tongues when disturbed. Most monitors, even very tame ones, will be at least moderately 'squirmy' when picked up."

Feeding: "Avoid using organ meats, such as liver or hearts, and nonembryonated eggs. Do not use uncooked chicken parts at all because there is danger from [*Salmonella* or *Campylobacter*]."

Black roughnecked monitor: This is the last monitor discussed. Growing up to 5 ft in length, captives typically in the 4 ft range, the black roughneck is arboreal and "owners should supply them with large, tall cages containing material to climb on". Hide boxes and dense foliage are recommended to help this shy monitor adjust to captivity. The author advises fecal exams for early detection of nematodes, trematodes and protozoans. Unlike many other species of monitor, *V. rudicollis* may benefit from being housed with several other individuals.

Reports of difficulty feeding this monitor in captivity stem from its specialized diet, including insects,

arthropods and small frogs; rodents are unlikely in the wild. The author suggests offering small lizards, birds and eggs, while adding that Sprackland (*Giant Lizards*, 1992. TFH) cautions that birds and rodents may contribute to constipation or vomiting.

In A Review of Some Literature Concerning the Roughnecked Monitor Lizard (The Reptilian Magazine, vol. 1 num. 9), Daniel Bennett reports maximum recorded size of *V. rudicollis* to be 146 cm (57.5 in) TL, 59 cm (23.2 in) SVL, 87 cm (34.3 in) tail and a weight of 4 kg (8.8 lb). The majority of recorded lengths (TL) listed in the review are in the 120 cm (47 in) neighborhood, a maximum length of 180 cm (71 in) is suggested. The author also summarizes published reports on morphology, taxonomy, and distribution.

Nile monitor notes from South Africa

Submitted by G. V. Haagner, R. J. Hall and W. R. Branch (Post Elizabeth Museum, P.O. Box 13147, Humewood, 6013), the following paragraphs on *V. n. niloticus* appeared in the September 1993 issue of the *Journal of Herpetological Assoc. of Africa*, #42.

"During the summer of 1981 the Port Elizabeth Snake park received two medium-sized adult *V. n. niloticus* from surrounding areas. These animals were kept in a large outdoor enclosure containing two other water monitors* and three *V. a. albigularis*. They received a regular diet of dead chickens and rodents and were regularly treated for parasites. On 27 March 1993, after 12 years in captivity, the largest specimen was found dead in the enclosure. A post mortem showed it to be an adult with snout-vent length of 848 mm (33.4 in), tail length of 1142 mm (45 in), total length 1990 mm (78.3 in), mass 15.3 kg (33.7 lb). The lizard had two medium-sized tape worms in its empty stomach and a large abscess on its gall bladder and liver. It appeared to have died from liver failure. The body cavity contained 1.42 kg (3.1 lb) fat, comprising 9.28% of the animal's live mass. Only the hemipenes and skull were retained for study.

Very few accurate records exist on measurements of *V. n. niloticus*. This specimen appears to be the largest accurately documented size for a southern Africa specimen, although Branch (1988. *Field guide to the snakes and other reptiles of southern Africa*, Struik Publ. Cape Town) reports that a maximum of two meters may be reached. Broadley (1966. *Herpetology of south-east Africa*. Unpubl. Ph.D. thesis) recorded a specimen from Ikelenge, Zambia, of 1880 mm (74 in), but this was a flat skin and may have been stretched. The largest specimen (a male) recorded by De Waal (1978. *Mem. Nas. Mus. Bloemfontein* 11:1-160) from the Orange Free State measured 740 + 1140 = 1880 mm (29.1 + 44.9 = 74 in)."

* Editor's Note: In their homeland, *V. n. niloticus* is referred to as "water monitor" and "water leguaan".

Observations of *Varanus indicus* in the Mariana Islands

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PO Box 2950, Agaña, Guam 96910 USA

The mangrove monitor, *Varanus indicus*, has a large geographical range that includes many island groups in the western Pacific (Palau, Marshalls, Carolines, Solomons, Marianas, and portions of Indonesia) and extreme northern Australia and New Guinea. Populations in the Marshalls, Carolines and Palau are introduced (Uchida, 1966; G. Rodda, pers comm). In the Mariana Islands, this species is believed to have been either introduced by the original human colonizers (Chamorus) about 1500 BC (Amesbury, et al., 1986) or are the result of natural colonization (G. Rodda, pers comm).

The populations in the southern Marianas are the best studied and information is available on behavior (McCoid and Hensley, 1991), feeding ecology (Dryden, 1965; McCoid and Witteman, 1993), reproductive ecology (Wikramanayake and Dryden, 1988; McCoid, 1993), and population status (McCoid, et al., MS). Our experiences with *V. indicus* in the Marianas include observations (1988 to 1992) on the islands of Cocos, Guam, Rota and Pagan (1985). To the above citations, we add additional information on the feeding ecology, habitat preferences and seasonal activity.

Observations on Feeding

Losos and Greene (1988) typified the mangrove monitor as an opportunistic predator. This portrait is mirrored by recent data from the southern Mariana Islands (McCoid and Witteman, 1993) and supported by studies from other parts of the species range (McCoy, 1980; Sprackland, 1992). Our observations indicate that diet is influenced by local conditions and that size of the lizard may play a role in prey selection/foraging tactic. We have observed small [<200 mm SVL (snout-vent length)] mangrove monitors foraging on the ground; stomach contents and regurgitated contents included skink eggs, skinks, *Ramphotyphlops braminus* (a small burrowing snake), terrestrial crabs, and beetle larvae. These prey items are found at or below the surface and suggests that foraging tends to take place on the ground. Larger [>200 mm SVL] monitors tended to include a vertical component in their feeding tactics; stomach contents included arboreal geckos (*Hemidactylus frenatus* and *Lepidodactylus lugubris*) and small mammals (*Rattus* spp.), which can be arboreal in the Marianas. Additionally, these larger monitors have been observed preying on nests, located in the crowns of trees (10-15 m height), of the last seabird colony associated with Guam (Cocos Island). The last remaining population on Guam of the endangered ($N=50$) Marianas Crow (*Corvus kubaryi*) is also suffering from predation by larger

monitors on eggs (nests are 5 - 15 m elevation ion trees) and fledglings. This pattern suggests that as mangrove monitors grow, foraging tactics expand to include a greater vertical component. It should be mentioned that the above characteristic prey items of the smaller ground-dwelling monitors are still included in the diet of the larger, more arboreal monitors.

Local conditions also influence feeding habits of monitors in the Marianas. McCoid and Witteman (1993) reported that monitors collected in the area of refuse piles fed on human garbage. Mangrove monitors near human habitations on Guam tended to feed on domesticated fowl and their eggs (McCoid and Witteman, 1993; Fritts and McCoid, 1991). A monitor was also observed to be feeding, during low tide, on stranded fishes in tidal flats on Rota (G. Witteman, pers. obs.). During the mid-1980's, a volcanic eruption on Pagan forced the evacuation of all human inhabitants. A biological survey shortly after the eruption recorded monitors feeding on dead tilapia (*Sarotherodon* sp.) in a cinder-covered freshwater lake. It was observed that monitors walked on the floating cinders and as dead, bloated fishes popped up between the cinder bombs, they were consumed (G. Davis, pers comm).

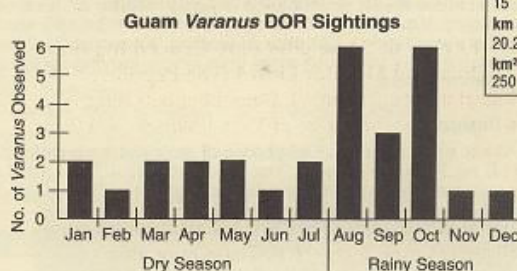
Habitats

Descriptions of habitats by Cogger (1988), McCoy (1980) and Sprackland (1992) indicated a general association with aquatic environments (freshwater and estuarine). Our experiences with *V. indicus* in the Marianas did not reveal an overall association with aquatic habitats. Mangrove monitors are relatively common (although populations are probably declining due to a number of causes (McCoid, et al., MS)) in northern Guam. This region of Guam (circa 250 km²) is an uplifted limestone plateau and has no permanent bodies of freshwater. Most of our observations of monitors on Guam and Cocos were in areas away from water and it is likely that monitors in these areas obtain water from limestone fissures and temporary surface ponds after heavy rains.

Seasonality

While seasonal behavior and reproductive periodicity were presented by McCoid and Hensley (1991) and Wikramanayake and Dryden (1988), seasonal activity was not addressed. We documented seasonal activity by recording the number of dead-on-the-road (DOR) *V. indicus* along a 20.2 km section of highway on Guam that was driven twice daily for 25 months between 0700 - 0800 h and 1700 - 1800h. These data are presented in Figure 1. Sampling by automobiles is relatively unbiased and these data show that a greater number of *V. indicus* are killed on highways during the rainy season than during the dry season. There was no evident correlation with seasonality and SVL of DOR monitors. This suggests heightened

movements of all size classes during the rainy season. The DOR pattern in Fig. 1 closely resembles other seasonal patterns of reptile activity on Guam (Fritts, et al., 1987; 1990).



Conversions Used in Article	
mm ↔ in	
200	7.9
m ↔ ft	
5	16.4
10	32.8
15	49.2
km ↔ mi	
20.2	12.6
km ² ↔ mi ²	
250	96.5

Conclusions

From the above information, it is clear that *V. indicus* is a highly adaptable species that tolerates an array of conditions and employs a number of feeding strategies. It is not surprising that this species has been successfully introduced to a number of islands in the western Pacific.

Acknowledgments: G. Witteman (Univ. of Tennessee) and G. Davis (Government of Guam) contributed observations. G. Rodda (USFWS) generously conveyed information. Portions of this study were supported by the Endangered Species Conservation program, Project E-4.

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Husbandry Tips & Tricks

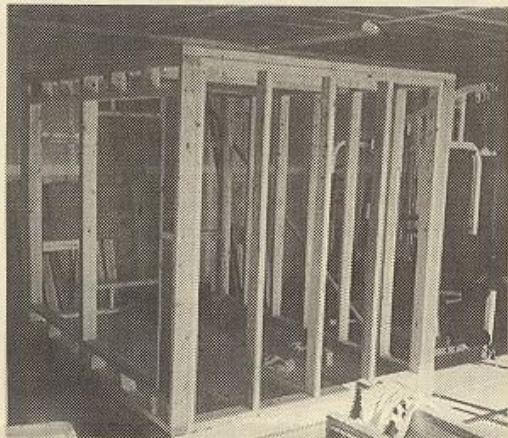
How are you dealing with the environmental necessities of captive care for your varanid? This is where you can share helpful hints on topics such as feeding, heating, water systems, habitat design and maintenance.

Enriched Crickets

In the July/August 1993 issue of the Long Island Herp Society Bulletin, Rich Meyer, Jr. offered some tips on "turbocharging" crickets. He suggests placing them in a one quart wide-mouth plastic container covered with a piece of fiberglass window screen, along with dry flake fish food, chicken mash, or crumbled dry dog food for an hour or two before feeding. Vitamin or mineral supplements can be sprinkled on them at the same time or just prior to feeding. Known as "gut loading", this provides a more nutritious meal than simply serving up the crickets directly from the store.

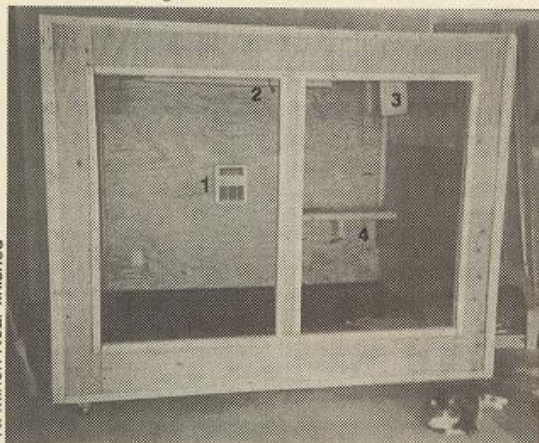
Cage Design

Neil Miner sent in a couple of photos of the cage he built for his 5 ft (1.5 m) TL water monitor. The 8 x 6 x 6 ft (2.4 x 1.8 x 1.8 m) enclosure was framed out like a house and the walls insulated



with Owens-Corning® fiberglass insulation. The plexiglass windows are 3/8 in thick. The entire unit is on wheels and is equipped with:

1. a Farenheat wall heater with a built-in thermostat
2. a 2-fixture shop light with Vitalites® installed
3. an encased ceiling fan



The incandescent bulb under the shelf (4.) is now enclosed in a protective box. A 20 amp breaker and additional electrical outlet were installed solely for the monitor enclosure. There are 3 electrical outlets inside the enclosure, one down low and two in the ceiling.

Astro turf was initially placed on the vinyl floor, but was removed after 3 days because it was too messy. Lengthening the enclosure another 4 feet to 12 x 6 x 6 ft (3.6 x 1.8 x 1.8 m), is planned as the monitor grows.

Better Homes and Habitats

When looking to make more room for that rapidly growing monitor, you're not going to find many suitable, affordable pre-fabricated enclosures in the 4 x 8 ft and bigger range. If you have the space, you may be surprised at how relatively inexpensive and easy it can be to construct a large enclosure for your monitor.

From the point of view of selection and availability of materials, bigger is better. Since we're talking "room-size" living quarters for the monitor, hardware stores and home improvement centers carry most everything needed to construct larger enclosures. Also, being less dependent on "specialized" items usually means spending less.

Mail order supply catalogs are handy for hard-to-find items. When designing and equipping an enclosure, they are also a good source of ideas and inspiration. I've found the catalogs listed below most useful. (Phone numbers to request catalogs are listed; ask about a local branch when calling.)

- McMaster-Carr: "Nuts and bolts" type of supplies: 213-692-5911
- Grainger: Industrial/commercial equipment & supplies: 213-624-8733
- Jeffers: Pet, equine, agricultural and farm supplies: 1-800-533-3377

Incandescent Lamp as Heat Source

naclerio

The dilemma with any heat source is it must provide the proper temperature without the risk of burning the inhabitant. This means heat (and light) sources must be out of reach or protected. The dangling light setup in the photo was designed to put the heat source as close as safely possible without risk of the monitor clinging to or pressing against the lamp, should he do something uncharacteristic like jump into it.¹ (It's important to stress that this particular setup is not advisable for monitors that are likely to jump and possibly cling to the fixture.)

The unit is constructed from standard hardware store items. In addition to the wood and screws, components include a metal electrical junction box, power cord, utility hinge, snap ring, eye hook and ceramic lamp base. The broad ceramic base tolerates and dissipates heat much better than the smaller fixtures used on standard spotlight cords. I also wanted the lamp to shine down at an angle to reduce the amount of heat rising directly into the fixture, so the lamp base is hinged to the vertical piece of wood. Using a sheet of slate, flagstone, etc. as the basking spot has the advantage of retaining heat from the lamp as well as providing a heat gradient out from the hot spot.

I always pay extra attention to activity levels for at least one week after changes are made in an enclosure, especially to the monitors' interest in new furnishings. In this case, the long-term captive *V. n. ornatus* never showed any special interest in the new fixture (though it didn't take long before he took advantage of its benefits).

Though not pretty, the unit is functional, portable and inexpensive.

¹ Trying to meet the "growing" needs of my monitors, I experiment with different designs. What works with one monitor may not work with another. This is true of this heatlamp setup; I would not feel comfortable installing it with a couple of other smaller, more nervous types.



Inquiries & Membership

One-year membership in Varanix:

USA: \$12

Foreign: 15 \$US

Members receive Varanews, published every even-numbered month.

- Varanews is offered free to zoos. In return, we ask you share your experience and knowledge with other readers.
- Newsletter exchanges are considered.

Address all written inquiries & memberships to:

Varanix
8726D S. Sepulveda Bl. #243
Los Angeles, CA 90045 USA

Tel. (310) 768-8669

[Personal responses are often not possible. Best efforts will be made to respond to calls of an urgent medical nature. Questions of a general nature are answered in Varanews.

For mailing information about the most recent issue, press 3 once the message begins.]

Messages may be sent via modem:

- CompuServe: user ID: 71320,721
- Internet: gjn@triple-i.com
71320,721@compuserve.com

Back Issues (some may only be available as photocopies)

Num. 0: \$1.50; Vol(num) 1(1) - 1(8), 2(1) - 2(6), 3(1) - current: \$2 each

When writing to Varanix . . .

Letters to Varanix often contain information of general interest to Varanews readership. When writing, please indicate if you do **not** want to be quoted or have your correspondence reprinted in part or otherwise. (The author will always be contacted prior to publication of questionable or controversial topics.)

Submissions for Publication

Please indicate any special conditions of publication, such as withholding mention of name or crediting a person/publication.

Editorial

- Submission in electronic form preferred on PC or Mac diskettes. Most data format accepted, including Word, WordPerfect, ASCII. Typed or handwritten submissions are, of course, most welcome.
- Submissions may be in English, French or German.
- Translations of non-English articles must be accompanied by a copy of the original work, including bibliography.

Graphics

Hand-drawn graphics: up to 11x17 inches
Computer-generated: EPS, TIFF, ...
Photos: up to 11 x 17 in.
Slides: 35 mm color and b&w

Editor	Greg Naclerio
Editorial Review/Research	Mark Bayless
Editorial Review	Frank Braun Mike Fost Robert Sprackland
Veterinary Advisors	Scott Stahl, DVM

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Species Resource Panel

These individuals have volunteered to field specie-specific questions. In the case of a panel member returning a phone call, you are asked to pay for the call.

- Savannah (*exanthematicus*), White-throated (*albigularis*)
Mark Bayless, 1406 Holly St., Berkeley, CA 94703
- Dumeril (*dumerilii*)
Mike Fost, Zoo Atlanta, Reptile Dept, 800 Cherokee Ave. SE
Atlanta, GA 30315-1440 (404) 624-5618 (daytime EST)
- Nile (*niloticus*)
Greg Naclerio, <Varanix address to left>
- Yellow (*flavescens*)
Ennis Berker, 9603 Woodlawn Dr., Portage MI 49002
- Mangrove (*indicus*); tegus
Joel Shaner, 110 Long Pine Dr., Madison Hts., VA 24572
- Timor (*timorensis*)
Scott Stahl, DVM, 4001 Legato Rd., Fairfax, VA 22033 (703) 591-3304

Monitor Rescue Program (MRP)

This volunteer-sponsored program was established to place unwanted monitors 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 (408) 274 9020, (408) 274 2555
4099 Timberline Dr.
San Jose CA 95121

What you read in these pages . . .

Articles appearing in Varanews represent the opinions and experiences of the respective authors. Though best efforts are made to insure accuracy of contents, the reader must recognize that the majority of available information is based on individual personal experiences and therefore difficult to verify.

The reader is well-advised to evaluate everything heard and read, regardless of the source. Consult as many references as possible and never attempt any husbandry technique that is unfamiliar or you are not confident you are capable of performing. **This is especially true of medical procedures or when safety (monitor, personal and public) is involved.** If you read something in these pages you do not understand, question, or can add to, you are urged to respond for the benefit of other readers.

When reprinting parts of Varanews . . .

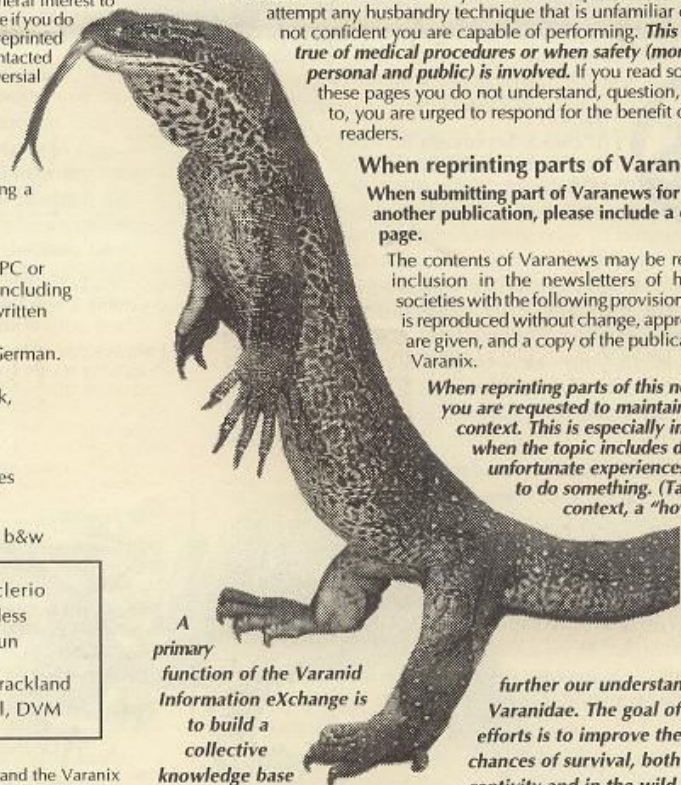
When submitting part of Varanews for reprint in another publication, please include a copy of this page.

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When reprinting parts of this newsletter, you are requested to maintain the original context. This is especially important when the topic includes discussion of unfortunate experiences or how not to do something. (Taken out of context, a "how-not-to-do" may be interpreted as a "how-to-do".)

A primary function of the Varanid Information eXchange is to build a collective knowledge base that will serve to

further 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

Short line ads are free and must relate to the audience of this newsletter. They 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.

Coffee Mugs: One side is original Varanix logo in black & green. The other has the species text piece shown below. \$5.95 per cup. S&H: Add \$3.50 for the first cup; \$1.50 for each additional cup (US & Canada only). Allow 3 weeks for delivery.

konodoensisneriensiprasinusvariusexanthematicuspanoptes
rudicollisindicusglauertisalvadorikordensismitcheilli
acanthurusprindiusdumerilliiflavescensrosenbergi
timorensisbrevicaudagiganteusglebopalmaspenceri
albigulariscaudolineatusniloticusolivaceusgriseus
tristisiskingorunseniexgouldisalvatoreremusgillani
karlschmidtiocellatusnebulosustorribengalensis punctatus

PUBLICATIONS

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

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

"This is a nice booklet for those new to the hobby and should reduce early mortality of captive monitors." [Mark Miller, Varanews 2(2)]

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

Mertensiella #2: Advances in Monitor Research This collection of papers (in English) by monitor research experts was presented at the First World Conference on Monitors in 1989. Price: \$25 (includes surface mail); add \$10 for air mail.

Wolfgang Bischoff, Museum Alex. Koenig, Adenaueralle 150-164, 5300 Bonn 1, Germany.

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

Serpent's Tale. Natural History Books & Supplies. Eric Thiss, 464 Second St. Excelsior, MN 55331. (612) 470-5008

ANACONDA TO ZOOXANTHELLA

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

I'm studying varanid reproduction and would like info on breeding projects, esp. pre-courtship environmental conditions, courtship rituals, clutch size & egg incubation. Chris Nelling, 10 Criswell Ave., Mercersburg, PA 17236

HerpNet is an electronic forum for anyone with an interest in reptiles/amphibians. Participants include professional & amateur herpetologists, veterinarians, etc. HerpNet can be accessed at any modern speed. (215) 464-3562. Settings: N-8-1-F

I am interested in information on *V. dumerilii* *V. rudicollis*. Mike Fost, Zoo Atlanta Reptile House, 800 Cherokee Ave., SE, Atlanta GA 30315-1440. (404) 987-393

WANTED

Captive/hatched and/or raised varanids, preferably hatching to sub-adult. Wish list includes: *griseus*, *flavescens*, *bengalensis*, *albigularis* and most Australian varanids. Jim O'Dell. (602) 649-1399.

Hatchling or juvenile Asiatic water monitors, *V. salvator*. Captive-born preferred. Michael Pate. (502) 899-1900

Adult female Burundi or ornate Nile (*V. n. ornatus*). Dan (407) 631-9004.

V. karlschmidti. Zach Hill 1036 S. 11th Lincoln, NE 68508

Female *V. acanthurus*. Neal 907-776-5294

FOR SALE

Quality hand-picked monitors available. Send SASE to Ron St. Pierre, P.O. Box 680364, Miami, FL 33168 (305) 685-3725 phone/fax

albigularis 4 ft \$400, *albigularis ionides* CH 12 in. \$350, *glebopalma* CB adult \$2500. Giant Lizards (Sprackland) \$50. Ray's Reptiles, (402) 477-1975, fax (402) 466-8423

1.1 *angolensis* 3.5-4 ft, \$500; 1 *jobiensis* 1.5 ft \$250; 1 *rudicollis* 2-2.5 ft \$350; 1 *dumerilii* 2-2.5 ft \$250; 1 *salvator* 2-2.5 ft \$200; 1 *niloticus ornatus* 2-2.5 ft \$200; 4 (?) *albigularis ionides* 2-2.5 ft \$275. All prices per monitor. Bob McDonald (516) 822-5316

Membership renewal is due if the mailing label says:

EXPIRES 3(6)

Please note that renewals are tracked by the Volume(Issue) of Varanews and not by date. Also, no other reminders are sent due to the time and expense involved in doing so.

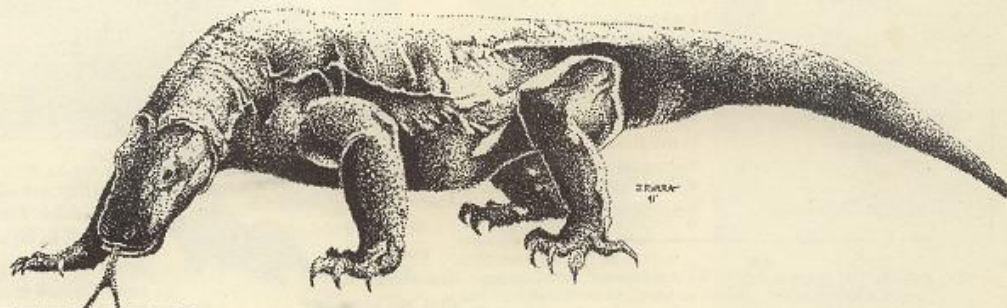


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