

# Iguana Times

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Very orange Green iguana, male. Photograph: Thomas Wiewandt



# HERPETOCULTURE AND CONSERVATION

BY BRECK BARTHOLOMEW FROM *INTERMONTANUS* (3)1

These days, with conservation becoming more and more popular, herpetoculture is often associated with conservation. It's not uncommon to hear someone say, "we need animals in captivity so we can replenish wild populations when they become endangered." This reasoning is also used to fight against legislation prohibiting importation and/or collection of herps; "we need new blood lines to maintain genetically viable captive populations." Even professional herpetologists mention captive propagation as a conservation tool, but only when absolutely necessary and monitored by appropriate organizations (Dodd 1987; Dodd 1993). Since North American zoos only have room for about 16 snake species survival plans (Quinn and Quinn 1993; data for other amphibians and reptiles is not yet available), the possibility of letting herpetoculturists participate in conservation plans has been considered, and "studbooks" have been created for some species. Still other herpetoculturists have taken conservation into their own hands and claim to supplement their favorite herp population by releasing captive-bred offspring. All this effort seems to indicate most people believe this type of conservation will be successful. However, the only review of herpetological conservation plans (those including relocation, repatriation, and translocation in the plan) indicates that most conservation plans are unsuccessful (Dodd and Seigel 1991). All of the successful herpetological conservation programs (four crocodylians and one lizard species) have one thing in common; captive breeding programs are housed in or near the species range and in outdoor enclosures. The purpose of this paper is to examine if herpetoculture should play a roll in conservation.

Some may find it ironic that so many herpetoculturists claim to support conservation efforts when they also fight to be allowed to collect the very animals that need to be protected. Granted the wildlife agencies often do not have complete information on the amphibian and

reptile species they are protecting, but they generally err on the side of conservation. Herpetoculturists, on the other hand, generally err on the side of habitat and species destruction.

Casual collectors who pick the occasional snake up off the road probably impact the population very little because the habitat is not destroyed. However, when road cruising is done in excess it can have a major impact on the population. For example, areas such as River, Baghdad, and Ajo roads are littered with collectors during the "herpin" season." Nearly every desirable herp that crosses the road is either collected or killed on these roads. In time these herp populations are depleted, especially along the roads. This has already happened to desert tortoises (*Gopherus agassizii*) and it appears rosy boas (*Lichanura trivirgata*) are facing the same fate (Yozwiak 1993).

Field collecting can be much more devastating to populations and habitat than road cruising. Fender (1992) described an area with several herp species which was virtually destroyed by collectors using pinch or wrecking bars to move rocks. In less than one month the area went from sustaining an abundant herpetofauna to being depleted of nearly all herp species (Feldner 1992). Although Feldner's example may be extreme it is not entirely uncommon. Even in Utah, a state with relatively few herpers, there are areas where everything that can be lifted is turned and not replaced. This type of collecting impacts the entire ecosystem, not just the herps. Obviously, collecting is detrimental to wild populations, although there are instances when conservation may require collecting. In order for herpetoculturists to justify the claim of conservationism, the detrimental effects of collecting must be outweighed by the benefits of captive propagation and release programs.

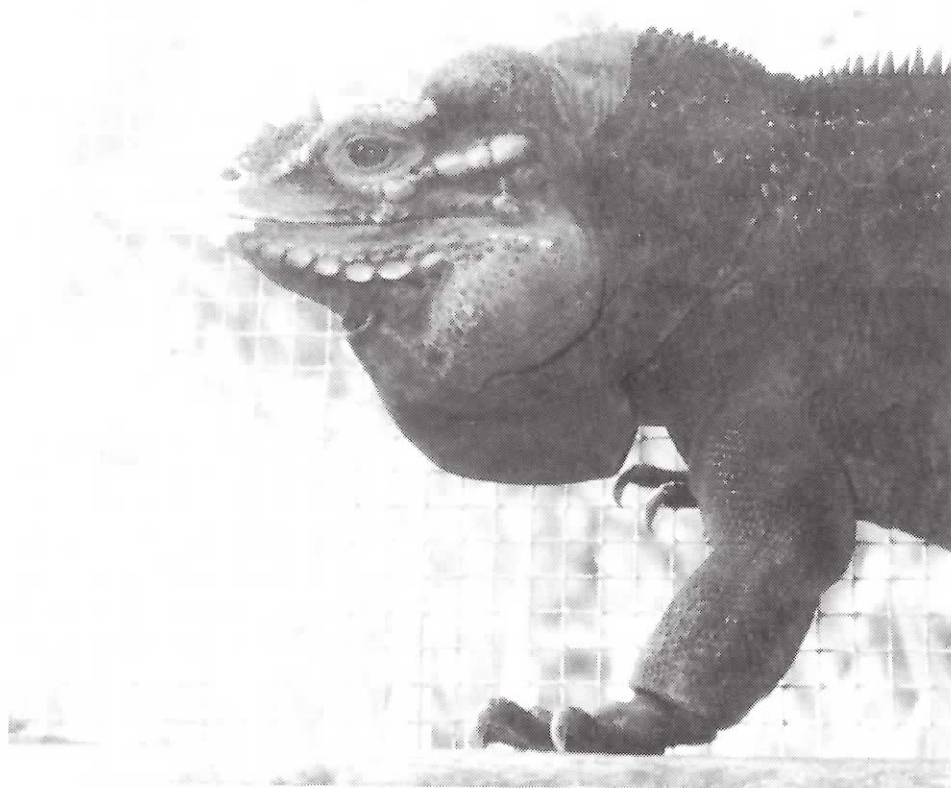
For a captive propagation and release program to succeed, several biological constraints must be met. One of these biological constraints,



perhaps the most important, is often overlooked. Ecologists know this constraint as Shelford's "law" of tolerance. In terms of conservation Shelford's law states the survival of an organism depends upon the completeness of a complex of conditions. Failure of captive propagation and release of an organism can be controlled by the qualitative or quantitative deficiency or excess with respect to any one of several factors which may approach the limits of tolerance for that organism (Odum 1971). Basically, unless all the physiological, psychological, etc. needs of an organism are met the animal will not survive and reproduce. The limits of tolerance, to these factors, are set both by genetics (the extreme limits) and acclimation (the immediate values). To illustrate this imagine a species which ranges from high to low altitudes. Throughout its range this species maintains a preferred temperature of 27°C, but individuals at high elevations are often exposed to cold temperatures and never exposed to extreme high temperatures. These high elevation individuals become acclimated to lower temperatures than individuals from low elevations

which are acclimated to higher temperatures. This may sound a bit confusing, yet the principle of Shelford's law is one that is intuitively obvious to most herpetoculturists.

Shelford's law explains why most wild caught animals die within a short time of capture. In the wild each individual is acclimated to a variety of factors within their genetic tolerance limits. When an animal is collected and placed in a human-controlled environment and some of these factors exceed what the animal is acclimated to (or the genetic limits) the animal becomes stressed and/or dies. In order for stressed animals to survive in captivity they must acclimate to their new environment and cope with all the symptoms of stress at the same time. One of the worst aspects of stress is a depressed immune system which makes the animal more susceptible to pathogens and parasites. The detrimental effects of the captive environment may not be immediately evident (see Oravec 1993a-e for several examples of captive animals living months and years before dying because their physiological needs were not met).



The Rhinoceros iguana, *Cyclura cornuta*, a threatened species from Hispaniola sometimes bred in captivity.  
Photograph: Ron Harrod



Animals that do survive in captivity are domesticated to some degree. Kohane and Parsons (1988) stated, "under normal circumstances, domestication would initially involve selection for behavioral traits such as docility and early breeding..." As herpetoculturists we see this in many species. The Burmese python (*Python bivittatus*) illustrates both docility and early breeding in captive born individuals. The process of domestication acts on the individual as well as the captive population (Kohane and Parsons 1988; Price 1984). Therefore, the captive breeding stock for conservation projects have been artificially selected for an unnatural environment. This selection process is repeated in a less forgiving environment when the animal is again released into the wild. Shelford's law can explain why Dodd and Seigel (1991) did not find any successful conservation programs which involved breeding animals outside their native environment. To examine the herpetoculture-conservation relationship further we must consider the genetics of the captive population.

Because of the selection process involved when animals are removed from the wild, we know the captive population does not adequately represent the genetic diversity of wild populations. This genetic difference alone warrants the exclusion of releasing captives except in extreme cases (i.e., imminent extinction). However, there are other reasons why captives are not genetically suitable for release. Philosophically and ethically we must decide whether we should destroy the evolutionary history of populations by introducing unnatural genes and gene frequencies. Since most captive herps lack accurate locality data, we cannot make evolutionarily intelligent decisions as to where the animal or its offspring should be released. Sure we could ignore evolutionary history and assume that all populations are identical or that species survival supersedes population genetics and evolutionary history (as most mammalian conservationists have). However there are good reasons not to ignore these things as Templeton (1986) illustrated by the following:

"...when the Tatra Mountain ibex (*Capra ibex ibex*) in Czechoslovakia became extinct through overhunting, ibex were successfully transplant-

ed from nearby Austria (Greig, 1979). However, some years later, bezoars (*C. ibex aegagrus*) from Turkey and the Nubian ibex (*C. ibex nubuana*) from Sinai were added to the Tatra herd. The resulting fertile hybrids rutted in early fall instead of the winter (as the native ibex did), and the kids of the hybrids were born in February—the coldest month of the year. As a consequence, the entire population went extinct (Greig, 1979)."

A herpetological example of mixing animals from different populations was described by Reinert (1991):

"On 14 July 1980, I released a telemetrically tagged adult (110 cm total length) male timber rattlesnake (*Crotalus horridus*) 18 km from its point of capture. Because this is greater than known maximal dispersal distances for the species (Reinert and Zappalorti, 1988; Reinert, personal observation), it can be assumed that this snake was displaced from its normal population, established activity range, and social group. On 4 August, the snake was found in the company of a native adult (106 cm) male rattlesnake (also telemetrically tagged). The two snakes remained together for 20 days and traveled, in association, a distance of 404 m. On two occasions, the native male was observed attempting to copulate with the translocated male. The latter snake appeared to exhibit a passive, subordinate attitude during these attempts.

Of the several thousand social encounters that I have observed among native *C. horridus* in this population, these were the only instances of attempted male to male copulation. Twenty days also represents the longest observed period of male to male association during the active season. However, it is not unusual for male to female relationships to last this long and for associated movement to occur (H. Reinert personal observation). From the stand point of the population, it is important to note that neither snake was observed to encounter or mate with females during their 20 day period of association. This represented a substantial portion of the July/August breeding season during which both animals were reproductively dysfunctional. However, in the 2 wk prior to encountering the translocated male, the native male exhibited normal reproductive behavior (i.e., mate searching behavior and copulation)."

These two examples indicate that animals of unknown origin should not be used for conservation programs and that populations should not be mixed, but what about supplementing a wild



population with captive bred animals from that same population?

At the level of herpetoculture, the release of captive produced animals into ancestral populations may sound fine, however from a genetic perspective this could prove devastating. Generally, the number of individuals collected from population is small compared to the total population size. Animals acclimated to their captive environment tend to put on weight faster after reproducing, thus they can reproduce again sooner. By releasing the captive born offspring the parents will be contributing an unusually high number of offspring to the population. In genetic terms the allelic frequencies will be weighted towards the captive population's allelic frequencies (which is not likely to adequately represent the wild population). The effect in the wild population is a higher rate of inbreeding, because of the proportionally high number of related (i.e., captive produced) individuals. In the long run, the population will suffer. In addition to the genetic effects, there are environmental effects. Burger (1990) found that incubation temperature effects the behavior of baby snakes. We can only speculate what the effect of captive incubation would be on animals released in the wild.

Inbreeding within the captive population is another reason why captive born animals are generally not suitable for release. Most herpetoculturists have bred siblings or know someone who has bred them. In fact it's not uncommon to purchase pairs or trios of siblings with the idea of breeding. The result of these breedings (e.g., inbreeding) is an increased probability of obtaining homozygous recessive alleles. These recessives are most notably seen as "cool" color patterns. Many of the morphs of corn snakes (*Elaphe guttata*), Burmese pythons (*Python bivittatus*), and California kingsnakes (*Lampropeltis gettula*) are a result of inbreeding. The release of these animals in the wild would probably result in the animals death, but if the animal survived, the genetics of the population would be artificially altered.

Finally, the risk of introducing pathogens and/or parasites into wild populations far exceeds the benefit of adding individuals to the population. Captive animals face the same stress because

of acclimation to the natural environment that wild animals face when they become captives. As a result they are more likely to express pathogens that were hidden while in captivity. A good example of this is the desert tortoise (*G. agassizii*) which has been decimated by a disease purportedly introduced by released captives.

In their summary, Dodd and Seigel (1991) stated: "...our review casts doubt on the effectiveness of (relocation, repatriation, and translocation) programs as a conservation strategy, at least for most species of amphibians and reptiles." I would add that animals which are collected for private herpetoculture should not be used for conservation programs (excepting education). In addition, animals collected for conservation programs should be maintained within or very near their native environment, preferably in large outdoor enclosures.

It seems too many herpetoculturists use conservation to promote their own interests. As Dodd (1987) wrote: "Too many propagation programs are operated under the guise of 'conservation.' When this really means to supply individuals with a sufficient number of pets, it is not conservation but recreational use of wildlife." That doesn't mean herpetoculturists cannot be conservationists, but private herpetoculture is not (or should not be) a conservation tool. Herpetoculturists can promote conservation in many ways, including:

1. Stop collecting wild animals and purchase only captive born animals. By purchasing only captive born animals you will not be directly supporting the collection of wild animals. In addition, you'll generally get healthier animals. All in all, captive born animals are a much better buy.

2. Encourage others to buy captive born animals. As herpetoculturists we are often asked to talk to groups about amphibians and reptiles. Invariably someone is interested in getting a herp as a pet and asks where they can get one. We should tell the group that we only keep captive born animals. This may sound odd, but remember the people you're talking to probably can't tell if the animal you're holding is wild caught. If the person does get a captive born animal they are more likely to have a good experience and want to continue keeping herps.



3. Obey, local, state, and federal laws when both keeping (and collecting, if you must) herps. Unfortunately many of our headaches today are caused by a few money hungry herpers who think they are above the law. The result of their greedy actions are stricter laws which ultimately encourage more people to break the law (and the cycle continues).

4. If you must collect, do it in an environmentally safe manner. First of all you should question why you must collect these animals, are your reasons valid? When collecting, replace, to the best of your ability, everything you move.

5. Keep quiet about good herpin' sites. All too often herpetologists tell their friends about good herpin' sites, who tell their friends, who tell their friends... and eventually everyone knows about the area. Soon the area becomes a not-so-good herpin' area.

6. Do not release animals that have been in captivity, including newborns. The risk of introducing disease or detrimental genetic components is too high. This includes animals that were only kept for a couple of months. It would be better to donate the animal to a museum (with collection data) than release it. Only consider releasing an animal which has been kept for less than about two weeks *and* has been maintained in quarantine.

7. Finally, if you really want to contribute to conservation efforts, donate a proportion of your herpetoculture profits to an established conservation group which has herpetological projects. What better way to justify our hobby?

#### Literature Cited

- Burger, J. 1990. Effects of incubation temperature on behavior of young black racers (*Coluber constrictor*) and kingsnakes (*Lampropeltis getulus*). *Journal of Herpetology*. 24(2):158-163.
- Dodd, C.K., Jr. 1987. Status, conservation, and management. 478-513 in R. A. Seigel, J. T. Collins and S. S. Novak (eds.). *Ecology and Evolutionary Biology*. MacMillan, New York.
- Dodd, C.K., Jr. and R.A. Seigel. 1991. Relocation, Repatriation, and translocation of amphibians and reptiles: are the conservation strategies that work? *Herpetologica*. 47(3):336-350.
- Dodd, C.K., Jr. 1993. Strategies for snake conservation. 363-393 in R. A. Seigel and J. T. Collins (eds.). *Snakes: Ecology & Behavior*. McGraw-Hill, Inc., New York.
- Feldner, J.J. 1992. A case of simple destruction. *Sonoran Herpetologist*. 5(12):116.
- Greig, J.C. 1979. Principles of genetic conservation in relation to wildlife management in southern Africa. *S. African J. Wildlife Res.* 9:57-78.
- Kohane, M.J. and P.A. Parsons. 1988. Domestication: Evolutionary change under stress. 31-48 in M. K. Hecht and B. Wallace (eds.). *Evolutionary Biology*. Plenum Press, New York.
- Odum, E.P. 1971. *Fundamentals of Ecology*. W.B. Saunders Co., Philadelphia, PA.
- Oravec, K. 1993a. Iguanas I have known: part I. *Notes From NOAH*. 20(6):6-10.
- Oravec, K. 1993b. Iguanas I have known: part II. *Notes From NOAH*. 20(7):5-10.
- Oravec, K. 1993c. Iguanas I have known: part III. *Notes From NOAH*. 20(8):10-12.
- Oravec, K. 1993d. Iguanas I have known: Part IV. *Notes From NOAH*. 20(9):2-8.
- Oravec, K. 1993e. Iguanas I have known: conclusion. *Notes From NOAH*. 20(10):9-11.
- Price, E.O. 1984. Behavioral aspects of animal domestication. *Quarterly Review of Biology*. 59(1):1-32.
- Quinn, H. and H. Quinn. 1993. Estimated number of snake species that can be managed by species survival plans in North America. *Zoo Biology*. 12:243-255.
- Reinert, H.K. 1991. Translocation as a conservation strategy for amphibians and reptiles: some comments, concerns, and observations. *Herpetologica*. 47(3):357-363.
- Reinert, H.K. and R.T. Zappalorti. 1988. Timber rattlesnakes (*Crotalus horridus*) of the pine barrens: Their movement patterns and habitat preference. *Copeia*. 1988:964-978.
- Templeton, A.R. 1986. Coadaptation and outbreeding depression. 105-116 in M. E. Soulé (ed.). *Conservation Biology: The Science of Scarcity and Diversity*. Sinauer Assoc., Sunderland, MA.
- Yozwiak, S. 1993. Rosy boa's future on red alert: hunters reap profits from rare snakes. *Desert Monitor*. 23(4):23-24.

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IIS is considering participating in a reintroduction plan for the Rhinoceros iguana, *Cyclura cornuta* in Hispaniola. This paper describes and discusses the factors that need to be addressed before executing these plans.



# SMUGGLING...

## THE GREATEST THREAT TO ENDANGERED BAHAMIAN IGUANAS!

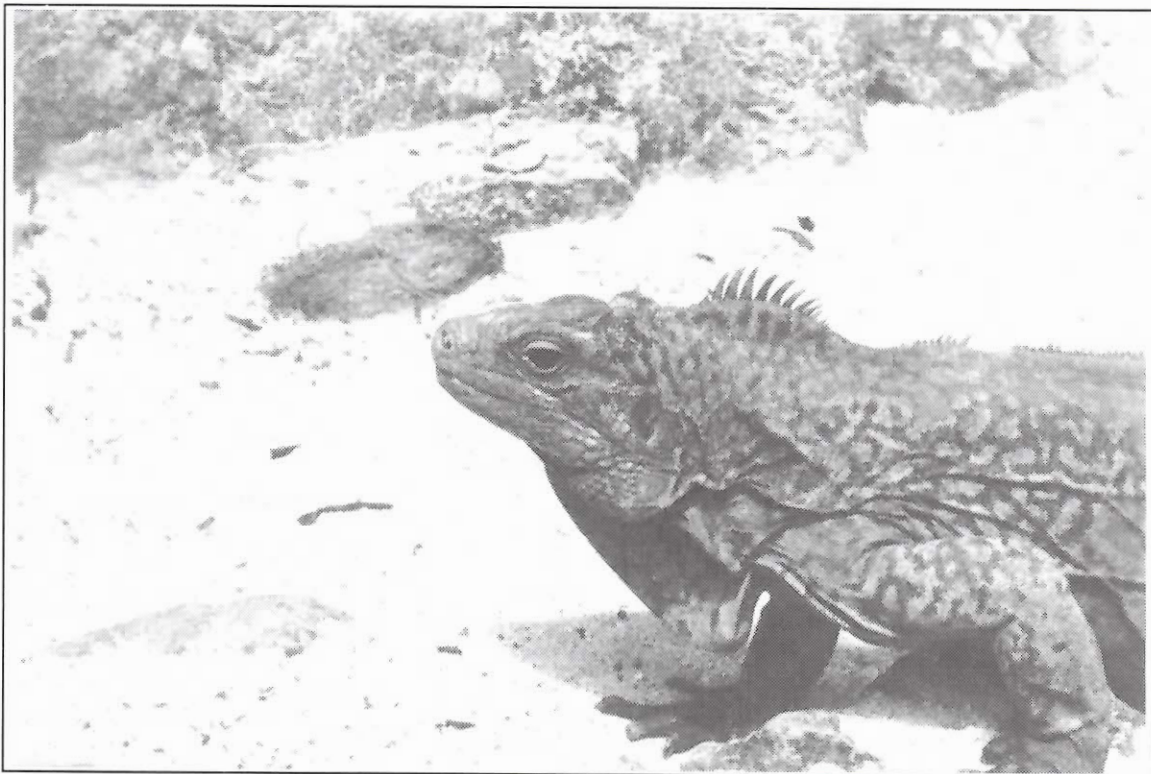
An alarming development has been occurring in the live reptile trade over the past 18 months in Florida. Endangered Bahamian iguanas are now included on the price lists of several reptile dealers. *Cyclura cychlura figginsi*, the Exuma Island iguanas, have been offered for sale as captive bred offspring, despite the fact that this species has not been known to have been bred in captivity.

This situation has taken a turn for the worse, with the recent appearance of the critically endangered, San Salvador rock iguana, *Cyclura rileyi*. IIS members have reported *Cyclura rileyi* turning up at two Florida reptile dealership showrooms in December. At least ten iguanas have been offered for sale in both south and central Florida. Again the iguanas were supposedly bred in captivity. Only two *C. rileyi* are previously known to be on

US soil, both in private collections in different states. These animals were probably smuggled from San Salvador in the early 1980s, although not by their present owners. The Bahamian government reports that no *Cyclura rileyi* have ever been legally exported from the Bahamas.

Most species of *Cyclura* are threatened with habitat degradation and loss. Predation by a number of introduced predators (mongoose, dogs, and cats) and loss of eggs by nest-raiding feral hogs are problems faced by many species. Severe competition from introduced feral herbivores (goats, sheep, horses, cows, and others) is a continuing problem as well.

Until recently, the Bahamian iguanas were the exception to the dilemmas faced by the rest of the genus. Only the Andros Island iguana, *Cyclura cychlura cychlura*, was still being hunt-



The San Salvador rock iguana, *Cyclura rileyi rileyi*, male. Photograph: R.W. Ehrig



ed in any numbers by local inhabitants. This iguana was fortunate to have a large and mostly inaccessible habitat.

The other Bahamian iguanas were the only *Cyclura* whose populations seemed at least stable and possibly increasing during the 1980s. As a result of increasing protection and greater public awareness some populations were thriving. Several eco-tourist enterprises utilize the Allan's Cay iguanas (see *I.T.*, Vol. 1, No. 5) as tour attractions. Bahamian residents increasingly view iguanas as a tourist resource and an economic benefit. Their protected status is well known and their existence is publicized in tourist publications and cruising guides.

Unfortunately the Bahamian iguanas face a new threat—greedy, unscrupulous reptile dealers willing to steal the Bahamas' natural treasures for their own personal gain. The theft of these critically endangered animals is strictly illegal and represents the most serious negative impact faced by already depleted populations.

The arrogant stupidity of these crimes lies in the fact that anyone who could provide proper long term care for the animals would surely know

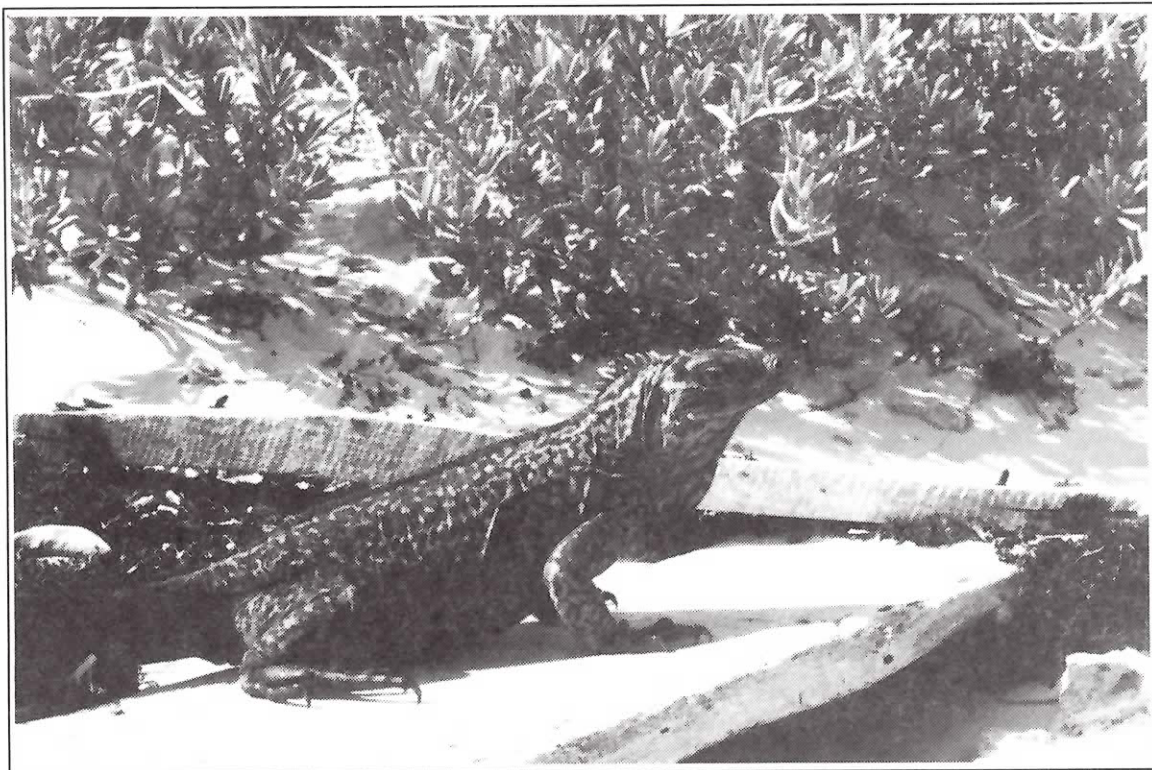
that they are also highly illegal.

Several dozen young adult and subadult individuals removed from a population of only several hundred animals pushes these beautiful creatures closer to extinction.

The *C. rileyi* appear to have been removed from the population on Green Cay, a satellite island of San Salvador. Fortunately, Dr. William Hayes of Southern College in Tennessee began a study of this population in May, 1993. Blood samples of this population were taken for the RAPDs DNA analyses so identification of these iguanas will probably be possible even years from now.

These activities also threaten the rights of those among us who choose to obtain and keep species legally obtained through captive breeding. Editors of herpetological publications must now be aware that by publishing range distributions, they could be further endangering the taxa. Keeping such information out of print, however, denies scientists, conservationists, and herpetoculturists access to useful information as well.

*Board of Directors, I.I.S.*



The Crooked Acklins iguana, *Cyclura rileyi nuchalis*, female. Photograph: R.W. Ehrig



# CESAREAN SECTION IN A CYCLURA

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*Cyclura nubila*, Cuban rock iguana, is a large endangered rock iguana native only to Cuba and its satellite islands. I personally find them to be one of the most beautiful of the large iguanas.

Captive raised females usually successfully lay their first clutch of 3-7 eggs when they are between 29 months and 60 months of age. Private breeders report that these iguanas will breed at age three years when fed a mixture of vegetables, such as; kale, romaine, squash, broccoli, sweet potato and carrots, fruits, including papaya, mango, cantaloupe, apple, and grapes, and a protein source such as dog food or chicken, alternating, offered one to two times a month (A successful private breeder of *Cyclura* also feeds spinach, and while that is subject to varying opinions, the excellent results of his breeding program are difficult to fault). A good quality vitamin supplement and calcium supplement should also be added twice weekly to the diet.

In Florida, *Cyclura* breeding season usually begins in May which coincides with the natural breeding season on the Islands. In captivity, adults are housed in outdoor pens, allowing them natural sunlight, in pairs, as mature adults are very territorial. Males may fight viciously with each other during breeding season and if housed in groups, even juveniles will display head bobbing and signs of aggression between themselves. Territoriality is displayed by both males and females. On the Islands, iguanas are usually sighted singly and do not remain in pairs during most of the year.

Eggs are laid approximately 6 weeks after copulation. Gravid captive females will usually lay between 6 and 20 eggs under a plywood board, beneath which a tunnel has been dug in the sandy soil, by the female. The outdoor pens have wire buried one meter deep to prevent the iguanas from escaping.

On Cuba, copulation and nesting behaviors have not been observed. The terrain where they

breed on the Island is limestone rock and sand, with dense vegetation, making sightings very difficult. Females dig a tunnel in the sand about 30-50 cm deep to deposit and cover the eggs.

The female will actively guard her nest and it may require two people to remove the eggs for artificial incubation. Eggs are incubated at 28-30°C and fertility can be ascertained within two or three weeks, depending on the incubating temperature. (The breeders in this case do not monitor humidity, they use damp vermiculite, adding H<sub>2</sub>O when necessary and place the eggs in plastic containers with holes cut in the lids; it seems to work). The eggs may be candled with a strong light without handling. Signs of fertility begin with a dark disk in the dorsal 1/4 of the egg and sometimes evidence of a vein forming. Hatchlings emerge at about day 98. As with other herp eggs, eggs should be marked, moved gently, and re-placed in the vermiculite in the same position as they were oriented in the nest.

## History and Physical Findings

In July, 1990 a gravid, second generation captive-bred *Cyclura nubila*, age 18 months, was presented for probable dystocia. She was housed in an outdoor pen with 11 other juvenile *Cyclura nubila*, all hatched during the fall of 1988. No copulation had been observed among the young in this pen. She had an obviously distended abdomen. Since females usually lay eggs in May or June, if she was in fact, gravid, then she was one to two months overdue to oviposit, but had evidenced no nesting behavior. For three days prior to presentation, she had been anorectic. She was not clinically dehydrated. She was depressed. Her weight was 426 grams. (There are no published normal weights for *Cyclura nubila* at this time, but based on tail girth, she did not appear to be underweight).



## Diagnosis and Treatment

Lateral and ventral-dorsal radiographs were taken, confirming bilateral soft tissue densities, averaging 2.5 cm by 4 cm ovoid. Based on physical exam, history, and the tissue densities on the right and left sides, retained eggs were strongly suspected. She was placed in a thermal-bath incubator set at 33°C and given an injection of Calphosan, 3 cc Sub-Q (Ben Venue Labs, Tenaflly, NJ) then five units of oxytocin, Sub-Q as well. Her condition did not change over the next 12 hours, so it was decided to perform surgery.

## Surgery

She was anesthetized in a small plexiglass chamber with 4% isoflurane and maintained between 1-1.5% via small face mask. She was placed on a water circulating heating pad and prepared for surgery with a providine scrub (three times). A left-sided longitudinal paramedian incision was made through the skin and abdominal musculature. The eggs were clearly visible through the stretched thin oviductal wall, which was incised in an avascular area. There was very little bleeding. The egg in the left oviduct was extruded by gentle manipulation, then the two eggs in the right side were gently removed through the same incision being careful not to tear the delicate tissue. The oviduct incision was closed with 5.0 Prolene (Ethicon) in a simple-interrupted pattern then with a Conell continuous oversew of 5.0 Prolene (Ethicon). The coelomic membrane and muscle wall was closed with 3.0 chronic catgut in a simple interrupted pattern. The skin was closed with 3.0 Dermalan (Ethicon) in an interrupted horizontal mattress pattern slightly everting the wound edges. The wound was sealed with Vetbond (3M Animal Care Products, St. Paul, MN). The lizard was placed back in the incubator and recovery was uneventful. The eggs were soft, grayish-yellow, gelatinous, and uniform in consistency. Because of her young age, and the abnormal appearance of the eggs, the eggs were considered infertile. Incubation was not attempted by the breeder. Post operatively, the iguana was given 30 ml of lactated Ringers sub-Q and injectable amikacin, at 2.5 mg/kg every 48 hours. Her

weight improved immediately after surgery and was 286 grams.

The lizard was sent home the following day on injectable Amikacin every 48 hours for seven doses, along with 10-15 cc's of Lactated Ringers to be administered Sub-Q, daily, and was maintained at 27°C in a temperature controlled room in a wood and glass enclosure. Her appetite returned on the third day post-operatively. Sutures were removed in four weeks.

## Discussion

Based on her size and the group of *Cyclura nubila* with which she was housed, there is little question that she was less than two years old, and definitely considered a sub-adult by breeders familiar with *Cyclura nubila*. The breeders had hatched her at their facility, and their records put her into the 1988 fall hatch.

I do not believe that this procedure had ever been successfully performed on such a young *Cyclura*. Since no physical abnormalities were discovered at surgery, I can only surmise that she was not mature enough to physically go through the motions of egg-laying.

She did not produce eggs during the 1991 breeding season as she was housed with juveniles (also hatched in the fall of 1988), to discourage reproductive behavior. There is a chance of post-surgical stricture due to the surgery, but our hope is that when she is larger and more capable of successful reproduction, that she will be able to perform normally. My feeling is that her small size and immaturity led to the egg retention, but only time will tell.

## References

- Barten, Steven, DVM July 1990, Pers. Comm.  
Noegel, R. P., Husbandry of West Indian Rock Iguanas, 1989. International Zoo Yearbook, London. Pp 131-135

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From the Journal of Small Exotic Animal Medicine.





# USE OF FULL SPECTRUM ULTRA-VIOLET LIGHTING AT THE ARIZONA-SONORA DESERT MUSEUM

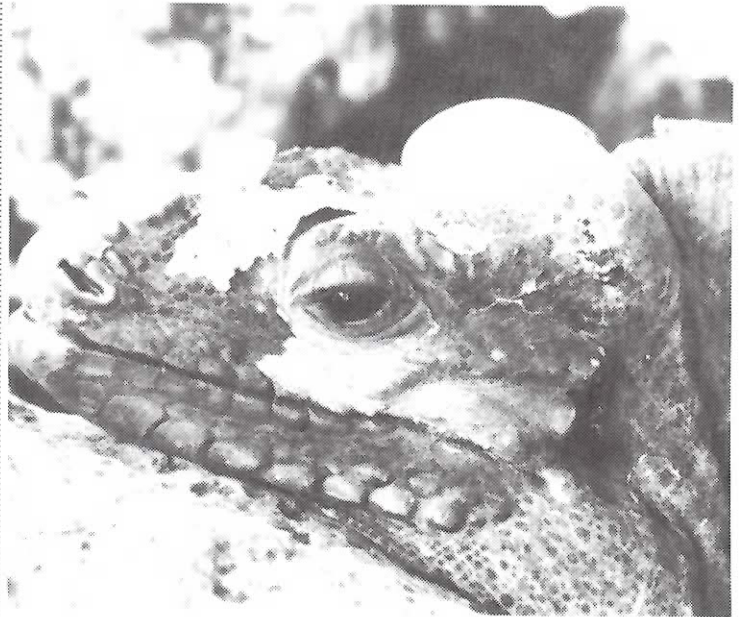
Ultra-violet radiation derived in nature from sunlight has long been recognized as essential for the synthesis of vitamin D<sub>3</sub> in many organisms. Vitamin D<sub>3</sub> is essential for the assimilation of calcium and phosphorus from the diet.

At the Arizona-Sonora Desert Museum we utilize artificial full spectrum lighting in constructing suitable indoor environments for many reptiles. Our standard lighting arrangement incorporates a 24" or 48" fluorescent shop light fixture in which we install one Vita-Lite bulb and one BL type blacklight bulb. It is critical that the latter be the BL type and not of the BLB type blacklight. This lighting unit is situated from 8" to 20" above the substrate or basking spot for the animal(s). A ceramic clip-on incandescent lighting fixture is generally used in tandem with the fluorescent fixture to spot-heat an area beneath the full spectrum lighting. This provides the natural combination of bright UV-rich light and warmth which many ectothermic (cold-blooded) animals seek and require. The wattage of the heating lamp is determined by the size of the enclosure and specific needs of the species. A hiding area which allows the animals to retreat from the light and heat source is essential. The thermal tolerance and comfort limits for the animal must be considered at all times. We install both lighting units on an electrical timer which we change throughout the year according to the natural photoperiod for the locality from which the specimens were collected. Generally speaking, most reptiles and arthropods benefit from an 8-12 hour light cycle, followed by darkness. Under no circumstances should the lighting be left on 24 hours a day. There is an approximately 50% loss in UV efficiency for every foot the lights are raised above the substrate. Also, the full spectrum bulbs become progressively weaker in UV output with time. We therefore change our bulbs every 2 years even though the light output may appear to be the same. The blacklights used at ASDM are manufactured by General Electric, models F20T12-BL

(20 watts) and F40 BL (40 watts). Westinghouse also manufactures a BL type blacklight, models 20T-12 BL (20 watts) and F40 BL (40 watts). The Vita-Lite is manufactured only by DuroTest, North Bergen, New Jersey. Other full spectrum lighting of comparable quality are the Westinghouse "Colortone 50," the General Electric "Chroma 50," and the "Verilux" tube by Verilux, Inc. The lighting should be described as "full spectrum", which is distinctly different from "broad spectrum," and should have a Color Rendering Index (C.R.I.) between 90 and 100.

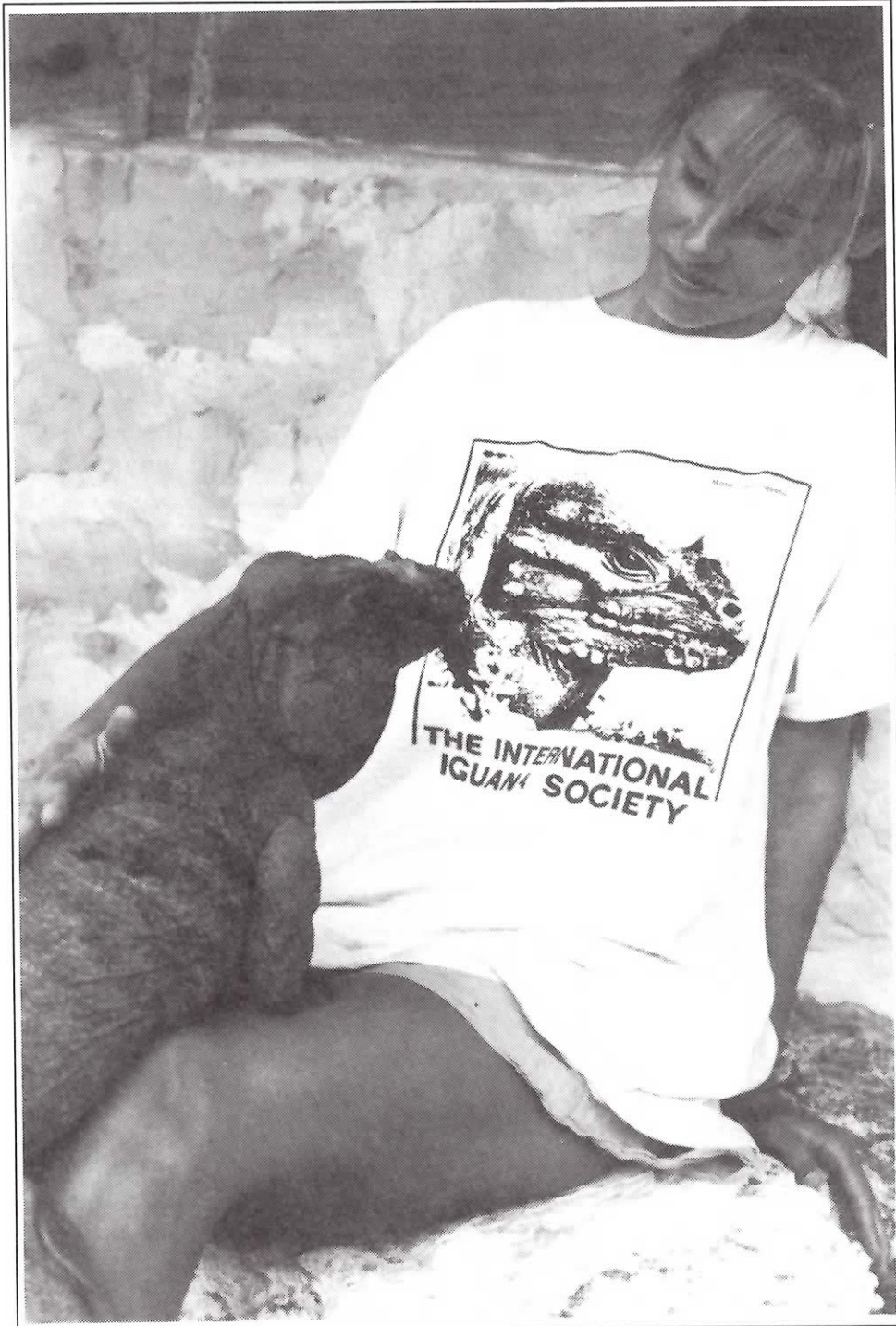
This lighting arrangement is particularly beneficial for lizards and turtles, especially rapidly developing young. Nutritional diseases associated with Vitamin D<sub>2</sub>-D<sub>3</sub> conversion seem to be prevented by the use of this lighting system in conjunction with a proper and varied diet.

Downloaded from the Ophidian Herpetological Bulletin Board System: 24 hours, 300/1200/2400 bps, (602) 468-9860.





# THE OFFICIAL INTERNATIONAL IGUANA SOCIETY T-SHIRT



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# 17TH ANNUAL ALL FLORIDA HERPETOLOGY CONFERENCE

## SATURDAY, APRIL 9, 1994

Cosponsored by The Florida Museum of Natural History and The Gainesville Herpetological Society  
Reitz Union Auditorium, The University of Florida, Gainesville, Florida

**8:00-9:00 Registration:** Preregistrants must pick up their name tags and sign in at the registration desk.  
Late registrants will be accepted until 9:00 a.m.

**MORNING SESSION: 9:00-12:05** David Auth, Florida Museum of Natural History - Moderator

**Julian Lee, Department of Biology, University of Miami, Coral Gables, Florida-**  
"Evolution of a Neotropical Herpetofauna-Patterns and Predictions in Yucatan"

**David L Hardy, Sr., M.D., Tucson, Arizona-**

"Venomous Snakes of Costa Rica: Feeding Biology, Venom, and Human Envenoming"

**Robert Henderson, Zoology Section, Milwaukee Public Museum, Wisconsin-**

"Aspects of the Ecology of the Common Tree Boa, *Corallus envdris*, on Grenada"

**Perran Ross, Florida Museum of Natural History, Gainesville, Florida-**

"Conservation and Status of the Cuban Crocodile, *Crocodylus rhombifer*"

**AFTERNOON SESSION: 1:05-5:30** Eugene Bessette, Pres., Gainesville Herpetological Society - Moderator

**Joseph Bagnara, Department of Anatomy, The University of Arizona, Tucson, Arizona-**  
"Vertebrate Pigmentary Phenomena From A Herpetological Point of View"

**Dale De Nardo, Department of Integrative Biology, University of California at Berkeley-**  
"Male Influence in Reproductive Cycling of Female Boids"

**Al and Cindy Baldogo, Fontanelle, Iowa-**

"Indoor Husbandry and Captive Breeding of the Australian Bearded Dragon *Pogona vitticeps*"

**Robert Ehrig, International Iguana Society, Big Pine Key, Florida-**

"Natural History, Propagation and Captive Husbandry of *Cyclura*"

**Barry Cook, Florida Game and Fresh Water Fish Commission (State Regulations); Kevin Griffin, Florida Farm Bureau Insurance, Gainesville, Florida; Curt Harbsmeier, Attorney at Law, Central Florida Herpetological Society, Winter Haven; Al Zulich (PIT Tagging), Baltimore, Maryland-**  
"Collection Security Workshop-Presentations and a Panel Discussion"

### ALSO:

#### Workshop for Young Herpetologists -

Charles Vogel and Ann Thomas, Gainesville Herpetological Society-1:00-5:00 at the Florida Museum of Natural History. Separate preregistration or late registration required.

"Fecal Analysis Wet Lab-Finding Parasites"-Richard Funk, D.V.M., Brandon, Florida, and  
"Diagnostics Lab-When Does My Herptile Need a Vet?" - Mark Wilson, D.V.M., Belleview, Florida. These one hour labs will be held in Carr Hall just south of the museum *probably* during the morning session. Check off the preregistration form box to preregister or late register at Reitz Union.

Each lab is limited to the first 35 people who sign up.

Herpetological art, books, jewelry, etc. for sale and herpetological information tables.

Barbecue and Auction at the Florida Museum of Natural History (6:15 to 11:00 p.m.)

*Note: Buying, selling, or trading herptiles at the conference or barbecue is prohibited.*



# RESPIRATORY DISEASES IN IGUANAS

Respiratory illnesses are not uncommonly seen in captive iguanas in Maryland. There are a variety of causes. Iguanas with respiratory disease should not just be treated with medications, but also a search should be done to try and determine why respiratory disease is present. Failure to address the underlying causes dooms the treatment to failure. Death rates from respiratory disease is up to 40% in snakes and lizards.<sup>1</sup>

Clinical signs of respiratory illness include open mouth breathing, excess mucous in mouth, increased respiratory effort, poor weight gain, failure to thrive, decreased appetite, anorexia, increased lethargy and death. Diagnosis is based on clinical signs and laboratory work-ups, radiographs, and cultures. Many people take oral cultures which are for the most part useless unless lesions are present. The bacteria cultured from the mouth may or may not be the same as in the lungs. Cultures should be done from sterile trachea washes or directly from the trachea (glottis) with a culture.<sup>1</sup>

Treatment is to correct the underlying problems and start on a broad spectrum antibiotic. It should be assumed that the infections are mixed-aerobic and anaerobic bacteria<sup>2</sup> since over 50% of the cultures show both types of bacteria. For maximum coverage an aminoglycoside with a cephalosporin and metronidazole or penicillin should be used.<sup>1,2</sup> In severe infections, the cephalosporin can be diluted and given intra-tracheal. Dilute 1 part cefotaxime (100 mg/ml) to 3 parts sterile saline or LRS. Vitamin A and vitamin C by injection seems to help recovery. Sick animals should be kept hydrated and isolated from other individuals. Warm soaks daily and increasing environmental temperature to the high 90s-100s°F (ensure adequate hydration) seem to speed recovery.

Enrofloxacin is a good broad spectrum antibiotic with a wider margin of safety. Resistance is sometimes seen and it does not hit anaerobes.

1. **Hilf, M, Wagner R, Yu W-** A prospective Study of Upper Airway Flora in Healthy Boid Snakes and Snakes With Pneumonia. *J. Zoo Wildlife Med.* 21(3), 318-325, 1990.
2. **Stewart, JS:** Anaerobic Bacterial Infections in Reptiles. *J. Zoo Wildlife Med.* 21(2), 180-184, 1990.

*From Feathers, Scales & Tails Veterinary Hospital, 330 One Forty Village Rd., Westminster, MD 21157, 410-876-0244.*



## \$50 CASH

for the best bumper sticker slogan/design for the soon-to-be released book, *Green Iguana – The Ultimate Owners Manual*, by James Hatfield, III.  
Write for details:

Jim Hatfield  
P.O. Box 102  
Lake Oswego, OR 97034-0014



# TABLOID IGUANAS

***Horrified witnesses see creature  
eat famous scientist alive!***

# 80-FT.

WEEKLY WORLD

# NEWS

July 13, 1993

85¢/95¢ CANADA

# DINOSAUR

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# IN BRAZILIAN

# JUNGLE!



**WORLD  
EXCLUSIVE  
PHOTOGRAPH!**

**PREHISTORIC BEAST WEIGHS 20  
TONS & HAS ARMOR-PLATED SKIN!**

Iguanas are increasingly popular photography subjects in magazines, newspapers, etc. This is one of the more imaginative examples of a Rhinoceros iguana being used with considerable artistic license.



# LIZARD LETTERS

## ***The Beast of Andros— My Two Years Cohabitation with a Cycluran Iguana.***

Dear Mr. Ehrig,

In issue Vol. 1, No. 6 of *Iguana Times* you published a short article about my Andros iguana.

This is the story of a sadly maltreated giant iguana, *Cyclura cychlura cychlura*, hereafter known as Pinkie. He was named for his pink head and was discovered languishing in a zoo on the Isle of Wight, England. To my knowledge, this is one of only two adult specimens in captivity in Europe. There was a specimen in a zoo in Germany, now deceased, and the one color photograph that was taken of it appears in quite a few publications.

I had been keeping *I. iguana* and one *C. cornuta* for about seven years and was always on the lookout for maltreated specimens. One weekend around Christmas 1985 I happened to visit a “zoo/adventure park” in southern England, closed for the winter, as I’d heard they had a reptile house with a large iguana. I was not prepared for what I found. There, in a large cage with three Galapagos tortoises, was the most enormous and magnificent iguana I had ever seen. With the build of a rhino iguana but minus the horns, with a mottled black body and a pinkish-white head, with deep red sclera in the eyes, and nodding furiously at me, this stocky creature backed away from the plate glass and kept his gaze on me. The unfortunate zookeeper, a zoologist of note in southern England, hated his job in this squalid zoo. He told me that the actual owner lived in London and that he couldn’t look after the animal anymore; after keeping it in a greenhouse for twelve years he gave it to the zoo. It had been “misappropriated” from Andros Island, Bahamas, and came to London “in somebody’s pocket.” Admittedly it had plenty of space, but it appeared to be sick. I was upset.

*“...communication  
between iguana and  
man is sometimes  
very wonderful, like a  
boy in a fairy tale who  
talks to a dragon.”*

I told my friend the zookeeper that I would like him to contact the owner of the iguana and the zoo owner for permission to take the iguana to an expert vet in London and afterwards to take it home with me to nurse it. Permission was obtained and I came with a car and we put Pinkie into a large canvas sack with a hot water bottle, and drove to London.

The vet stared aghast at Pinkie. “This is the first time I’ve ever seen such an iguana” he exclaimed, “but I’m afraid it’s very sick. You must give him medicine twice a day.” Easier said than done. Here was an iguana that had a bad temper, had always been kept alone in captivity, had never been a pet and had certainly never been petted. His teeth were razor sharp and sick though he was, he was extremely strong. Humans were alien to him and he feared them. He weighed

over twenty pounds and was three feet nine inches long without the end of his tail. He was angry; and he constantly nodded at everyone.

I got him to my apartment and put him into a cage 6' x 6' x 8' high, with rocks under a basking light, and central heating. He sniffed around the cage, ignored the cabbage leaves, and lay down with his arms folded to his body. He slept until the next day.

Now came the hard part – administering the medicine. The vet had decided on using tetracycline. I had to call in my friend Glenn from next door to help me. If the beastie was going to hate anyone, I didn’t want it to be me. Glenn wore his motorcycle gloves and picked the animal up but it proved too strong for him and wriggled too much. He then sat straddled on the floor, his bottom on the floor with the tail underneath, his knees clamped either side of the head, and without the need to hold the mouth open because the animal was hissing, I squirted the white liquid into the mouth with a horse syringe! I had to be careful to aim for the back of the mouth as the epiglottis of an iguana is situated on the tongue, and in an angry animal is erect and open. I could see air bubbles emanating from it.



For good measure, I also gave him three cod-liver oil tablets, one beta-carotene and two of calcium carbonate. I knew there would not be much opportunity to do this.

In the weeks to come this whole operation was repeated once or twice per day, according to the good humor of the beast and Glenn's work schedule. Pinkie did not eat. All these maneuvers probably saved his life. He would have had no chance in the zoo.

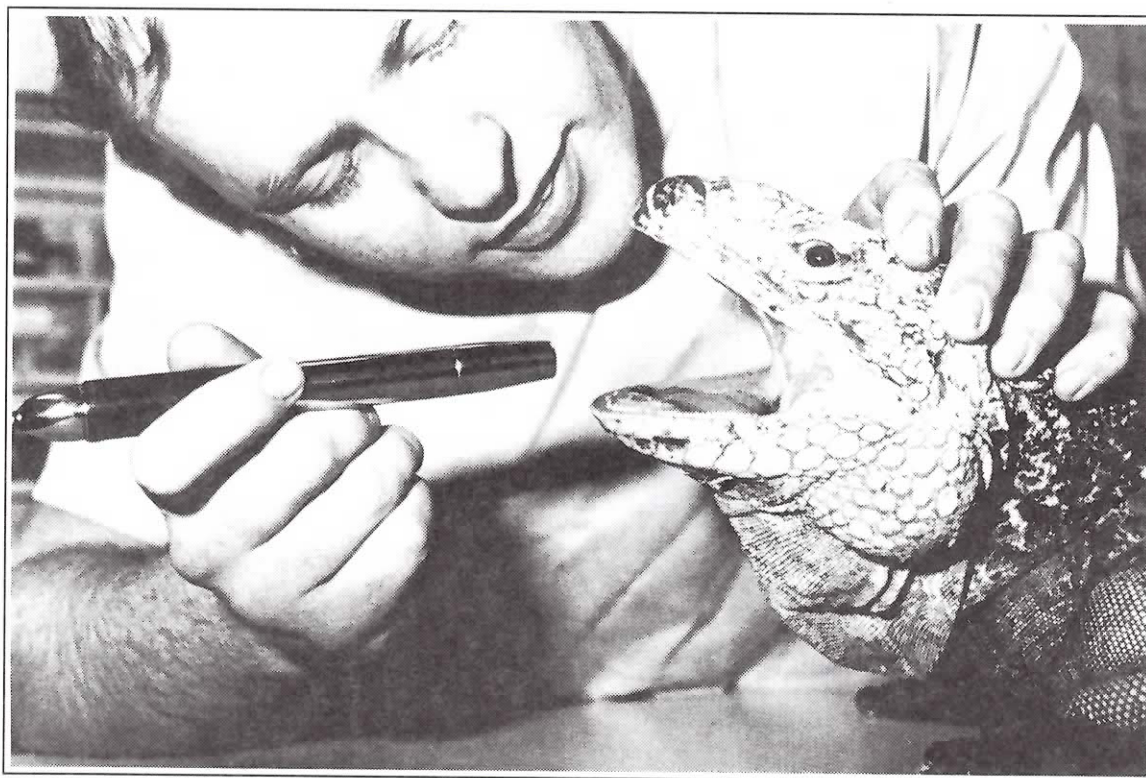
Time passed and Pinkie began to eat. He ate a lot of greens: cabbage, lettuce, spinach, chard, parsley, celery tops, dandelions, rose petals, bananas, oranges, apricots, squash, zucchini, cucumbers, red and green peppers, cauliflower and broccoli. He ate premium cat food, chicken and tuna fish. The canned cat food in England contains vitamin D<sub>3</sub> and is sterilized. All this was supplemented with D<sub>3</sub>/Calcium drops obtained from the pharmacy. He was also given Vionate® the mineral and vitamin supplement used by the London Zoo for all its snakes and lizards.

This was when Pinkie discovered the delights of freedom – a whole room to himself and soon to come, an entire apartment? I left his cage door open and he would return to it to go to the toilet and to sleep inside

an upturned cardboard box which had a hole cut out at one end. He developed a routine by which he would wake up and bask under the cage light for an hour or so, move to another part of the cage to eat, and then nose open the door of the cage to wander around the room. He would end up on the couch and go to sleep. Upon waking, he would bask again in the cage, and then wander freely around the apartment. I had two Siamese cats, and they would retreat to some high spot and stare helplessly at this new king of their realm. The cats never went out and resented the intrusion, but the cats and lizard never crossed paths. All this time, Pinkie would never let me touch him.

I had adopted the attitude that in order to tame him I must let him be until *he* became curious about *me*, in other words let him tame himself. He would do what other iguanas before him had done in my home. He would crawl over me, he would lick me, but *never* was I allowed to touch him. I tried twice and nearly lost a finger each time. Admittedly, when he bit me he immediately opened his mouth again to let my finger go. He could have severed it completely if he desired. I was astonished at the ease with which my finger tore open on his teeth.

*Continued on next page...*



Pinkie at the doctor. Photograph: John Bendon



*Lizard Letters continued...*

There was one extraordinary incident that occurred. One night he was basking in the cage; I was ready for bed. I turned out his light. I turned out my light. I was sleeping on the couch in the living room as the bedroom was full of iguanas. I was dozing off to sleep and the cage door creaked open. I heard Pinkie padding across the carpet. I thought he was going to find a quiet corner to sleep. He nosed his way into bed with me! I was half asleep and forgot about it and when I awoke in the morning there he was, head on my leg, arms folded by his side. I had to ease myself out on to the floor, picked him up before he woke and put him back in the cage. He repeated this behavior quite a few times.

Pinkie began to take over the whole house. He ended up preferring the kitchen as the sunlight hit the floor through the window most of the day. I opened the kitchen door so that the natural sunlight would come in – I hadn't reckoned that a twenty pound iguana could jump very much. Jump he did, out on to the fire escape, up the trellis and onto the sloping roof. I couldn't get him back, but I watched in horror as he began slipping backwards, his stumpy claws drawing white lines-on the grey English slate. I had to make a split-second decision: do I grab him as he falls backward and get my arm bitten, or do I hold a large blanket and let him drop into it? He slipped too quickly for any decision and I grabbed him by neck and tail and very quickly shoved him back into the kitchen. After that I put a plastic grill over the opening and let it suffice. He snorted and nodded furiously at me all that day. I decided that the time had come for me to try and touch him.

I spent hours and hours trying to get near him. Eventually, he allowed me to stroke the back of his neck and to squeeze his jowls. We finally became friends.

I had a basking cage made for him for the garden. He got used to going out there and even began waiting by the door, at the same time each day. I tied a soft rope around his middle, immediately above the back legs, (in case he ran off) and he would go down the few steps with me and into the cage in the garden.

I added years to his life when I took him from that zoo, and I have not heard of any other person who has lived in such close proximity with Andros iguana, *C. cyclura*. I made copious notes, drawings and photographs and discovered what I believe were unknown facts about these giant creatures, such as their attempts to clean their teeth with their tongues for long peri-

ods after eating, and the way this one intimately examined his back feet.

I do know that iguanas in general are a lot more intelligent than people realize, and communication between iguana and man is sometimes very wonderful, like a boy in a fairy tale who talks to a dragon.

One day, after Pinkie had done his business, I noticed spots of blood in the urine. I took him to my reptile vet. Three weeks later the great beast, my friend, died. The autopsy showed a kidney tumor and other irregularities. The animal is now preserved in alcohol in a large jar in the Natural History Museum in London. It is the only specimen the museum has ever had. To this day I have wonderful memories of my time spent with this beast of Andros and I feel that however much I did for him, he gave me much more than I ever gave him. Rest in peace, my Caribbean friend...

*John Bendon*  
*August 1993 / South of France.*



**Dear Editor:**

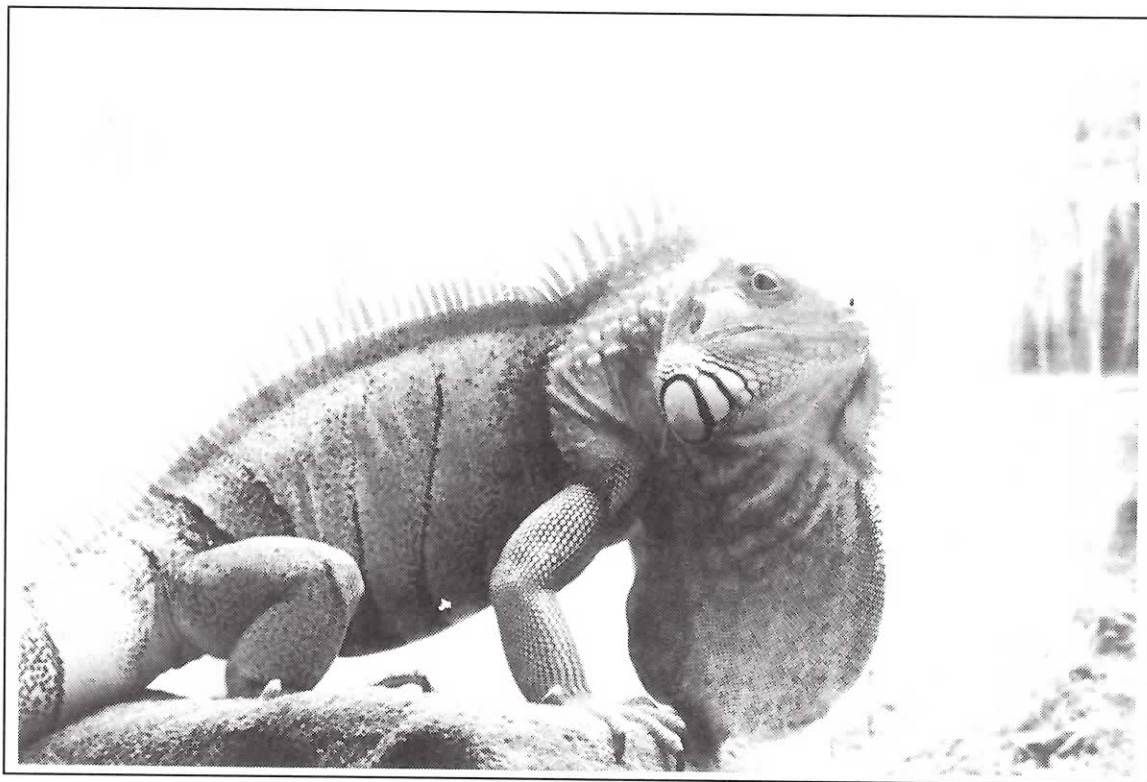
I am writing to tell you about the highly successful Iguana Fair and Clinic presented by the Fairbanks, Alaska Herpetocultural Society. The Fair was held Saturday, October 16th at the Noel Wien Library Auditorium in Fairbanks.

Because of the dearth of information about iguanas in Alaska and the lack of natural sunshine, many Alaskan iguanas suffer severe calcium deficiencies. Our goal was to improve the quality of life for Alaskan iguanas and educate their owners. To our astonishment, over 110 people attended, including the media.

Over 40 iguana care packets were distributed. Each packet included a I.I.S. membership form.

Two veterinarians answered questions and club members gave presentations on the general care of the Green iguana. Jay Archer discussed the proper way to travel with iguanas, an important topic in Alaska, where people relocate in great numbers. I made a huge, vitamin rich iguana salad. The crowd was invited to take samples home to their iguanas. Attendees were surprised at the variety of fruits and vegetables I included.





Alaskan green iguana. Photograph: Taryn Merdes

After the Fair, we were pleased but somewhat concerned — perhaps the pet trade benefited more than iguana health. Our fears were allayed when we received many calls from worried iguana owners. Although many of these individuals bought an iguana after coming to our fair, they were earnest about providing an excellent home for their pets. Also, many owners with pet iguanas realized that their care methods needed improvement.

Enclosed are black and white photos of my iguana, Hearty. Hearty was left at a pet store by his former owners, where I adopted him.

I Enjoy your publication, *Iguana Times*, and am pleased to be a member of I.I.S.

*Best Regards*  
*Taryn L. Merdes*  
*Chair, Fairbanks Herpetocultural Society*



**Dear I.I.S.**

Thanks so much for sending a reply. I appreciate you for sending info for my iguana. She'll like me giving her the right needs. I'm sorry I can't join your membership. I'd like to help the West Indian rock iguanas, so I'm sending a dollar hoping to at least help a little. I don't want them dying out.

*Charlotte Urban*  
*San Antonio, Texas*

Charlotte was sent a reply and 2 issues of *Iguana Times*.  
*Editor*



*Continued on next page...*



### Open letter to I.I.S. members,

As a veterinarian dealing with diseases of captive and free-ranging herps on a regular basis, I feel compelled to comment on plans that are underway to release captive *Cyclura* spp. to bolster wild populations. I believe that introducing captive stock into wild populations is a bad idea for a number of reasons, including the potential for mixing gene pools and "genetic swamping" and the effects an influx of new, naive individuals could have on predator behavior.

My greatest concern, however, is the very real danger of introducing a disease into a vulnerable population, already depleted for other reasons. Our level of knowledge of infectious diseases affecting lizards, as well as other reptiles, is meager at best, as I'm sure other practitioners and pathologists will agree. There is no way that these captive animals can be examined or tested for the presence of all significant pathogens which may be carried to wild populations, because we don't know what those pathogens might be.

A case in point is the *Mycoplasma* infection of desert tortoises (*Gopherus agassizii*). Following decades of authorized and unauthorized release of captive desert tortoises into wild populations, an outbreak of upper respiratory disease was reported in tortoises from California, Nevada, and Utah. Mortality from the disease was high. In parts of California, 90% of the tortoises appeared to have died in a four year period (1988-1992). The severity of this disease prompted federal protection for the species and thereby generated funding for research. In 1992, the pathogen primarily responsible, a *Mycoplasma*, was isolated by a team of veterinary research scientists at the University of Florida. In this case, three years of intensive research, liberally funded by herp standards, was necessary to isolate a rather obscure but devastating pathogen. Unfortunately, desert tortoise populations in parts of the Mojave and Colorado Deserts may never recover. Although other factors may have contributed to tortoise mortality, such as drought and decreased forage availability, the high incidence of infected tortoises from known release localities provides compelling evidence that captive releases likely introduced this disease into the wild population.

Island species are noted for their geographic and genetic isolation; their vulnerability to pathogens and parasites of related mainland species has been well documented and is easily understandable. Host-parasite relationships evolve gradually and although a

virus, bacterium, or protozoan may be innocuous to its normal host, in a related but different host it may behave much differently. Although well intentioned, these captive release programs could well prove catastrophic.

Sincerely,  
James L. Jarchow, DVM

Periodically I hear proposals to introduce captive iguanas to suitable habitats unoccupied by surviving wild populations. While this strategy might appear sound, two significant risks come to mind:

1. For various reasons people aren't content to leave iguanas where they are put. Historically, numerous examples can be cited of iguanas being carried from place to place for food or pets. In most places it's impractical to monitor and control what people do, so even where captives are released in "remote" areas, the risks outlined by Dr. Jarchow are real.
2. Publicized reintroductions may divert public and political attention from the most critical issue: that of saving/restoring viable but endangered habitats and wild populations. It's virtually impossible to determine upfront whether introductions to satellite areas will offer long-term survival benefits for a species.

While captive stock may represent our last hope in the event that all else fails, I strongly feel that in most cases such introductions should be avoided.

— Thomas Wiewandt, Ph.D.

## REPTILES AND AMPHIBIANS IN CAPTIVITY

BREEDING, LONGEVITY, & INVENTORY,  
CURRENT JANUARY 1, 1993.

521 pages

Compiled by Frank and Kate Slavens



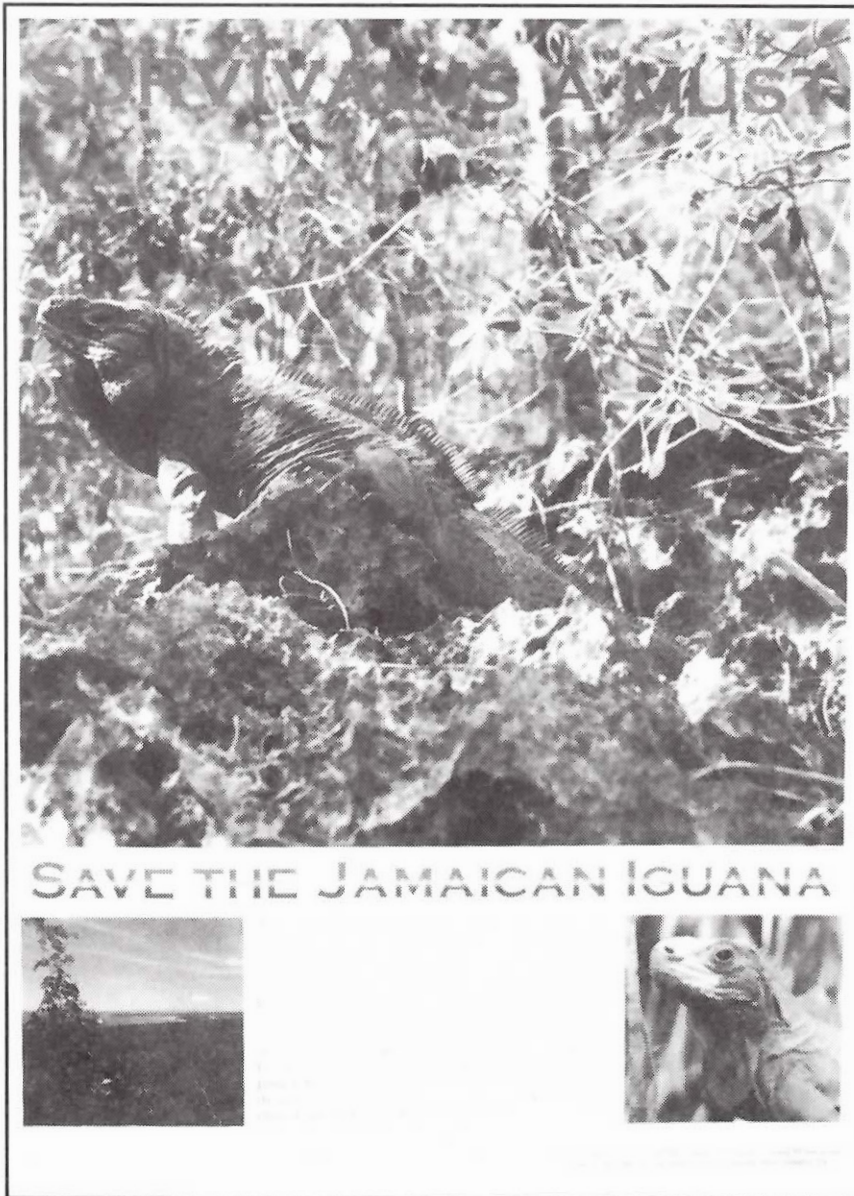
For more information contact: Frank L. Slavens, P.O. Box  
30744, Seattle, WA, 98103. or FAX 206 546 2912

Photo credit from last issue, page 20:

Jane Cagle and Armanda, Gretna, Louisiana



## Poster Commemorates Jamaican Iguana Survival



Fort Worth Zoo is offering a beautiful full color poster of the Jamaican Iguana, *Cyclura collei*, which was unveiled at the recent symposium and workshop on the conservation of the Jamaican Iguana.

The poster is being distributed in Jamaica to heighten public awareness for the plight of this critically endangered lizard. Once feared extinct, the Jamaican Iguana was rediscovered in 1990, and a small remnant population still clings to existence in the forests of the Hellshire hills.

Superb in color quality, this 17" x 22" poster features 3 photographs of the Jamaican Iguana and its habitat. A limited number of posters are available for \$10 each plus shipping & handling. Proceeds generated will directly support ongoing field research and conservation efforts in Jamaica. To order, please send check or money order for \$12.50 payable to: Fort Worth Zoological Association, Rick Hudson, Reptile Dept., Fort Worth Zoo, 1989 Colonial Parkway, Fort Worth, TX 76110

### For Sale:

*Laboratory Anatomy of the Iguana*, by J. Oldham & H. Smith. Illustrated throughout, 106 pages. \$17.00 postage paid.

**Also available:** herpetological book list with over 4000 titles. Send \$2.00 to cover P&H, refundable w/any purchase.

**Herpetological Search Service & Exchange**  
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### Wanted:

***I.I.S. members willing to assist the staff of Iguana Times.***

Members with typing skills and a personal computer (*any kind*) are needed to help keyboard stories from supplied manuscript for use in future issues of *Iguana Times*.

If interested, please contact **Mike Ripca** at (610) 626-1988 for more information.



# IGUANA NEWSBRIEFS

## CYCLURA CARINATA RETURNS TO PINE CAY, TURKS AND CAICOS ISLANDS, BWI

John Iverson recorded the systematic decline of a very large population of *Cyclura carinata* to a small one from 1973-1976, that ended in the total extirpation by 1978. The loss of the iguana population was caused by feral cats and dogs introduced to the island during the construction of a resort and other development on Pine Cay. Nearby undeveloped islands lacking feral mammals (Ft. George and Little Water Cays) apparently have maintained large iguana populations.

During a visit to Pine Cay, in 1991, Geoffrey Smith found iguana tracks at several locations. On the north end of Pine Cay adjacent to Ft. George Cay many tracks were found. Residents reported sightings of several iguanas within the year. No iguanas had been seen in the previous ten years.

It appears the iguanas have returned to Ft. George Cay, but since some feral cats remain, repopulation of the island is uncertain.

Source: Herpetological Review  
23(1) 1992

## MORE CAICOS IGUANAS

Robert L. Norton and Nicholas V. Clarke of the Ministry of Natural Resources, British Virgin Islands, report a small population of *Cyclura carinata* on Iguana Cay in the Turks and Caicos Islands. Iguana Cay is a small, uninhabited, limestone islet approximately 0.4 km in length and 0.3 km at its widest point. Vegetation is typical of small islands in the area with *Rhachicallus americana*, Black Torch, *Erithalis fruticosa*, Sea Grape, *Coccolobo uvifera*, and Silver Palm, *Coccothrinax argentata*. 8 females, 2 males, and 2 juvenile rock iguanas were observed during a walking transect of the island, east-to-west. The only other terrestrial vertebrate encountered was the curlytail lizard, *Leiocephalus psammodromus*.

Source: Florida Field Naturalist.

## International Iguana Society, Inc. Treasurer's Report October 1, 1993 – January 1, 1994

Bank Balance: October 1, 1993 .....\$9,324.54  
Total Period Deposits .....4,029.55  
Total Period Debits .....1,388.60  
Bank Balance: January 1, 1994.....11,965.49

### Deposits:

Membership Dues, Goods Sold,  
and BBQ Admission .....3,982.50  
Interest on Bank Balance .....47.05  
**Total Deposits .....4,029.55**

### Debits:

*Iguana Times*  
1. Printing .....96.38  
2. Postage  
    a. Mailings .....455.96  
    b. Third Class Mail Application  
        & Permit Fees.....150.00  
3. Mailing Supplies .....15.00  
Total .....717.34

Office Supplies  
1. Telephone .....153.57

Advertising  
1. Reptile & Amphibian Magazine...10.00

Annual Conference  
1. Speaker's transportation .....275.00  
2. Food .....96.16  
3. BBQ Pavillion at  
    Bahia Honda State Park .....71.25

Misc. ....35.94  
**Total Debits.....1,388.60**

Bank Debits .....29.34

Report by David Ehrlich, DVM  
*IIS, Treasurer*



## Statement of Purpose

**The International Iguana Society, Inc.** is a non-profit, international organization dedicated to the preservation of the biological diversity of iguanas through habitat preservation, active conservation, research, captive breeding and the dissemination of information.

**The Iguana Times**, the newsletter of the society, is distributed quarterly to members and member organizations. Additional copies are available at a cost of \$4.50 including postage. Annual dues for The International Iguana Society are \$25.00 for individuals and \$30.00 for organizations which receive double copies of the newsletter.

### Write to:

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Route 3, Box 328  
Big Pine Key, FL 33043



## Solicitations

Members of the I.I.S. are encouraged to contribute articles for publication in the *Iguana Times*, following a format like that shown in the most recent issue of the newsletter. Articles can deal with any aspect of iguana biology, ecology, behavior, husbandry, systematics, etc. Manuscripts must be typed, DOUBLE-SPACED, with wide margins, on 8 1/2" x 11" paper. Include your address and telephone number on the manuscript. Members are also welcome to submit letters to the Editor for publication in future issues of the newsletter. Authors of one page or more of print are entitled to three copies of the issue in which their article appears.

*The Editors*

## Advertising policy of Iguana Times

We advertise only non-living products (except feeder insects). All products have been examined and been found to be high quality and fairly priced. Contact I.I.S., RT 3, Box 328, Big Pine Key, FL 33043, for more information.

## I.I.S. Bookstore

As a service to our members, a limited number of publications will be distributed through the I.I.S. Bookstore. We believe this will become a valuable source of information. The following publications are now available:

- 1) **The Green Iguana Manual**, by *Philippe de Vosjoli*. 1992. **\$7.00** (including postage); **\$8.75** (non-members)
- 2) **Guide to the Identification of the Amphibians and Reptiles of the West Indies (Exclusive of Hispaniola)**, by *Albert Schwartz and Robert Henderson*. 1985. **\$19.00** (including postage); **\$27.00** (non-members)

**Write to:** I.I.S. Bookstore  
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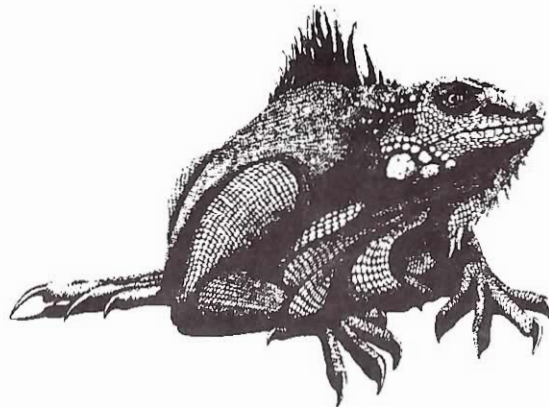
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IIS Board Member Richard Montanucci examines adult male, *Cyclura Rileyi* in habitat. Bahamas, May, 1993.  
Photograph: Richard Moyroud