The Maintenance and Reproduction of the Dwarf Python of Angola and Namibia

by
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There are few things more exciting to herpetoculturists than receiving some new taxon of reptile or amphibian, especially some particularly coveted animal, one of the "dream species" that we each hold in our fantasies. Raising these animals to maturity and then to successful reproduction is one of the most rewarding experiences that any with our interests can accomplish. And regardless of the species, the success of any such project speaks an eloquent testament to the dedication, patience, and sometimes the luck of the person who is able to raise and propagate the animals in his or her care.

Our own "dream species" have all seemed unattainable to us, fantasy creatures impossible to acquire, some impossible even to experience. While not all of the creatures of our daydreams are boas or pythons, certainly it is that group that in recent years has been foremost in our thoughts. The pythons and boas of our fantasies are a rare bunch.

Some day we hope just to see one of the preserved specimens of *Corallus cropanii*, the terrestrial relative of the emerald tree boa from coastal São Paulo state in southeastern Brazil, a boa so rare that it has no common name. Only three specimens are known since its description, and it is said by some to have gone extinct in the 40 years or so since its discovery. A living captive specimen, or even better (since we're fantasizing,) several captive young sexed pairs of this species makes a superior boa fantasy.

Some day we hope to see a living specimen of the rough-scaled python, *Morelia carinata*, an Australian python known to science since 1981; only four specimens are reported. We once traveled to Western Australia to see the only two preserved specimens, deposited in the Western Australia Museum in Perth. What a fantastic python it is, too! It is likely the python species with the smallest distribution in nature, apparently restricted to perhaps as few as a half dozen separated patches of monsoon forest in the bottoms of canyons, and tiny islands of forest surrounded by harsh dry rocky country, each patch smaller than 10 acres. This is a species that desperately needs the establishment of a well-managed captive population, but that's a fantasy that will have to happen in Australia.

The eggs of dwarf pythons are huge. Normally the female coils about the eggs, completely covering them. Here the female has been disturbed to reveal the eggs.

Of course we hold dear the usual boid dreams—the albino blood python, the axanthic Burmese python, an albino jungle carpet python, an albino Madagascar ground boa, a piebald boa constrictor—the list of beautiful possibilities is endless in fantasies. But one of our oldest dreams came true for us when, in 1990, we received in trade from a U.S. zoo hatchling dwarf pythons, *Python anchietae*; two males and a female.

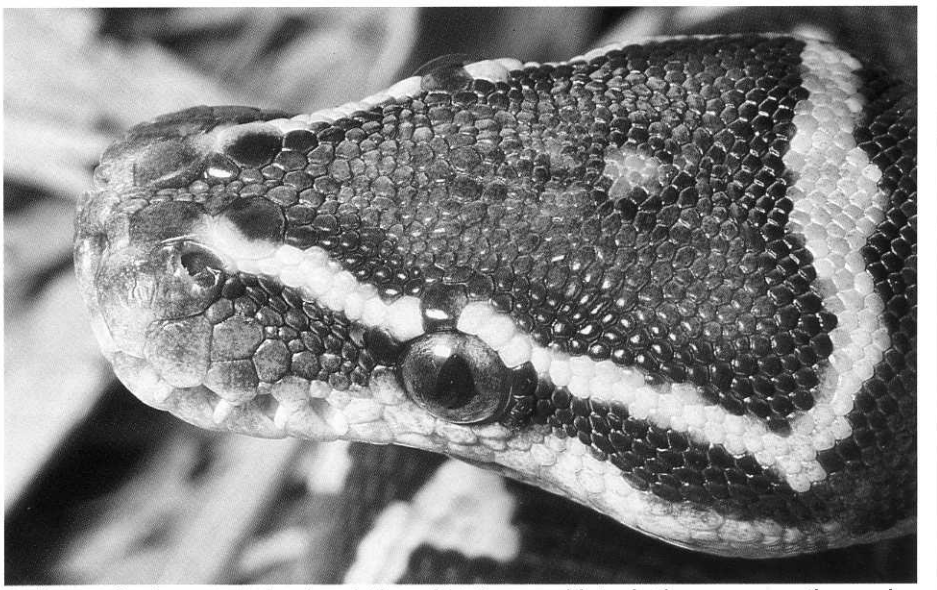
The dwarf python, also known as the Angolan python, has been known to science for more than a century. This unusual small python was formally described in 1887 by J. V. Barbosa du Bocage, Director of the Zoological Section of the National Museum of Lisbon for most of the last half of the nineteenth century. At that time animal specimens from Portuguese colonies were pouring into the Museum, as Bocage built the famous collections in his charge. Though actually better known as an ornithologist than as a herpetologist, from 1863 to 1904 Bocage published 58 technical herpetological papers and described 111 new species of amphibians and reptiles. Most of these new species described by Bocage were from Africa, and many of the taxa he described are still recognized today (Adler, 1989).

The type specimen of dwarf python was named in honor of a relatively unknown Portuguese naturalist, a J. de Anchieta who died in 1897 (Gotch, 1986). It is presumed that this person was a woman, as Bocage chose the feminine possessive suffix "*ae*" to make *anchietae*, rather than the masculine form *anchietai* or *anchietaiana*. J. de Anchieta was resident in Angola for a length of time, though the length of her stay is unknown to us.

This species has two fairly unusual conditions of scalation for a python. First, it has a large number of very small scales on the top of the head. A pair of internasal scales and a pair of anterior prefrontal scales are typically the only plate-like scales on the top of the head. Second, most of the dorsal scales on the head and body are rounded, slightly domed and not overlapping, or only slightly overlapping. Dwarf pythons have a smooth beaded feel to a hand stroking the body. The body shape in cross-section is flattened and the back is broad, as is seen in many species of rock-dwelling reptiles.

The type specimen came from the vicinity of the town of Catumbela in the Benguela province of Angola (see Fig. 1). The town of Catumbela is located on the coast at the mouth of the Catumbela River. It seems unlikely that dwarf py-

Like most pythons at hatching, hatching dwarf pythons make several slits in their egg shells before emerging. Using small scissors, we often cut connections between the slits to make certain that the hatchling does not drown in the egg.



A diagnostic characteristic of scalation of *Python anchietae* is the numerous tiny scales on the dorsal surface of the head, as can be seen on this subadult specimen.

Captive-bred and -raised dwarf pythons are typically very docile and gentle. It seems unlikely that many wild dwarf pythons will ever be brought into captivity. If so, the future of this species in captivity will depend on the breeding successes of the animals presently in captivity.

All photos by Dave Barker

thons are found in the immediate vicinity of the town; possibly the type specimen came from a locality upstream along the Catumbela River.

So far as we know, the type locality is the northernmost recorded locality for *P. anchietae*. However, we consider it highly probable that populations of dwarf pythons are found in the rugged Angolan Highlands; suitable habitat and elevations continue north of the type locality into the district of Cuanza Sul and east through the district of Huambo and into the district of Bié. The species occurs south into Namibia to the vicinity of Windhoek, the capital. Dwarf pythons have been found south of Windhoek in the Khomas Highlands and the Hakos Mountains. Again, suitable habitat occurs further south of these localities, and the species may range south into the high rugged country north and east of the drainages of the Fish and Orange Rivers, nearly to the southern border of Namibia. We are told of specimens being found in this area, but we are not aware of museum specimens or published accounts of dwarf pythons from this far south. There are so few records of dwarf pythons that it is impossible to clearly delimit the distribution of this species at this time.

As is typical for most python species, dwarf pythons remain in the egg 12–36 hours after slitting. During this time the remaining amounts of yolk are absorbed into the body.

The north–south distribution of dwarf pythons extends at least 600 miles (960 km) and perhaps as much as 1100 miles (1760 km). Along the coast in this region of southwest Africa are harsh deserts (including the Namib Desert); moving inland one gains elevation quickly, and 40–100 miles (60–160 km) from the coast the elevation is typically 3250 ft (1000 m) or more. Dwarf pythons occur in a narrow belt along this incline at elevations of 2450–6000 ft (about 750–1850 m) in rocky areas. At the eastern boundary of the distribution the landscape becomes a featureless flat plain.

Most areas where *P. anchietae* occur receive an average annual precipitation of only 4–8 in (10–20 cm). There are exaggerated seasonal changes; summers are very hot (daytime high temperatures exceeding 123°F (55°C!) have been recorded), and winters can be very cold (below freezing many nights). In such inhospitable country it is a certainty that dwarf pythons are not evenly distributed throughout their range, but occur in scattered populations.

This python is very seldom encountered. There are a variety of reasons it is rarely seen. The area of their distribution is nearly unpopulated, and travel there is difficult and expensive. Most of the known specimens have come from the vicinity of Windhoek, but that is more likely a consequence of Windhoek being the most densely human-populated area within the range, rather than because of any particularly dense python-populations (which is not to say that the Windhoek area is densely populated by world standards). Dwarf pythons are probably crepuscular or nocturnal most of the time (though in captivity they can be quite active in the day), and they are likely inactive during the cold months, the driest times, and the hottest months of the year (in other words, most of the year).

The Angolan half of the range of the dwarf python has been the epicenter of the yet-ongoing Angolan civil war for nearly 20 years. The rebels control the southern portion of Angola, and rebel headquarters are within 60 miles of the type locality of the species; over a million land mines and other explosive anti-personnel devices are believed to be scattered throughout the area. This has effectively excluded snake collectors from the Angolan portion of the range. In the southern extent of the range, Namibia has very strict regulations controlling the collection of snakes. Dwarf pythons receive special legal protection, they have nearly become the national reptile of Namibia, and legal exportation is essentially impossible. This has kept collectors out of Namibia.

For most of the history of this species, nothing other than its existence was known.

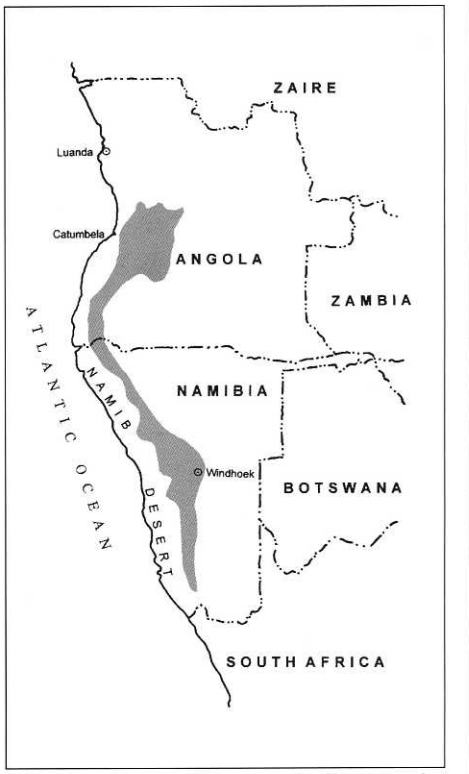


Fig. 1. The shaded area indicates the probable range of the dwarf python, *Python anchietae*, based on suitable habitat and elevations.

However, there has been a growing number of specimens available for study during the past 30 years. FitzSimons (1962) reported there to be 6 known specimens of *P. anchietae*. Finkeldey (1963) examined 7 specimens, including 3 living specimens, making a total of 9 or 10 known specimens. In 1980 we have record of only 9 dwarf pythons in captivity (3 at the Houston Zoo, Houston, Texas, 1 privately owned in a U.S. collection, and 5 at the Transvaal Snake Park, South Africa). Today we are aware of fewer than 20 wild-caught specimens alive in captivity throughout the world, including several of the specimens captive in 1980 that are still alive. Three U.S. zoos have reproduced *P. anchietae* since the first captive breeding

At three months of age, the dark colors of this dwarf python have begun to pale. The dark pattern of hatchlings is uniform chocolate brown.

of the species occurred at the Houston Zoo in 1981; between 10 and 20 of those offspring are living, although there undoubtedly are uncounted specimens of *P. anchietae* in private hands worldwide (though probably very few). There appears to be a world captive population of about 40 dwarf pythons.

We never thought we would be able to acquire dwarf pythons, they're simply unavailable most of the time. When they arrived we couldn't stop looking at them. As hatchlings, dwarf pythons are a dark chocolate brown with lemon yellow markings. Ours were alert, calm, inquisitive little snakes; whenever their cages were opened they would rush forward like little pigs expecting food, always hungry, but seeming to enjoy handling and a change of scenery if food wasn't offered. We were always worried that something would happen to these little treasures because they seemed to be so little trouble and so undemanding.

And disaster did strike. In July 1991, one of our males came down with an undiagnosed respiratory infection that did not respond to antibiotic treatment. This male had been an unusually small hatchling, weighing only 41 g when we received him, about 60% of the normal weight of hatchlings. He had not seemed negatively effected by his small size, and had fed and grown normally; at one year of age, about the time of the onset of his illness he weighed 318 g, about 80 g smaller than his siblings. He died in early September. His two siblings were not affected. We'll never know from where the problem came.

Dwarf pythons are prone to grow very heavy, rippled with fat, on an amount of food that would suit an equal size and age ball python; we have seen zoo specimens that appeared to be grossly overweight. Perhaps a python from such a harsh climate has had to become more efficient at storing body fat. In any case, we made the conscious decision to "sparingly" feed our youngsters rather than to "push" them. They were fed weekly one appropriately sized food animal, and in the winter months we occasionally skipped feeding for a week. At approximately one year of age each of the three animals had shed six times; at the sixth shed our second male weighed 402 g and the female weighed 396 g. They both could be described as pudgy and rotund, but not at all obese.

The next two years were uneventful. During the first part of December 1995, we ceased feeding. On 15 December we turned off their heat tape, afterwhich their cage temperatures ranged from daily highs

of 84°F (29°C) to nighttime lows of 75°F (23°C). The photoperiod had also been gradually shortened throughout the fall to the winter minimum of 9 hours of light and 15 hours of dark. On 29 December 1993, our male shed, and was placed in the female's cage.

On 30 December, the pair were observed copulating. Throughout late winter and early spring the pair were separated for several days and then placed together for 7 to 10 days. They were observed copulating two more times, on 31 March 1994 and on 12 April 1994. The female was observed to ovulate 36 days after the last copulation on 18 May 1994, an event signaled by the typical temporary large midbody swelling often referred to as "the lump" [see our column titled "The Mechanics of Python Reproduction" in the March/April 1995 issue of *The Vivarium* 6(5) for a discussion and description of the events of python reproduction]. The pair were separated at the time of ovulation and were not placed back together after the event.

The female went into a shedding cycle about a week after ovulation and shed her skin on 4 June 1994. She was provided a warm basking spot with a heat pad placed under her cage, creating an area on the floor of her cage with temperatures of 90–94°F (32–34°C) where she was often observed laying with the posterior two thirds of her body up-side-down. At this time she was also provided a nesting container containing very slightly damp sphagnum moss; she was often observed in brooding coils in this box, and quickly had packed down an area of moss to perfectly fit her coils.

Egg laying occurred during the day of 2 July 1994, 28 days after shedding her skin. When completed in the afternoon, she was wrapped around six gigantic perfect eggs. We observed the muscular shivers typical of females of several python species when brooding. We measured temperatures using a non-contact remote-sensing temperature gun (no herpetoculturist should be without one) and observed evidence of actual heat generation. Over a 6-hour period we observed temperatures in the nest outside of her coils to remain a constant 83°F (28°C), while the temperature of the eggs inside of her coils was 88°F (31°C). These eggs appeared to be nearly the size of Burmese python eggs, weighing an average of 0.26 lb each (119.7 g each).

The adult pair were measured on the day after egg laying: the female weighed 3.3 lb (1518 g) and measured 58.25 in (148 cm) in total length; the male weighed 3.1 lb (1392 g) and measured 50.75 in (130 cm) in total length. The relative clutch mass for this breeding was 0.49 (in other words, the total weight of the clutch equalled 49% of the weight of the female), a spectacular reproductive effort for a female python. The female voluntarily fed on a medium-sized rat two days after egg laying.

The eggs were taken from the female late in the evening of the day of egg laying and placed in a container of slightly damp vermiculite. This container was placed in our incubation room at a constant temperature of 90°F (32°C). Incubation was uneventful, and the eggs looked perfect throughout; they hatched after 58 days of incubation, producing six healthy, fat and beautiful little baby dwarf pythons, two males and four females.

The babies have been trouble-free. Measured after their first shed, at about two weeks of age, they weighed about 0.14 lb (62–64 g) and were 17.5-18.5 in (45–48 cm) in total length. After completing their first shed they were offered food and all six ate fuzzy mice. They are growing and thriving, following in the paths of their parents. At four and a half months of age, they averaged 0.42 lb in weight (190 g), very similar to the weight of their parents at the same age.

Python anchietae has been one of the most rewarding species with which we have ever worked. To accomplish the successful captive reproduction of such a rare python is very satisfying compensation for the years of attention, work, and worry that such a project requires, and this has been one of our easiest and quickest projects. Our babies are our pride and joy. It's these successes that motivate us to continue our work to establish and secure this and other python species in captivity.

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