Concerning Lachesis and Capoeira: An Anti-Article by a Brazilian Outsider .......................... Rodrigo C. G. de Souza 65
Herping in Australia—Field Notes and More. Part 12: Herping in Heaven, Hell or Melbourne ......... Raymond Roser 69
Book Review: Amphibians and Reptiles: Status and Conservation in Florida edited by Walter E. Meshaka, Jr., and Kimberly J. Babbit............................................................................. J. Alan Holman 76
A Short Note on the Appearance of The Amphibian Tree of Life by Darrel R. Frost and Eighteen Other Authors . . . J. Alan Holman 78
HerPET-POURRI .................................................................................................................. Ellin Beltz 79
Herpetology 2006 .................................................................................................................. 82
Unofficial Minutes of the CHS Board Meeting, February 10, 2006 .................................................. 83
Advertisements ...................................................................................................................... 84

Cover: An Atlantic bushmaster, Lachesis muta rhombeata, in repose at the Serra Grande Center for Reproduction in Captivity of Lachesis muta. Photograph by Rodrigo C. G. de Souza.

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Concerning *Lachesis* and Capoeira
An Anti-Article by a Brazilian Outsider

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for Paulo de Tarso Hilario, YONIC’s Director

A “Firefighter” (*Apaga-Fogo*)

Abstract

Report on a Brazilian medical doctor’s handling of *Lachesis muta rhomboidea* and how it compares with the ancient art of capoeira from Angola.

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I am a medical doctor from the Federal University of Minas Gerais, a member of the Brazilian School of Surgery, Medical Director of the Hospital Foundation of Itacaram, Director of Fauna at the YONIC organization, creator and head of the Serra Grande Center for Reproduction in Captivity of *Lachesis muta rhomboidea*. Federally Registered Technician of IBAMA/Environmental Ministry N° 495100. (IBAMA is Brazil’s Department of the Interior.) We’re situated in one of the last biomes where the Atlantic bushmaster, *Lachesis muta rhomboidea*, persists. In 1989 it was considered “in extinction” on the official list of the Brazilian Institute of the Environment, IBAMA, and today it is listed as “vulnerable” by the International Union for the Conservation of Nature.

When I go out to do the daily chores I don’t have science on my mind. I don’t like company (a mistake), and I don’t like conversation. It’s as if alone, quiet and focused in the forest, the internal conditions emerge for the practice of my art.

The “art” of my work seeks to avoid an extremely violent confrontation that serves no one—not creature, not handler.

In practice, when I step back observing what I do in the snake pens day-to-day, it has more in common with ancient Angolan capoeira than herpetology. Therefore, my great masters of inspiration are, without a doubt, Vicente Ferreira Pasinha, Curió, João Grande, João Pequeno, Valdemar, Neco, Braga, Neneu, Moraes, Affimene e Lula, who blend their art, science, culture, “street-smarts,” and if necessary, war. Everything starting from concentration.

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1. Capoeira is an Afro-Brazilian martial art whose truths and unique masters have either "gone to the moon," (passed away) or they are now in their 70s. Deadly, but to the untrained eye, capoeira looks like play.
2. YONIC: www.yonic.org, my one and only support.
3. “Firefighter” (*Apaga-Fogo*): *Lachesis muta rhomboidea* (red variety). According to the people, the bravest kind of animal, capable of striking a heat source (lantern, candle, gas lamp) in a man’s hand at night in the jungle.
Pairs and piles.

Behavior yet to be confirmed, male and female guarding eggs.

True strike-hold: fangs in the heart and lungs; lifting prey above the ground.

Third stage of *Lachesis* defensive behavior: first one, standing still relying on camouflage; second one, rattling tail against leaves; third stage, rising 2-3 feet above the ground.

Romance.

The joy of closeness.
The author illustrates his preferred method for handling large bushmasters.

Our Serra Grande Center is an imitation of nature. It’s a small-scale reproduction of everything I hear from the farmers, hunters, woodsmen who are my patients, and everything I have observed in dozens of casual encounters with snakes. Nothing new: burrows with galleries (even fake ones) simulating those made by pacas and armadillos; average altitude of 140 m above sea level, inland coast temperatures—cool (19–27°C at the surface and 15–18°C in the burrows), humid (always 75–95% relative humidity). Leaves piled high for the constant renewal of the vivarium floor (to avoid pulmonary nematodes and other dangers of the forest).

Sensing something was going to get ugly, the Angolan martial artists would imitate drunkards, and by the time the aggressor discovered the trick he was already on the ground. I disguise myself as a rock or a tree trunk. I work in canvas overalls with thermal insulation; hence, I am not a heat source, not a thermal overdose. I’m not in the radar of the snake’s heat sensing pits, and if I’m quiet, cool and calm, I literally stay invisible in the middle of five to seven snakes, some as long as 2.30 m. When the disguise is exposed, they are already gently immobilized: to be checked for parasites or injuries, or to be sexed.

If necessary, I alternate the animals between the large enclosures (vivaria up to 40 m² for seven adults) and individual boxes of 1 m² until I can answer to myself: Why is this animal losing weight? (A conclusion that may be obvious in the eyes of a keeper even without a scale.) Why isn’t this animal coiling itself? (Heavy pulmonary parasites?) Four months of isolation is common. Also, it’s not rare to keep an animal with an incomplete change of skin for 72 hours in a semi-immersion box.

More important still is that the animal doesn’t know it is confined, something easily observed by the lack of scrapes on the snout where we see it has not been searching for an escape route. I don’t search for records of longevity in captivity. Live a shorter life, if this is the case, but battle in the rain, get warm in the mild morning and early afternoon sun, hunt rats with great ability, be romantic and spend your days in a house that suits you. Our second mating was seen a few days ago. The first eggs were laid on January 4, 2003, but all were lost, perforated by fly larvae; we have to learn the hard way. I must say that as a consistent breeding program, we are so far a complete failure. But also for the first time in five years, we fully understand what we are doing and from now on we expect offspring every summer (hopefully). This is the basis of an organic animal hatchery, with the minimum possible medical treatment and manipulation. Time will tell whether our belief holds true: that if the snakes live free of stress and take nourishment at their own pace, good health will come as a consequence. Master Cario said that one who eats well lives longer.

Our rats are fed the best rodent pet food. Our snakes eat well at their own pace, small animals (~200 g), four times a month, rain or shine. They don’t want to know about longevity through caloric restriction.

I’ve already seen the “Stingray’s Tail” and I’ve seen the “Inner Full Moon,” blows of amazing impact. Just seeing the explosion and velocity defies description; there’s always a potential for cranial trauma, or even death. I’ve also seen Lachesis strike above waist height (I’m 1.82 m or 5’10”). I’ve worked for 30 years with Bothrops and Crotalidae and for five years exclusively with Lachesis. There is no comparison for speed and precision; Lachesis doesn’t bluff. I was called to remove a 2.20 m male rhomboeata that was 20 m from the house of a local veterinarian. The snake had attacked the headlight of a passing motorcycle on a narrow track in the woods at night, knocking the biker off the road. When I arrived at the scene 30 minutes later, the snake was there facing the heat source, the engine.
As for the work, as it is in the capoeira circle, what's most important is the space, the instinctive knowledge of distance: to anticipate possible escape routes and to avoid the difficulty of corralling stray animals. Also, of great concern is the somewhat unproven use of lasso: the animal, mainly in the neck region, is very muscular for the "scant" osteo-teradonous frame. It will spin on its own axis provoking a spinal cord injury. Unnecessary harm can be avoided by respectful handling of the animal: lifting it with mild, manual pressure at a point a little above the cloaca, giving it support near the division of the third cervical vertebra and the third median. But due to the risks involved, such handling should not be considered by those with limited experience with Lachesis. The rule is not to see the two heat-sensing pits at the same time. Because if you see them, you've already been "seen"; now you are a target. Because of the fragility of its internal ligaments, a sudden drop of 80 cm in height can result in death.

Today I have to immobilize some animals and am fraught with anxiety. I'm never going to lose the fear. I've already seen a child die almost instantaneously, and I've seen an adult completely knocked out in just 15 minutes. His blood pressure had a sudden drop to 50/20. (This specific accident happened only two feet away from me.) I keep remembering my own experience and how fatherhood robs you of your right to suicide. For that reason it's necessary to work in pairs, with someone equally focused and concentrated, outside the enclosure.

I conclude by explaining why I have the audacity to submit an anti-scientific article to none other than the Chicago Herpetological Society. I was encouraged to do so upon hearing that you are willing to judge both text and experiment based on merit and credibility. It doesn't matter if you are a biologist, herpetologist, "scientist," or anything like that. It is something very different that I observe here, under the equatorial sun.

It is estimated that between 5 and 7.3% remains of the original Atlantic Rainforest of Brazil. Satellite photos from CEPLAC (Federal Agency for Cocoa Research) reveal that in Bahia, the "little ant" deforestation was observed consuming 1% per year of the residual 5%. "Little ant" is a small-scale clear-cutting procedure, multi-focal and difficult to detect by government officials. I see a dark future for the species in the region, with "ghettos" in Private Natural Heritage Reserves (RPPN), islands of forest where genetic exchange won’t be possible. Also without the forest shade, the eggs will dry up.

My work is confined to an 80 km radius where most of the snakes were captured. The possibility of an accord between man and this species does not exist. Despite the confirmed captures in the city, the animal is normally sighted by humble, rural people who already have enough problems in their lives and they don't want one more: they either remove the snake or it dies (they will kill it). Today, a partnership with the military and civil police and the community permits this last chance.

It hasn't been easy to do what I do; the legislation is rigorous, as it should be. At times, it's like in the most beautiful chants from Angolan capoeira: I got "tired of living here on earth, wanting to move to the moon (transcend the earth) with my wife."

I heard Master Curiri, illiterate, say that now, to give a class (in capoeira), a person has "to have a course of study in a college of physical education." I would like to know the "master" of this generation who challenges Master Curiri in the capoeira circle. In the same way, I have to deal with the jealousy of the "experts"—some with literally 100 years of incompleteness working with this species. I would like to see the "expert" capture by hand, unharmed, an adult, 2.3-m-long bushmaster on a wet and slippery forest incline at night. (The animal during the day is one thing, at night it's another.) That one got too close to an impoverished little house and was detected by the dog. One famous rescue conducted by "specialists" resulted in the death of 180 Lachesis during the Tucurui Dam flood in the Amazon.

Surucutu, the name for the bushmaster in the language of the Tupi-Guarani Indians, means "one who strikes repeatedly," and believe me, it wasn't without motive that my friend, "Pit Bull," the strongest worker I know, left his own mother behind in the race to escape after a nocturnal attack. He carried a lamp and believed that the "investigative strike" was that of a great "firefighter."

One last word to the wise, capoeira students or Lachesis handlers: a "safe" distance may be a little farther than you think.