

## Observations on the Giant Sungazer Lizard, *Cordylus giganteus*, in Captivity

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In the past few years, it has come to my attention that more sungazer lizards have been introduced into the commercial pet trade. For this reason I thought it would be a good time to share my observations and interactions with this species, in the hope that others might benefit from my experience in keeping these lizards. As you may be aware, there is still very little written on *Cordylus giganteus*, compared to other, more popular, types of lizards. The only articles I've seen in herpetocultural magazines have been Switak (1995) on the genus *Cordylus* as a whole, and Donovan (1997) on sungazers specifically. *The Vivarium* has never published an article on the genus *Cordylus*, and popularized reptile books are general in their information, often contradicting one another on the facts (e.g., Bartlett and Bartlett, 1997; Mattison, 1983, 1991; Wynne, 1981; Zimmermann, 1983).

I acquired my first sungazers in 1989. At the time, information on these lizards was not easy to find, so I really did not know what to expect from them as far as behavior and temperament were concerned. I had experience keeping and breeding smaller cordylid species, such as armadillo lizards, *Cordylus cataphractus*, and girdled-tailed lizards, *Cordylus warreni depressus*, but none with the majestic sungazer lizard. My first job was to find written information currently available. I did as much research as I could, talking to other people and gathering information from various technical articles from the Field Museum library.

Having gathered verbal and written information, the second step was to prepare a habitat enclosure for them, as these lizards are really too big to be kept properly in an aquarium environment. I modified a homemade wooden table, adding pegboard walls for ventilation, and two screen doors in the front, one on each side, for easy access. The enclosure measured seven feet by four feet with two fluorescent light fixtures overhead, each containing one full spectrum light and one black

light, approximately 15 inches from the ground. I furnished a heating pad in the center of the cage for autumn and winter use, and a large dog bowl for water. Hiding places were provided in the form of two clay tiles, 24 inches long, cut in half lengthwise, to serve as burrows. These lizards live in open grassland areas, and hide in underground burrows, roughly three feet long, either dug by the lizards themselves, or dug by other animals and adapted for use by the sungazers. The flooring of my enclosure was floor tile, over which I placed artificial turf, except for 12 inches at the front of the enclosure. This is where I placed the water bowl and I hoped was the place the animals would use for their bathroom area (they tend to use the same spot repeatedly for this activity). These lizards come from a temperate climate, with low humidity, where they hibernate in their burrows during the winter months. I have never used a heat lamp in the enclosure, as these animals prefer a relatively cool air temperature. Extreme heat, such as needed with *Uromastyx* and chuckwalla species, could prove fatal for the sungazer. Use of a small fan, during the summer months, to help circulate the air, has also proved helpful. The cage was now ready for its inhabitants (Figure 2).

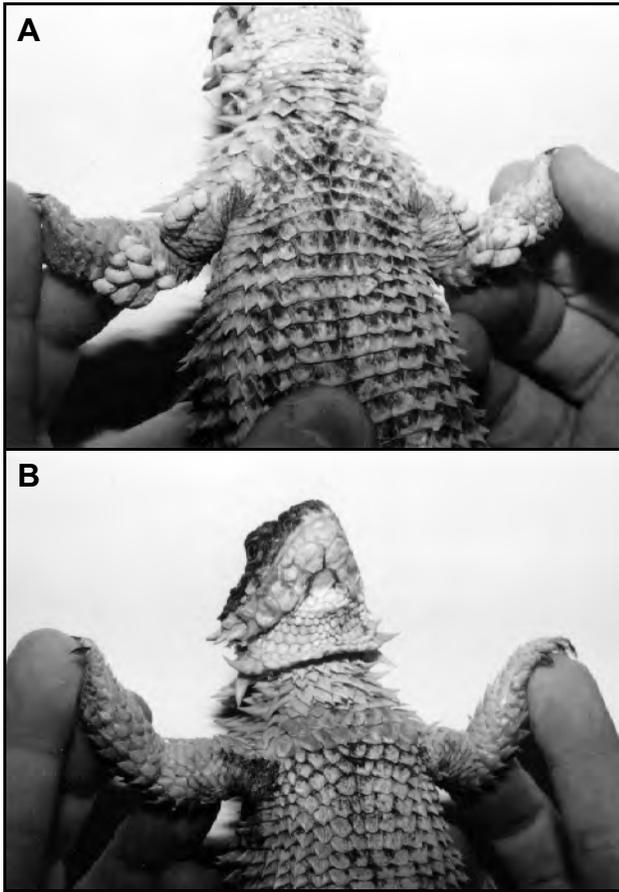
When I unpacked the shipment of sungazers, I didn't know what to expect. Would they be aggressive and bite? I was surprised to find them quite non-aggressive, preferring to just lie there with their arms at their sides. This is a defense posture they use in the wild, as they are heavily armored from top to sides with sharp thornlike scales. Anything biting them gets a mouth full of thorny protrusions, not unlike biting a pincushion. The other defense they use is to swing their armored tails back and forth at the mouth of their burrow. This can draw blood if one is not careful. Other than that, I have never had any aggressive action taken towards me by the sungazers. They have never actively bitten me in defense, only when I have gotten in the way during feeding. They prefer to run and hide, rather than attack, unlike girdle-tailed lizards, *Cordylus warreni*, which will bite readily, given the chance.



Figure 1. The author and friends. Photograph by Carlos Sanchez.



Figure 2. Cage number one, looking through the right door opening. Photograph by Carlos Sanchez.



**Figure 3.** A) Male sungazer, *Cordylus giganteus*, showing raised scales on the forelimbs. B) Female sungazer, showing normal forelimb scales. Photographs by Carlos Sanchez.

The group consisted of one male and three females. Males, incidentally, are very easy to sex. They have pronounced raised scales on the inside of their forelimbs, which are very noticeable (Figure 3a), as well as larger femoral pores on the hind legs. Females have regular scales on their forelimbs (Figure 3b). I do not know the reason for these raised scales on the males, but males of other *Cordylus* species do not have them at all.

I watched and waited for the usual lizard behavior patterns to emerge: head-bobbing, tail-wagging, tongue-flicking, etc. The sungazer lizards rarely or never exhibited these behaviors. They seemed oblivious to one another. They chose their respective burrows; occupied by two animals each. Over the years, I've noticed that the male would change burrows from one side to the other, every year or every other year. One year he would use the one on the left, then move to the one on the right two years later, for no apparent reason. The females would interchange with him, depending on which side he occupied. I've observed attempted copulation only twice in 10 years. Of course this doesn't mean that it hasn't happened more frequently; perhaps I just wasn't home at the time, to witness it. The first observed copulation was five years after I had obtained them. It was in November and the barometric pressure had just dropped that day. I heard scurrying inside of

the cage and went to investigate. I found the male chasing one of the females slowly around the entire cage attempting to mount her from behind. At one point he bit her head region, and tried to position himself underneath her tail region. I did document this with a photo, but I didn't get as close as I might have liked, for fear of disrupting the action. I couldn't tell whether this was a successful breeding because of their position within the enclosure. Afterwards, they went back to ignoring each other. Three years later, I would witness this action again, also in the autumn months, but to my knowledge, no young were ever born, unless they were eaten after birth. I have read that males can be cannibalistic towards any young (Marais, 1984).

In 1994, I acquired six more yearling sungazers, which were housed in two groups of three each, until I could build another large enclosure. They were about seven inches total in length, and unsexed at the time. As they grew, I discovered that the sex ratio was four males and two females. Since I did not have the space for a lot of large enclosures, I decided to put all six in another seven feet by four feet enclosure with an open top this time, sort of like a big wooden box. I also included six hide areas on one side of the cage, using clay tiles again, and 12 inches in length (Figure 4). Housing them all together, I was not sure how all the males would react to one another, but then again, this species interacts and behaves by their own set of rules. When I first placed them all together, I actually saw tail-wagging and tongue-flicking, as the two groups got to know one another. The aggression towards one another sub-



**Figure 4.** Cage number two, open topped, viewed from above.

sided after one hour and they have been living as one group ever since. I personally was surprised that four males would tolerate one another in an enclosed area, but they are now about seven years old and I have not yet had a problem. I do not know, however, at what age they reach sexual maturity. They are not as large as my other adults, so perhaps they are not yet sexually active, but at seven years, I would think that they are mature enough.

The water dishes for both enclosures are large enough for the sungazers to immerse themselves, and I have noticed a rather unusual behavior. In both cages, these lizards like to sit in the water bowl, much like a bathtub. I have used large water dishes for other species of *Cordylus*, and they do not show this behavior at all. The sungazers, however, seem to like their occasional dip in the water dish. I have seen other enclosures at zoos, which use little dishes of water for the sungazers. Perhaps if they knew they liked bathing, they would give them larger bowls. In the wild, they do experience a rainy season, so coming in contact with water is not an unheard of experience. Sometimes their burrows can become flooded out, leaving these lizards to locate other, drier burrows, or digging upward in the existing burrow. They also do not like venturing far from the protection of the burrow entrance. I have left the cage door open on one occasion, only to find that not one had even left the enclosure. Should they become startled; the sungazers literally fly into the burrow openings, seeking refuge from impending danger. Should I open the cage door at this point, they would whip their tails back and forth inside the clay tiles, resulting in a hard, hollow, thump-thump sound. Occasionally, one can be heard digging inside its shelter, at the end against the wall.

Perhaps in part because these animals behave unlike other lizards, breeding them remains a mystery. They may only give birth every other year (van Wyk, 1988), and the gestation period is unknown—it might last a year or even longer. Peo-

ple who have claimed to breed them, usually have done so only once, leading me to believe that the allegedly bred sungazer was gravid when purchased. If gestation can last a year or more, then this scenario certainly seems plausible. If someone had bred them after having kept them in captivity for two years or more, I would be more inclined to believe that, yes, they actually had bred them. Because they are notoriously difficult to get to breed, I feel it is important for people purchasing them to know this fact. If one is buying sungazers in hopes of making a small fortune off the offspring produced, then one is in for a big surprise. Many zoos and individuals have tried for years, but breeding is still an elusive nut to crack. It seems hibernation plays a key role in reproducing this species, but if you do hibernate, are you willing to run the risk of a sungazer fatality as a result? I have talked to someone in South Africa who did breed these lizards regularly by hibernating them in a refrigerator for several weeks, in the winter months. He also kept them outside the rest of the time, utilizing natural sunlight in the process. Bert Langerwerf maintains his reptiles in much the same way. After many years of keeping sungazers outdoors at his Alabama facility, with no young being born, Bert Langerwerf finally did report breeding success this past year.

These days, I find it shocking the obscene amounts of money that sungazers command in the commercial pet trade, especially since the chance for breeding success is so slim. Should breeding occur, they only give birth to one or two young and the process could take two years. This is quite a contrast from some species of commercially bred lizards, which may lay 20 eggs each, three times a year.

At least if more people are buying and working seriously with sungazers, then breeding may become more commonplace. The more people contributing to the existing knowledge base, the better for the animals' continued survival in captivity. It's my hope that this article will inspire other sungazer keepers to share their experiences in print.

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