



Adult pair of speckled tortoises (*Homopus signatus*) sharing a *Lavatera* blossom. The male of the pair (left) measures 3.4 in (8.6 cm) long, 2 in (5 cm) wide and 1.5 in (3.8 cm) tall. The female (right) measures 4.1 in (10.4 cm) long, 2.9 in (7.4 cm) wide and 1.8 in (4.6 cm) tall. Photographed at the Behler Chelonian Center in Southern California by Dave Friend.

Turtle Month Speckled Tortoise (*Homopus signatus*)

The Speckled Tortoise, *Homopus signatus*, in Captivity by Mike Palmer

The South African speckled tortoise is my favorite chelonian. Not only is it the smallest of all tortoises, rarely growing more than $3\frac{3}{4}$ inches (9.5 centimeters) in length, it is among the most beautiful. I will not give detailed description of the tortoises. You can read all that in Richard C. Boycott and Ortwin Bourquin's wonderful *The South African Tortoise* book. Instead, I will talk about keeping and breeding them in captivity. However, I do have to say that mine are much prettier than the one pictured in Boycott and Bourquin's book, having a reddish ivory-colored background with jet black

radiating streaks on the carapace, with the outside edge of the marginal scutes and the plastron being almost solid black.

It is easy to see why they are called speckled or little rock tortoises by their appearance and their life-style. Like the pancake tortoise, they spend much of their time under or on top of rocks and are rather flat and elongated, with long legs which allow them to climb. They resist being pulled from under a rock by wedging themselves in either by raising up against the rock or by putting one leg up to the rock above them and pushing the other front leg to the floor. I usually can't get them

out without lifting up the rock they're under. Besides being much smaller than the pancake tortoise and not as proportionately flat, the shell of the speckled tortoise is hard.

Like the parrot-beaked tortoises (*Homopus areolatus*) I have, they run for cover when they see me coming. However, unlike the parrot-beaked tortoises, the speckled tortoises will usually come right back out looking for food. At least the male does. He raises himself up as tall as he can on three legs and reaches up with the other leg as if trying to climb the air to get to me and the food. The female is more aloof and would rather be left alone.

They walk about slowly and deliberately, and are very careful about climbing and descending. However, they do pull off some amazing high dives every once in a while.

I have had both parrot-beaked and speckled tortoises for more than 4 years. The speckled tortoises have become the more personable of the two species. Another major difference is their water need. While parrot-beaked tortoises can stand a lot of rain and need lots of grass and plants in their pen, speckled tortoises are dry weather animals that can't stand much rain and need little vegetation in their pen to avoid raising the humidity.

In the speckled tortoises' pen the soil is very sandy with a few desert plants that need little care. The entire pen is raised up so it will have good drainage. And, of course, there are lots of large rocks. I picked out smooth speckled rocks to make the tortoises feel at home, and when the tortoises are dry and dusty they're quite hard to see. I have gotten to the point of panic trying to find them in their 4 feet x 8 feet (1.2 meter x 2.4 meter) brick pen. In the wild they spend a lot of time under dry rocks and walking around in dry dust. This is the kind of habitat I've tried to duplicate for them.

When I first acquired the speckled tortoises we lived in Arkansas with its rain and humidity. They developed some kind of skin rash that would come and go but never was anything serious. I had them for about 1 year when we moved here to Mendoza, Argentina. This place makes a dry Arkansas summer seem like the rainy season in the Amazon. In the hottest weather, we have temperatures similar to southern Arizona. I may give them water once a week if it hasn't rained during the peak of summer in December and January, which amounts to once every two weeks or less. If it rains more than once a week I bring them inside until it stops. It usually rains about once every two months during spring and fall, and almost never during winter. If it has not been too hot that's all the water they seem to need. I'm afraid I've learned their water needs the same way I have learned just about everything else in life, the hard way.

When we arrived here I made a temporary pen of bricks on a grassy place in the yard. Much to my surprise, despite the dry climate, the male and female developed infections in the soft skin around the legs and neck. At first, I thought it was the same rash they had had before. The infection spread and became life-threatening to both animals one week or so after I first noticed it. Antibiotic creams

seemed only to make things worse. The veterinarians here have been less than useless as far as tortoises are concerned, but that's for later.

So I hurried and finished the indoor tortoise pens I was building. I brought the tortoises in and placed them on dry sandy dirt. The infection was quite severe by now with pus erupting and large pieces of skin dying and coming off. It may sound bad, but the only thing that I could think of to use was Mercurochrome. It obviously hurt like hell because they ran like they were on fire when I used it. But, it "seemed to work". I used it 3 or 4 times and they started healing. Within a few weeks they were as good as new. I just kept them inside for the rest of that summer and winter and they did very well.

As soon as spring came I put everybody back outside in the new pens. They did well until the end of the rainy season, then I noticed the skin infection had recurred. I brought them inside and used Mercurochrome as before believing that it would be like last time and they would be well in a short time. But, the male grew worse and worse to the point that it looked like he would not live long. The female seemed to get well just by being inside in the dry. The male's infection became so bad that his front legs and neck were swollen to the point that he could no longer withdraw them. Death seemed sure when I picked him up and a thimble of pus exploded from his shoulder, and the skin that connects to the shell above and below the neck was loosening. I gave up on Mercurochrome, it wasn't working and may have been making it worse.

I have a variety of injectable antibiotics and I took a sample of infected skin to a veterinarian so he could grow a culture and find out which, if any, antibiotic I should use. He told me to come back after one week. When I did, I found out that he had destroyed the culture by stupidly putting the skin in alcohol and, now, the lab was closed for two weeks vacation. We do not have a telephone and he had not bothered to drop me a card to let me know what had happened. So, we never got it done.

The male speckled tortoise did not take one bite of food for the next six weeks. He could not open his mouth and he smelled like he was already dead. Then, when I was looking through some of our luggage that we had never unpacked, I found something a U.S. veterinarian had given me before to treat the rash they had in Arkansas called Nowasam



Male speckled tortoise among the rocks in his habitat. Photo by Dave Friend.

(anti fungal). I had only used it once. It had to be mixed with water and the animals left to soak in it for an hour. The problem with these guys is that they will drink for one hour if they have the water. I did not think that drinking all that Nowasam would be good for them, so I had packed it away and forgotten about it. Figuring it was a do or die situation, I mixed the Nowasam half and half with purified water. I sprayed it onto the male's open wounds using a syringe and dried him off with a hair dryer twice that day. The next day the runny sores were looking drier. Day by day he got better. By the fifth day he started eating again, and was eating like he was making up for lost time. At the end of 30 days all signs of infection were gone, but I continued the treatment for another week just to make sure. The stuff was great—but I think the hair dryer may have done as much good as anything. It was a few months before his skin returned to its original gray color with black speckles and no signs that anything had ever been wrong.

Since then, I have stopped sprinkling them so often. They get most of their moisture from rain and their food. There has been no sign of the infection for the last two years.

Well enough of that, let's talk about the every day life of the little speckled tortoise here on the farm. As far as food, I only give them grasses and such. There's a little Bermuda grass growing in their pen but the pen is so dry it does not grow very well. They eat elm leaves which have fallen into their enclosure from nearby trees, but only after the leaves have dried out. That is a good indication of their life style. They ignore fresh leaves placed out for them until they have dried out and turned crumbly, then they eat them like dry corn flakes. I often see them walking about eating little bits of dry grass and leaves. Their diet includes dandelions, clover, sweet pea leaves, elm leaves, grape leaves. They will pass over all that to get at a blossom of any

kind. I feed them every other day and sometimes I give them grated carrots as well, but no supplements.

When it rains they come out to drink water by pushing their noses against a rock as the water runs down. We recently had a terrible hail storm that destroyed 100% of the crops on many of the farms in the area. Hail, the size of Chaco tortoise eggs, fell for 30 minutes and covered the ground with a few inches of ice balls. The storm hit at sunset and unexpectedly. All the tortoises were outside. All we could do was quickly put a cover over the baby parrot-beaked tortoises, get back in the house and pray that the speckled tortoises would stay under their rocks. When we went out to check for damage, we found no less than 25 dead birds in the tortoise yard, but there were all the speckled tortoises, babies and all, walking around on top of the ice drinking water!

These tortoises seem to be more active and happiest when it's cool but sunny. I have seen them breeding when it was only 50° F (10° C). When it is above 85° F (29.4° C) they stay hidden. Though I have not left them outside all winter, I do leave them out and let them have a shut down period during the fall and early winter when the coldest it gets is 35° F (1.7° C) or so in the early morning hours. That way, the female is ready to breed when I bring them in and warm them up. I do not have much of a heater in the tortoise room, my office, and it gets down to 50° F (10° C) or so in here on the coldest nights, when it's below freezing outside. I don't use any kind of full spectrum lamp, just 100-watt tungsten bulbs under which they bask every morning—climbing up on top of a rock to get closer to the light when it's really cool.

On cold and cloudy days they stay hidden even when they are inside, so I leave the lights off and let them sleep for a few days. I do not know how they know it's cloudy outside. Maybe they look out the window. I do know this. When they are outside if I find them wedged in a corner almost straight up as if they are expecting high water it will almost certainly rain. I've also noticed that when they get wet or walk through water their scaly legs absorb water like a sponge. It's like they are made to absorb moisture from their surroundings.

Now, about breeding them. The male is ready to mate almost any time but the female will only submit after a cold spell. So, by the time I bring them in for the coldest part of the winter (June, July and the first part of August) she is ready. The male follows her about jerking his head up and down as if he

is trying to flip something off the top of his head. If she is not in the mood she will just turn around, ram him a few times and then run away.

He never gives up though and chases her about nodding his head and making a little squeaking sound. When the great event actually occurs he makes a similar but louder squeaking sound with his mouth wide open like most tortoises. He never bites or pushes her; he just climbs on and holds on until she goes under a rock and knocks him off. After a few weeks of this she will finally hide from him and not even come out to eat. When that happens I separate them so they can both rest and eat. He still runs around squeaking and searching for her for a few weeks afterwards.

It is easy to tell when a speckled tortoise is gravid. She will gain $\frac{1}{4}$ to $\frac{3}{8}$ of an ounce (7 to 10.6 g) and the distance between the back of the carapace and the plastron will increase by about 8-10 mm in (0.31-0.39 in) a period of about 60 days. After that, she will be unable to completely withdraw all four limbs at the same time and the hind part of the plastron and carapace will become more flexible.

I have noticed no difference in her actions until the day she is ready to lay. She starts to look around for the perfect place, which for her is under a rock. That makes catching her in the act or finding the nest difficult, and I rarely saw her actually laying.

We moved to Mendoza, Argentina in November 1990, after having had the tortoises for a little less than a year. She laid an egg on 01/12/91 in the middle of the day with temperatures in the 90°s F (32° C). This was in the temporary pen that was on turf and she could not dig a hole through it all. I found the egg under a rock covered with grass. I put the egg in moist potting soil in the incubator at 82° F (28° C). After a few days the egg was nice and white and looked to be good. I am sure it was but it never hatched; neither did the parrot-beaked tortoise eggs that I placed in the same incubator that year. It was obvious that what I had seen work for others in hatching red-footed tortoises was not going to work with these.

On September 24, 1992, a cool 65° F (18° C) spring day (in the outside pen) at 6:00 PM she dug a hole in the sand under a rock that is in the sun most of the afternoon. The hole measured 42 mm (1.7 in) deep by 48 mm (1.9 in) wide and she had used urine to moisten the sand. This time she evidently had some difficulty in passing the egg. This is the smallest tortoise in the world but they lay the largest egg for their size. I found her walking around with the egg less than half

way out. She had given up laying it in the nest and was trying to get rid of it. She dragged it on the ground, rubbed against rocks, wedged herself between rocks so that she was vertical and did everything but turn herself upside down trying to get the egg out.

I brought her inside, dipped her in warm water and then placed her in the indoor pen. Within a few minutes the egg came out. The egg was 30.5 mm by 25 mm (1.2 in by 0.9 in) and weighed half an ounce. That's a pretty good size for a tortoise that's only 90 mm (3.5 in) long. I placed it 2 inches (51 mm) deep in sand that was not quite moist enough to make a sand ball with. I incubated the egg at 78°-85° F (25.5-29.4° C), and sprinkled the top of the sand lightly with water once a week.

It was one of the most glorious days of my life when on the morning of January 17, 1993 I looked in the incubator and saw the most beautiful little critter I have ever seen running around. I like to leave the eggs buried to allow the tortoises to come out on their own. He had no egg sac, and his shell had already straightened out. He drank and ate immediately and I placed him outside with the adults. The first thing he ate out there was fecal matter from the adults. He did this the first two weeks or so and then stopped. The feces of these tortoises are like dark, very small cigars. That's the way tortoise feces should be.

Upon hatching he weighed $\frac{1}{2}$ ounce (14.2 g) and measured 33 mm (1.3 in) long, 29 mm (1.1 in) wide and 20.5 mm (0.8 in) high. He had long legs with big, fat, elephant-type feet and walked tall like he was afraid for his belly to touch the ground. He had the same colors as the adults from the start and looked all the world like a VW bug that had been painted up by a herd of hippies. One year later he weighed 1 ounce (28 g) and measured 51 mm (2 in) long, 41 mm (1.6 in) wide, 28 mm (1.1 in) high and was already bobbing his head at the female. Now (March 3, 1994), he weighs $1\frac{1}{2}$ ounces (43 g), is 62 mm (2.4 in) long, 46 mm (1.8 in) wide, 28 mm (1.1 in) high and attempts to mount the adult female with his mouth open. In comparison the adult male weighs $3\frac{1}{2}$ ounces (99 g) and is 81 mm (3.2 in) in length, 57 mm (2.2 in) wide and 35 mm (1.4 in) high. I believe that because of the natural and meager diet they get, the hatchlings growth is not accelerated but is the normal growth pattern.

An egg laid on 08/28/93 in the indoor pen under a rock while nobody was around hatched on 12/23/93. This egg was incubated at 80°-86° F (26.6-30° C) and the hatchling is a little smaller with less black



Pair of adult speckled tortoises (*Homopus signatus*). Photo by Dave Friend.

than the first but is just as beautiful. At hatching, it weighed just over ¼ ounce (7 g), was 29 mm (1.1 in) long, 26.5 mm (1 in) wide, and 20 mm (0.8 in) high. As of 03/03/94, it is 38.5 mm (1.5 in) by 33 mm (1.3 in) by 22 mm (0.9 in) and weighs ½ ounce (14 g). It seems to have a shorter tail but really it is too soon to tell its sex. The adult male has never shown any aggression towards either hatchling, but the female has been aggressive towards the first. Fortunately these little guys are hard shelled, tough as nails, and seem to have no problem pushing the adults out of the way to get to the food.

It was thought that this tortoise lays only one egg per year, and at the time I wrote this article that was my observation. Some time later I made a most interesting discovery. Two eggs were laid outside, under a rock, that I knew nothing about until they hatched. During the next four years, I observed her laying pattern more closely. She laid one egg per month for three consecutive months! All of them hatched.

It appears that the babies reach full size in 3 to 4 years. No one knows how long they live, and I have not read previous reports of their being bred in captivity although they must have been. They are rarely imported because of their size and that's probably for the best. I've only seen them advertised for sale a few times and at a very high price. Because they are so delicate I do not recommend buying them (even though I did) unless they are captive bred or have been kept as long term captives by someone you know.

In the year 2000 the speckled tortoises were moved to the United States. Some of the young were transferred to zoos. The adult pair and the first hatchling were given to the care of Rusty Grimpy of Tulsa, Oklahoma. In 2001 the adult male was found dead in his

outdoor enclosure with no apparent reason for death. Both of the adults were full grown when I acquired them in 1989, so they lived for twelve years in captivity. The female and the first born male were transferred to San Diego, California in 2001.

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