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## THE REPRODUCTION OF THE ARGENTINE BLACK AND WHITE TEGU, *TUPINAMBIS TEGUIXIN*, IN CAPTIVITY

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In May, 1989, I purchased four young *Tupinambis teguixin* from Buenos Aires. They were so small that I presume they were born that same year.

For these Tegus I prepared a terrarium with a surface area of 3m x 3m, dug into the ground in such a way that during winter, when the terrarium is simply covered by glass, it will remain frost-free. In fact, I did not initially plan to hibernate these animals until I discovered, in August 1989, that they started digging burrows, and in September they were no longer active, in spite of the fact that the weather was still hot. As I was unsure about their ability to hibernate, I checked the condition of the animals every month through the winter by opening the entrance of the burrow and feeding the animals inside with my hand to see if they were still alive. When touched they moved slowly and later always closed their burrow from the inside.

In Alabama we have hot moist summers which last until the end of September. By November the first night frosts may occur, and mid-winter temperatures may drop to as low as minus 10°C.

In the years following 1989 I made notes on the animals' hibernation, summarized in Table 1.

Table 1. Dates of Hibernation of Tegus under semi-natural conditions in Alabama

Animals start digging	Animals disappear into hibernation	Day/Night Temperature at that date	Animals emerge from hibernation	Day/Night temperature at that date
14 August, 1990	18 September 1990 (all 4)	90°F/60° (32°C/16°C)	10 March, 1991(1) 19 March, 1991(3)	65°F/(18°C) 72°F/(22°C)
12 August, 1991	4 September, 1991 (all 4)	90°F/70° (32°C/21°C)	24 March, 1992(1) remaining 3 some days later	-/30°F/(-1°C)
19 August, 1992	15 September, 1992 (all 4)	80°F/60° (27°C/16°C)		

In addition to the information given in Table 1, the following notes are of interest:

1. On 19 March, 1991, the temperature of the hibernation burrow from which the animals had just emerged was 15°C (59°F).
2. In the Autumn of 1991 the Tegus began their hibernation about 10 days earlier than the previous year, and in the same season, on 8 October 1991, the night temperature dropped to a record low of 34°F (59°F)
3. On 3 March, 1992, the day/night temperatures were 80°F/55°F (27°C/13°C), but the high day temperature did not trigger emergence.



Plate 1. – Adult male *Tupinambis teguixin* from Argentina

photo: Stephen Peltz



Plate 2. – Author with adult female *Tupinambis teguixin*, an escapee recaptured after egg-laying on the author's farm in Alabama

photo: Bert Langerwerf



Plate 3. – Young *Tupinambis teguixin* emerging from hibernation in March, 1990, covered in sand and mud – a characteristic appearance every year on the first day out of hibernation.

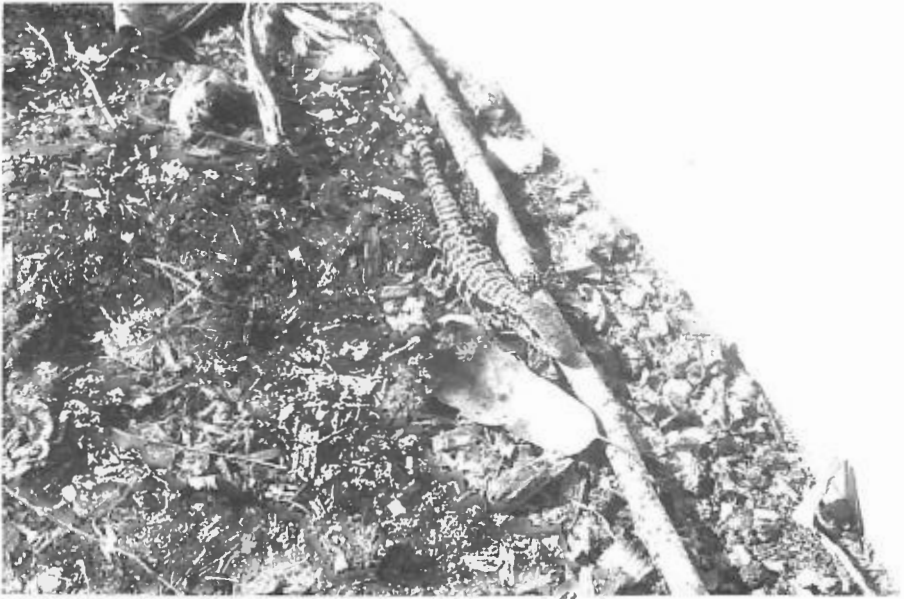


Plate 4. – Juvenile *Tupinambis teguixin* hatched under natural conditions outdoors in Alabama U.S.A.



Plate 5. – One of the author's outdoor enclosures for Tegus.

4. The winter of 1991-1992 was the longest hibernation period: 4 September, 1991 – 24 March, 1992. Three of the animals took some days more, making a hibernation of close to 7 months!
5. As a rule the animals' year is divided into 6 months of activity, during the last month of which no food is taken, followed by 6 months of hibernation, which means that the animals survive 7 months or more without food.

This is all totally in contradiction to the generally accepted belief that *Tupinambis teguixin* is a tropical animal which does not hibernate. My Tegus hibernate for longer than any other lizard which I keep, such as *Lacerta viridis*, *L. lepida*, *L. strigata*, *Agama stellio*.

During the summer of 1992 my animals reached sexual maturity, at an age of 3 years (1½ years of active life). Alas, I never saw copulation, as I have too many vivaria to watch, but in the last days of June, 1992, something remarkable happened. One of the females escaped from the cage, using considerable force to push up the lid, weighted by a heavy stone. Before this, none of the Tegus ever attempted to escape or even to climb the concrete wall to reach the lid. Further, the remaining 3 animals did not take the opportunity of the open lid left by the escapee to escape themselves. At that time I was not aware that the female was gravid and wanted by all means to find privacy to make a nest, perhaps to avoid predation on its eggs by the other Tegus, as Tegus are particularly fond of eggs of all kinds. Mr J.J. de la Fonteyne mentions in *Lacerta* (December 1964, pp. 19-20), how a male Tegu ate the eggs of the female immediately after deposition.

On 8 July (about 10 days later), we found the escaped Tegu in my rat-barn. She was slender and was eating one rat after another, even when I came to catch her.



Between 9 and 14 October we caught 7 recently hatched, shiny green baby Tegus at the side of the same rat barn – I spent one day digging around the area but could not discover the nesting site. The hatchlings, some of them with some clayish soil around the head still, measured 8-12 cm.

Dr Achaval (in Montevideo, Uruguay), notes that Tegus lay their eggs in termite nests, where they have regular temperature and moisture. But probably the Tegus do this also to make their eggs safe from other Tegus. Now, these conditions are of course hard to imitate in a terrarium. But my friend Dr Luis Magnasco from Buenos Aires has written to me that around Buenos Aires these termite nests are lacking, and that he saw shiny green Tegu hatchlings emerge from beneath his swimming pool.

Between the beginning of July and the end of September, the temperatures on my farm in Alabama were about 90-95°F (32-35°C) during the day and 70-75°F (21-24°C) at night, so that I can more or less assume an average of 82°F and an incubation period of 3 months. Here I want to note a similarity with *Lacerta lepida*, which also has a long incubation period. This long incubation period is in my opinion very significant and advantageous for the survival of the young ones as in the case of both species the young emerge when the adults are already hibernating.

The young, which have less body mass, need much less solar radiation to heat up their bodies, and so can feed and grow until late Autumn.

### COMPARISON WITH OTHER RECORDS OF CAPTIVE REPRODUCTION

In 1989 Mr Gunther Köhler described the reproduction of *Tupinambis teguixin* in captivity in Germany. There are striking differences between his records and mine:

1. Köhler noted an incubation period of 152-171 days, compared with my 90 days (compare also with Hall, B.J., 1978, International Zoo Yearbook, London, 18: 91-95).
2. The hatchlings are not shiny green in colour, compared to my animals of Argentine origin.

If the Argentine *T. teguixin* needed over 5 months for the eggs to hatch, then the eggs would spoil in the cold winter months, so Köhler and Hall probably worked with specimens of tropical origin. If this is the case, then consideration should be given to the division of *Tupinambis teguixin* into at least two subspecies, because of these clear differences. One could also wonder what is the advantage of being green when born in Argentina and brown when born in the tropics.

### A NOTE ON DISTRIBUTION AND CLIMATE

Dr. J.M. Cei (1986) mentions that *Tupinambis teguixin* is found in the following regions of Argentina: Misiones, Corrientes, Entre Rios, Santa Fé province of Buenos Aires and in Córdoba in Rio Cuarto as far as the mountains. Outside Argentina, to the north, this lizard is found over most of mainland South America, therefore occupying areas of both tropical and temperate climate.

I give below climate data for Córdoba, Argentina, a place inhabited by this lizard:

Table 2. Temperatures at Córdoba, Argentina

	Absolute Maximum	Average Maximum	Average Minimum	Absolute Minimum
January	114°F(46°C)	88°F(31°C)	61°F(16°C)	42°F(6°C)
February	111(44)	86(30)	60(16)	38(3)
March	99(37)	82(28)	58(14)	33(1)
April	94(34)	75(24)	51(11)	31(-1)
May	92(33)	69(21)	44(7)	20(-7)
June	89(32)	64(18)	38(3)	17(-8)
July	95(35)	65(18)	38(3)	13(!)(-11)
August	98(37)	69(21)	40(4)	19(-7)
September	100(38)	73(23)	45(7)	21(-6)
October	105(41)	82(28)	56(13)	36(2)
December	109(43)	86(30)	60(16)	39(4)

The rainfall in Córdoba is 28 inches per year, mainly in the warm season.

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