

AGAMA STELLIO, WITH OBSERVATIONS ON ITS CARE AND BREEDING IN CAPTIVITY

BERT LANGERWERF

Beneden Kerkstraat 36A, NL5165CC Waspik, Netherlands

INTRODUCTION

The genus *Agama* are usually regarded as being very difficult to keep alive in captivity. This is probably because the species which are usually kept are the tropical African species, such as *Agama agama*, which are delicate. However, there is a group within this genus which is more hardy and much easier to keep; one could call this the *stellio* group, consisting of the following species:

Agama stellio from Turkey, Syria, Israel, Egypt and some of the Greek Islands.

Agama caucasia from the Caucasus and the mountains of N. Persia and Afghanistan.

Agama himalayana from the mountains of the Himalayas, southern Tibet, northern India, eastern Afghanistan.

Agama erythrogastra from N.E. Persia, N. Afghanistan and S. Turkmenia.

Agama lehmanni from the mountains of S.E. Turkmenia, E. Uzbekistan and S.W. Tadzhikistan.

These five species have several characteristics in common, such as their rough, ringed tails and their ability to survive hibernation in cold climates: all of them, except *Agama stellio*, experience winters more severe than those of Western Europe.

I have kept *Agama stellio*, *Agama lehmanni* and *Agama caucasia* for several years in outdoor enclosures, and have bred them all.

DESCRIPTION OF AGAMA STELLIO

Agama stellio is a rather large lizard with a total length of up to 35 cm. The back, legs and tail are covered with spiny scales. The scales on the tail are arranged in rings. The body is rather flattened in appearance, but less so than in *Agama caucasia* and *Agama himalayana*. The males are easily distinguished by a longitudinal band of distinctly large scales along the belly; they also have larger anal scales than females.

The background colour is grey, varying from clear grey to almost black individuals. Males are often predominantly black, and may have blue spots on the head and body. Examples from western Turkey often have extensive blue spots, and are particularly beautiful. On individuals with a grey colouration there are black and white dots, and the throat has a reticulated pattern. The belly is greyish-white. Young individuals have clear black spots behind the head and 4-5 vertebral spots. Along the tail are about 6-8 smaller white vertebral spots or white rings.

Agama stellio brachydactyla from southern Israel and Sinai is more yellow or orange in colour and has shorter digits.

AGAMA STELLIO IN CAPTIVITY

I keep this lizard in different types of terraria, but mostly glass-covered ones. Also, in the summer, I keep some individuals in my large open air enclosure of 600m². Some of them are left in the enclosure over the winter. This year, the first *Agama* emerged from hibernation on 8 March, having survived without difficulty the mild winter of 1980-81. In this enclosure there is a south-facing slope with large basalt stones, beneath which roofing tiles penetrate up to 1.5m into the ground. It is here that the animals retreat to during frost periods.



Plate 1. Adult male *Agama stellio*



Plate 2. Newly hatched *Agama stellio*

Although the Agamas are beautiful to watch in the big enclosure, jumping from rock to rock, catching flies and butterflies in flight, climbing the tall ruin I built there, I really do have most success in a warmer terrarium. This is a terrarium of 4m x 4m. It has a rear wall built of bricks in an East-West direction; on the outer northern side of the wall earth is piled about a metre high; the southern inner side is painted black to absorb the heat of the sun. The terrarium (16²m) is covered by glass sloping down to the south.

From April to September only 10% is covered. Inside the terrarium is a slope to the south with numerous rocks, stones and logs. As in the larger enclosure, there are refuges made of roofing tiles entering the ground to afford protection from extreme heat and cold. In summer, the temperature can rise above 40°C, and in winter it can freeze. During very cold weather I cover the glass with such things as old carpets. In the autumn I spread some large plastic bags of dead leaves over and between the rocks and logs inside the terrarium which reproduces more natural conditions, gives added protection against frost, and offers warm basking sites in the early spring. Towards the end of January each year I plant one or two large curly Kale plants in the terrarium. These plants grow there and the Agamas like to eat the leaves and flowers through the spring and summer. It is a very easy way to feed them! The Agamas also eat crickets, and as I put quite large numbers of crickets in the terrarium each week, those which are not eaten immediately by the lizards can feed on the Kale plants; it is better for the lizards that they eat insects which have their stomachs full of plant material, as they do in nature.

In this terrarium the lizards may be active during any month of the year in sunny weather, but they usually remain dormant for a period of about two months from mid-December to mid-February. This past winter (1980-81) was not very cold, but it was long, and the first *Agama stellio* did not appear until 8 March, when the outside air temperature was 12°C, during a sunny interval of a quarter of an hour after rain. In 1980 the first *Agama stellio* appeared on the 9th February at an air temperature of 12°C in sunny weather.

In this terrarium, the *Agama stellio* have bred every year since 1973. Mating takes place in spring. I once observed copulation on 16th February, but usually it takes place in April-May. The eggs are laid in June and July. A female lays two, sometimes three clutches of eggs per season. There are normally 10-15 eggs in a clutch. I incubate the eggs in moist (not wet!) sand at 29-30°C; they hatch after 50 days.

As mentioned in my earlier articles, the Agamas must be given extra vitamin D₃ and calcium. Fortunately, some calcium is also obtained from the Kale.

Rearing the Young

In past years I kept the young *Agama stellio* warm and active through the winter, but as there were many lizards and heating costs are high in winter, I was forced to keep the lizards in rather high densities. This had no, or almost no, bad results with *Lacerta* sp., but in *Agama* sp. it resulted in a sudden cessation of growth, usually in January; the lizards would then grow thin and show a deposit of white uric-acid under the tail. The Agamas then suffered from parasites – flagelates – which could be successfully treated with a solution of 250mg of Emtryl (Dimetrodizole 40%) per litre of drinking water for a period of 8 days. The problem would recur after one or two months.

It was clear that the flagelates were mostly a result of stress in the overcrowded terrarium: in summer the illness, in still rather young Agamas (10 months old) could often be cured without Emtryl simply by releasing them in the large enclosure of 600m². For the past two winters I have let my young Agamas, born before the beginning of September, hibernate in the garden terraria, and in this way avoided the stress problem. The young lizards eat all kinds of small insects, such as small caterpillars, flies, cockroaches and crickets, and also the small leaves of several kinds of plants.

SOME PROBLEMS IN KEEPING AGAMAS

I first found that I could keep this species in a terrarium of 2m², but only one pair. In a larger terrarium of 16m² I was able to keep a maximum of 1 male and 3 females only.

If more individuals are kept together, they are no longer able to live in their own territory, creating stress which results in illnesses

The larger *Lacerta* sp. and *Gerrhonotus multicarinatus*, however, do not disturb the Agamas. Three females in a terrarium of this size is an absolute maximum, particularly during the egg-laying season, as the females always fight with one another in defence of egg-laying sites.

A very serious problem in keeping Agamas can be outbreaks of parasitic nematode worms in the intestines. To avoid this, I inject the Agamas with a dose of 10mg per kilogram body weight of Ripercol (Tetramisole).

CONCLUSION

Agama stellio is a lizard which should be kept in a rather large terrarium in a sunny place in the garden. The terrarium does not need to be heated: it is only necessary to create a favourable micro-climate. They will not cause trouble, and give the terrarium keeper much fun: they jump from one high point to another, and will nod their heads constantly. Though exotic in appearance, they can be kept outside throughout the year. It can also be kept together with several non-agamid lizards such as *Lacerta strigata*, *Lacerta lepida*, *Lacerta viridis*, *Lacerta trilineata* and *Gerrhonotus multicarinatus*. Adult *Agama stellio* occasionally eat small lizards of the size of *Lacerta muralis*.

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