

## Speckled dwarf tortoise (*Chersobius signatus*)

Version 11

The following information is based on experience gathered within the studbooks coordinated by Dwarf Tortoise Conservation.

### Enclosure

The speckled dwarf tortoise (*Chersobius signatus*) is successfully kept and bred in enclosures measuring at least 1 m<sup>2</sup> for two to three adult specimens. Single adult individuals require at least 0.5 m<sup>2</sup>. Males have been reported to show aggression amongst each other, but in some cases they did not. Regardless, it is recommended not to keep multiple males in breeding groups, as this would obscure genetic parent-offspring relationships.

Males and females can be housed together year-round. Studbook terrariums are decorated to imitate the natural habitat of the tortoises, with a sandy soil containing loam to avoid sand being ingested (i.e., the sand should be mixed with loam and the upper 1-2 cm compacted to make it firm), wood stumps and (real or artificial) rocks, and sometimes (live or artificial) plants. It is essential that enclosures are well-structured and that multiple hiding places are present, in which the tortoises can retreat. The animals show a preference for hiding places that are slightly higher than tortoise shell height, between rocks, but may also shelter at other sites. For adult females, egg-laying sites with a non-compacted soil layer of at least 8-10 cm deep should be provided to allow nesting. Nesting sites should provide cover by an overhanging plant, rock, wood, or other structure, because *C. signatus* will not nest in an open space.

Enclosures need to be sprayed from time to time, preferably more often in winter (for instance twice weekly) than in summer (for instance once weekly very lightly), to simulate the natural climatic cycle. The top layer of the soil (including in retreats) should dry within a couple of hours after spraying. *Chersobius signatus* does not tolerate permanently damp soils or retreats.

Juveniles are successfully kept in simple enclosures, starting at approximately 0.15 m<sup>2</sup> for two to three hatchlings. These enclosures are decorated with the same soil substrate as the adult enclosures and a (natural or artificial) hiding place. Hatchlings can be kept on newspaper substrate for the first week. Small and simple enclosures allow better observation and therefore increase the chance of survival of the tortoises.

Juvenile *C. signatus* are sensitive to dehydration, but do not tolerate permanently damp conditions. In order to avoid dehydration, they need to be kept on a dry substrate similar to adult enclosures, but require weekly 10-min soaks during the first two years.

*Chersobius signatus* should not be kept in outdoor enclosures in Europe. The majority of attempts to keep *C. signatus* outdoor in Europe during summer has led to deteriorating body conditions (sometimes in the course of several years) and even deaths. Moreover, (particularly adult) *C. signatus* do not respond well to transfers among enclosures, and are better off when kept long-term in the same enclosure.

### Illumination/temperature

The enclosures described here are illuminated by means of daylight, tube lights, CDM/HQI, HID, led and incandescent (including halogen) light bulbs. Illumination may provide UV radiation, but this is not essential (if it is not provided, sufficient vitamin D has to be added to the diet). Since the light intensity in the natural distribution range is extremely high, bright illumination should be provided. At least one tube light or other lamp that emits a high light intensity should be installed, or natural daylight should be provided. The sole use of incandescent bulbs does not suffice.

The photoperiod needs to be adjusted to the natural distribution range. This means 13-14 hours in summer and 9-10 hours in winter, with a gradual shift between these two limits. Climatic cycle can be adjusted to northern or southern hemisphere.

Studbook terrariums contain light bulbs for heating, sometimes in combination with sun or soil heating. The day temperatures need to fluctuate with the season, for instance 30-32°C in summer and 20-25°C in winter. Night temperature should be lower than day temperature. There is no minimum night temperature, as long as the temperature remains above 0°C. The day temperature under a (standard or halogen) spot light or in sun needs to be higher, for instance 40°C or higher, to allow basking. This spot may be switched off for a week or so during winter.

## Diet

The adult tortoises are mostly fed with green plant material (*Taraxacum*, *Plantago*, endive, chicory, et cetera), supplemented with a fiber-rich component such as Agrobs Pre-Alpin Senior or (soaked) Heucobs. In addition, the food should be supplemented with a commercial calcium/vitamin additive at all feedings. Food can be provided at least four times weekly. Once weekly, a nitrogen-rich vegetable component such as sprouted beans may be added, particularly in winter and spring. Provision of fruit is not recommended.

When the tortoises are inactive during warm episodes in summer or at low temperatures in winter, frequency of feeding may be reduced to three times weekly, although it is recommended to continue to offer food as some tortoises will become active now and then. Hatchlings need food more often, such as daily during the first months.

It is extremely important that food items are provided in a feeding dish or flat rock, and not directly on the soil substrate. If food is provided on the soil substrate, too much soil may be ingested and lead to death of the tortoise. In the studbook, this has been a major death cause for *C. signatus*.

Clean drinking water should be provided for all life stages at all times, as the tortoises drink infrequently.

## Parasites

Wild and captive *C. signatus* often carry significant loads of nematodes in the intestines, particularly after stressful events such as transfers. Because several captive tortoises have died from enteritis caused by nematode infestations, faecal examinations can help monitor nematode infestations. Fenbendazole (e.g., Panacur) has been successfully used to suppress nematode populations in *C. signatus*, upon diagnosed infestations or in routine administrations (e.g., annually at the end of summer).

## Incubation of eggs

The sex of hatchling *C. signatus* depends on incubation temperature, but the threshold temperature is not known. Constant temperatures as high as 32°C resulted in mostly males being born, but higher incubation temperatures resulted in deceased embryos and deformed hatchlings. Therefore, the following incubation regime should be used, where occasional eggs may be incubated at lower temperatures if too few males are being produced:

- Incubation day 1-29: Diurnal temperature cycle of 33°C and 28°C
- Incubation day 30-49: Constant temperature of 33°C
- Incubation day 50-end of incubation: Diurnal temperature cycle of 33°C and 28°C

Since these incubation temperatures are very close to detrimental temperatures, incubation temperatures should be carefully monitored with a calibrated thermometer. Furthermore, incubation humidity should be low, as *C. signatus* eggs often crack when embedded in a humid substrate or when exposed to a high humidity of the air.

## Situation in the wild and in captivity

*Chersobius signatus* is uncommon in captivity and endangered in the wild. Therefore, it is of importance to gather life-history information on the species (both in the wild and in captivity), allowing formulation of wildlife management plans if necessary. The vast majority of the global captive population of this species is registered in the studbook. The aims and methods of the studbook have been described in a [studbook management plan](#).

## Literature

A detailed bibliography can be found at the [website of the Dwarf Tortoise Conservation](#).

## Additional information

This caresheet was drawn up in December 2019. Husbandry and caring methods are dynamic and therefore it is recommended to [check for updates](#).