

Species : Sulcata
 Geochelone Sulcata
 African Spurred Tortoise

Description: The Galapagos and Seychelles giants surpass Sulcata only in size. Coming from the hot arid regions of sub Sahara, and inhabiting the dry desert areas from Mauritania to Ethiopia, they do not do well in wet, damp or cold conditions and can quickly become ill if kept in this type of environment.



Photo by L. Roberts

Photo of Adult sulcata with hatchling

As hatchlings Sulcata are miniature replicas of the parents with colouration ranging from golden yellow to chestnut brown carapace (top shell), to an unmarked creamy plastron (bottom shell) with forked gulars exaggerated in the males as they get older. As Sulcata grow they retain the beauty of hatchlings: their huge front legs, designed for digging, are adorned with large spiny projections and their rear legs feature at least two large spurs (tubercles).

Are Sulcata for you?

From small acorns big oaks grow, and to find a 30 inch 150 pound tortoise digging two-foot wide holes around the garden is not unheard of. The Sulcata will take your time, space and indeed your money, and if you cannot freely provide all of this then it is time to think again. If you can, then caring for one of these magnificent creatures is an honour, because by now you would have resigned yourself to the fact that you will never have a pretty garden, there will be no more tea parties on the lawn and the compost heap needs extending. If fed on the correct diet then one of your extra daily chores is cleaning up, and cleaning up after a Sulcata is like mucking out a pony. Bathing when they are young is simple enough, but as adults, when they are 8 stone and you are 80 'Think on'. Visits to the vets will involve at least two people and possibly a wheelbarrow
 **are Sulcatas still for you?**

General Husbandry: Sulcata tortoises require specific needs to survive in captivity, and if these needs can be met then it is possible to have a trouble-free life with this tortoise. **Sulcata tortoises do not hibernate**, and this means heated accommodation must be provided all year round. They must **never** be confused with the Spur Thigh tortoise (Testudo Graeca). Heat and UVB equipment is available and many people provide it in different ways, but the main thing is the background temperatures are maintained and there is a basking spot and fresh water always available.

In their natural habitat food can be sparse during times of drought and high temperatures. It is therefore important not to overfeed Sulcata, as even too much of the correct diet can cause growth problems. Water should always be available as all Sulcata like nothing more than a nice fresh drink during the day, and this has to be provided in a container large and strong enough to withstand a Sulcata's attentions.

General Housing: Sulcata will do best if housed outdoors, but there are many things to consider first. Keeping a juvenile in a pen may seem easy, but an adult Sulcata will stop at nothing if it thinks the grass is greener on the other side, so any enclosure should be

escape proof for all sizes. Sulcata will climb and precautions should be taken so that they cannot topple over. Because of their size adults find it almost impossible to correct themselves. There is a risk of predators, and smaller tortoises should have secure mesh covering to prevent any wildlife entering the enclosure, including crows, magpies, foxes, rats and badgers. Never, ever, trust a dog with tortoises: the most placid family pet can and often does break its owner's heart and the tortoise's shell!!

Hatchling Care: Hatchling Sulcata are totally independent in the wild, with adults playing no part in the care of the new arrival, and being hatched in captivity is no different. However, there is a great deal that a keeper can do to assist the newly hatched in its early stages of development. The general care is the same as that of juveniles and adults, but with the addition of a few precautionary measures.



Hatchlings can dehydrate quickly: to prevent this they will benefit from daily soaks in warm water. Water should come up to their chin or where the top shell meets the bottom shell and should last for about 20 minutes.

Because Sulcata hatchlings grow very fast the diet will require supplementing with high quality vitamin, mineral and calcium supplements. If they are deprived of the necessary nutrients that they require for steady healthy growth, they may succumb to dietary disorders such as Metabolic Bone Disease (MBD). At this stage in their development hatchlings require exposure to as much UVB light as possible; however they should never be left outdoors to fend for themselves. A hatchling tortoise will very quickly lose its core body heat, and if it is unable to get back under a heat source to replenish this it could very quickly perish.

Housing Juveniles: Indoors - Juvenile Sulcata that are housed indoors should be on an open table-top enclosure, well ventilated with plenty of room for stimulation and exercise. A Sulcatas limbs will end up holding up an awful lot of weight, so they need to exercise as much as possible and in an area as large as possible to help strengthen their muscles. Sulcata grow at an alarming rate and the strength even as juveniles should be taken into account when planning any housing. A good substrate for juvenile Sulcata is a play sand and (sterile) soil mix of 50/50 for them to dig around or the Readi Grass/Graze On that is available from horse feed suppliers, and which they can, and should, eat without harm.

N.B. Hemp has sharp particles which can easily cause serious damage to tortoises and it can sometimes prove to be fatal especially if ingested and as such is not recommended for use as a substrate.

Outdoors: They should be allowed outside whenever the weather permits, and any outdoor enclosure must be solid and secure. Boundaries must not be see through and greenhouses are ideal **only** if built on a base high enough to keep the glass out of reach and sight (glass confuses them into thinking they can walk through it and -- believe it --

a Sulcata will walk through without a second thought), and a great deal of electricity can be saved by housing them in this way.

A strong sleeping box can be modified to include a low wattage tubular heater for cooler weather and winter. Or, better still, have a small shed like a child's Wendy house attached to the greenhouse: this can then be insulated and have the heating in there for colder times of year, and basking lamps can be utilised in the greenhouse or in the shed. When small, Sulcata can be maintained in a similar style by using a cold frame. The grazing area a Sulcata needs must be a main consideration when thinking of taking on a "cow in a shell"; the area must be large enough to withstand grazing 365 days a year.

Housing Adults: Adult Sulcata have a mind as strong as their body, and when they are big enough they should be housed outside in their own setups. Remember this has got to be solid, draught proof, dry, insulated and heated nearly all year round in the UK. It can be wood or brick but must have plenty of natural light and a smaller door that can be opened to allow access in and out. Everything should be bolted down or out of reach, including the heating and electrics, as the most determined Sulcata will dig and push through anything within its sight.

Heating and Lighting: First and foremost natural unfiltered sunlight is far better than any UVB bulb. Even on a cloudy day here in the UK solar radiation is far stronger than the best UVB bulb. We don't get near the levels of UVB light they would get in Africa, but it is still better than denying it to them. The Sulcata should be exposed to as much sunlight as possible.

Alternative adequate heating and lighting can be achieved in a number of ways. The kind of heating element used will depend on personal preference and the area to be heated. Some people prefer to provide UVB lighting using the full spectrum fluorescent tubes, and provide heat by means of a basking bulb linked to a thermostat. Others choose to use a combined heat/UVB bulb. These are suitable for tortoise tables as they provide both the UVB and the heat from one source. They cannot be used with a thermostat so the temperature of the hot spot under the bulb is controlled by either raising or lowering the height of the bulb until the desired temperature is achieved.



The heating of large outdoor setups can not be achieved with UVB/Heat bulbs alone. Background heating by using either fan heaters, oil filled radiators or ceramic heat emitters have all been used with varying degrees of success. The UVB and a basking hotspot can then be provided using the combined bulb. In all cases the provision of a temperature gradient for the tortoise is paramount.

Temperature under the basking lamp during the day should be approximately 30°C (86°F) to 32°C (90°F) with a cooler background area of 20°C (68°F) to 21°C (70°F). A drop in temperature during the night is required, but the temperature must be set to drop

no lower than 13°C (55°F). Sulcata do not like and cannot tolerate cold and damp conditions, and if cared for in this type of environment their resistance to infection and disease will be increased, so it is essential that this part of their care is correct.

Feeding and Dietary Supplementation: Sulcata are strictly herbivores and in the wild are natural grazers, the bulk of their diet being made up of various grasses and hays. In captivity the provision of a diet as close to this as possible is what the keeper should aim for. A good balanced diet containing the correct balance of protein, carbohydrates, fats, fibre, vitamins and minerals is essential and if provided, and free of chemicals, will assist in the development of a healthy immunological system.

The Sulcata diet should be very high in fibre and made up of about 85% grasses and hay, and the remaining 15% should be made up of essential weeds and flowers. Other plant material such as opuntia cactus pads and its fruit is also very high in fibre and can be fed in small quantities.

The following list of food items is intended to assist the Sulcata keeper in providing a varied and balanced diet, but is by no means exhaustive. The list also draws attention to some food items that should be avoided and in some cases are particularly dangerous to the tortoise.



Photo by R. Budd

Grass: A variety of grasses is best, and the Sulcata should be allowed to graze freely throughout the year. Meadow hay, timothy hay and orchard hay are suitable alternatives when grasses aren't readily available. Ready-grass or Graze-On are other alternatives which can be purchased from horse feed suppliers and some pet care outlets. This can be used as a substrate/bedding which they will eat too.

Essential Weeds: Plantain, both broad and narrow leaf, dandelion leaves and flowers, chickweed, clover, sowthistle, chicory.

Suitable weeds and plants: Hibiscus leaves and flowers, mulberry leaves, tradescantia, opuntia pads and fruit, echeveria, abutilon, kalanchoe, mimula, petunias, viola, flat-leaf watercress (*Rorippa nasturtium-aquaticum*) but not salad cress, American Land Cress (*Barbarea verna*), endive, agave. lavatera flowers and leaves.

Lettuce and some supermarket greens: e.g. Romaine lettuce, lambs lettuce, radicchio, endive. Although these can be fed to the Sulcata as part of a varied diet they should not be given as the main diet alone, otherwise the tortoise will not be provided with adequate nutrition.

Additional foods which can be used on rare occasions: Cucumber, just to administer vitamins, medication or on very hot days, fluid.



Foods to be avoided:

Fruit: Sulcata do not eat any fruit in the wild as they can't tolerate sugars and starch, and their digestion system has evolved without these being present. Any food including these which is fed to Sulcata will ferment in the gut, causing loose stools and eventually a depressed immune system.

Dog and Cat Food: This type of food is too high in protein and if given will lead to shell deformities, renal disease and ultimately the death of the tortoise.

Brassicas: as they tie up free iodine and goitres can result if fed in large quantities. **e.g:** cabbage, Brussels sprouts, and broccoli are high in oxalates, which bind with calcium to give insoluble calcium oxalate and thus interfere with calcium absorption.

Spinach: Spinach and chard are also high in oxalates, which bind with calcium to give insoluble calcium oxalate and thus interfere with calcium absorption.

Mineral and Vitamin Supplements

UVB levels in the tortoise's natural habitat are vastly higher than anything we experience in the UK, so its food must be lightly dusted with a vitamin and mineral supplement which contains vitamin D3 and calcium, such as Nutrobal.

Hatchling and Juvenile tortoises

In Northern climates a mineral and vitamin supplement such as Nutrobal or Reptavite should be offered to all growing tortoises on a daily basis for the first 3-4 years of life and after this it can be offered three times a week. This should be lightly sprinkled on the tortoise's food.

NB. That if the tortoise is kept outside of the UK, where the climate is similar to its natural habitat, and it is maintained outside where it can synthesise its D3 requirements from the UVB component of solar radiation, then the frequency of additional supplementation of D3 can be reduced.

Adult tortoises

Mineral and vitamin supplementation for adult tortoises in the form of Arkvits or Nutrobal can be lightly sprinkled daily on to the food.

Tortoises of all ages

In addition all tortoises, whatever their age, will benefit by some calcium supplementation in the form of limestone flour (or another form of pure calcium carbonate) and this can be sprinkled lightly on to the daily feed. Limestone flour is available from most equestrian stockists and is recommended due to its high calcium content and the fact that it is easily digested.

Limestone flour is cheap and cannot be overdosed on and can be used liberally, even wetting the grass in their enclosure, then throwing the limestone flour at it so it sticks. This will also fortify the ground and subsequently the grass growing there. Sulcata tortoises have a high demand for calcium, and to help with this offer whole cuttlefish bone, so they can nibble when they like. This also helps to keep their beaks in trim.



When providing mineral and vitamin supplementation it is important that the manufacturer's instructions be followed to avoid the possibility of over dosing.

As the third largest land tortoise in the world Sulcata are very impressive tortoises, and if cared for correctly using the above guidelines will live long, healthy, happy lives even in our temperate climate here in the UK. They are interactive, stubborn, strong, wilful and endearing creatures who have not asked to be taken from their native land and brought to captivity. It is the duty of the owner to fulfil their every need, and in return we will be rewarded tenfold with happy, healthy, bulldozers on legs.

