



Joey and Tammy Casey

## African Spurred Tortoise (*Geochelone/Centrochelys sulcata*)

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### **Nature's Bulldozers**

The African spurred tortoise is also commonly known as the Sulcata tortoise. Sulcatas are a large species of tortoise with a large, broad carapace, distinctly serrated front and rear marginal scutes, 2 to 3 bony projections near the hind limbs, and conspicuous, enlarged scutes and scales on their front limbs. These tortoises can range in shell and skin color from light brown, yellowish brown, to sandy brown. Sulcata tortoises are a primarily herbivorous, grazing species of tortoise, and are also extremely powerful diggers and burrowers, sometimes digging their own burrows up to 10 to 15 feet underground or more to better effectively thermoregulate. African spurred tortoises are the third largest terrestrial tortoise species in the world, and the largest mainland species of tortoise in the world! All tortoises are mainly terrestrial (land dwelling) and are characterized by highly domed shells and large, elephantine like feet. Keeping these large tortoises presents some challenges in many areas of the world in which the year round climate does not permit them to be housed outdoors throughout the year. As a result, these tortoises require substantial amounts of housing, space, and resources if they are to be kept properly. These tortoises, IF given the proper care, can live for 70 to 125 years or more and require long term care and commitment. **African spurred, or sulcata tortoises can become very large and powerful tortoise species that will require lots of space, maintenance, and finances in order to be kept properly. These large tortoises can also live for a VERY long time, and will often require long term housing. Always seriously consider the long term responsibilities, commitment, and housing requirements for these large tortoises prior to obtaining one.**

### **Taxonomy**

**Life:** All living, physical, and animate entities

**Domain:** Eukaryota

**Kingdom:** Animalia

**Phylum/Sub Phylum:** Chordata/Vertebrata

**Class:** Reptilia

**Order:** Testudines

**Suborder:** Cryptodira

**Superfamily:** Testudinoidea

**Family:** Testudinidae

**Genus:** *Geochelone* or *Centrochelys*

**Species:** *Geochelone/Centrochelys sulcata*\*

*\*Taxonomy subject to change and revision.*

### **Lifespan and Longevity**

African spurred, or sulcata tortoises, IF given the proper care, can live for 70 to 125 years or

more and require long term care and commitment.

### **Distribution and Habitat**

The African spurred tortoise, or sulcata, is a large terrestrial tortoise species which occupies a wide range of northern, or Saharan-Africa. More specifically, this species is indigenous to the southern range of the Sahara, from Senegal and Mauritania east through Mali, Niger, Chad, the Sudan, Ethiopia, and along the Red Sea in Eritrea. Within its range, these tortoises occupy the hot, arid to semi-arid environments, including semi-deserts, dry savannahs, scrublands, grasslands, and dunes, where they will excavate burrows up to 30 feet in depth to remain hydrated and to seek shelter in the harsh environments they occur in.

### **Origin/History**

*Centrochelys sulcata* (Miller, 1779).

The African Spurred Tortoise (or Sulcatas as they are commonly known) were believed to have first arrived in the US in the 1960s, when a few were imported from the southern edge of the Sahara by wealthy obsessives, including big-game hunter Paquita Machris, whose kills live on in dioramas at the Natural History Museum in Los Angeles. The first US hatchlings were born in the 1970s, but they remained a rarity until breeders figured out the best incubation strategies. By the early 2000s, an “exponential cascade” of the animals had flooded the US pet trade (C. Ferguson 29 July 2016).

Sulcatas became a very prolific species in the pet trade, and this along with their large adult sizes and destructive tendencies, often made them difficult pets for many casual or unprepared pet keepers to maintain, particularly in colder northern climates. They unfortunately became one of the most widely produced and traded tortoises in the global pet industries, but fortunately, wild populations would receive greater protections from overexploitation in their native countries.

As of March 21<sup>st</sup>, 2000, and until further notice, the USDA would also restrict the importation and interstate transport of certain land tortoise species due to tick-borne illnesses. These species included leopard tortoises (*Geochelone pardalis*), African spurred tortoises (*Geochelone sulcata*), and Bell's hingeback tortoises (*Kinixys belliana*) into the United States.

### **Experience Level Required**

Intermediate/Moderate to Advanced (depending on amount of space and resources). Care and husbandry of African spurred tortoises itself is not overly difficult; however, due to their extremely large sizes and longevity, they are best an Advanced species.

### **Size**

Hatchling sulcatas are typically 1 ½ to 2 ½ inches in size, but have the potential to become very large. Growth rate depends on their environment and level of care, but an adult sulcata typically reaches 18 to 34 inches carapace length, and up to 150 lbs.



*Examples of Proper Indoor Housing/Enclosures for African Spurred Tortoises/Sulcatas.*

### **Housing and Enclosure**

***Enclosure System: Primarily Terrestrial.*** African spurred tortoises are a popular and widely kept species, but thorough consideration should be given to their housing requirements before acquiring one. This is a species that will eventually require customized enclosures and/or housing in order to be properly accommodated, and are perhaps best maintained in outdoor enclosures for all, or parts of the year depending on what one's state or area's climate and outdoor temperatures can allow or provide. Below are some basic setup guidelines for housing sulcatas both indoors and outdoors. We recommend that additional information and resources beyond only this care sheet be researched when considering a Sulcata, and the information below are by no means complete or thoroughly detailed accounts for maintaining these tortoises.

**If Housed Outdoors:** Outdoor housing for all, or parts of the year depending on what your area's climate will permit is perhaps the most ideal scenario for keeping and maintaining sulcatas. Once sub adults to adults, a custom designed backyard enclosure of appropriate size and specifications can be designed depending on the age and size of the tortoise(s). A perimeter fence should be at least 24 inches in height. Perimeter fencing can be as simple or as eloquent as one may like, but must be opaque, or non-transparent, and extremely sturdy & secure, and can include wooden walls, concrete, or masonry blocks or slabs. Additional substrate beyond the natural substrate already provided is typically not required, but should not have been treated or exposed to any chemicals or pesticides. Sulcatas are also extremely powerful burrowers, and must be provided an adequately size custom hide box to provide burrowing opportunities, as well as to seek refuge in. To prevent, or at least discourage possible escape through digging elsewhere in the enclosure, one can ensure that perimeter fencing extends at least 18 to 24 inches below the ground level, by providing an aforementioned shelter/hide, or filling in other burrows with solid material. Temperature wise, sulcatas that are housed outdoors are exposed to a wider range of temperatures, and must be provided with shaded, as well as heated refuges/hides when temperatures drop too drastically. Areas that maintain nighttime temperatures of a minimum of 55 to 60 degrees F should be considered. In climates where nighttime temperatures begin to consistently fall below these ranges, moving the tortoise(s) into indoor accommodations may also become necessary. Lastly, a shallow water bowl that should be cleaned or monitored daily should be provided in an outdoor Sulcata enclosure.

**If Housed Indoors:** Hatchling and juvenile sulcatas can be maintained indoors throughout the year for at least the first few years of their lives. One, or groups of hatchlings/juveniles can be maintained in appropriately sized, sturdy, escape proof enclosures including many of the traditional commercially available enclosure brands, or appropriately sized plastic totes, containers, or "tortoise tables". A tortoise table is a custom built open top form of indoor housing for turtles and tortoises that can have many different sizes, scopes, and specifications depending

on the age and size of the turtle/tortoise, space available, or other factors. Because there is so much design variability in constructing a tortoise table, additional information and resources beyond the scope of this care sheet can also be provided, if desired, for maintain a sulcata tortoise. As adults, this is a species that, alternatively, requires customized enclosure or housing in order to be maintained indoors, which can include all or part of a heated spare room, basement, garage, or other structure or outbuilding. Acceptable substrates for indoor housing must be non-toxic and can include cypress mulch, many various types of straws or hays, or sphagnum moss to maintain some humidity and burrowing opportunities in a required indoor hide.

### **Temperature, Lighting, and Humidity**

**Providing the proper and correct overhead UVA and UVB lighting and heating is essential for maintaining the health, well-being, and adequate growth of these tortoises in an indoor environment and in captivity.** Calcium is an important requirement for these, as well as other tortoise species in order to be maintained at acceptable health. Without the proper lighting and temperatures, sulcatas are very susceptible to MBD (Metabolic Bone Disease) and other shell, bone, and growth deficiencies or abnormalities. Pyramiding of the scutes and shell can also occur due to poor or improper diet, lighting, or heating, and is very common in sulcatas. Ambient room temperature should be maintained at around 70 to 82 degrees F and also be provided with a basking and warm area of within a 100 to 110 degree F range on a 12 to 14 hour day/night cycle. These tortoises require a thermal gradient using a ceramic or radiant heat emitter, UTH (or under tank heating pad), and UVA/UVB overhead lighting. For indoor hydration, a shallow water bowl can be provided, but is often more prone to frequent soiling and cleaning. Alternatively, soaking in warm water for 15 to 20 minutes 2 to 3 times weekly (or more frequently for hatchlings) is also beneficial for these tortoises. Spot clean any enclosure for urates, feces, or uneaten food at least twice per week. Be sure to periodically replace the substrate, clean, and disinfect the enclosure and its furnishings at minimum every 2 to 3 months as well. More specific lighting, heating, and humidity product suggestions and recommendations that can best suit one's needs, as well as those of one's animals can be given as well. African spurred tortoises, or sulcatas, should ideally be maintained at, or near humidity levels of 40 to 55%.

### **Feeding, Diet, and Nutrition**

***Herbivorous***; In the wild, African spurred tortoises are primarily herbivorous grazers. They will feed on a variety of grasses and plant material, as well as some fungi, fruit, and vegetable matter. When maintained in captivity, providing the proper diet and nutrients is essential for ensuring and maintaining adequate health of these tortoises. **An improper diet can lead to many possible ailments that these tortoise are very susceptible to including bone and shell growth deficiencies and abnormalities, gout, renal failure, and other diseases or disorders seen in captive tortoises. Calcium and Vitamin D3** are both essential nutrients to be provided in their diets. Foods that should be provided should be pesticide and herbicide free, and the bulk of their diets can include various freshly cut grasses such as Bermuda grasses and Lawn fescues. Other acceptable foods to provide include spineless prickly pear pads, clovers, and limited amounts of greens, including collard, romaine lettuce, mustard, and turnip greens. These types of "dark greens" should make up 25% or less of a sulcata's diet. Hibiscus, dandelions, roses, and some other very small amounts of fruit or vegetable can also be provided as treats on a sparingly basis. Sulcatas should never be provided animal based proteins, such as feeder insects, fish, or pre-killed rodents, and other foods high in proteins, sugars, and/or fats should be provided on an extremely sparingly basis, or not at all. Do not provide iceberg lettuce as well, as this is very nutritionally poor for Sulcata tortoises. Some mid-sized to large tortoises can be pickier eaters than others, sometimes preferring certain foods over others, and require some trial and error to determine which foods may be preferred by your tortoise. Several books, websites, and other resources are also available that provide further in-depth detail as to proper Sulcata tortoise diets,

and which foods are acceptable to use and which are not. More specific dietary and supplementary product suggestions and recommendations that can best suit one's needs, as well as those of one's animals can be given as well.

### **Handling**

Most small to mid-sized turtle and tortoise species that are not aggressive or prone to biting can be picked up and handled either by placing both hands along both sides of the shell, or from the rear of the carapace with the thumb on the carapace and index through pinky fingers on the plastron to reduce the chances of being kicked, scratched, or nipped when they are threatened. Although most species of chelonians are not outwardly aggressive, defensive, or dangerous, they can become stressed as a result of over-handling, however, and some species, and even individual animals can be shyer than others. These are some considerations to keep in mind when handling any chelonian species. Very large species of tortoises, such as sulcatas, that become much too large, heavy, and impractical to pick up or handle by hand can be trained to move voluntarily and more quickly using operant conditioning and a variety of other voluntary methods utilized in zoological professions. Large tortoise species can be very intelligent animals that can respond well to food and other stimuli, and further information on these tactics and techniques beyond the scope of this initial care and information sheet can be provided upon request to anyone willing and able to accept the responsibility of keeping and housing these extremely large and long lived animals in captivity.

**\*\*Also be sure to practice basic cleanliness and hygiene associated with proper husbandry after touching or handling any animals or animal enclosures to prevent the possibility of contracting salmonellosis or any other zoonotic pathogens\*\***

### **Contact**

Authored by Eric Roscoe. For any additional questions, comments, and/or concerns regarding this animal, group of animals, or this care sheet, please email and contact:

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