



Species: **Spur thighed tortoise**
Testudo graeca graeca (T.g.g.)

Not to be confused with the African spurred tortoise as this is a completely different species which will grow to be huge in comparison.

Description:

The classification of T.g.g. is subject to a great deal of controversy. The T.g.g. has also proven a complex species to define as there are wide variations within its population.

The carapace is high domed, usually a sandy colour, with circular black patches on the scutes. The supracaudal scute (directly above the tail) is undivided. There will be spurs present on each inner thigh, normally one being more prominent than the other. The tortoise has 4 rear claws and 5 front claws. Looking above the head, the scute (above the bow shape) is rounded at the front. The skin colouration can be from a yellow to an orange tinge depending on the country of origin. The face has no sharp features, the nose coming to a blunt end. Females have a short tail; whereas the males have a longer stub-like tail coming to a narrower



pointed end (no claw or spike is present). Females tend to be much larger than the males.

These tortoises originate from North Africa, Spain and the Balearic Islands, where temperatures at the lowest offer 9 hours of full spectrum light over 32.5°C (90.5°F) producing a hot and dry climate for most of the year.

Thousands of Mediterranean tortoises were imported into the UK in the 1950's and 1960's. Sadly, due to lack of knowledge many of these animals died: those that survived have done just that - survived, rather than thrive with the appropriate care which they deserve. Thankfully now the *Testudo graeca graeca* are monitored by the Department of Environment, Food and Rural Affairs (DEFRA) due to their depreciation in numbers and require by law a CITES certificate in order to be sold.

Are *Testudo graeca graeca* the tortoise for you?

This beautiful species of tortoise is graceful with a gentle and inquisitive nature. They are a sensitive tortoise which does not respond well to being harassed by other tortoises (over-eager males) or pets. To flourish they will eventually require a generous amount of space in a sunny location, with many opportunities to wander around and interact with their keeper when they desire, but have the alternative of hides and bushes for those quieter periods of rest. They are generally active early morning and late afternoon. Providing they are healthy and of good weight a short hibernation can be undertaken. Species should never be mixed and always quarantine any new tortoises before

introducing them to an existing group.

General Husbandry Requirements: Restrict the tortoise's movements to as large an area as possible, whilst maintaining such temperatures as to avoid ill health. A free-roaming tortoise in the house will not reach the required core temperatures and will end up with numerous health issues. Enclosure substrate can be a chemical-free loam (such as topsoil), mixed with play sand 50/50% at a depth of at least 4" as this enables thermoregulation. Various caves and hides all offer much needed distractions, especially on cooler days. Food, if provided indoors, should be fresh and placed on a base of clean slate. Trays of pre-grown edible food can be placed indoors and replenished when required. Water needs to be provided in a shallow topple-free container which will need refreshing frequently!

Daily care: Remove all old food from the enclosure. Remove all faeces. Mist substrate. Clean and replace water (rain water is preferred by most tortoises). Clean and provide food or open access to free grazing area. Bathing daily is not necessary but enjoyed by the adult tortoise especially in the hot weather. Regularly checking the tortoise for general appearance (including eyes, nares, shell, beak and tail) will alert the keeper quickly to any irregularities.



Weekly care: Clean all enclosure accessories with a tortoise-friendly disinfectant. Weigh and record the tortoise's weight. Turn over the substrate and mist with water if dry. Cordon off and open areas inside the outdoor enclosure to allow plants to rest and be grazed upon.

General Housing: Because a tortoise is cold blooded it has to utilise the materials found in the environment to regulate its body temperature. It is important to provide what a tortoise finds naturally in the wild to facilitate this natural behaviour. A baby tortoise will need an indoor enclosure and an outdoor enclosure (the indoor enclosure could be taken outside as a short-term solution). Many combinations are used such as an 'open top' tortoise table, an under bed wooden storage drawer, a children's garden play sand box or one of the many variations of plastic storage boxes now available on the market, and these are all suitable. Ensure that whatever is chosen or built that there is enough depth to add the substrate: at least twice the depth of the tortoises' length is a general guideline, deeper is better.

Indoors, at least one UVB light source will be required. If using a fluorescent strip UVB then an additional heat lamp will be needed (a 40/60watt reflector bulb will suffice), placed next to the UVB strip light source to reach a basking temperature of 30°C (86°F). Ensure all electric wires are out of tortoise reach. As the tortoise grows the keeper will need to expand the size of the environment offered. Ideally to utilise and insulate a shed or greenhouse in a south-facing garden with free access to an outdoor grazing area

would be excellent, while still providing an indoor basking with UVB light, as UVB does not penetrate through glass or most Perspex.

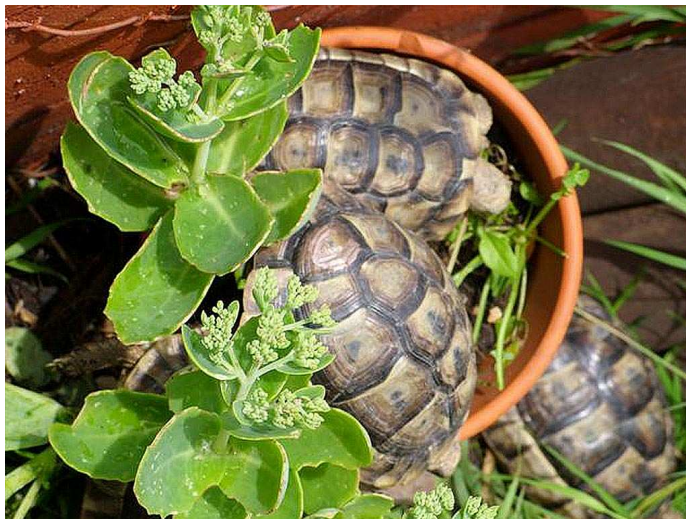
Ensure all outdoor electrics are fitted by a qualified electrician with a trip switch installed. Remember that smoke sensors **DO** save lives.

Hatchling Care: Due to the size of a hatchling (approximately 12g+) and their initial instability they will require tentative care. Gradually, the keeper should try to emulate the natural environment of this species' origin. Offering good quality UVB lighting and heat, interesting and safe environments, where a vast choice of weeds and flowers are available to graze from are essential, and the addition of calcium and mineral and vitamin supplements to all foods will also be required.

A substrate of 50% play sand and 50% John Innes no.1 compost (or any fertiliser-free topsoil) mixed together works very well.

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.

Keep the surface fairly flat as the young tortoise has yet to develop those mountaineering muscles. Mist daily to ensure the substrate does not become dusty. Boundaries need to be solid: if a tortoise can see out then s/he will want out. Endless frustrating hours trying to escape may end up with the hatchling in ill health due to stress. Prevention is far better than having to cure such a small animal. Hides, flat stones, plant pots with weeds and tortoise friendly flowers can all be added to increase interest within the open top enclosure (see the photo section for inspiring and inventive ideas).



The keeper will instinctively know when to start creating small mounds of earth for the hatchling to climb up and over to strengthen their muscles and help the hatchlings developing balancing skills. Food can also be placed on a slate to prevent over growth of beak and nails. Water dishes should be shallow and can have pebbles on the bottom to offer grip should overturning occur. Daily soaking in warm water should continue, more often on hot summer days as dehydration with such a small animal can occur all too easily.

Enclosures need to offer a safe and stimulating environment, as the tortoise will explore for endless hours. Remember to protect from predators at all times: placing small gauge wire mesh over the enclosure will suffice.

Lighting in the UK will need to be supplemented with a good quality UVB light. Ultraviolet light is divided into three spectrums, and two of these have an effect on the



tortoise: UVB which is essential for a tortoise to produce its own vitamin D3 in the absence of sunshine; and UVA which is reported to be beneficial in tortoise behaviour and appears to enhance the way in which it sees food. Many keepers feel that the combination UVB and heat lamps now available provide a better option. Once a tortoise has been able to bask under the heat of a lamp and warm through then there is no reason why it cannot enjoy a restricted stroll in the outdoors, providing the ambient temperature is favourable. Even on dull days natural sunlight is far better than artificial light, providing care is taken that the tortoise can return to a heated area before getting too cold. If a UVB strip light is used then an additional form of heat will be required, and this could be in the form of a 40 or 60 watt reflective bulb (such as a household spotlight). Use a thermometer to gauge where to place the light to gain correct temperatures as for adults. Note the date of purchase of the UVB strip light; as after 6 months it should be replaced (the exception to this is the 10.0 lights, which last for 10 – 12 months). Just because the strip light still gives off light does not mean that it still emits the UVB rays that the tortoise requires.

Daily: Bathe the tortoise in warm water up to its neck. This encourages rehydration and the elimination of waste products via urination (often a white toothpaste-like substance will be found in the urine: these are urates and are normal) and defecation. Observe general health, as this will enable the detection of any changes should ill health occur. Spot check and remove any faeces and remains of old food: discard both. Mist the substrate with water to avoid it becoming too dry. If feeding, supply fresh food on a clean surface (preferably slate) dusted with Nutrobal. Water bowls should be cleaned and replenished frequently.

Weekly: Weigh and record the tortoise's weight. Remove and clean all accessories e.g. hides, stones etc. with a tortoise friendly cleaner such as F10, Tamodine, Amprotect or Trigene. Ensure you rinse extremely well before replacing.

*Caution should be taken when leaving a hatchling unattended for long periods. Many have suffered badly even to the point of death, having toppled over underneath their basking light or fallen into their water bowl.

Housing Juveniles: Indoors - As the tortoise's strength grows, so does his need to explore and roam. The keeper may now find that the tabletop enclosure is no longer large enough for this inquisitive tortoise. Expanding the size of the existing table top may provide the answer or moving the tortoise into a heated greenhouse or shed. Replicating the tortoise's natural habitat requires a variation of gradients to maximise basking under the UVB heat lamp, an increasing range of substrates to investigate and various hides. Water dishes should always be available and refreshed throughout the day. Food should be provided naturally by free grazing from trays of weeds or tortoise-friendly plants (home grown are best as garden centres tend to use chemicals), or freshly picked weeds and flowers from the garden placed on slate to ensure a trim beak and nails. Supplements are to be continued but reduced to twice per week now. On the other five days sprinkle food with a calcium carbonate powder, such as limestone flour.

Outdoors - Space needs to be increased while still being cautious with regards to predators, e.g. dogs, rats and children. Some plants may be poisonous (see plant list) and may require lifting or sectioning off. Ponds should be raised or at the very least covered. Ensure the entire garden is secure at tortoise level: they are amazing escape

artists! Although south-facing gardens offer the best amount of sunshine, shade must also be provided to enable valuable shelter from overheating. Now that the tortoise has become generally stronger the terrain can become more complex, within reason. South-facing slopes enable maximum basking potential. Variations of surfaces offer freedom of choice e.g. sand, wood, stones, grass, concrete and sand/soil mix will all be utilised to regulate the tortoise's own body temperature. Weeds, flowers, grasses and shrubs can add natural grazing and interest to the enclosure. A fresh shallow water bowl should always be made available.

Daily and weekly routine as per hatchling care: Now that the tortoise has more freedom to roam ensure that NO chemicals and pesticides come into contact with the enclosure: this includes any seepage from neighbouring gardens.

Housing Adults: An adult female *Testudo graeca graeca* reaches approximately 22cm and around 18cm for a male. Males are normally much smaller than the females. With correct care they can outlive most humans, living for over 100 years (see tortoise - human life span in files section). Keeping females together can be very harmonious, but when a male and female are together the male will constantly harass the female for procreation. It is therefore advisable to have two separate enclosures for the housing of male and female tortoises (once sexual maturity has been reached) in order to prevent the female from getting runny nose syndrome due to stress levels being too high from the overactive attention of her male seeker. Ideally the ratio of three females to one male is good but you will require large enclosures with many hides, both indoors and outdoors. In addition to this a nesting site will need to be provided for a female, as egg laying is a natural process whether she has been with a male or not.



Heating and Lighting: A good quality UVB light is essential for at least 12 hours per day if indoors, and less if the tortoise has access to natural sunshine. Mercury vapour combined lamps such as Powersun UVB omits heat too and is proving a very popular choice with keepers. A ceramic fitting is required for the combined bulbs, due to the high temperatures being omitted. This should be hung 12 inches above the level of the tortoise's shell to maximise the absorption of UVB rays, creating a basking area of 30°C (86°F). At night temperatures should not fall below 10°C (50°F).

Humidity: Aim for medium humidity of 35%-55%.

Feeding and Dietary Supplementation: All tortoises should be encouraged to graze for their own food supply. The exercise is essential, as is the mental stimulation of foraging. To do so all poisonous plants commonly found in gardens must be removed or



securely fenced off e.g. daffodils, potatoes and yew (see poisonous plant list), to name but a few. Providing a safe grazing area of plants such as dandelion, hawkbits, sowthistle, clover, mallow, bindweed, sedum, plantain, vetches, hibiscus and nasturtium would make a good beginning, but there are many more which could be added (see **edible** plant list).

Foods to be avoided: Never feed **fruits** as this only causes gastric upset.

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.

Cuttlefish, which contains calcium, should be made available at all times, and although it is not as easily digested as limestone flour, it is a good way of keeping the beak trimmed.

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