

**Species:** **Spur-Thighed Tortoise**  
Testudo Graeca Ibera

**Description:** One of the most diverse and widely spread Mediterranean tortoises ranging from the Republic of Georgia, Bulgaria, Greece, Turkey, Iran, Syria, Iraq and Jordan. Originally classed as a separate species -- Testudo Ibera (Pallas 1814) -- Testudo Ibera became Testudo Graeca Ibera (Mertens 1946, Wermuth 1958), though it is still considered by many to be a biologically separate species and has remained TG Ibera due to lack of common agreement.

The Testudo Graeca (TG) Ibera varies greatly in size and appearance, depending on both geographical location and the various ranges found within each country. Typically, TG Ibera has large black eyes, set in a large dark head, with dark coloured legs. Generally the 1<sup>st</sup> vertebral scute is blunt to the front and not rounded as found in Testudo Graeca Graeca (TGG). Colour variation is extreme; from all black, in higher altitudes (in order to maximise heat absorption) to light colouration in lower sunnier



regions. Size variation is also very varied depending on the abundance and quality of food: one wild-caught specimen (pre-1984) currently in the UK weighs a staggering 4.3kgs, 28cm SCL, max width 22.5cm. The carapace colouration is usually black and orange/yellow. The TG Ibera generally has a single supracaudal plate, a single spur to each thigh and an absence of a bony tip to its tail. The females are generally larger than the males and have moveable hinged femoral scutes to facilitate egg laying.

**General Husbandry Requirements:** Tortoises have their own specific husbandry requirements and we should endeavour whenever possible to replicate their natural environment. Access to the outdoors on sunny, warmer days is vital for their ongoing health, to reduce stress levels, to achieve a general well-being in the tortoise and to promote an extended fulfilled life. When planning enclosures for juveniles and hatchlings, make early provisions for the extra space they will require as they grow.

#### **General Housing:**

**Indoors:** Indoor accommodation should be made as large as possible. For adults, a well-lit heated shed, or greenhouse should be made available for cooler days. If using a shed or purpose-built tortoise house, try and allow as much natural light in as possible.

For young juvenile and hatchling tortoises, an open-topped, low-sided tortoise table is essential for this species to enable good airflow and to minimise humidity. Ensure the sides of any enclosure are not transparent, as a tortoise will think it can walk through any transparent sides, causing untold stress. Indoor rabbit cages are good for hatchlings and juvenile tortoises as they can be easily maintained. An old bookcase or chest of drawers laid on their backs, are cheap, spacious and environmentally friendly. Keep in a well-ventilated room, away from draughts and direct sunlight.

Tortoises like to bury down at night: they need to do this to thermo-regulate and it

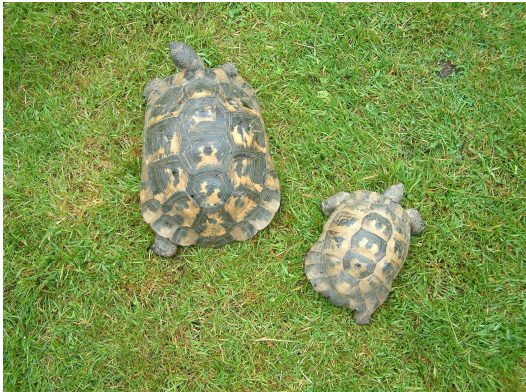
also helps to minimise dehydration, so provide a substrate deep enough to allow them to completely cover themselves. Sterilised soil is recommended as a substrate. Avoid pet shop substrates completely: most are a haven for the growth of dangerous spores when damp, give off toxic fumes and are harmful if ingested. Some substrates, e.g. calci-sand, can compact in the gut and be fatal.

**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.**

Vary the substrate, add stones or slate, and break up the tortoise's line of vision to make the enclosure more interesting. Small flower-pots can be added for use as hidey-holes. Ensure there are no obstacles in the vicinity of the heat source to avoid any potential fatality of a tortoise turning over directly under the heat lamp. It is advisable to place a substrate under the lamp that will enable any overturned tortoise to gain purchase and right itself; e.g. broken slate or alternatively a safe incline. A basking area of around 30C should be aimed for with access to cooler areas of around 20C away from the heat source. Tortoises should be allowed access to water at all times.

**Vivariums should NOT be used to house T.G. Ibera**, as they do not permit sufficient air-flow and create an environment that is far too hot and humid; resulting in respiratory problems, possibly even death.

**Outdoors:** Wherever the tortoise is located, it requires protection from other pets and wild animals. Unfortunately many loving family dogs will look at the tortoise as a chew toy and could inflict horrific, and often fatal, injuries. There are always the exceptions to the rule, but as a whole, dogs and tortoises don't mix. Children should always be supervised around tortoises, particularly hatchlings which have soft plastrons and require very gentle handling. Birds are also a threat to young tortoises outdoors, so netting or wire lids on enclosures are vital. Rats, foxes,



badgers and other animals will consider the tortoise a meal, so check that nothing can dig its way into the cold frame or greenhouse. Badgers in particular are extremely powerful animals and would find it easy to breach even the most secure enclosures.

**Housing Hatchlings:** Hatchlings can be housed either in a secure outdoor enclosure or use a portable enclosure that can be lifted indoors and outdoors when required (e.g. a small rabbit/guinea pig enclosure). Sterilised soil is extremely suitable as a substrate for portable enclosures. For permanent outdoor enclosures, the same applies as for juveniles.

**Housing Juveniles:** A permanent fixed enclosure is recommended where possible, preferably with a heated or warm area in the form of a cold-frame or similar. Ensure the edge of any enclosure is dug into the ground to prevent burrowing under the perimeter. Slate can be driven into the ground along the edges to make extra sure.

For an instant outdoor enclosure, converted children's sand pits, converted raised brick flower beds, disused butler sinks or raised wooden planters, available from most DIY stores & garden centers, can be used. Ensure drainage holes are drilled to all outdoor enclosures. Again chicken wire should be fitted on top to prevent predators from accessing the juveniles. TG Ibera should be outside as much as possible, weather permitting, as the UVB light emitted from the sun, even on a cloudy day, is far superior to that of any lamp. If the daytime temperature is over 17°C (63°C) it is warm enough for even very young tortoises to be outdoors for short periods of time. Please beware that the smaller the tortoise, the quicker they will discharge heat should the weather deteriorate, so vigilance with regards to a change in weather conditions is paramount.

Tortoises love to explore, so try and vary the substrate as much as possible; sterilised soil is best, add stones and/or slate. Try and break their line of vision: mounds of earth will make any enclosure more interesting to your tortoise. It will also require several 'hides' that it can retreat to when the sun gets too hot. Plant the enclosure with a variety of tortoise-safe weeds, flowers and shrubs to hide under and add plant pots, ridge tiles etc. Ensure your tortoise is not left out when temperatures fall, and if necessary return it to its indoor accommodation. Never leave any young tortoise unprotected outdoors. No matter how secure you envisage your garden being, there is always an element of risk from predators or a sudden fall in temperature. Tortoises should be permitted access to water at all times.

**Housing Adults:** Try to make the tortoise's outdoor enclosure as large and as



interesting as possible. Adult tortoises, in particular, need lots of space, which can be achieved by securing and making safe the garden or by providing a large enclosure. Please beware that tortoises are escape artists, so particular attention should be given to the security of any enclosure. Adult tortoises have powerful legs and are competent diggers. Either method should permit access to a heated well-lit shed or greenhouse.

#### **Hatchling Care:**

**Diet and Feeding:** This is essentially the same as for an adult tortoise - please see the 'Feeding and Dietary Supplements' section below. A combination of a correct diet, not overfeeding, access to UVB light and the correct supplementation is required for healthy growth.

The question is often asked, 'how much should I feed my hatchling?' It is not easy to give a definitive answer, as the rate at which an Ibera hatchling grows is dependant on a number of factors, such as amount and protein content of food (which should be low), temperature, activity levels, and some will just be genetically larger than others. As a rough rule of thumb for a hatchling tortoise, offer as much food as would cover the shell. If it is all eaten in less than 10 minutes, it probably isn't enough, if there is still food there after 30 minutes, it's probably too much! A better indicator is to keep records of weight using digital scales, as these weigh in 1g increments or less and



are widely available as kitchen scales. Aim for a weight gain of around 1 - 3gms per month in a hatchling tortoise -- if much more or less weight is gained within the 4-week period, adjust the amount of food offered. Slow growth is best. Initially, weigh the tortoise weekly until the appropriate quantities of food to offer can be gauged more accurately. Tortoises are natural grazers, and by offering two smaller amounts, morning and afternoon, this will mimic conditions in the wild. An old piece of slate is ideal for feeding the tortoise on. It is easy to clean and will enable the tortoise to eat food without picking up any substrate. It will also help keep the tortoise's beak trim when eating.

Bathe all young/juvenile/hatchling tortoises daily in order to prevent dehydration and bladder stones forming, both can occur quickly and are potentially fatal. Bathing should be carried out in a container deep enough not to permit the tortoise to climb out. Seed trays, margarine or ice cream tubs are ideal. Fill with tepid boiled water, deep enough to reach up to chin level or where the top of the shell meets the bottom. Place the tub in a warm area near the light so the water maintains a tepid temperature, and leave the hatchling in there for 15 to 20 minutes maintaining vigilance for any tortoise becoming stressed or turning over. It will normally have a drink each time, stretching the neck out with the head under the water, and if the throat is watched carefully, the tortoise can be seen swallowing the water! It may also use this as an opportunity to go to the toilet - this is a survival instinct from the wild, as coming from arid areas, it won't expel fluid unless it can be replaced. You may see a white substance when it passes urine: this is called urates, and should be the consistency of egg whites or emulsion paint. If the urates are at all gritty or lumpy, this is a sign that the tortoise is starting to become dehydrated, and this needs to be remedied urgently by bathing more often, i.e. twice daily, wetting the food, or offering a high liquid food such as cucumber. If not remedied, the grit will form larger lumps inside the tortoise until an un-passable, potentially fatal, stone is formed. Fresh water should be made available at all times, boiled or preferably rain-water, in a shallow dish to enable the tortoise ease of entry and exit from the water source.

In the wild, hatchling tortoises would spend a majority of their time hidden away from predators: if they are not allowed to hide away, this will increase stress levels. Ensure that the substrate is deep enough to allow burrowing (this will also help with dehydration as it allows the tortoise to thermo-regulate) and shady areas to hide in, as well as basking places.

**Cleaning:** It is recommended that excrement is removed from the enclosure on a daily basis. Clean the water dish and replenish the water, as the tortoise will no doubt have soiled it. The feeding area will require cleaning regularly also. Every 4-5 weeks, completely change the substrate and use a mild disinfectant such as F10, Virkon or Tamodine to clean the tortoise table. The hatchling will not generally need any cleaning - if the shell does become dirty use clean water and a soft brush (i.e. a child's toothbrush) to clean. Never use any oils etc., as these will block the pores, attract the dirt and prevent proper thermo-regulation.

**Heating and Lighting:** Ultra violet (UV) light (UVB range) is vital for all herbivorous tortoises from which they synthesise vitamin D3, essential for converting calcium into bony tissue. This is particularly true for young growing tortoises and egg-producing females. The tortoise should be permitted as much access to natural sunlight as possible, as this is the highest and most natural source of UVB. When weather conditions do not permit this, particularly if there becomes a need to over-winter the tortoise, a high quality UVB combined heat/light bulb or a full spectrum fluorescent tube and basking lamp will be required.

A full spectrum UV tube, which should run as near to the full length of the enclosure as possible, should be positioned at the recommended distance of 3"-6" for most tubes and 6"-12" for the 10.0 tubes – and with the compact 5.0 and 10.0 fluorescent tubes it is important that for the first two or three weeks of use they are not closer than 12" as there have been reported instances of eye problems when the tubes are too close). For the tortoise to obtain the full benefit of the UV tube, reflectors should be fitted ensuring the tortoise benefits from the redirected and thus increased UVB output and lighting. The tubes do not emit sufficient heat so a separate basking lamp will also be required. It's worth remembering most fluorescent tubes have a life-span of around 6 months (the exception being the 10.0 tubes, which can last for up to a year). The UVB output of a tube deteriorates from day one of use, so bear this in mind if a tube is decided upon and keep a record of when the tube was first used. It isn't necessary to buy a special reptile basking lamp to use alongside the UV Tube, a simple 40W or 60W spot bulb will suffice. The UV Tube should be placed as close to the basking light as possible as the tortoise will be attracted to the heat and so facilitate the intake of UVB whilst basking.

The alternative is a self-ballasted mercury vapour lamp, an 'all-in-one' heat and UVB bulb. These need to be used with a ceramic bulb holder. The wattage rating of the holder must be equal to or greater than the wattage rating of the lamp. These high UVB output lamps are very popular with keepers and many have commented on noticeably increased energy levels of their tortoises compared to using fluorescent tubes. They can be used with an on/off timer, but not with a thermostat. Once the bulb is switched off, it needs to cool down before it will switch back on. The desired temperature can be achieved by raising or lowering the height of the lamp.

Whichever method is chosen, aim for around 30°C (86 °F) under the heat source. Take time to assess the best place for the heat source before making a permanent fixing. Its location should permit the tortoise to maintain its own temperature gradient, by moving into cooler areas at around 20°C (68°F) when it needs to. This will largely depend on the size of the enclosure and the rating of the heat source. It

may be necessary to place the heat source in the middle of a larger enclosure to warm larger areas. In a smaller enclosure, placing the heat source in the middle may not permit a tortoise to escape the heat when it feels necessary. In a centrally heated house, tortoises don't need any additional night time heat, unless the temperature falls below 10C (50°F), as it is actually beneficial for them to feel the coolness of



night approaching; it's very natural and normal to them. Even in the Mediterranean it can get quite chilly during the night.

**Outdoors:** The tortoise may require additional heat for during the night, and to warm up on cloudy, cooler days. A basking bulb, in a holder, suspended from the cold frame or greenhouse will allow the tortoise to warm up upon waking on such days. Tubular heaters, ceramic heat emitters and fan heaters will all provide a gentle background heat, and several are often used for large greenhouses. Try and maintain a temperature of approximately 15°C (59°F) , no less than 12°C (53.5°F), in

their sleeping quarters, preferably wired into a thermostat in order to maintain a constant temperature. Full spectrum tubes are suitable for greenhouses on cooler days, as the UVB rays from the sun will be filtered out by the glass which will be detrimental for a tortoise should there be a run of cooler days, particularly if the greenhouse temperature is maintained by natural sunlight, and it is too cool to venture outside.

Please ensure that all lights are securely fixed to reduce the risk of fire.

**Humidity:** T.G. Ibera does not live in a humid environment. Damp clay soil and grass will encourage shell rot and if excessive it will affect their respiratory system. Although they love a cool shower from the hose on a hot summer's day, damp conditions should be avoided. Shell rot can also occur if substrates are constantly damp.

**Hibernation:** TG Ibera is a hibernating species (please refer to our guidelines on 'Hibernation').

**Feeding and Dietary Supplements:** A tortoise has a huge variety in its diet in the wild, as hundreds of weeds and flowers are consumed, ensuring all the essential mineral trace elements it requires for reproduction and healthy bone development are met. Try to provide a well balanced, varied diet on a daily basis. It is recommended that you purchase the Herbiseed "med tortoise mix" which can be obtained at <http://www.tlady.clara.net/herbiseed.htm>

Here is a list of some of the foods that will benefit TG Ibera:

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|--------------------------------|---------------------|
| Dandelion - flowers and leaves |                     |
| Plantain                       | Sow thistle         |
| Bittercress                    | Landcress           |
| Dead nettle                    | Clover              |
| Vetch                          | Cats ears           |
| Mulberry leaves                | Lavatera -          |
| flowers and leaves             |                     |
| Hibiscus -                     | flowers and         |
| leaves (a firm favourite)      |                     |
| Honeysuckle -                  | flowers only        |
| Pansies/viola                  | Nasturtiums         |
| Grape vine leaves              | Wild                |
| strawberries                   |                     |
| Hollyhocks                     | Rough Hawkbit       |
| Campanula                      | (another favourite) |
| Welsh Poppies                  | Evening Primrose    |
| Rose petals                    | Wild Mallow         |



**Foods to avoid:** **DO NOT** use any **commercial tortoise pellets**, meat or dairy products, they are very high in protein which will be detrimental to a tortoise's health and severely reduce their life-span. TG Ibera should be fed on a high fibre, low protein diet.

**FRUIT** does not play a large part in their diet - the odd piece of fallen, ripe fruit would be consumed in the wild but generally try to avoid fruit as it will upset their gut and can cause loose faeces (naturally this applies to tomatoes too).



Please note: Supermarket greens such as cabbage, broccoli, kale etc., are members of the '**brassica**' family and the content of oxalic acid in them will inhibit the absorption of calcium, so they should be either avoided or fed very sparingly. Most lettuce has almost no nutritional value.

**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.

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.