Care of the Russian tortoise Testudo horsfieldii

The Russian tortoise, Testudo horsfieldii, is also known by several other common names including the Steppe tortoise (a reference to one of its preferred habitats), the Four-toed tortoise, Horsfield's tortoise. the Afghan tortoise and the Central Asian tortoise. Although it is, mistakenly, often grouped with Mediterranean tortoises, as this latter name discloses, it is actually an Asiatic species with only a very limited relationship to other members of the genus Testudo such as Testudo graeca or Testudo hermanni. The reported range includes Baluchistan, Pakistan, Eastern Iran, Afghanistan, Western China to the Caspian Sea in the former USSR. Description The carapace (top of the shell) is rounded, and is almost as broad as long; the tortoise has an overall “stocky” appearance; the forelimbs have well developed claws with 4 toes per foot; head and limbs are coloured a yellowish brown; the shell is a greenish or olive brown with darker brown, diffuse patches; there is no movable hinge on the plastron (bottom of shell), which is rigid and inflexible; the end of the tail possesses a claw similar to, but not quite as pronounced as Testudo hermanni. Females are typically much larger than males, the largest verified specimens having been recorded as attaining 22 cm Straight Carapace Length (SCL). One report mentions a specimen of 286 mm/SCL which is said to be deposited in a Russian museum. The plastron (bottom of shell) of males is barely convex, but males do possess a much longer tail than females and hence may readily be identified. Russian tortoises in the wild In the former USSR this species occurs principally on sandy steppes, although loamy habitats have also been recorded. In Pakistan, Testudo horsfieldii exhibited a preference for grassy areas close to freshwater springs in rocky and hilly terrain. A high incidence of Artemesia (wormwood) species and short-lived grasses are typical of Testudo horsfieldii habitats. This tortoise is reported not to occur in coastal areas, preferring instead the mountains inland. In the former USSR the species is active for only 3 months of the year, usually March, April and May. From late May onwards, as temperatures rise dramatically and food availability is reduced, activity sharply decreases and the tortoises spend most of their time hidden in their burrows. In the northern parts of its range, T. horsfieldii hibernates in winter deep within its burrow; in the southern parts of its range aestivation (where the tortoise hides in its burrow) occurs in summer. In Pakistan, captive tortoises were observed to bury themselves from October to March and aestivation occurred from June to August. The Russian tortoise is also found at unusually extreme altitudes 1,600 and 2,300 m having been recorded. A more typical altitude in the former soviet sector of their range would appear to be between 800 m and 1,600 m. This species is well known for its digging abilities; tunnels up to 2m/6ft long with widened chambers at the end are frequently excavated in steep hillsides or under overhanging stones. The old, abandoned burrows of rodents are also colonized and adapted: the burrows of the Marmot and Hedgehog appear to be particularly favoured. The Russian tortoise retreats to its burrow during the midday heat, also at night during its active period. In some locations, several burrows may exist in close proximity. Tortoises are known to visit adjacent burrows, and sometimes several tortoises spend the night in a single burrow. In the wild, this tortoise typically engages in two activity periods each day during this three month period, usually from about 10:00 to 12.00 noon, and again from about 4:00 to 6:00 PM, although this does depend upon geographical locality and seasonal factors.

Basic housing

This species has a high tolerance of both extreme heat and extreme cold, and in the wild survives these conditions by either hibernating or aestivating. In captivity, it is essential to provide a very secure enclosure as these tortoises are exceptionally agile and are persistent escape artists, capable of burrowing underground tunnels several meters long. They are also excellent climbers. External pen walls should ideally be well dug in with at least 20 cm of wire mesh or concrete blocks set below ground level. In summer, T. horsfieldii is active outdoors, but should be provided with good protection from rain and damp, to both of which it has a poor tolerance. This is an arid habitat species, and it is particularly susceptible to shell and respiratory diseases if exposed to excessive

humidity. A cold, dry Horsfield's tortoise can survive for some considerable time; a cold, damp Horsfield's tortoise is likely to succumb to pneumonia and/or shell problems very quickly. In prolonged spells of cold and wet weather, T. horsfieldii is best removed to an indoor or covered pen equipped with a basking lamp and dry substrate. Horsfield's tortoises should never be maintained in indoor “fish tank” type habitats, however. An open-topped indoor pen with full spectrum tube and basking lamp is far superior. They quickly develop eye problems and respiratory problems if kept in enclosed terrariums. When housed indoors, it is essential that hiding places are always available, and substrates should be of sufficient depth to allow at least some burrowing. Pens should be as large as possible; a minimum of 2.5 X 1 m is suggested for a pair. In some localities, pens should include protection from aggressive predators, such as rats, foxes, raccoons or even large birds. **WARNING:** All electrical installations for use with tortoises MUST be fully secure and should be protected via correct fuses and circuit breakers. Tortoises are very destructive and can bite through exposed cables and displace fittings resulting in a serious risk of fire or electrocution. We recommend that you consult a qualified electrician for advice on all electrical installations to be used with tortoises.

Temperature
These tortoises are adapted to life on the surface of hot, semi-desert conditions. The terrarium should have a daytime hot basking spot where the temperature exceeds 32C, however, the tortoise must always be able to retreat to cooler areas if it wishes to. Thermometers should be placed at both ends of the habitat and monitored regularly to ensure a proper temperature gradient. However, this is a diurnal (has a normal day/night cycle) species and Horsfieldís tortoises regulate their body temperature by basking in the sun. Overnight temperatures should be less than those experienced during the day, and there is some evidence to suggest that a day-night temperature cycle may be important in the digestive process. Temperatures should be allowed to drop to 10-12C overnight in most cases.

Lighting
Ultraviolet light is important for all tortoises, as it plays a role in the production of vitamin-D3 which is important for the correct formation of bony tissue. Unfiltered sunlight (i.e. not through glass) is the best sources of ultraviolet light and therefore tortoises should be allowed access to natural sunlight whenever possible. There are several full spectrum fluorescent light bulbs on the market. Where tortoises are maintained indoors for extended periods use of such tubes is highly recommended. Not only will they assist in the provision of UV-B, but it is believed that they also provide some psychological value and enhance normal patterns of behaviour. Lighting should always be switched off at night in indoor enclosures. Timers may be used to insure that a proper day/night cycle is maintained.

Feeding
The diet of the Horsfield's tortoise in the wild consists almost entirely of herbaceous and succulent vegetation, including grasses, flowers, twigs and the very few seasonal fruits which are to be found in this harsh landscape. During episodes of rainfall the tortoise will drink from the puddles which form, and it may also approach streams or ponds. It will frequently also pass urine at this time, and will dispose of the chalky white uric acid residues which form in the bladder simultaneously. During the dry season, and in the more arid parts of its range, it relies mainly upon the water content of its food in order to supply its moisture requirements. In captivity, we suggest soaking the tortoise for 10 minutes twice each week in fresh, shallow water to ensure an adequate state of hydration. In captivity, a high fibre, low protein and calcium rich diet will ensure good digestive tract function and smooth shell growth. Horsfield's tortoises fed on cat or dog food, or other high protein food items such as peas or beans, frequently die from renal failure or from impacted bladder stones of solidified urates. Avoid reliance upon supermarket greens and fruits which typically contain inadequate fibre levels, excessive pesticide residues, and are too rich in sugar. Fruits should

be given very sparingly if at all to this species as it frequently leads to diarrhoea, intestinal parasite proliferation, and colic. When planning a diet for captive tortoises, take their natural dietary behaviour into account as fully as possible. In the case of the Russian tortoise, try to provide a mixture of edible grasses and clovers, supplemented by mulberry leaves, grape leaves, and hibiscus leaves and flowers. Opuntia cactus pads are a great favourite and are rich in both calcium and fibre. A lack of dietary fibre, or roughage, will precipitate digestive tract disturbance, diarrhoea and an apparently much increased susceptibility to flagellate and worm problems. Other useful foods include fresh alfalfa leaves, dried alfalfa hays, and grass hays. *Note that it is very easy to over-feed Russian tortoises, and that obesity is a serious problem with this species.* Although Russian tortoises will take animal protein if offered (as will most normally herbivorous tortoises), in practice this leads to excessive growth and causes shell deformities and renal stress. It should therefore be avoided entirely.

Most land tortoises can and do fare best when allowed to graze, offering the other listed items as occasional supplements. Do not routinely offer cabbage, spinach, chard, bok choy, or any vegetable related to these, as they inhibit calcium absorption and can cause serious health problems. This is particularly critical in the case of juveniles or egg-laying females. The regular use of a cuttlefish bone left in the enclosures allows tortoises to regulate the amount of calcium in the diet. Some tortoises like this very much, while others will refuse to eat it.

Allowing Russian tortoises to forage and graze naturally actually helps the tortoise to maintain good digestive-tract health, and greatly assists in the prevention of obesity. If scute pyramiding is noted, this usually indicates that either too much food is being consumed, or, more likely, that the overall protein content of the diet is too high. It should always be remembered that T. horsfieldii is a tortoise whose natural habitat is semi-desert. In such environments food is not plentiful. Remember that in the wild, this tortoise accomplishes its annual cycle of feeding and reproducing within a few short months. Sustained periods of continuous feeding are neither normal nor healthy in the long term for this particular, very specialized, tortoise. We recommend the use of a good quality phosphorus free calcium and vitamin D3 supplement at least twice per week, more frequently for juveniles and egg-laying females.

Hibernation
As for Mediterranean tortoises.

For full details see:

http://www.tortoisetrust.org/articles/newhibernation.html