

*Keeping, Breeding and Rearing*  
*The Burmese Brown Tortoise Manouria emys in the UK.*  
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*Introduction*

The Burmese Brown or Asian Giant tortoise *Manouria emys* is one of the world's most ancient tortoises. The Genus *Manouria* is considered to be the first of the terrestrial chelonians. There are currently two subspecies living throughout South East Asia. *Manouria emys emys*, (Schlegel and Muller 1844) is found from Thailand, Malaysia, Sumatra, Borneo and islands of the Indo Australian archipelago, *Manouria emy pharye*, (Blyth, 1853) is found throughout Assam, Burma and Northern Thailand. Both are similar in appearance although the latter is said to be larger with a more domed carapace. The simplest way to tell them apart is to look at the plastron in *M. e. Pharye*, the pectoral scutes meet at the midline of the plastron and in *M. e. emys* they do not. These tortoises have become increasingly rare in their natural habitat due to habitat loss and over collection for food and as pets. Unfortunately they are highly prized in the markets of China and most if not all animals collected are destined for China, Burmese Browns are currently Cites II status and are considered very threatened in their countries of origin.



*Above: M. emys emys: Enjoying their outdoor enclosure in good weather.*

*Descriptions*

*Manouria emys* typically are a uniformly dark brown / black in colour. They have a flattened elongated carapace with a straight line length of 40cm to 60cm. The supracudal scute is always divided. The posterior marginals are slightly serrated in heavily. These animals are pretty armour protected and have well developed scales on their front legs and back feet giving the animal its local name of six footed tortoise. There are also several large pointed spurs on each thigh. Adult animals typically weigh from 20-40kg.

*The Animals/Obtaining the Colony*

Our Burmese Browns were originally enquired in 1997 at approx one to two weeks old. These were captive bred at the Cotswolds wildlife park from animals which had been confiscated by HM customs. At that time a fellow animal enthusiast friend was breeding some rare species of water fowl and during an exchange with the zoo he was offered 5 hatchlings. Since the friend wasn't much of a chelonian keeper he gave the hatchlings to me.

In 1997 information regarding the keeping of Browns was pretty scarce. I had been keeping red footed tortoises (*chelonoidea carbonaria*) for several years and so based most of their care around the way I maintained this South American rainforest species. Andy Highfield's Practical Encyclopaedia and Ernst and Barbour's Turtles of the World were also a great help.

The five hatchlings were initially kept in a large plastic container which measured 90cm x 60cm x 20cm high. This container was placed in my turtle room which had an air temperature kept at a constant 22 - 24-c. Under one end of the container was placed a heat pad 60cm x 30cm connected to a thermostat set at 26 c, the probe from this stat was buried in the substrate above the mat. A wood bark hide was placed over this, to provide a secure warm hide area for the hatchlings. The other end of this container a UVB 8.0 strip light was hung over the side and positioned approx 10cm above the substrate. A 60 watt white heat lamp was also provided and hung approx 30cm above the substrate to provide a bright warm spot of 28 - 30 c. Initially the hatchlings avoided this area, but in time they regularly basked beneath it.

The substrate comprised of a mixture of leaf mould, 10cm loam based compost, play pit sand and fine chip orchard bark. This was roughly mixed together at a depth of 6 - 8cm. Browns come from a pretty wet habitat, so this substrate was regularly watered with a small watering can. A large shallow water dish was provided and several flat bits of slate for climbing and feeding.

The five hatchlings were initially very shy and spent most of their time hidden in the substrate. In fact I didn't see them feed for about two weeks or so. Instead I provided the food, it disappeared. In time though these hatchlings soon became accustomed to me and in fact became pretty tame, marching towards anyone who entered the room, something they still do to this day.

### The Adults

As luck would have it, as the browns grew and matured it turned out that there were two males and three females. The largest of the group is Alice, she currently measures 27cm long and weighs 16Kg. Alice is by far one of the friendliest and in your face tortoises I have ever kept. Jenna is the quietest of the group she currently measures 22cm and weighs 12kg. Titch is actually one the bigger females and is so named because for many years she was the smallest of the group. As times gone by though she's now one of the bigger females and measures 26cm and 14kg. Padley is the largest of the males and the most dominant of the group, although Browns are pretty placid gentle creatures. He currently measures 20cm in length and 10kg. Elmo is the smallest, and is the clown of the group, if anyone's going to get into trouble then Elmo's your man he currently measures 17cm in length and weighs 9kg.

### The Enclosure



*Above: M. emys emys: Females eating and exploring their indoor enclosure*

The adult browns currently live in a very large enclosure which comprises of both a heated indoor area and a large open outdoor area. The indoor area is basically part of a large lean-to greenhouse enclosure which measures 6m x 4m, within this habitat is an insulated box measuring 2cm x 1cm. this is kept at a constant temperature of 24c at one end and has 100w UVB spot lamp at the other for basking. The greenhouse area has a deep damp substrate of orchid bark and leaf mulch. During the autumn and Spring large amounts of dry fallen beech leaves are added to the substrate for burrowing and nest building. Large plants are also grown in this habitat and give it a jungle feel. Opuntia cacti are grown as a healthy addition to the tortoises' diet. During the spring, summer and autumn the group have regular access to a large outdoor paddock which currently measures 10m x 10m. This enables animals to exercise, bask in natural sunlight and graze on grasses edible plants, such as clover, dandelion and buttercup. Water is always available in several sites around the pen and in most cases is big enough for the animals to soak in. The substrate is also regularly sprayed to boost humidity and keep it damp. Browns seriously like it wet and thoroughly enjoy a good soak from a hose pipe or watering can.

Burmese Browns are pretty tolerant of cool conditions and unlike other rainforest species are commonly found at high altitudes in the wild. They appear to prefer a temperature of around 22 - 26c at these temps they are lively and active and readily feed. At lower temperatures they are still pretty active although generally only in short bursts, Most of the time is spent hidden in the substrate. Having said this I've regularly seen them foraging and eating at temperatures of 16 -18c. They don't like high temperatures and get quite stressed in temperatures about 30c. A good soak with a hose pipe usually sorts them out.



*Above Left: Burmese habitat Picture from [www.asiaphoto.de](http://www.asiaphoto.de) / Right: Making a next mound*

### Feeding and Diet

Feeding tortoises of any species and providing a healthy diet is always complicated. From the start I have provided the browns with a wide variety. They typically eat a predominantly herbivorous diet comprising of mainly leaves and flowers. Although fruit is added at least twice per week Rain forest tortoises also require some animal protein. The basic diet is edible weeds, flowers, Dandelions, sow thistles, plantains, chickweed, all types of clover, thistles, mallow's, bramble leaves, buttercup, lawn grass, and meadow grasses. These are collected daily and mixed roughly with calcium carbonate powder before feeding. Fruits and vegetables are also fed approx one to twice per week. Apples, pears, melon, peach, plum, fig, peppers, pumpkin, tomato, cucumber, carrot, cabbage, kale, broccoli, lettuce, watercress and mushrooms, again these are chopped and roughly mixed with calcium carbonate powder before feeding. Browns love mushrooms above all other foods.



*Above: M. emys emys: Left: Mushrooms are a favorite treat / Right: lovers of water.*

The browns also get opuntia cactus pads fed quite regularly, we currently grow opuntia indica and opuntia robusta. These nutritious plants are hardy and quite simple to grow in greenhouses and poly tunnels and do have the added benefit of making the animals enclosures very attractive.

The browns have also been seen eating budleya leaves and flowers, lavatera leaves and flowers and honeysuckle leaves and flowers. These they graze themselves from around their outdoor pen. Protein is added to the diet in the form of cooked lean chicken meat, soaked dog and or cat pellets and soaked koi carp pellets. These foods are fed sparingly and probably only once or twice per month. All of the above would be mixed with calcium carbonate before feeding. The main supplement used as mentioned before is raw calcium carbonate powder (limestone flour) and occasionally nutrobal (vetark) or vionate (sherlleys) Large pieces of raw chalk is left around the indoor and outdoor pens which the tortoises chew on regularly.

Freshwater is always available. Browns must never be allowed to dehydrate. On the above diet the Browns have grown smoothly and strong with good shell and bone development. They grow very quickly in captivity and care must be taken not to overfeed

### Breeding

The browns first started mating when they were around 6 - 7 years old. They mate regularly throughout the year, especially, just after a good soak. Courtship is brief and usually starts by vigorous head nodding by the male. This coincides with a long gravelly hiss which may last 30 seconds or more. The females also occasionally behave in this manner. Mating is a gentle affair with the male massaging the females carapace males and females live together permanently and aggression has never been observed. Females do not appear to be stressed by the males at any time. The females begin to show interest in nest building early in the spring. Burmese browns are the only tortoise species in the world which builds a nest and then guards the eggs for a further two to three days after laying.

Alice was the first female to begin nesting. Initially female browns pace and look unsettled, showing little interest in food. She began dragging surface material under her front legs backwards. This including everything movable in the pen from dry leaves, surface soil, water bowls etc. This resulted in a mound of substrate about 60cm tall. Alice then positioned herself on the top and proceeded to dig a nest with her back feet. In the resulting hole she laid thirty five round white eggs which had a soft leathery texture, not dissimilar to marine turtle eggs. She then sprawled across the top of them. I had no trouble in moving her from the mound/nest she was not aggressive towards me at all, she just kept putting herself in the way as I moved the eggs she then stayed around the nest for two to three days before losing interest in it.



*Above: M. emys emys: Left: emerging from egg / Right: Active and healthy at three months old*

The eggs typically measured 40-55 mm across and weighed about 50g. These were placed in a homemade incubator, which basically was a polystyrene box with a heat pad and thermostat set a c temperature of 28-29.5 c. The eggs sat on a damp layer of vermiculite approx 2-3cm deep in a clear plastic box which had a few small holes in the side for ventilation. This kept a constant humidity of 70-80%. Incubation in browns is a pretty short in fact the hatchlings were emerging in about 55 days, although many of the hatchlings weren't out until 65 - 70 days. Hatchlings are pretty large and typically measured 50 - 55mm and weighed 35 - 40g. Initially the emerging hatchlings had quite large yolk sacks attached, but these are quickly absorbed within 48 hrs. The resulting hatchlings were moved into a similar setup as that used originally for the adults with the only difference being the use of a UVB power sun bulb at one end instead of the fluorescent tube and spot. All three females have nested this year and all have produced healthy hatchlings. The hatchlings are lively, active and growing quickly.

### Conclusion

Our Burmese Brown tortoises have been very rewarding animals to keep. They have proved themselves to be hardy charges, which have thrived well in the conditions provided. These tortoises have huge personalities and have some fascinating behaviours. They quickly become very personable, regularly feeding from your hand and marching towards you whenever you approach them. Unfortunately captive breeding maybe the only way to preserve this species for the future as wild populations seriously decline. At least with good captive conditions it seems browns are relatively simple to reproduce which may be a great asset for their future.