

## **HerpVet Information Services**

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## **HerpVet Information Services Publication IS04**

### **Hibernation of tortoises**

This information sheet is concerned with hibernating your tortoise.

The first point to make is that **you do need to be sure that your tortoise is of a species that does naturally hibernate**. This includes most (but not all) common Mediterranean tortoise species, but not the tropical species (e.g. leopard tortoises) now available.

#### **Preparation for hibernation**

The first thing that should be said is that only healthy tortoises should hibernate, as a rule. A veterinary health check is strongly recommended for all tortoises prior to hibernation, but certainly consult your vet if you are in any doubt at all. I would recommend this about 2 – 3 weeks prior to starting the starvation/cooling period (see below) – generally around late September, but certainly if/when the tortoise starts to slow down on eating (for animals checked at this time, I offer a reduced price recheck just before actual hibernation). However, consult your own veterinary surgeon for his/her advice.

A brief word on society-organised “tortoise checks” in meeting halls or whatever. While in principle these are not necessarily a bad thing, I, like others, have grave reservations about the ability to maintain adequate hygiene/isolation procedures under such circumstances, so I would not generally recommend them.

Proper preparation for hibernation involves slowing the animal(s) down gradually, starving them for a period before hibernation to allow the stomach and upper gastrointestinal tract to empty of food (fermentation of undigested food in the gut can kill a tortoise). This starvation period should be about 4 weeks, during which time the heat and daylength in the enclosure should be gradually reduced (no more than about 1 – 2°C a day, or 5°C a week).

Frequent (at least every few days) baths should be carried out during this starvation/cooling period to try to ensure adequate hydration of the tortoise as well as encouraging defaecation/urination. During the last week or two the tortoise should normally be fairly inactive.

#### **Timing and length of hibernation**

The timing of hibernation can be variable, depending on weather, the individual tortoise and to a certain extent your requirements. However, one recommended rule is that the tortoise should be in hibernation over the shortest day (21 Dec); if it is not, it

is either being slowed down while the days are getting longer again or being woken while the days are getting shorter. In either case it is going against the natural environmental cues, which is undesirable. As an approximate guide, I would normally aim to starve from start of November and hibernate from late Nov/early December, trying in both cases to coincide changes with colder weather. However, you should be guided by your tortoise to some extent; if he/she really won't eat and wants to go down despite you providing artificial heating and lighting, it is usually best to give way (providing he/she is healthy). It is generally easier to keep a tortoise active and eating once woken up again in early spring than it is to keep it going if it is trying to hibernate. But do be aware that the early he/she starts winding down, the more chance of a late warm spell disrupting things, and the more disrupted the wind-down the more condition he/she is likely to lose.

There are varying views on length of hibernation, and also on what age you should start it at. Certainly they hibernate from year one in the wild, but I would tend not to hibernate them in their first year or second year if this is your first tortoise – it's probably worth using the time to conduct some tests with a maximum/minimum thermometer in the place you are considering hibernation, to see what sort of temperature range you get during the winter. Following this I would restrict the hibernation to around 6 - 8 weeks for the next 2 or 3 years, then extend to full length (which would be recommended to be no more than four months).

Note that many tortoises in the U.K., if allowed to hibernate naturally, would hibernate 5, 6 or even more months a year. This may be sustainable for healthy adults for years but is probably weakening them in the long run. Current recommendations would be no more than about 4 months hibernation. This does of course mean that you will need an adequate indoor set-up for your tortoise, which you should have in any case.

### Where to hibernate

Hibernation should take place ideally within the **temperature range 4 – 6°C** (approx 39 – 43°F), certainly within the range 2 – 8°C (approx 36 – 47°F). Lower than this risks frost damage, while higher runs the risk of the tortoise coming out of hibernation. **Please note that this means that the use of a good thermometer, preferably one which measures maximum and minimum temperatures, is not an optional extra. It is an essential!** Ideally an electronic maximum/minimum thermometer with an alarm that can be set for high and low temperatures should be used – these can be bought with wireless links to a base unit you can keep indoors.

Other requirements for the hibernation location are **safety** (from flooding, pests such as rats, disturbance by other pets) and **accessibility** (for monitoring the animal). There is some argument about the importance of a high **humidity** – as long as conditions are not too dry this should not be a problem.

Hibernation may take place outside (naturally) or in a chosen indoor area. Although at any depth more than a few inches in soil temperatures are usually quite stable, outdoors hibernation has many disadvantages, the main one being the fact it is usually impossible to regularly monitor the animal. It is also usually vulnerable to predators (typically rats) and possibly flooding, and is not generally recommended.

In artificial places, the tortoise should be within a smallish box (slightly bigger than the space the tortoise occupies with all legs extended) with some insulating material (polystyrene packing chips are currently recommended). Unless in a fridge, this should be placed in a large box also filled with insulating material to help to protect the tortoise from external temperature fluctuations to some extent. However note that this is all that it does as tortoises, unlike mammals for example, do not produce their own heat to fill a confined space.

A (reliable) fridge is in many ways the ideal place to hibernate tortoises, as the temperature control will almost certainly be better than any other alternative, and there is (almost certainly!) no risk from pests. It is also safer in a power cut, for example, which could be fatal for tortoises in a shed relying on a heater. For air, hibernating tortoises require very little – opening the fridge door once or twice a day will usually provide plenty unless the fridge is very full of tortoises.

A few tips/pointers are necessary when considering fridge hibernation.

- Packing some of the spare space in the fridge with full water bottles is recommended, as it will increase the thermal inertia (resistance to temperature change) when opening the door, for example.
- In many fridges temperatures can vary by several degrees centigrade temperature from top to bottom – check it where the animal(s) is/are.
- Ensure that boxes are not in contact with the back of the fridge, which is frequently freezing – if necessary insulate with slabs of polystyrene (or use the double box setup described above).

Other options include cold parts of the house (rarely cold enough in a centrally heated house), attic/cellar and shed/outhouse. Any of these may be suitable depending on your specific arrangement, but bear in mind the temperatures above – few of these places will in fact avoid being either too cold (although a frost free heater can prevent this) in very cold nights or alternatively too warm if there is a warm spell in December or January. You can reduce these effects somewhat with suitable boxing as mentioned above, but heat will still be exchanged under such circumstances, only more slowly.

You also need to bear in mind changing climate extremes – around this area (Berkshire) the minimum winter temperature I've recorded in an outhouse/shed has dramatically reduced over the last 11 years from -1 C (1994) to - 8.5 C (2005)

### Monitoring during hibernation

You should be checking on your tortoise frequently during hibernation, and also keeping a record of its weight (usually about weekly). Handling the tortoise a little every few days should not cause any problems.

Tortoises may move around a little during hibernation, but if there is any significant activity it probably indicates a problem. **If a tortoise is fully awake and active at**

**any point during hibernation (or has defaecated/urinated), it must be kept up, and not allowed to return to dormancy.** “Reactivating” its metabolism and body systems uses up a lot of the tortoise’s reserves, and it is unlikely to be able to do so a second time in a winter successfully without problems.

Weight-wise, the tortoise should lose very little weight during hibernation – a rule of thumb is 1 - 2% of body weight per month. If it loses significantly more than this then there is probably a problem and the animal should be brought out of hibernation.

### Bringing out of hibernation

Providing the animal hasn’t made its own decision, the best plan is to wait if possible for a forecast of reasonable weather for a few days before bringing it out. Even if not able to go outside, they will still take some environmental cues from external conditions under most situations, and even an hour or so of natural sunlight will help them a lot.

The tortoise should be brought into a warm area (you should have an indoor enclosure available – see separate information) and allowed to warm up gradually. Once warmed up and active (which may take a few hours, but shouldn’t take more), the tortoise should be bathed to give it the chance to take in water and void built-up wastes. At this point the animal should be alert, active and moving and behaving normally, with clear eyes and nostrils.

Following this the tortoise may be housed in suitable indoor accommodation and treated as normal, although it should be bathed every couple of days for the first week.

Ideally the tortoise should have urinated and started eating within a day or two. If you have any doubts about the health of the tortoise, or if it does not start eating or passing urine within a week at most, then you should contact your veterinary surgeon fairly urgently.