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TORTOISES AND TURTLES

Hermann's Tortoise

Testudo hermanni

Testudo hermanni is a small, yellow and black tortoise from southern Europe and one of the most commonly kept tortoises in Europe. It belongs outdoors in summer, hibernates, lives on wild herbs and can live for many decades.

Family: Testudinidae

KEY FACTS

THE ANIMAL

Adult size	**13-25 cm** total length incl. tail
Lifespan	**30-80 years**
Active	**By day**
Lifestyle	**Terrestrial**
Habitat	**Semi-desert and temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**200 × 100 × 40 cm** L × W × H for 1 adult
Temperature, day	**22-30 °C**
Basking spot	**32-38 °C**
Temperature, night	**15-20 °C**
Humidity	**40-70%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Winter rest	**4-6 °C** 8-16 weeks
Diet	**Plants**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**96-144 months**
Clutch size	**1-15 eggs**
Clutches per year	**1-3**
Incubation	**55-85 days** at 26-32 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex A**
IUCN	**Vulnerable (VU)**

About the species

Testudo hermanni is a small to medium-sized tortoise with a high, domed carapace in yellow and black. The colours are strongest in young animals and fade with age. The jaws have a horny sheath without teeth, and the tail ends in a horny spine. The male has a long, thick tail and a slightly concave plastron, while the female has a shorter tail and a flat plastron.

The species occurs in two forms. The western form (*T. h. hermanni*) rarely exceeds 18 cm, and the males are often only 13 cm. The eastern form (*T. h. boettgeri*) grows larger, typically 18-23 cm and exceptionally up to 28 cm and 3-4 kg, with a flatter and more elongated shell. The measurements are the shell length (carapace), measured in a straight line, not the animal's total length. Crosses between the two forms occur in the trade, so ask about the animal's origin.

The species was described by Gmelin in 1789 and is named after the naturalist Jean Hermann of Strasbourg. It is closely related to *Testudo horsfieldii*, and it has been proposed to move it to another genus, but it is still placed in *Testudo*. It can be confused with *Testudo graeca*, which has an undivided supracaudal shield and a distinct horny spine on each thigh. The species is long-lived and can reach 70-80 years or more.

Distribution and habitat

Testudo hermanni lives in southern Europe. The western form occurs in eastern Spain, southern France, on Corsica, Sardinia and Sicily and in southern and central Italy. The populations on Mallorca and Menorca originate from introductions. The eastern form occurs along the Balkan coast from Croatia and Bosnia and Herzegovina through Montenegro and Albania to Greece and on through North Macedonia, Serbia, Romania and Bulgaria to the European part of Turkey on the Black Sea.

Populations have declined owing to forest fires, cultivation and development, and the species is assessed as vulnerable. The map shows only the native range.

> **Native range:** Spain, France, Italy, Albania, Croatia, Bosnia & Herzegovina, Montenegro, North Macedonia, Serbia, Bulgaria, Romania, Greece and Turkey.

HABITAT

The species lives in the open landscape of the Mediterranean climate: scrub, bushland, meadows, woodland edges and dry slopes. In the morning it emerges from a shelter under dense bushes and basks. In the midday heat it seeks shade again and goes on eating in the late afternoon. Its food is wild herbs, leaves and flowers.

In winter the animals hibernate, dug into a bed of dead leaves under bushes or rotting wood. At the end of February they emerge, and mating follows shortly after. The female digs a flask-shaped nest in the ground and lays the eggs from May to July. The young emerge after the first autumn rains and stay within a few metres of the nest for the first four to five years.

Care

THE ENCLOSURE

Testudo hermanni belongs outdoors in the summer half of the year and does poorly in a closed glass terrarium. From spring to autumn it needs a sunny, well-drained outdoor enclosure with shelter, shade and wild plants, and an enclosure can never be too large. The wall must be opaque, at least 30 cm high and go 20-30 cm into the ground, because the tortoise digs and tries to get through anything it can see through. Cover the enclosure with netting if there are foxes, rats or crows in the area.

The substrate should be drained soil with grass and herbs. Furnish with stones, branches and a dry, closed shelter against rain. A small greenhouse or a cold frame with a heat lamp provides warmth on cool days and extends the season in spring and autumn, when the weather in northern Europe is otherwise too cold.

Indoors, in cold periods and in spring after hibernation, an open tortoise table is best. The length should be at least 8 times and the width 4 times the shell length of the largest animal. Less space is often used successfully, but the general recommendation is 8 × 4 times the shell length. For an adult animal of 25 cm that gives 200 × 100 cm with sides of about 40 cm. There must be at least 10 % more floor area for the third and fourth tortoise. Use 10 cm or more of a mixture of compost and sand without fertiliser, so the animal can dig down. Avoid fine sand and small pebbles, which the animals may end up eating. Up to three young can initially live in a box of 90 × 60 cm, but they must go out into fresh air and sun as soon as the weather permits.

Read more: Brumation and the seasons

TEMPERATURE

By day the temperature should be 22-30 °C, with a basking spot under a heat lamp of 32-38 °C, so that the animal can warm up to at least 30 °C. At night the temperature falls to 15-20 °C, and the heat is switched off. Measure the air temperature in the shade and the basking spot temperature under the lamp after a couple of hours.

Outdoors in northern Europe a cold, wet summer is the greatest risk, because the animals become lethargic, stop eating and develop respiratory infections. Give them a sunny location and a greenhouse or a heat lamp they can seek out. Overheating is at least as dangerous, so the animal must always be able to get into shade.

Hibernation: The species hibernates in the wild, and healthy animals should do so in captivity. The temperature should be 4-6 °C, as close to 5 °C as possible, for at least 8-10 weeks and no more than 16 weeks, also for large animals. If the temperature falls towards 2.5 °C, there is a risk of frost, which can blind the animal or kill it, and above 10 °C for a longer time the animal wears down its reserves. See the section on health for preparation and checks.

Read more: Heat and temperature

HUMIDITY AND WATER

The species comes from a dry-summer climate, and humidity should be moderate: 40-70 %, highest for young animals. The substrate should be dry at the surface and slightly damp farther down, so that the animal can dig down into a damper layer. A constantly wet substrate causes skin and shell infections. There must always be a shallow, stable dish of fresh water, and the water is changed daily.

Also give a lukewarm bath of 10-15 minutes a couple of times a week, especially to young animals. The water should reach the animal's chin. The bath makes the animal drink and empty its bladder, and it is important before hibernation and just after waking.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

T. hermanni is diurnal and needs UVB to produce vitamin D3 and avoid bone disease. Use a T5 tube or a powerful UVB bulb for desert species (Ferguson zone 3, about 10-12 % UVB), mounted 25-40 cm above the animal. Replace the light source according to the manufacturer's instructions, because the UVB output falls long before the bulb fails. A mercury vapour lamp provides heat and UVB at once and is well suited to tortoise tables.

The light is on 10-14 hours a day and preferably follows the season. Outdoors in the sun the animals get UVB directly, but glass and acrylic block most of it. Do not therefore let them sunbathe behind a window.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

FEEDING

T. hermanni is herbivorous, and the diet must be high in fibre, low in protein and rich in calcium. The staple food is wild herbs and leaves: dandelion, clover, plantain, dock, mulberry leaves and healthy grasses, preferably picked fresh. Greens from the supermarket have too little fibre and are given only in small amounts. Vary the diet, so that no single plant becomes the only food. Never give buttercups, which are poisonous. Fruit, legumes, meat, and dog and cat food cause digestive problems, kidney damage and too rapid growth and do not belong in the diet.

Keep a cuttlebone available, so that the animal can gnaw at it itself. Also sprinkle a phosphorus-free calcium supplement over the food at least twice a week, more often for young animals and females during the laying season. Commercial tortoise food can be used as a supplement, but not as a staple. Feed daily in the season, and the animal should not be pushed to grow quickly: rapid growth produces a lumpy, pyramided shell.

BEHAVIOUR AND HANDLING

The species is calm, but not a pet to be picked up and cuddled. It learns to know its keeper and likes to come when there is food. Handle it only when necessary, and always support under the plastron. Hold it low, so that a fall does not damage the shell.

The males are territorial, and mating is rough: the male chases the female, rams her with his shell and bites her legs. Therefore keep only one male per enclosure, and give the females many hiding places and preferably several females per male. The animal can also be kept alone. Do not mix the species with other tortoises, because they can infect each other with diseases they are not sick with themselves. At night and in the midday heat the animal lies in a shelter, in a depression or under bushes.

Breeding

SEXUAL MATURITY AND SEXING

The male is smaller than the female and has a longer and thicker tail with a strong horny spine and a slightly concave plastron. The female has a shorter tail and a flat plastron. The sex can usually be seen when the young are about 10 cm and 3-4 years old, from the shape of the tail and the anal scutes. In the eastern form the females lay their first clutches at 8-12 years of age at a weight of 800-1,200 g, and the first clutches are often small. The animals must be in good condition before breeding.

MATING

Mating takes place especially just after hibernation, but can also occur in late summer and autumn. The male chases the female, rams and bites her before he mounts her. Watch the animals, and separate them if the female is injured. Animals that have not hibernated can also breed, but regular hibernation is part of the species' natural rhythm. Give the female places

where she can get away from the male. A female can lay fertilised eggs for up to two years after a mating, even without a male.

EGG-LAYING AND CLUTCHES

The female lays the eggs from May to July, most often in the morning, and most lay 2-3 clutches in the season about 20 days apart. The number of eggs depends on form and size: the western form lays up to 7 eggs per clutch, often only 1-3, while large females of the eastern form lay 3-8 and exceptionally up to 15. She digs a flask-shaped nest of 8-10 cm in loose, damp soil in a sunny spot, so give her a sunny slope with deep, loose soil in the enclosure. She is restless in the days before and walks around scraping.

INCUBATION

The eggs are moved carefully, without turning them, to boxes with dry vermiculite and a couple of air holes, in an incubator with a humidity of 70-80 %. At 30-32 °C they hatch after 55-60 days, at 26 °C after about 83 days. Constant temperatures below 23 °C and above 34 °C kill the embryos.

The sex depends on temperature. Below about 30 °C mainly males are produced, above 32-33 °C mainly females, and at about 31.5 °C the ratio is even. The figures were measured on the eastern form. Eggs laid by young females and very small eggs hatch less well. Give eggs that do not hatch on time a couple of weeks of extra time before they are discarded.

Read more: Incubating eggs

REARING THE YOUNG

The young have a shell length of 3-4 cm and live on the yolk sac for the first few days. Up to three young can live in a box of 90 × 60 cm with a humidity of about 70 %, a warm spot of 32-35 °C, UVB and a very shallow water dish. Give a lukewarm bath several times a week. The young eat the same wild herbs as the adults, finely chopped, and a cuttlebone must always be available.

Let them grow slowly to avoid pyramiding. In summer they must go out into sun and fresh air in a tight, covered enclosure that protects against birds, rats and cold. Healthy young can hibernate for a shorter time than the adults, typically 8-12 weeks.

Health and common mistakes

Most problems are caused by mistakes in care. The most common are:

- Pyramiding: the shell grows in knobs. Caused by too much protein, too little fibre, too little calcium and UVB or conditions that are too dry.
- Metabolic bone disease: soft shell and deformed legs and jaws from too little UVB, D3 or calcium.
- Respiratory infection: runny nose, bubbling at the nose and breathing with an open mouth, from cold and draughts. Requires a vet, and the animal must be isolated from other tortoises.
- Stomatitis: yellow, cheesy coatings or small haemorrhages in the mouth. Contagious and requires prompt treatment.
- Parasites and stomach problems: slimy or very loose droppings and weight loss.
- Frostbite and dehydration during hibernation.

Hibernation requires preparation. Only healthy animals in good weight may hibernate, and not animals that have just been bought. Check eyes, nose, mouth, ears and tail for signs of illness beforehand. Let the animal fast while it is kept above 13 °C, so that the gut is emptied: 2 weeks for animals under 1 kg, 3 weeks for animals of 1-1.5 kg and about a month for animals of 2-3 kg. Bathe it 3-4 times a week during the fast, so that it drinks. Hibernation is kept at 4-6 °C, either in a box inside an insulated box in a frost-free place or in a refrigerator without a freezer that is used only for the tortoise. Use two thermometers, and move the animal at once if the temperature approaches 2.5 °C. Weigh the animal every week or every other week: if it loses more than about 1 % of its weight in a month, or has urinated, it must be woken. After 8-16 weeks the animal is taken out, given a lukewarm bath and placed under a heat lamp, so that it can warm up to at least 30 °C. It should begin eating within a week; otherwise it must see a vet.

Contact a vet with reptile experience if the animal does not eat for a couple of weeks, loses weight or has fluid from the nose.

Read more: Common diseases and signs of illness

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.