

# Russian Tortoise

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Updated 2021

## Natural History

The Russian tortoise (*Agryonemys horsfieldii* or *Testudo horsfieldii*) is a relatively small tortoise species native to central Asia. They are sometimes referred to as the four-clawed tortoise, Horsefield's tortoise, Afghan tortoise, central Asian tortoise, or Russian steppe tortoise. Russian tortoises live in dry regions with sparse vegetation, often up to 2500m in altitude. Their natural habitats have such extreme weather that wild Russian tortoises may only be active for 3-5 months out of the year, escaping into burrows for the remainder of the year. The IUCN considers Russian tortoises to be "vulnerable".

## Characteristics and Behavior

Due to their relatively small sizes and inquisitive personalities, Russian tortoises are very popular in the pet trade. The majority of the US population of captive Russian tortoises are wild caught, rather than captive bred. Captive bred specimens are preferred, as they tend to have less health issues and do not negatively impact the wild tortoise population. Russian tortoises are active and curious, but like other tortoises, may become stressed from frequent or inappropriate handling. Russian tortoises may be more manageable than larger tortoise species, but their very specific care requirements and long lifespan make them more suitable for intermediate reptile keepers.

## Lifespan

40-60 years with proper care.

## Adult Size

6-10 inches with females typically larger than males

## Housing

For adult terrestrial turtles and tortoises, the length of an enclosure should be 10x the size of the animal, the width should be 5x, and the height 3x. That means an adult Russian tortoise would need 5'x2.5'x1.5'-8.5'x4'x2.5' depending on the size of the tortoise. Bigger is always better! Enclosures can be made of wood, plastic, or sometimes rubbermaid tubs. Glass terrariums may be suitable for smaller tortoises but

more difficult to find appropriate sizes for larger ones, and some tortoises may be stressed by non-covered sides. As long as the height is sufficient to keep the tortoise from escaping, tops are unnecessary. Outdoor pens can also be constructed for the summer months.

Cover, such as ground clutter, half logs, plants (live or fake), and rocks should be provided to help your tortoise feel more secure.

For substrate, newspaper or paper towels are easy to keep clean and present no risk of impaction, but do not provide burrowing opportunities. If these substrates are used, a dig box should be provided. For a more naturalistic substrate, cypress mulch, coconut coir, ReptiSoil, or reptile bark can be used at a depth of at least 4-6". A hide, which can be a wooden box, tupperware, commercial shelter, or cardboard with a hole cut out should be provided. If not providing natural substrate, this hide should be filled with ReptiSoil or EcoEarth to allow digging opportunities. Rocks are also useful for helping tortoises file down their nails.

When temperature allows, outdoor housing is ideal as Russian tortoises love to roam and burrow. They are surprisingly good climbers and proficient diggers, so enclosure walls should extend 12" both above and below ground. Tortoises housed outdoors need to have access to shade, water, and basking areas. Ideally, two burrows should be provided to encourage digging in an appropriate area. Burrows are extremely important for temperature regulation, particularly in extreme temperatures. Russian tortoises can survive a wide range of temperatures but should be brought inside if temperatures drop below 40F. Tortoises not housed outdoors should be taken outside regularly.

See <https://azeah.com/tortoises-turtles/basic-care-russian-tortoise> for a more in depth look at outdoor Russian tortoise housing.

## Lighting

Like all chelonians, Russian tortoises require UVB light to synthesize vitamin D3 in their skin. Vitamin D3 is needed for proper metabolism of calcium and prevention of metabolic bone disease. The ReptiSun T5 5.0 HO, Arcadia T5 12% Desert, or Arcadia T5 6% Forest are all acceptable choices, depending on where you set up your animal's basking spot. Arcadia provides a guide as to where to place your UVB fixture in relation to your chelonian's basking spot. It is important to note that UVB cannot penetrate glass, so natural sunlight through a window will not be sufficient for a chelonian to

synthesize vitamin D3. Allowing safe outdoor time is also an excellent source of UVB and visible light.

Sunlight is made of ultraviolet, near infrared (IR), mid IR, far IR, and visible light. It is our job as keepers to provide full spectrum lighting, which means as close to sunlight as possible. Unfortunately there is not one source for all of these components, so we must provide multiple types of lighting. For visible light, LED or halide bulbs should be provided.

UVB is NOT optional for chelonians. Lack of proper UVB can lead to impaired skeletal, muscle, and immune function. Replace UVB bulbs every 6 months, as they can continue to give off light even when not producing UVB. Lights should be turned off at night to maintain normal day/night cycles. For this reason, red or black nightlights should not be used as they can disrupt normal day/night cycles.

Arcadia UVB guide: <https://www.arcadiareptile.com/lighting/guide/>

## Heat

Unlike mammals, reptiles cannot internally regulate their temperature and rely on their environment to heat and cool themselves. Therefore, it is important that we provide captive reptiles with a temperature gradient so they can warm up or cool down as needed. Reptiles have three temperatures to measure: basking spot, warm ambient, and cool ambient. The basking spot is the hottest area in the enclosure where they bask, the warm ambient is the air temperature on the warm side of the enclosure, and the cool ambient is the air temperature on the cool side of the enclosure. Ambient temperatures are best measured with digital thermometers (one on the warm end and one on the cool end), as analog thermometers are often inaccurate. Basking temperatures can be measured with a digital infrared thermometer.

Russian tortoises need a basking spot of 90-95F, a warm ambient of 80F-85F, and a cool ambient of 70-75F. Any light emitting sources should be turned off at night and temperatures can drop to 65F. If needed, a non light emitting source like a ceramic heat emitter, radiant heat panel, or deep heat projector can be used to maintain temperature. Sunlight is made of UV, near IR, mid IR, far IR, and visible light. Flood tungsten-halogen bulbs are the most efficient at producing near IR, which is the most abundant IR in sunlight, and they also produce significant mid IR and some far IR. Far IR is the least abundant in sunlight, but is most often produced in large amounts by sources like ceramic heat emitters, heat pads, and radiant heat panels. Tungsten-halogen bulbs

should be the flood type to ensure a wide enough basking site. These heat producing bulbs can be found as reptile specific bulbs or at hardware stores. Avoid hot rocks as these can easily burn reptiles.

## Humidity

Russian tortoises require a moderate humidity level of 40-50%. Dig boxes or burrows should be available to provide humid microclimates. Daily misting can help maintain humidity in an indoor enclosure. Outdoors, burrows may need to be occasionally misted as well if the weather is dry. Freely available water also aids in maintaining hydration.

## Feeding

Russian tortoises are grazers, consuming high fiber and low protein food. When housed outside, they will eat virtually whatever is in the yard so all plants should be pesticide free. A variety of forage can be planted for outdoor dwelling tortoises to increase dietary variety. Russian tortoises prefer broad leaf forage, and dandelions are known to be a favorite of this species. Occasional produce can still be offered with vitamin and mineral supplementation. It has been noted that Russian tortoises show preferences for yellow and red food. It has been noted that Russian tortoises that consume grasses and weeds as at least 80% of their diet are significantly less likely to have shell growth abnormalities.

For tortoises housed indoors, they should be fed staple foods daily, occasional foods 3-4x per week, and rare foods no more than 1-2x per week. A commercial tortoise diet should also be provided approximately 2x per week. Mazuri is a good brand for tortoise food. Reproductively active females and hatchlings should be supplied with calcium daily, and juveniles should receive calcium supplementation 3-4x/week. Adults should be supplemented 1-2x/week. A calcium carbonate based calcium powder with no phosphorus should be used. Additionally, a multivitamin supplement with vitamin A should be provided weekly for adults and 2x/week for juveniles. Repashy SuperVeggie is a good multivitamin for tortoises. If you are providing adequate UVB, calcium powder does not need to contain D3. Arcadia, Repashy, and ZooMed all have good products. Follow your brand's recommendations to avoid overdosing.

Staple: Endive, escarole, mustard greens, dandelion greens, arugula, clover, mulberry leaves, hibiscus leaves, squash, and cactus pads. Grasses and clovers from your garden are excellent food options for tortoises, as long as they are pesticide free. Grass hay or soaked compressed grass hay pellets can also be offered.

Occasional: Alfalfa sprouts, cilantro, pumpkin, peppers, wheat grass, cucumber, rosemary, celery, zucchini, romaine, cabbage, hibiscus, dandelion flowers, rose petals.

Rare: Blackberries, strawberries, melon, banana, beets, broccoli, apples, corn, carrots, mulberries.

Do not feed rhubarb, garlic, avocado, or onion. Iceberg lettuce is very low in nutritional value and should be avoided in excess. Kale and spinach are high in oxalates and can interfere with calcium absorption.

## Water

A shallow water dish large enough to fit the tortoise should always be available. The water should be deep enough to cover up to their elbows. Tortoises often defecate while they soak so water will need to be changed and bowls disinfected regularly.

## Sexing

A tortoise must be at least 4 inches for sexing to be accurate. Females tend to be larger than males and have shorter tails, with their cloaca (vent) closer to the shell. Males have longer tails with a tip on the end called a spur, and their cloaca is much closer to the tip of the tail.

## Zoonosis

Like other reptiles, Russian tortoises can carry *Salmonella*. Always wash your hands after handling reptiles or items from their enclosure.

## Health

Russian tortoises may be prone to malnutrition (especially vitamin A deficiency), beak overgrowth, nutritional-secondary hyperparathyroidism (metabolic bone disease), reproductive problems, beak overgrowth, and respiratory disease. Since many specimens are wild caught, Russian tortoises also may carry viral diseases and/or parasites. A tortoise's shell should be smooth and uniform. Uneven shell growth is a sign of disease. Your Russian tortoise should be examined by your veterinarian every 6-12 months. Russian tortoises naturally brumate (hibernate) over winter, but ill tortoises should never be brumated as this can be deadly.

Sources and Further Reading:

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