Red/Yellow-Footed Tortoises

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Natural History

Red-footed (*Chelonoidis carbonarius*) and yellow-footed (*C. denticulata*) tortoises are popular pet tortoises native to South America. They live in diverse habitats including savannahs, forest edges, and tropical forests. *Chelonoidis* species may be found in areas of Brazil, Argentina, Chile, Paraguay, Bolivia, Venezuela, and other countries around the Amazon basin. Variants exist, with slightly different colors and patterns. Due to their popularity in the pet trade, red-footed tortoises were over-harvested in their native environment. They are now protected, but illegal harvesting still occurs.

Characteristics and Behavior

Like other chelonians, red-footed tortoises generally do not enjoy handling. However, they are hardy, curious, and relatively active animals, making them appealing in the pet trade. Red-footed tortoises are considered a “beginner” tortoises species, although their spatial and dietary needs can be difficult for a newer keeper to meet. Tortoises are long-lived and need a lot of floor space, so they are best suited for a committed, intermediate level keeper. These species do not brumate (hibernate) during the winter but may experience a slight decrease in activity.

Yellow-footed tortoises tend to be not quite as hardy and require more stable temperatures. The distinction between the two species isn’t as simple as the scale color on their legs, as both species can have color variations. Some distinguishing characteristics are that older male red-foots tend to have an hourglass shape, and yellow-foots have longer scales on their head near their noses.

Lifespan

50+ years.

Adult Size

Red-foots generally average around 12 inches, but can reach up to 20 inches.
Yellow-foots generally average around 15-16 inches, but have been recorded up to 37 inches.

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 red-foot tortoise would need ~120”x60”x36” and a yellow-foot would need ~192”x80”x48” 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 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. If night temperatures drop below 65F, supplemental heating will be needed. Tortoises not housed outdoors should be taken outside regularly.

Lighting

Like all chelonians, red and yellow-footed 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.

Red and yellow-footed tortoises need a basking spot of 85-90F, 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.

These species do not brumate!

Humidity

Originating from the Amazon basin, both of these species are humidity loving. Humidity should be maintained at 60-80%, and measured with a digital hygrometer. A deep layer of humidity holding substrate is helpful for tortoises housed indoors. Tortoises housed outdoors will benefit from the humid microclimate of burrows.

Feeding

Red and yellow-foots are omnivores, although they primarily eat plant material. In the wild, these species are primarily grazers, but do scavenge carrion. This is distinct from other tortoise species, which are generally herbivorous. Variety is important for preventing nutritional deficiencies and providing enrichment. In the wild, these animals consume grasses, weeds, fruits, fungi, flowers, and invertebrate prey. In captivity, their diet should be 75% leafy greens, 15% vegetables, 5% fruits and flowers, 5% commercial tortoise diet, and animal protein only once per week. Do not overfeed animal protein, and avoid cat or dog food to prevent overly high protein levels. Feed juveniles daily and adults every other day. Tortoises housed outdoors will graze on grasses and weeds, so ensure that any accessible areas are pesticide free.

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.

Leafy greens: Turnip greens, mustard greens, endive, escarole, kale, radish greens, carrot tops, arugula, romaine, collard greens, cilantro, dandelion greens.

Vegetables: Squash, sweet potatoes, broccoli, asparagus, cactus pad, basil, bell pepper, cucumber, zucchini, celery, prickly pear (with spines shaved off), okra. Carrots are high in sugar and should not be overfed. Avoid garlic, onion, rhubarb.

Fruit: Cactus fruit, mango, papaya, blackberries, strawberries, banana, mulberries, kiwi.

Flowers: Hibiscus, rose petals, dandelions, prickly pear flowers. In general, flowers that are safe for human consumption are safe for tortoises.

Protein: Earthworms, eggs, pinky mice, snails, hornworms, mealworms, calciworms, silkworms.

Water

A water dish large enough to soak in but not submerge should be provided. Tortoises often defecate in their water so thorough disinfection is a must.

Sexing

Sexual maturity is reached around 8-12 years. Males have longer tails and a concave plastron (bottom shell). Males also tend to be larger. The female's cloaca (vent) is also closer to the shell.

Zoonosis

Like other reptiles, red and yellow-footed tortoises can carry *Salmonella*. Always wash your hands after handling reptiles or items from their enclosure.

Health

Red and yellow-footed tortoises may be prone to malnutrition (especially vitamin A deficiency), beak overgrowth, nutritional-secondary hyperparathyroidism (metabolic bone disease), reproductive problems, and respiratory disease. A red or yellow-foot's shell should be smooth, with even scutes (the large scales on the shell). Uneven growth of scutes is called pyramiding and is a sign of improper diet/husbandry.

Sources and further reading:

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