



Introduction to Tortoise Care

Melissa Magnuson, DVM • Alexandra Kilgore, DVM

Cold New England winters limit the tortoise species that can be kept successfully in captivity. Many large tortoise species are not appropriate pets in this region. Smaller species such as the spur-thigh tortoise (often sold as a “Greek” tortoise) and Hermann’s tortoise are generally better choices.

Whenever possible, choose a captive-bred tortoise. Captive-bred animals are typically healthier, more adaptable to captivity, and less stressed than wild-caught tortoises.

With proper care, many tortoises can live 50 years or more, making correct husbandry essential from the beginning. This is an important factor as these pets may need to be willed to other people if they outlive you.



Habitat

The ideal habitat depends on your tortoise’s species and the environment it would naturally inhabit in the wild. Take time to learn about your tortoise’s native climate and terrain and mimic it as closely as possible. The closer the enclosure matches natural conditions, the healthier your tortoise will be.

Enclosure Size

Provide the largest enclosure possible.

- Minimum guideline: 6 times the tortoise’s length in both width and length
- Example: a 6-inch tortoise requires at least a 3 ft × 3 ft enclosure

Appropriate enclosure options include:

- Large plastic storage tubs (excellent for small tortoises)
- Glass aquariums
- Children’s wading pools
- Custom wooden enclosures

Plastic tubs are inexpensive, easy to clean, and safe, especially for young tortoises.

Substrate

Recommended options:

- Newspaper (excellent, inexpensive, and easy to replace daily)
- Artificial grass or “Astroturf”
- Alfalfa (rabbit) pellets

Use caution with:

- Bark mulch
- Potting soil
- Sphagnum moss

These materials can retain moisture and may become moldy if not managed carefully.

Never use:

- ~~X~~ Sand
- ~~X~~ Cat litter
- ~~X~~ Corn cob
- ~~X~~ Walnut shells



Some tortoises ingest these substrates, leading to gastrointestinal impaction, which can be life-threatening.

Remove soiled substrate daily and replace all substrate at least once weekly. Overly damp or soggy environments predispose tortoises to shell rot, skin infections, and respiratory disease.

Shelter and Security

All tortoises require shelter to feel secure and avoid chronic stress.

Appropriate shelters include:

- Wooden hide boxes
- Half logs
- Clay flower pots placed on their sides and partially buried
- Wood box enclosures

Water

Clean water must be available at all times.

- Use a shallow water dish
- The tortoise should be able to drink by tipping its head down
- The water depth should be less than shell height
- Bury shallow dishes so the rim sits just above substrate level, or place very shallow dishes on top of the substrate

Change water daily and clean containers frequently.

Heat and Lighting

Providing the optimal temperature range for thermoregulation is critical for tortoise health. Failure to provide adequate heat is a major contributor to disease in captive tortoises.

Tortoises cannot regulate their body temperature internally and rely entirely on their environment.

Temperature Gradient

- Basking area: ~95°F
- Warm floor area: up to 85°F

- Cool side: no supplemental heat

Use:

- A heat lamp placed at one end of the enclosure
- A heating pad under $\frac{3}{4}$ of the enclosure floor, leaving the remaining $\frac{1}{4}$ unheated

Measure temperatures at:

- Floor level on the warm side
- “Tortoise height” at the basking area
- The cool end of the enclosure

Monitor temperatures at least twice daily. Heating pads should never overheat—use thermostats or temperature alarms for safety.

Turn off heat lamps at night to simulate natural temperature drops.

Lighting and UVB

All tortoises require UVA and UVB lighting to synthesize vitamin D and properly absorb calcium.

- Provide 10–14 hours of light daily
- Never leave white lights on 24 hours a day
- Ensure bulbs produce UVB, not just UVA

UV light is invisible, and bulbs stop producing UV long before they burn out.

- Replace UV bulbs every 6 months
- Date bulbs at installation

Without adequate UVB, tortoises develop metabolic bone disease, leading to fractures and deformities.

Soaking

Soaking is essential for hydration and urinary health.

- Weekly soaking: 30–60 minutes in shallow, warm water
- Tortoises fed dry commercial pellets: daily soaking
- Species from humid regions (red-footed, yellow-footed): soak at least weekly
- Hatchlings, sick tortoises, and rescues: daily soaking
- Dehydrated tortoises passing white, gritty urates may benefit from twice-daily soaks

Water depth should never exceed shell height.

Diet

All tortoises are strict herbivores.

Only feed items you would eat yourself. Wash all foods thoroughly.

Diet Composition

- 80-90% fresh leafy greens and grasses
- 10-20% vegetables
- ≤5%, fruit, not required: optional, very limited treats only

Supplements

- Calcium carbonate: 2–3 times weekly (\approx 1% of food weight)
- Vitamin/mineral supplement with vitamin D3: every 1–2 weeks
- Avoid over-supplementation

Recommended Greens

- Romaine
- Kale
- Collards
- Mustard greens
- Dandelion greens
- Bok choy
- Red or green leaf lettuce
- Butter lettuce
- Watercress
- Escarole
- Parsley
- Turnip greens

Vegetables

- Cabbage, Napa cabbage
- Carrots
- Brussels sprouts
- Sweet potato
- Cauliflower, broccoli
- Green or yellow wax beans
- Radish
- Bell peppers
- Squash
- Peas
- Corn
- Lima beans
- Bean sprouts

Flowers

Edible, pesticide-free flowers may be offered:

- Hibiscus (flowers and leaves)
- Nasturtium
- Rose petals
- Violets
- Geraniums

Fruit (Treats Only)

- Apples, pears, peaches, plums
- Grapes, raisins
- Melons, strawberries, raspberries
- Bananas, mango, kiwi, papaya

Important Dietary Warnings

- Excess broccoli, kale, cabbage, cauliflower, bok choy → thyroid suppression
- Spinach, rhubarb, beets, chard → bind calcium and may cause gout
- Variety is essential
- Start offering all different types of vegetables early on to encourage good nutrition in juveniles



Hibernation

Hibernation is natural and beneficial for some tortoise species, but not all species hibernate.

Species that commonly hibernate:

- Russian tortoises
- Greek (spur-thigh) tortoises
- Marginated tortoises
- Desert tortoises

Before hibernation:

- Schedule a veterinary exam 4–6 weeks in advance
- Typically late August or early September
- Correct health issues prior to hibernation

Your veterinarian will guide you on safe hibernation methods and monitoring.

Exercise

Tortoises love to travel. Supervised outside of the enclosure time is critical for environment enrichment and exercise. You can also take them outside on days above 70 degrees Fahrenheit. Stay close to them to avoid predators and keep them from straying away. Tortoises should have exercise for at least an hour daily.

Salmonella

All reptiles may carry salmonella, even when healthy.

- Always wash hands after handling
- Supervise children closely
- Immunocompromised individuals are at higher risk

Common Health Concerns

Metabolic Bone Disease (MBD)

Caused by inadequate UVB or calcium. Leads to fractures and deformities.

Shell Rot

Associated with damp environments. Soft or foul-smelling shell areas require immediate veterinary care.

Hypovitaminosis A

Prevented with proper supplementation. Swollen or closed eyes require veterinary evaluation.

Respiratory Infections

Signs include nasal discharge, open-mouth breathing, or mucus. Early treatment improves outcomes.



Preventive Care

- Juveniles: twice-yearly exams
- Adults: yearly exams
- Twice yearly fecal exams
- Bloodwork to assess calcium and phosphorous ratios

Exams include evaluation of:

- Eyes, ears, nose, mouth, and beak
- Shell and limbs
- Cloaca
- Body condition and weight

Reptile medicine continues to evolve, and regular exams ensure your tortoise benefits from the most current care recommendations.





Ferguson Zones: Matching UVB to Your Reptile

Melissa Magnuson, DVM • Alexandra Kilgore, DVM

Zone 1: Crepuscular or Shade Dwellers

Very low UVB exposure

These species spend most of their time in shade, dense cover, or are active at dawn and dusk. They receive little direct sunlight in the wild.

Examples:

- Crested geckos
- Gargoyle geckos
- African fat-tailed geckos
- Corn snakes
- Ball pythons



Key point for owners:

These species still benefit from **low-level UVB**, but excessive UVB can be harmful.

Zone 2: Partial Sun or Occasional Baskers

Low to moderate UVB exposure

These reptiles move between shade and sunlight and bask intermittently rather than continuously.

Examples:

- (juveniles and non-dominant adults often fall here)
- Blue-tongue skinks
- Uromastyx (when not actively basking)
- Green anoles
- Some box turtles



Key point for owners:

UVB should be available, but animals must always have shaded areas to self-regulate exposure.

Zone 3: Open or Partial Sun Baskers

Moderate to high UVB exposure

These reptiles bask regularly and are adapted to brighter environments, but still retreat to shade.

Examples:

- Adult bearded dragons
- Veiled chameleons
- Panther chameleons
- Red-eared sliders and other basking aquatic turtles
- Spiny-tailed lizards

Key point for owners:

These species **require reliable UVB** to remain healthy and are at high risk for metabolic bone disease without it.



Zone 4: Full Sun Baskers

High UVB exposure

These reptiles live in very bright, open environments and bask for prolonged periods under intense sunlight.

Examples:

- Uromastyx species
- Desert tortoises
- Sulcata tortoises
- Rock agamas

Key point for owners:

Strong UVB is essential, but enclosure setup must still allow distance and shade to prevent overexposure.



Important Reminder for Clients

These zones are **general guidelines**, not rigid rules.

Factors that influence UVB needs include:

- Species
- Age
- Behavior
- Enclosure design
- Distance from the bulb
- Screen tops and materials

Always research species-specific needs before acquiring a reptile, and consult a veterinarian experienced in reptile medicine to confirm proper lighting for your individual pet.



Reptile Lighting: Why It Matters

Melissa Magnuson, DVM • Alexandra Kilgore, DVM

Proper lighting is one of the most important parts of reptile care, yet it is also one of the most misunderstood. Inadequate lighting is a leading cause of metabolic bone disease and other serious health problems in reptiles.

This handout explains what ultraviolet (UV) lighting is, why reptiles need it, and how to choose and maintain the correct lighting for your pet.

Understanding UV Light

Ultraviolet (UV) light is radiation that exists beyond the visible light spectrum. It comes in three forms:

- UVA
- UVB
- UVC

Only UVA and UVB are relevant and safe for reptiles.

UVA

- Helps regulate daily biological rhythms and behavior
- Important for normal activity, appetite, and reproduction

UVB (Most Critical)

- Essential for calcium metabolism
- Allows reptiles to properly absorb calcium from their diet
- Prevents metabolic bone disease, a painful and often fatal condition

How UVB Works in the Body

UVB light activates vitamin D precursors in the skin, allowing reptiles to produce vitamin D3 naturally. Vitamin D3 is required for calcium to move from the gut into the bloodstream and into bones.

Research shows that:

- **Naturally produced vitamin D3** (via UVB exposure) is safer and more effective than oral supplementation in diurnal (day-active) reptiles
- **Some nocturnal species**, such as leopard geckos and corn snakes, can also benefit from low-level UVB exposure

Sunlight vs Indoor Lighting

Reptiles living outdoors receive UVB directly from the sun.

However:

- UVB does NOT pass through glass
- Placing a reptile near a window does not provide UVB

Indoor reptiles must be provided with artificial UVB lighting using bulbs specifically designed for reptiles.

Choosing the Right UVB Bulb

High-quality reptile UVB bulbs are essential. Brands commonly recommended include:

- Zoo Med
- Arcadia
- Reptisun

The type and strength of bulb needed depends on the species and natural habitat of your reptile.

Ferguson Zones: Matching UVB to Your Reptile

Reptiles are grouped into **Ferguson Zones** based on how much sunlight they naturally receive in the wild:

- **Zone 1:** Crepuscular or shade dwellers
- **Zone 2:** Partial sun or occasional baskers
- **Zone 3:** Open or partial sun baskers
- **Zone 4:** Full sun baskers

Knowing your reptile's Ferguson Zone helps determine:

- UVB intensity
- Bulb type
- Distance from the basking area

Ask your veterinarian if you are unsure which zone your reptile falls into.

Proper Placement of UVB Lighting

Correct placement is just as important as the bulb itself.

Fluorescent UVB Bulbs

- Reptile should be able to get within 12–18 inches of the bulb
 - Use branches or logs to allow climbing closer if needed
-

Mercury Vapor Bulbs

- Must be placed at least 12 inches from the basking area
- These bulbs produce both heat and UVB and can overheat reptiles if too close

Screen Tops Matter

- Dense screen lids can block up to 50% of UVB
- Enclosures with heavy screening may require stronger bulbs or multiple fixtures

Measuring UVB

- Solar meters can be used to accurately measure UVB output and ensure proper exposure
-

Bulb Replacement Schedule

UVB bulbs must be replaced regularly, even if they still look bright.

- Replace every 6–12 months, depending on the bulb model
 - UVB output declines long before visible light burns out
 - Date bulbs when installed to track replacement timing
-

Key Takeaways for Reptile Owners

- UVB lighting is essential for bone health and calcium metabolism
 - Windows do not provide usable UVB
 - Proper bulb type, placement, and replacement are critical
 - UVB needs vary by species and natural habitat
 - When in doubt, ask your veterinarian for guidance
-

If you need help selecting the correct lighting for your reptile or want your setup reviewed, please contact your veterinary team. Proper lighting is one of the most powerful tools you have to keep your reptile healthy.