

Vivarium

Size

Lizards (terrestrial, tree or burrowing):

The length of the vivarium must be equal to three times the animal's length. For the width: it must represent 2 times the animal's length. The height must be sufficient to avoid the animal from escaping.

Turtles:

The terrestrial tortoise's vivarium must be equal to five times the tortoise's size. For the aquatic turtle, the length must be five times the turtle's length and the width must represent three times the turtle's length.

Snakes (terrestrial, tree and burrowing):

The length of the vivarium must be equal to $\frac{3}{4}$ of the snake body and the width must be $\frac{1}{3}$ of the snake's body. The height must represent half the snake length and for tree snakes, it must equal the snake total length.

Temperature

Heat source:

Reptiles that like to expose themselves to the sun, like bearded dragons and colorful lizards, need a ceramic heat source or an incandescent light and nocturne reptiles like leopard geckos that use heat in a conductive form need a heated plate or a heating light.

Relative humidity:

Low humidity: kidney insufficiency for the green iguana and shedding problems for snakes.

Excessive humidity: Fungal or bacterial dermatitis in snakes and lizards.

Ventilation:

It allows the exchange of stale and contaminated air.

Ventilation should be made in a vertical and horizontal way.

For small vivarium, ventilation is easier to adjust by adjusting the ventilations opening holes at the top of the vivarium. For bigger vivarium, active systems with fans allow better ventilation.

Lights:

The intensity, wavelength of the light and exposition time to the light is very important.

Light acts on the metabolism, reproduction and behavior.

Light consists in infrared (3000 nm-1mm), energy source to heat the reptile's body.

Visible (380-780 nm): responsible for reproduction and ultraviolet UVA: acts on the behaviour.

In captivity, most turtles need UVA and UVB as well as infrared from a fluorescent light.

As for reptiles, generally, they do not need all the rays.

Periodicity:

This depends of the geographic origin of the reptile in question. Southern or northern reptiles need 9-14h of light depending on the season.

Equatorial reptiles need 12h of light and 12h of darkness.

No reptile can tolerate 24h of light it is a stress source.

UVB rays, simply vital

In practice, a lighting and heating system on a timer constitutes the easiest and most effective solution. There are lamps that diffuse heat, light and UVB. These are essential for most reptiles because they allow them to produce vitamin D3. This vitamin ensures the calcium assimilation, for bone development and proper metabolism functioning. Be careful, UVA rays are also important. UVAs are invisible to man, but allow reptiles to recognize their species and food. According to some scientists, without UVA rays, reptiles would like we see through sunglasses. Thanks to UVAs, reptiles see brighter colours which have a beneficial influence on their appetite and reproduction.

Substrate

The substrate is more important for burrowing species than for tree species. No substrate is perfect, recycled paper is still the most recommended with disadvantage of dirtiness. For burrowers, we have to put at least 30 cm of substrate on the bottom of the vivarium.

Comparative chart for substrates

Substrate	Easy to clean?	Easy to replace?	Economic?	Esthetic?	Risk of disease?	Comments
Newspaper	YES	YES	YES	NO	Low	Lead in the ink may cause irritation and get animals dirty
Sand	Partial scooping frequently, complete change less frequently	YES	YES	YES	Risk of intestinal impaction if ingested with food.	-
Astroturf® (artificial grass)	YES	YES	Relatively	YES	Low	Is not suitable for burrowing species
Calcium sand	YES (see sand)	YES	A little bit expensive	Yes but often very colorful	Can discolor skin, unknown calcium absorption	Should not be used as a substitute for a balanced diet
Corn cob	Yes but particles are larger and make stool harder to scoop	YES	Relatively	Relatively	Can hide chiggers and mites, risk of inappropriate ingestion	Not recommended
Wood chips	Yes but particles are larger and make stool harder to scoop	YES	YES	YES	Organic so can hide chiggers and mites, risk of inappropriate ingestion	Aromatic wood chips should not be used, could irritate skin or respiratory ways.
Wood shavings	YES	YES	YES	YES	Like wood chips. Also retain humidity and increases risks of mold.	Not recommended
Bark	Yes, following the particle size	YES	YES	Relatively	See above	
Peatmoss	It is harder to see organic discharge et remove everything	YES	YES	YES	Deep litter systems allow microbes accumulation	Be careful to clean thoroughly
Aquarium gravel	YES	YES	Moderately	Moderately	Can cause mechanical irritation to the skin, risk of inappropriate ingestion	Not a very common natural habitat, easy to disinfect
Cat litter	YES	YES	YES	NO	Clay litter can be very dusty, causing respiratory inflammation, wood based litter as wood shavings, risk of inappropriate ingestion	Not recommended
Earth	Yes but stool can be hard to see and remove entirely	YES	YES	NO	Can bring bacteria, spores and ecto/endoaprasites	Not recommended

Species	Geographic area	Life	Habitat	Optimal T°	Relat. hum.	UVB
Spur-thighed tortoise, Herman's tortoise	Mediterranean sea to Asia	Terrestrial	Temperate	20-28	30-50%	Yes
African spurred tortoise	Subsaharian and Africa	Terrestrial	Semi-arid and desert	25-35	40-75%	Yes
Leopard tortoise	Subsaharian and Africa	Terrestrial	Savannah-semi-arid and desert	25-35	40-75%	Yes
Bell's hingeback tortoise	Western Africa	Terrestrial	Savannah and tropical	24-28	50-80%	Yes
Red-eared terrapin	Central and south America	Semi-aquatic	Temperate	20-24	60-90%	Yes
Red-Footed tortoise	Panama to north of Argentine	Terrestrial	Savannah-prairie and woods	21-27	50-60%	Yes
Yellow-footed tortoise	North and South America	Terrestrial	Tropical	25-27	75-80%	Yes
Green iguana	Latin America	Tree and terrestrial	Tropical	25-35	75-100%	
Asian water dragon	China and Southeast Asia	Tree and semi-aquatic	Tropical	24-30	80-90%	
Bell's dab lizard / uromastyx	North Africa	Terrestrial and burrowing	Desert	32-38	20-50%	
Inland bearded dragon	East of Australia	Terrestrial	Desert	25-35	30-40%	
Leopard gecko	India and Pakistan	Terrestrial and dusk	Semi-arid	25-30	30-40%	Yes, but less important
Veiled chameleon	Yemen	Tree	Semi-arid	21-38	75-80%	Yes
Savannah monitor	West Africa	Terrestrial	Savannah-semi-arid	26-38	20-50%	
Garter Snake	North America	Terrestrial semi-aquatic	Temperate	21-28	50-80%	Non determined
King snake	North America	Terrestrial	Semi-arid - Scrubland	25-30	30-70%	
Corn snake	North America	Terrestrial	Semi-arid-Scrubland	25-30	30-70	?
Common boa	South America	Terrestrial semi-tree	Tropical	28-30	50-80%	?
Emerald tree boa	South America	Tree	Tropical	25-35	60-80%	?
Sand boa	South Europe, Central and Middle east Africa	Burrowing	Desert	25-30	20-30%	?
Royal Python	Central and East Africa	Terrestrial	Scrubland	25-30	50-80%	?
Burmese python	Burma, South of China, Indochina	Terrestrial and semi-tree	Tropical	25-30	50-80%	?