Thai Water Dragon (Physignathus) Basic Husbandry and Care: Habitat, Diet, and Cleaning

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Thai Water Dragons, *Physignathus cocincinus*, are also known as Asian Water Dragons, Chinese Water Dragons, and Green Water Dragons. A related species, *P. lesuerurii*, is often called the Eastern or Australian Water Dragon.

Natural environment

Thai water dragons originate in both the lowland and highland forests of India, southern China, and eastern and southeastern Asia (Thailand, Vietnam, Laos, Cambodia, Burma). They are diurnal (active during the day), largely arboreal (live in trees), and are normally found along the banks of freshwater lakes and streams. If threatened, Thai water dragons drop from the trees into the nearby water and either swim to escape or remain submerged for up to 25 minutes. They generally are not social animals, but live solitary lives. Their diet consists mainly of insects. Water dragons live in areas with an average humidity level of 60-80%, with temperatures ranging from 75-85°F.

Physical characteristics

Male Thai water dragons may reach up to 3 feet in length, and the females are somewhat smaller. The tail makes up almost 2/3 of the length of the animal. They are bright green, with darker areas around the joints and head. There are usually 3-5 light bluish-green stripes running from the underside of the animal to the top of the back. The tail has alternating brown and green irregular stripes, and becomes progressively darker towards its tip. They have long clawed toes that aid them in climbing. The back legs are very muscular and used in climbing, leaping, and swimming. The strong tail provides balance and also helps propel them through the water when they swim. In addition, it may be used as a whip to defend the animal against predators. They have a sticky tongue and small teeth. Water dragons live 10-15 years.

Compared to the female water dragons, mature males are generally larger, brighter in color, and have a bright yellow or orange area on the throat. Adult males usually have larger heads, jowls, and crests on the back and the neck, and have larger femoral pores. They will also develop hemipenal bulges at the base of the tail.

Habitat

Enclosure: Since Thai water dragons are arboreal, vivariums should generally be as high as they are long. They require cages at least as high and as long as two times their length. This means a full-size adult male needs a habitat 6 feet long and 6 feet high, with a width of about 3 feet. Cages should be secure with tight-fitting lids. The sides should be smooth to avoid abrasions of the nose. Wire cages do not retain heat and can also result in foot and nose trauma. Having a proper substrate in the cage (see below), making sure the cage is large enough, and using plastic coated wire mesh can lessen the possibility of injury.

Cages should be simple in design to facilitate cleaning. Cages made of wood must be sealed with polyurethane or a similar waterproofing agent and joints caulked to allow cleaning and disinfection. Fresh polyurethane must be allowed to dry several days and the cage thoroughly aired out prior to placing a reptile in it or toxicity may result.

Water dragons are somewhat notorious for injuring their noses and faces while attempting to get through the glass of vivariums. If this occurs, you may want to try using one-way glass or applying dark colored tape to the outside of the glass on the lower portion of the vivarium. Placing plants along the inside of the glass may also discourage this behavior.

Substrate: The substrate is what lines the bottom of the cage. An ideal substrate is one that is inexpensive, aesthetically pleasing, easily cleaned, absorbent, and digestible if swallowed. Substrate can be flat newspaper, sheets of brown wrapping paper (the kind that comes in rolls), AstroTurf, or indoor/outdoor carpet. Some also recommend mixing 2 parts of peat to one part of sand, although Thai water dragons are messy, and it is difficult to keep this type of substrate clean. Do NOT use cedar shavings, gravel, crushed corn cob, kitty litter, wood shavings, or potting soil that contains vermiculite, pesticides, fertilizer, or wetting agents.

Landscaping and furniture: Branches for climbing and basking under the secondary heat source should be secure. These branches should be of various sizes and not ooze pitch or have a sticky sap; oak works very well. The branches should be as wide as the width of the water dragon. Boards covered with indoor/outdoor carpet also make good climbing posts.

Reptiles like a place where they can hide. This could be an empty cardboard box, cardboard tube, or flower pot. The hiding place should provide a snug fit and several should be provided in different areas of the enclosure, including one up high. You may need to experiment to determine what type and location your water dragon prefers.

Appropriate, nontoxic plants in the enclosure can provide humidity, shade, and a sense of security. They also add an aesthetic quality to the enclosure. Dragon plants (*Dracaena*), *Ficus benjamina*, pothos (*Scindapsus aureus*), staghorn ferns, and hibiscus are good choices. Be sure the plants have not been treated with pesticides and the potting soil does not contain vermiculite, pesticides, fertilizer, or wetting agents. Washing the plant with a water spray and watering it thoroughly several times to the point where water runs out of the bottom of the pot, should help remove toxic chemicals, which may have been used. Keeping

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purchased plants in a different part of the house for a while before putting them in the enclosure will also be helpful. Realize the plants may need to be replaced as the water dragon attempts to eat them or claw through them.

Temperature

Thai water dragons are cold-blooded animals and require supplemental heat for proper digestion. They prefer 84-88°F during the day and temperatures in the high 70's at night. If a reptile is cold, it cannot properly digest its food and is more likely to become ill. Lizards like a temperature gradient so if they are cold, they can move to a warmer part of the cage and vice versa. Place a good quality thermometer in the cage at the level the water dragon spends most of its time so you can monitor the temperature. Placing several thermometers in various areas of the vivarium is optimum.

Primary heat source: A primary heat source is necessary to keep the temperature of the entire cage within the proper range. A series of incandescent lights over the cage is one of the best heat sources. At night, these lights will need to be turned off and another heat source may be needed depending on the ambient temperature. A heating pad placed under the cage, ceramic infrared heat emitters or panels, or more expensive nocturnal reptile incandescent light bulbs that produce heat, but little visible light, can be used. For larger enclosures, a space heater or separate room thermostat can be used to keep the room at the appropriate temperature. Fire alarms should be placed in rooms where lights or other heat sources are used.

Secondary heat source: A secondary heat source creates more heat in specific areas of the cage to provide a temperature gradient. To best supply this gradient, the secondary heat source should cover only 25-30% of the surface of the enclosure. For adults, the secondary heat source could be a 30-75 watt incandescent bulb in a ceramic base, securely mounted where the animal cannot touch it. There are also special 'basking lights' available. Either type of light should shine down on a particular basking area from outside the cage. The temperature under the light in the area in which the Thai water dragon would be basking should be 90-95°F. Hatchlings housed in smaller aquariums will require lights of lower wattage, or the aquarium temperature may become too warm very quickly. DO NOT USE HOT ROCKS AS HEAT SOURCES.

Light

Visible white light: In addition to heat, incandescent bulbs also provide visible white light. A combination of fluorescent and incandescent light fixtures can be used to provide visible light to all areas of the enclosure. Thai water dragons are diurnal, needing a definite photoperiod simulating day and night.

Ultraviolet light: In addition to heat and white light, Thai water dragons must have access to natural sunlight for good health. This is because they need a certain spectrum of ultraviolet (UV) light called UVB. UVB is necessary for the water dragon to make Vitamin D. No artificial light is as good as sun in providing UVB, so when the outside temperature on a sunny day is over 70°F, place your water dragon outside in a secure screen or wire cage with a locking door. Provide some shade and a hiding place within the enclosure. UV rays do not penetrate window glass, so Thai water dragons placed near a sunny window will not receive UV light.

If a water dragon does not have access to bright sunlight, special lights are used to provide the UVB light. These black lights for reptiles are NOT the black light tubes used for lighting fluorescent minerals, posters, and psychedelic paraphernalia (often called BLB lights). Fish/aquarium and plant 'grow' lights, either incandescent or fluorescent, do NOT produce UVB. You need a black light that emits light in the 290-320 nanometer range. Lights producing only UVB, and lights that produce a combination of UVB and white lights are available. Zoo Med's reptile or iguana lights, and Durotest's Vita-Lite are two good products. These UVB light sources should be replaced every six months. There are certain mercury halide lamps that can also be used to provide UVB as well as heat. These are more expensive but longer lasting, and should be replaced every two years.

Glass cages, even those with a screen top, should NEVER be used when providing access to natural sunlight. Glass cages will trap heat and can cause fatally high temperatures.

Remember that UV light cannot penetrate glass, so when overhead UVB light sources are used, the top of the enclosure must be a wire mesh that is not too fine. It is recommended that a fluorescent UVB light source should be less than 18 inches from where the water dragon spends most of its time; 10-12 inches is optimal. Mercury halide sources can be up to 3 feet away. The areas illuminated by the incandescent basking light and the UV light should overlap. If the water dragon spends almost all his time basking under the incandescent light, and the UV light is at the other end of the cage, he is not going to receive any benefit from it.

Second to the sun, the best light source is a combination of visible light from fluorescent or incandescent lights, and UVB light from special reptile lights or combination lights.

Water and humidity

Thai water dragons require high humidity and a constant access to water. A large container of water (e.g., storage tub or cat litter box) should be provided. Be sure the

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water dragon is able to get in and out of the container easily. You will need to clean the container and replace the water regularly, since the water dragon may urinate or defecate in the water. Some elaborate systems have included plumbing a sink or pool in the enclosure.

To aid in maintaining high humidity (60-80%), multiple techniques can be used including misting, the incorporation of water falls, and drip systems. For more information, see our article Humidity: Monitoring and Control.

Hygiene

The cage and food and water bowls should be cleaned routinely with a 1:10 dilution of household bleach. Rinse the items well after cleaning. Thai water dragons can harbor the bacteria *Salmonella.* Be sure to wash your hands after handling the dragon or the cage and furnishings. Detailed instructions on how to clean a cage can be found at Cleaning Reptile Cages.

Diet

Being insectivores, the diet of Thai water dragons should consist of a variety of gut-loaded insects, primarily crickets and mealworms. Larger water dragons may also be fed earthworms and pinkie mice. An occasional waxworm can be offered, but since they are high in fat, they should be limited to avoid the development of obesity.

Small, freshly molted insects are easier for a water dragon to digest. Feeder insects should be coated with a calcium supplement (powdered calcium carbonate or calcium gluconate) prior to feeding them to the dragon. The insects should also be "gut-loaded," which means the insects are fed nutritious, vitamin-rich, high calcium foods before they are given to the dragon. Good foods to feed the insects include ground legumes, corn meal, carrots, sweet potatoes, collard greens, mustard greens, broccoli, spinach, apples, oranges, cereals, and rolled oats. There are also commercial products rich in calcium and vitamins which can be fed to the insects. Insects may be purchased or wild-caught (without the use of pesticides).

In addition to insects, a finely chopped mixture of dark leafy greens (mustard, kale, collard, escarole, dandelion), green beans, orange-colored squash, and fruits such as apples, strawberries, cantaloupe, and bananas should be provided. This, too, can be supplemented with a calcium supplement. Use a reptile multivitamin according to manufacturer's recommendations, as well.

Juvenile water dragons are generally fed daily, while nonbreeding adults are fed every 3 days.

If you have more than one...

Although not naturally social, water dragons can be kept together if they have a large enough enclosure. If you are intending to have more than one in the same enclosure, it is generally best to have a male-female pair. Some animals of both sexes can intimidate others of their own sex, restricting their access to food and basking areas. If you are adding a new water dragon to your collection, remember to have the new animal checked by a veterinarian, have a fecal exam performed, and quarantine the animal several weeks before introducing the animals to each other.

Temperament and handling

Start handling the water dragon at an early age. Take it slow – offer food from your hand, and repeat this several times a day. When the water dragon accepts food regularly, you can start handling it. Give your dragon regular attention and be consistent in how you handle it. Use two hands to pick up the water dragon, supporting its chest and pelvic area. Gently cup the animal with your hand: the water dragon would rather hold on to you than have you hold on to it. Do NOT pick up a water dragon by the tail.

Reproduction

Pet Thai water dragons usually reach sexual maturity between three and five years of age, although size is also a determining factor. Many water dragons may reach 16 inches by 2 years of age and be able to breed. After mating, the female will dig a deep hole in sandy substrate and deposit 8-12 eggs. Most commonly, breeders will remove the eggs and incubate them in damp sandy soil at 82-86°F. They will hatch within 60-101 days depending upon the temperature. Hatchlings are 5-6 inches in total length, with all but one inch being tail.

Common medical conditions

The most common medical conditions affecting Thai water dragons are often due to inappropriate diet or husbandry, and include:

- Metabolic bone disease (secondary nutritional hyperparathyroidism) due to insufficient calcium in the diet and lack

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of UVB light.

- Abrasions of the nose and face from too small of an enclosure and attempting to get through the glass of the vivarium.
- Obesity from overfeeding.
- Abscesses from injuries, overcrowding, and/or poor hygiene.

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