

AN OVERVIEW OF PET REPTILE SPECIES AND PROPER HANDLING

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Reptiles are a successful group of ectothermic, scaled vertebrates that are present on all continents except Antarctica. Taxonomic debates are ongoing and new reptile species are discovered every year, but it is a reasonable estimate that there are over 7,500 extant species of reptiles, among which roughly 4,500 are lizards, 3,000 are snakes, 300 are turtles, 23 are crocodilians, and 2 species of tuataras. The world being what it is, with the dwindling of habitats and the increasing encroachment of humans on the remaining wilderness, there are numerous species of reptiles that are threatened or endangered, often critically. In Texas alone, over 20 species of reptiles are listed as threatened or endangered. Most native reptiles in the United States are declining, some rapidly.

In situ and captive propagation and head-starting programs for endangered reptiles have led to a better understanding of various aspects of their biology and health, and to improvements in captive survivability. Veterinarians often consult on reptile research and conservation efforts. Zoological institutions often display a number of native and/or exotic reptiles, and in many cities, private herpetariums are also open to the public. People attending reptile shows or visiting pet shops may be easily convinced to adopt a pet reptile. Kids are often fascinated by a garter snake or box turtle found around the yard and will often choose to “adopt” the unfortunate wild reptile, not knowing about the state or federal laws that may prohibit the collection of these animals from the wild.

Reptiles have some attributes that would make them good pets: they are quiet, require relatively little space compared with a dog a cat or even a bird, and many species have a long lifespan. They represent an alternative to people who suffer from allergies to hair on dander. Some turtles and lizards can recognize their owners, but obviously no reptile is as interactive as a dog or a cat. Many reptiles, snakes in particular, view their “owner” simply as a good heat source and a provider of food (or even as food!).

Reptiles are often sold in pet shops or reptile shows as being “easy to care for”, with little effort. This is never true. The health of the reptile is entirely dependent on the quality of husbandry and nutrition. Reptile owners are the sole providers for these animals. Each species comes with an optimal, or preferred, temperature range for which it has evolved and within which digestive, respiratory, immune, and other functions are designed to work. They also have developed feeding strategies that may not be easily mimicked in captivity. Very young or baby reptiles are often more colorful than adults and are particularly attractive to the shopper, but their needs are even more difficult to meet than those of adults or juvenile animals.

Many reptiles are still caught from the wild, and shipped to distributors who then supply pet stores. For one animal that makes it through that journey, many if not most, will die. Sometimes whole shipments are lost. Wild-caught animals are often fractious and do not adapt well to captivity. They come with a parasite burden that may well become overbearing with the stress and the confinement of captivity. Not only does buying a captive-bred reptile help discourage the wild-caught trade, but captive-bred animals are better-adapted, accept handling much better, are less finicky eaters, have fewer parasites, and live longer and healthier lives as a rule than wild-caught specimens. It is incumbent upon us to advise potential reptile owners to seek captive-bred animals. Some animals are sold under misleading appellations, such as “farm-raised” or “captive-raised” reptiles, which may only mean that they were maintained captive (for weeks to months) after being caught in the wild. Potential owners need be aware of such misleading sales pitch.

All this being said, reptiles are fascinating animals, and kids and adults alike may learn a lot from simply observing them. Many owners put in a lot of work in creating as realistic a captive environment as possible, and there is an incredible array of sophisticated reptile enclosures, furniture, and heating and lighting fixtures available in pet shops or on-line.

Herpetoculturists, zookeepers, and serious hobbyists usually refer to reptile species by their scientific names. This is due in part to the fact that there often are several vernacular names for the same reptile species, making things confusing. For example, the monkey-tailed skink, the prehensile-tailed skink, and the Solomon Islands skink all refer to *Corucia zebrata*, and red-tailed boas are one and the same as boa constrictors (*Boa constrictor*). The Russian tortoise (*Agrionemys horsfieldi*) is also called the steppe tortoise or Horsfield’s tortoise. This can be confusing to owners and veterinarians alike. It is often easier to find information on a specimen using its Latin name, rather than looking up all the different English names it has been given.

Some reptiles are encountered frequently in the pet trade, and should be readily identified by veterinarians. The following lists the orders of reptiles, and within each order the species most likely to be encountered as pets, with notes on the attributes of these different species.

ORDER RHYNCHOCEPHALIA: THE TUATARAS

Tuataras are very primitive reptiles, living dinosaurs, found in northern coastal New Zealand and surrounding islands. They externally look a lot like an agamid lizard. They are especially well adapted to living in the cold. They have a functional third eye, equipped with a lens and a retina that feeds information to the pineal gland.

Tuataras are jealously protected by the New Zealand government, and there are very few in captivity. The St. Louis Zoo and the Dallas Zoos are two of the rare institutions outside New Zealand where you can see several specimens on display. Tuataras are not found as pets.

ORDER CROCODYLIA: THE CROCODILIANS

The crocodilians include all crocodiles, the Chinese and American alligators, the caimans, the gharial, and the false-gharial. Alligators, as well as Nile and saltwater crocodiles, are raised on farms in the United States, Africa, and Australia for their skin and meat. These farms adopt a herd or population medicine attitude and are looking at production and profit as the main outcomes. Disease outbreaks may be devastating for such operations and veterinarians play a major role as consultants for these farms.

Crocodilians are NEVER a good idea for a pet, and city ordinances and state or federal laws usually preclude ownership of these animals. Sometimes, however, pet alligators and caimans are brought in by their owner for medical advice. Caimans are small crocodilians from Central and South America. Alligators are channeled to the pet trade at a very young age, where they are more colorful and easily handled. Alligators can grow to 10 feet and longer within several years, and while caimans remain smaller, they can deliver a powerful bite resulting in a major injury. Both can lash their tails in an aggressive or defensive gesture, with the potential for injury to owners. Both require large, preferably heated pools of water and large out-of-water surfaces. While they are relatively easy to feed, the fish and meat offered to these animals, along with the voluminous solid waste, makes it very difficult to keep these animals' water clean and results in water quality that is very hard to maintain. Nevertheless, baby alligators are still sometimes sold in Wisconsin and in Illinois (and other states) at animal swaps and auctions. Caimans are nowadays fortunately very rare.

ORDER CHELONIA: THE TURTLES AND TORTOISES

Chelonians consist of the aquatic turtles and the terrestrial tortoises. In the pet trade, the most common species of turtle available in pet shops is the red-eared slider, a turtle that originates from the southeastern United States. Again, these turtles are sold as little 4-inch or more bright green babies and owners are not necessarily aware that they will quickly outgrow the small tanks they are provided with. Some pet stores still tell owners that reptiles do not grow if you keep them in small enclosures, a ludicrous myth that has long been dispelled. Sliders are mostly carnivorous/insectivorous when young, and then gradually become herbivorous with adulthood.

Box turtles are also commonly kept as pets. They are terrestrial, small and docile, but can be finicky eaters and undergo fasting periods that will worry their owners. Pet stores often sell baby or young tortoises. Leopard tortoises and spurred tortoises, originally from Africa, and red-legged tortoises from South America are commonly seen. In recent years, Russian tortoises, a smaller species from Asia, have become very popular. If sold very young, they are fragile and may be very difficult to feed. While Russian tortoises do not become very big, leopard and spurred tortoises can reach a very

large size if kept well and fed properly. Occasionally, more exotic turtles will be found in the pet trade. Malayan box turtles (which are aquatic as opposed to the typical North American box turtle species), softshell turtles, painted turtles, diamondback terrapins, and even the odd side-necked turtle will make it to a local pet shop. People often adopt painted turtle or even snapping turtle hatchlings that they find near their house. In the southern United States, people will adopt box turtles, cooters, map turtles, gopher and desert tortoises, and others.

ORDER SQUAMATA, SUBORDER OPHIDIA (SERPENTES), THE SNAKES

Venomous snakes should NEVER be kept as pets. This seems like an easily grasped concept, but these animals appeal to a fraction of the population, such as herpetoculturists and even some macho hobbyists. Cobras, vipers, adders, rattlesnakes, mambas, taipans, boomslangs, kraits, and coral snakes, to mention a few, carry a very potent venom, and some of these snakes are extremely fast and agile. These animals should be in zoological collections and should be handled strictly by professional, experienced handlers.

Common pet snakes include boa constrictors, ball and Burmese pythons, corn snakes, kingsnakes, and milksnakes. Red-tailed boas are typically docile and can be handled, and are better at tolerating suboptimal husbandry than many other snakes. They will reach substantial sizes, up to 15 feet or more. Rosy boas and sand boas also tend to be docile, but are harder to find. Other species of boas (rainbow boas, tree boas) tend to be more fractious. Ball pythons, also called royal pythons, are the most docile of all boids, and their small size makes them ideal for the terrarium. They roll up in a ball, with their head protected in the middle, when they feel threatened, hence their name. They are still being imported, and the buyer should pay the extra few bucks for the captive-bred specimens as wild-caught individuals are notoriously fastidious eaters. Captive-bred specimens come in all sorts of beautiful colors and patterns. Ball pythons require well-heated terrariums and a hiding box to retreat in. Burmese pythons are relatively tame and rarely strike, but they can reach gigantic dimensions, and are especially sensitive to temperature changes and prone to pneumonia. All other pythons (rock python, blood python, scrub python, carpet python, etc.) tend to be more fractious, especially reticulated pythons (the largest snake in the world), although the odd individuals of these species may be handleable. Anacondas are aquatic boas that may reach impressive length and girth. They are fractious and difficult to handle, but sometimes find their way in the pet trade. Frequent handling of any snake will make them more docile. Corn snakes, kingsnakes, and milksnakes are also good choices. Kingsnakes practically never bite. They are called kingsnakes because they often feed on other snakes in the wild (ophiophagous). The various species, subspecies, and color morphs of these colubrids offer something for all tastes.

ORDER SQUAMATA, SUBORDER SAURIA (OR LACERTILIA)

The Iguanidae is a large family of New World lizards that includes the many species of iguanas, the basilisks, the anoles, the collared lizards, horned toads, chuckwallas, fence lizards, swifts, and many others. The sister family in the Old World is the Agamidae, and certain agamids such as the Chinese (or green) water dragon bear a striking external resemblance to iguanas. The Chamaeleonidae is mostly confined to Africa and Madagascar, as a single species makes it to southern Europe and east to India. The Geckonidae consists of the roughly 1,000 species of geckos, found on all continents. It is the largest family within the class Reptilia after the Colubridae. The Scincidae is also a large family of elongated, short-limbed lizards called skinks, also found on all continents. The Varanidae is a family of Old World, powerful, carnivorous lizard called monitors or monitor lizards, with a forked tongue that is being constantly flicked as in snakes. Monitors bear a resemblance to their New World counterparts, the tegus in the family Teiidae. Sometimes, lizards belonging to other families will be found on the pet market: plated lizards (Gerrhosauridae), sungazers (Cordylidae), and lacertas, and wall lizards (Lacertidae) are good examples. The two only venomous species of lizards, the Gila monster and the beaded lizard, are rarely seen in private practice but are common in zoological collections.

The green iguana is a common pet lizard. It is a big lizard species, and an adult iguana can deliver a powerful bite and a painful tail whip, although many owners have an excellent rapport with their iguanas. Adult male can become aggressive towards their owner. Green iguanas are very susceptible to metabolic bone disease (MBD) and it is difficult to adequately recreate the folivorous diet they consume in the wild. They are imported en masse from Central American farms where they are bred and raised.

Anoles are active, small lizards that communicate through quick flashing motions of their colorful gular flap. Some anole species, such as the green anole, can change color so that the anoles are sometimes called American chameleons. Basilisks are flighty iguanid lizards that do not tolerate captivity well, and therefore do not make good pets. Collared lizards and swifts are smallish lizards from the Southwest American deserts that are often found in pet shops, and are popular because of their small size and bright colors.

Slowly supplanting the green iguana in popularity is the inland bearded dragon, an agamid lizard originally from the Australian continent. Bearded dragons are now bred commercially and more than 50,000 babies hit the market in the United States every year. They are found in practically every pet shop. They are incredibly docile and placid, and will allow children to carry them around or dress them up. They will accept a variety of food items, and they do not reach the large size of mature iguanas. The odd dragon is a finicky eater, but in general they eat well and are less prone to MBD than iguanas.

Water dragons are beautiful lizards but are quite high strung and flighty, and do better if provided with a large terrarium equipped with a pool. Uromastyx lizards are active, inquisitive agamids from arid African regions. They require hot basking areas.

As a rule, chameleons are very hard to keep in captivity. They are easily stressed and do not tolerate frequent handling. They can only be kept as single individuals, and will usually only feed on live insects. Among chameleons, only the veiled (or Yemenese) and Jackson's chameleons are successfully bred in captivity with any regularity, although occasionally captive-bred panther or other chameleon species are available. The purchase of a chameleon other than a veiled or a Jackson's serves to encourage the wild-caught reptile pet trade. Veiled chameleons are a fairly large and colorful species, and are the only chameleons that will sometimes consume fruits and/or diced vegetables. They are more tolerant of neglect and are not as fragile as the other species and are the preferred choice for anyone contemplating getting a chameleon. All chameleons require dripping water for drinking and do not drink from water bowls.

Geckoes are sold in most pet shops. Some species of geckos are also captive-bred and produced in large numbers every year. A good example is the leopard gecko, originally from the Middle East. These lizards are fairly large by gecko standards, and are quite docile. Other captive-bred geckos such as day geckos, crested geckos, and African fat-tailed geckos are increasingly available in the pet trade. Geckos such as leaf-tailed geckos are also striking and beautiful, but are usually imported wild-caught specimens and are often amazingly fragile, dying within a few weeks of purchase. Most gecko species are nocturnal, and hide or sleep during the day and therefore, unless you suffer from insomnia, they may not be the most entertaining animals to watch. Some species such as tokay geckos have quite the attitude and are not handleable. Geckos may chose to lose their tails if scared or handled roughly (tail autotomy).

Skinks are flighty and would rather not be handled. Many are fossorial and require a substrate they can burrow in. Many can autotomize their tails. The aptly named blue-tongued skink from Australia is probably the most docile and more easily handled.

Monitors are fractious lizards, and their large size makes them dangerous pets. Savannah monitors are the exception, as they tend to be more docile and handleable, and only reach modest size by monitor lizard standards. Tegus have a well-earned reputation of being rather aggressive lizards. Monitors and tegus are active hunters in the wild that spend a lot of time in search of food. Both (especially tegus) have a tendency to become morbidly fat in captivity.

Veterinarians may see other reptiles in their practice, and a good reference text book on the various species of reptiles, with basic housing, feeding, humidity, and temperature requirements, is a must for the reptile clinician.

HANDLING

Handling of pet reptiles can be very easy, as for a bearded dragon, or difficult, as in a pet alligator or Nile monitor. A knowledge of the reputation of reptile species is useful, but even the odd ball pythons or corn snakes, both typically known as mellow species, may strike. It is always best is to use caution.

Crocodilians. Larger individuals require chemical immobilization for safe handling. Caimans and younger alligators may be handled with a pole, gloves, towels, or any combination thereof. A grasp over the shoulders with one hand and over the pelvis with the other hand can be achieved with restraint of the tail between your upper arm and body. The mouth is kept closed with tape.

Chelonians. Handling of chelonians is rather straightforward. Tortoises tend to be shy and pull their head back rather than bite, but turtles may deliver a nasty bite. Snapping turtles and softshells are particularly pugnacious. Softshell turtles have a surprisingly long neck that can reach the hands of a handler holding on to the caudal bridges. Chelonians have a urinary bladder and may void urine, especially if handled roughly or carelessly. This is undesirable in a dehydrated animal as, in chelonians, the urine in the bladder is a form of reservoir for fluids and electrolytes.

Snakes. Venomous snake handling should be left to experts. Snake hooks, snake thongs, and snake tubes are useful in handling fractious non-venomous snakes. The aim is to achieve control of the head, then the body. Care must be taken not to put undue torque or stress to the atlanto-occipital joint, as it is the weakest part of the snake's skeleton and may snap. Control of the head and neck can be achieved with one hand, or the head may be controlled at the neck, just behind the head. Never

handle a large boid alone: one person per 3 feet of snake is a good rule of thumb. Docile snakes should be handled gently, with the forearm acting as support for the body. Even docile snakes resent handling and examination of the head.

Lizards. A towel, with or without handling gloves, may be used for the handling of large and/or fractious iguanas. Even small iguanas have sharp nails that will scratch the handler's forearms if he or she is not wearing long sleeves. A two-handed grasp, over the shoulder and pelvis, with the tail secured under the handler's armpit works well. Tame iguanas may be handled on the handler's chest, or over the forearm extended in such a manner as to provide a perch. Monitors and tegus are restrained in a similar way, but gloves and larger towels/blanket or plexiglass shields may be useful to achieve such a grasp. Lizards may be extremely fast, and the potential for escape should not be underestimated. Some species of lizard, especially geckoes, may lose their tail if grasped. Some species, like the tokay, may even lose the tail if alarmed. The discarded piece of tail wiggling on the floor of the examination room may be disconcerting/upsetting to the client, especially the unwarned client. Finally, chameleons are better handled if allowed to grasp a branch or twig, or coaxed to climb on to the examiner's hand and arm. Grasping a chameleon from a branch may result in trauma to the digits, nails, and ribs. It will also cause the lizard to flail all limbs and undue stress. Very small species or specimens of lizards are coaxed in a small transparent container or bag, through which they can be examined using magnifying loupes and a transilluminator head.