Introduction

Various species of water turtles are kept as pets in the United States. Most of those purchased by hobbyists originate from the southern and eastern regions of the U.S. By law, imported turtles of most species must be at least 4 inches long. The trade in exotic turtles has been increasing in recent years, especially in countries with poor animal protection laws and abundant turtle populations.

Turtles inhabit all parts of the world with a temperate to warm climate and are especially abundant in the tropics and subtropics. Water turtles are found in a wide variety of habitats, including ponds, swamps, small pools thick with vegetation, lakes of all sizes, large streams and rivers.

All water turtles share some obvious physical characteristics, such as a top and bottom shell and webbed feet. Many have developed specific adaptations to cope with specific environmental conditions. The Diamondback Terrapin, for example, is confined in its geographic distribution to the brackish water of the coastal eastern U.S. (brackish
water has a salt content between that of fresh and sea water). The Malaysian Snail-Eating Turtle survives well in its environment on a diet of mainly snails.

The Mata Mata is an unusual looking turtle that resembles the rotting vegetation found on the bottoms of the relatively shallow lakes and rivers in which it lives. It is a poor swimmer and rarely leaves its aquatic habitat, except to lay eggs. The Mata Mata rests motionless on the bottom, well camouflaged among the decomposing vegetation, and lies in wait for its prey. The turtle can breathe during these long intervals through a long, narrow nose (similar to a snorkel), the end of which just breaks the surface of the water. When a small fish or other prey animal swims by, the Mata Mata opens its mouth and sucks its prey in, all in a split second.

The juvenile Alligator Snapping Turtle’s olive green-brown color camouflages it well against the bottoms of rivers in which it lives. To attract prey within striking distance, it opens its mouth and wiggles its unique bright pink, slender tongue. As a small fish moves in for a closer look, it is quickly trapped in the turtle’s jaws. The adult Alligator Snapping Turtle, the largest freshwater turtle in the world, can reach 200 pounds or more, and can eat an entire duck in one gulp!

Hobbyists should study and thoroughly familiarize themselves with the natural history and habits of any turtle species they intend to acquire before they select their new pet. This “homework” helps ensure the turtle will thrive in captivity.
Husbandry

Housing

The type and size of enclosure used depends upon the species, number and size of the water turtles to be housed. Hatchlings can be kept indoors in a small aquarium. Older or larger specimens require a large aquarium or an outdoor pond (cement or plastic-lined).

Careful attention must be paid to filtration systems, cleaning requirements, and ease of draining water from ponds used to house water turtles. Rigid molded plastic swimming pools for children are also suitable for housing water turtles, provided they are adequately equipped with a filtration system and means to replenish the water.

Any enclosure should provide adequate room for swimming and sufficient dry area for resting and sunning. Providing a dry, nonsubmerged area is very important. Water turtles, especially juveniles, can become exhausted and drown when no such dry area is provided. Very small water turtles can be provided with a piece of partially submerged wood or cork bark onto which they can crawl for basking or under which they can hide. Larger and heavier water turtles require a more solid and immovable basking area on which to completely crawl out of the water and rest.

A platform of flat rocks or bricks can be fashioned or a ribbed wooden platform, the surface of which rests just above the water’s surface, can be provided for basking. Any wooden platform must have a substantially weighted base so it does not topple over. Driftwood, provided it is well anchored, can also be used for resting and basking, and is a visually appealing addition to an enclosure.

If an aquarium is used to house a water turtle, one end can be used for a basking area. A pane of glass can be inserted into the aquarium to divide it. About two-thirds of the available area can be allocated for swimming and about one-third of the area for basking. Gravel can be used to fill the basking side. Green plants can also be planted or placed in this area if desired. A small ramp made of wood or plastic can be attached to the dividing pane of glass to allow the turtle easy access to the basking area. This area is also advantageous for breeding female turtles because it gives them a suitable area for laying their eggs.

The bottom covering for the enclosure must be carefully selected for the species being housed, and must be non-toxic and non-abrasive.
Soft-shelled turtles (family Trionychidae) like to burrow and require very fine sand at a depth that allows near total covering of the upper shell. Small rocks should never be used because they can be swallowed, resulting in damage or impaction to the intestinal tract.

**Water Hygiene and Sanitation**

The water level provided should be at least as deep as the turtle is long, preferably several times this measure. Tap water is acceptable provided it is allowed to stand undisturbed for at least 48 hours before the turtle is introduced. This is necessary for the water to become free of chlorine and chloramines. Water treatment systems sold at pet shops that are recommended for tropical fish may also be used to remove these chemicals from city water.

Sometimes unfavorable local conditions can make tap water unusable. The high iron content or fluoridations procedures of certain water supplies can be harmful to water turtles.

Bottled water is probably safest for delicate water turtles and for species whose actual aquatic requirements are unknown. Brackish water can be approximated for species that require it (such as the Diamondback Terrapin) by adding 1 tbsp of uniodized salt to each gallon of water.

In the wild, the relatively large bodies of water in which turtles live tend to reduce the concentration of waste products and uneaten food. Consequently free-living water turtles are rarely affected by the decomposition and bacterial proliferation that inevitably follow. This is not the case with captive water turtles. Because of the relatively small
water volumes of aquariums and ponds, these limited enclosures tend to concentrate waste material. This represents a potential hazard for the turtles because disease-causing microorganisms that feed on this material also multiply. Water turtles, therefore, live in a “soup” of potentially harmful microbes and disease is an ever-present threat if sanitation is poor.

Every effort should be made to prevent soiling of the environment. All fecal matter should be netted or siphoned away as soon as possible. Water turtles should be fed in an environment separate from their living environment to reduce contamination of the water. A small aquarium, hard plastic dishpan, or even a bucket works well in this capacity.

A filtration system is necessary to maintain optimum water quality. Undergravel filters work best, except when soft-shelled turtles are housed in an enclosure. This type of turtle tends to continually stir up the bottom material. Outside filters are efficient, provide high flow rates, and are relatively easy to clean. The corner filters routinely used with tropical fish are not as effective or useful when used with water turtles.

Adding small amounts of vinegar to maintain a water pH of 6.0-6.5 (slightly acidic) may help keep bacterial counts low. One teaspoonful of non-iodized (aquarium or rock) salt added per gallon of aquarium water may also help in this capacity.

At least once monthly, the water turtle’s enclosure should be entirely dismantled (including the filtration system) and thoroughly cleaned. It is not practical to maintain this cleaning schedule with ponds and other large enclosures. These should be cleaned at least every 3-6 months.

**Temperature**

Hobbyists should attempt to duplicate the air and water temperatures experienced by water turtles in their natural environment. When temperatures drop, turtles become sluggish and stop eating. Food already within the digestive tract may ferment or putrefy, allowing bacteria to multiply and perhaps cause disease.

Man species tolerate room temperatures for both air and water. When in doubt, provide the range of temperatures used for tropical fish (70*-80*F). Water turtles that originate from tropical climates require a heat source. Aquarium heaters work best for indoor aquariums. Large tanks and outdoor ponds require specially designed water heater that maintains a constant temperature.
An incandescent light bulb or heat lamp can be installed directly above the basking area to provide supplemental heat. Most experts believe turtles remain healthier if they are permitted to seek out heat when they desire it. Great care should be taken to ensure the temperature at the level of the basking surface does not exceed 90°F. Such heat sources may also increase the water temperature in very small aquariums to undesirable levels. A thermometer should be placed in the water and another on or near the basking surface so the temperature of these areas can be continually monitored.

**Light**

Ultraviolet (UV) light helps maintain health because it aids in the absorption and use of dietary calcium. Regular incandescent and fluorescent light bulbs do not emit UV light. Also, the UV light is filtered from sunlight as it passes through window glass or plastic. Consequently, none of these sources is suitable for captive reptiles, including water turtles. If artificial UV light sources are unavailable, captive water turtles should be exposed to direct sunlight for 2-4 hours daily. Most turtles take advantage of the warm sunlight by resting on their basking areas. The water in very small aquariums can readily become overheated if this sunlight exposure schedule is rigidly followed. Therefore, caution should be exercised.

An alternative to direct sunlight is an artificial UV light source, such as a Vitalite (Duro-Lite Lamps, Duro-Test Corp, Lyndhurst, NJ 07071), that can be used during daylight hours. Such a light source should be left on during daylight hours to approximate a natural photoperiod. It is best to supply 10-12 hours of daylight and 12-14 hours of darkness each day, with a gradual increase in the number of hours of light supplied in the spring and a gradual decrease in light provided in the fall and winter months.

**Diet and Feeding**

As with most of the reptiles commonly kept as pets, malnutrition associated with poor hygiene and sanitation is the leading cause of illness among captive water turtles. Water turtles are, for the most part, carnivorous (meat eaters). Malnutrition results when these pets are fed primarily a vegetarian diet or inadequate sources of animal protein.

Water turtles must feed within the water, and in so doing, the most important part of their artificial environment becomes easily fouled. This contamination is greatly exaggerated by the small amount of
water usually provided for captive water turtles as compared with the almost unlimited aquatic habitat enjoyed by wild water turtles.

As previously mentioned, captive water turtles should be fed in an environment separate from their living environment in an effort to control contamination. This is especially necessary in feeding water turtles that prey on live food and tear at it, creating particulate waste. However, species that gulp and swallow prey items whole (Snapping Turtle, Mata Mata) are usually allowed to feed in their artificial aquatic habitats because they are generally considered “clean feeders.”

Commercial diets are preferred for captive water turtles. These include Purina Trout Chow (Ralston Purina, Checkerboard Square, St Louis, MO 63164), dry fish-flavored cat food, and balanced tropical fish food. These foods should first be offered to water turtles when they are very young so they become accustomed to such a diet.

Commercial diets are substantially fortified with vitamins and minerals, are convenient and easy to feed, create minimal water contamination, and are bacteriologically clean. The last point is important because many water turtle diseases are contracted through contaminated food sources. Feeder guppies goldfish and other live food (earthworms) may be diseased or may carry potentially harmful bacteria. Diseases of fish are often readily transmitted to other cold-blooded animals, such as water turtles.

If live or killed fish (guppies, bait minnows, goldfish) are offered to water turtles, they must be offered whole. Feeding just the flesh leads to vitamin and mineral deficiencies. The same problems result when captive water turtles are fed only small chunks of meat or hamburger, and no other items. A soft shell and swollen eyes are the usual signs of this particular dietary problem.

Exclusive or excessive use of goldfish or frozen fish can result in thiamin (B vitamin) deficiency. Excessive use of fish high in unsaturated fish oil acids, such as mackerel, may result in a vitamin E imbalance and steatites (inflamed body fat).

Though adult water turtles are considered carnivorous (meat eating), many juveniles are, in fact, omnivorous (vegetable-eating and meat-eating). Water turtles usually change from a mixed vegetable-meat diet to an all-meat diet after the first year of life. Consequently, about 25% of the diet of young water turtles should consist of vegetable matter.
(seaweed, spinach, broccoli tops and leaves, mustard greens, grated carrot and carrot tops, celery leaves). Addition of carrots (high in vitamin A) to the diet helps prevent “swollen eye syndrome.” Pet cal tablets (Beecham Lab, Bristol, TN 7620), a meat-flavored mineral (calcium and phosphorus primarily) and vitamin D3 supplement for dogs, are readily accepted by water turtles. Care must be taken to break these tablets into pieces that can be easily swallowed by the turtle. PetTabs (Breecham Labs), which are vitamin and mineral supplement tablets for dogs and cats, can be similarly offered to water turtles. These supplements can be offered on feeding days or on alternate days.

Some water turtle species, such as Mata Mata, feed on live food or only specific prey items (Malaysian Snail Eater). These prey items should be as healthy as possible. With persistence and patience, many of these turtle species in captivity can be converted to commercial diets.

Water turtles can be fed daily or 2-3 times weekly, depending upon their age and size. Rapidly growing juveniles should be offered high-quality food daily, whereas adult water turtles do very well when fed 2-3 times weekly. Under no circumstances should water turtles be overfed. In the wild, the only opportunity for water turtles to overindulge is when they feed on the submerged carcass of a dead animal. Overfeeding captive water turtles causes them to become overweight and fouls the water.

Hibernation

Hibernation allows animals to avoid adverse climatic conditions. Unlike regular sleep; hibernation involves a more prolonged period of inactivity accompanied by a substantial decrease in metabolic activity. These changes enable the animal to survive periods during which environmental conditions are harsh and unfavorable. In the wild, water turtles bury themselves in the muddy bottoms of lakes and ponds to hibernate during the winter months.

Hibernation is not necessary for the health and well-being of captive water turtles. In fact, captive water turtles should not be allowed to hibernate. In regions with freezing temperatures, water turtles inhabiting outdoor ponds should be moved indoors before the first freeze. This prevents hibernation, especially if they are encouraged to feed regularly throughout the winter months. In warmer regions of the
country where freezing temperatures are rare, captive water turtles should be kept relatively warm and encouraged to feed regularly. The water of outdoor ponds could be heated or, preferably, the turtles could be brought indoors for the winter months. “Partial hibernation” may result if warm temperatures are not provided in the winter months. This is undesirable because it tends to promote a state of lowered resistance and disease.

Sexing and Breeding

Generally speaking, the males of most species are smaller than the females of the same species. Their vent (cloaca) openings are positioned farther from the margin of the bottom shell (plastron) than those of females. The tail of male water turtles tends to be relatively long and tapered, but thick at the base. The tail of females is generally short and stubby. The males of some water turtle species also have unusually long claws on their front feet.

Certain species of water turtles have been successfully bred in captivity. During mating, the male’s penis may protrude during sexual excitement and resembles an “opening flower.” Inexperienced observers often regard this structure with bewilderment. Copulation takes place when the male inserts this structure in the females cloacal opening.

Eggs can be incubated by burying them in 1-2 inches of sand or dirt kept at 75-85°F. Incubators can be rudimentary to elaborate. The eggs should not be disturbed in any way during the incubation period. The eggs usually hatch in 65-140 days (average 80-110 days).

The eventual sex of a water turtle may be influenced by egg incubation temperatures. Red-Eared Slider eggs, for example, incubated at 85°F yield primarily female turtles, while those incubated at 75°F yield primarily male turtles. The numbers of each sex tend to be equal when eggs are reared at 80°F. This interesting phenomenon does not occur in all water turtle species. Among other chelonian species (certain tortoises), higher environmental temperatures produce more male offspring.

Some scientists speculate that temperature-induced sex determination is the major factor responsible for the demise of dinosaurs. They theorize that a meteor collision produced a massive dust cloud, blocking out much of the sunlight and greatly reducing the environmental temperature. Such cooling may have resulted in drastic
changes in sex ratios of dinosaur offspring. Such an imbalance in the numbers of males and females could have, in turn, greatly compromised the dinosaurs’ reproductive success.

A specialized sharp projection (called an “egg tooth”) on the “upper beak” of hatchling water turtles aids them in emerging from the egg. Premature hatching may occur from time to time. When this occurs, the yolk sac is conspicuous as it hangs from its attachment to the lower shell. These hatchlings can be saved as long as the yolk sac is kept moist and not injured. The baby can be suspended with the yolk sac gently wrapped in saline-soaked gauze until the material within the sac has been completely absorbed. The hatchling will not eat on its own during this period because of the adequate nourishment it receives from the yolk sac material.

**Signs of Illness**

Sick water turtles may exhibit a wide variety of signs. The signs noted by the turtle owner depend on the specific organs affected. Listlessness, lethargy and inappetence are common in sick water turtles. Weakness is often manifested by reluctance to enter the water.

A runny nose, swollen eyes, coughing, gasping, and open mouth breathing are common with respiratory disease. Swollen eyes may also be noted with vitamin A deficiency. Water turtles that tend to tilt or tip to one side may have pneumonia or air sac disease. A soft shell is most often the result of a serious mineral imbalance. Defects involving the shell constitute “shell rot.” Excessive straining may indicate bowel obstruction or egg-binding. Redness of the skin, often accompanied by bleeding, is usually the result of overwhelming internal infection. It represents an ominous sign.

Except in the case of slow-moving or easily frightened or defensive species, healthy water turtles usually make strong swimming motions when held out of water. Healthy water turtles have bright, wide open eyes, clear, dry nostrils, and no abnormalities of the skin and shell.

**Problems Requiring Veterinary Attention**

**Nutritional Disorders**

Swollen eyes: This condition often results from vitamin A deficiency and complications from bacterial disease. The immune defenses of the eye membranes often become weakened by vitamin A deficiency,
making the eyes very susceptible to bacterial invasion. Treatment of this condition involved injections of vitamin A and an appropriate antibiotic. Prevention involves feeding a balanced diet.

Soft Shell: Water turtles must receive essential minerals (especially calcium), vitamin D3 and unfiltered sunlight. An abnormally soft shell results if any of these 3 items is insufficient or absent.

An adequately balanced diet (such a Purina Trout Chow) and sufficient periods of exposure to unfiltered sunlight or a substitute (Vita-Lite) should be provided to prevent and treat this condition. Treatment also involved dietary supplementation and periodic injections of calcium and vitamin D3. Many hobbyists immerse “turtle blocks” (solid blocks of chalk or plaster of Paris) in their turtle’s water in the hope of preventing soft shell problems. Unfortunately, water turtles cannot benefit from the calcium carbonate provided by these products unless it is eaten.

Egg binding: Another disorder resulting, in part, from mineral imbalance or outright mineral depletion is egg-binding. This condition results when a female water turtle cannot pass one or more eggs without assistance. Signs include straining and restlessness, or profound lethargy.

Calcium is necessary for the proper contraction of muscles, including those of the uterus. Egg-binding is likely if calcium is deficient in a pregnant female. Malnutrition, lack of exposure to unfiltered sunlight, and pre-existing disease can contribute to this serious, often life-threatening condition.

When egg-binding is suspected, the affected female should be taken to a veterinary at once. Calcium and hormone injections, as well as manipulation of the egg, are usually employed to relieve this condition. Sometimes, a needle can be inserted into the egg to aspirate its contents and collapse it, making it easier to pass from the female.

Shell Deformity: General malnutrition, especially protein deficiency and mineral imbalances or deficiencies, in young, growing water turtles, results in a number of problems. These may include deformity, mounding of the carapace (top shell), incomplete shell growth, and scoliosis (curvature of the spine). Captive water turtles rarely have normal-appearing shells because nearly all suffer from some form of malnutrition.
Bacterial Infections

Captive water turtles are prone to bacterial infections because malnutrition and poor hygiene are common. Furthermore, injuries received by water turtles tend to become readily infected because of the frequently high bacterial counts in their aquatic environments.

Respiratory Infections: Upper respiratory disease and pneumonia are very common among water turtles. Signs may include nasal discharge, swollen eyes, sneezing, coughing, gasping, open-mouth breathing, lethargy, weakness and tilting to one side. Antibiotic therapy and supportive care are required in these serious cases.

Swollen ears: Infection of one or both external ear canals may accompany chronic respiratory disease in turtles. Minor surgery is necessary to open up the infected canal and manually remove the pus that accumulates within it. Injectable antibiotics are given to ensure that the underlying respiratory problem completely resolves.

Septicemia (blood poisoning): A host of bacteria can cause severe body-wide infections in water turtles. Minor infections, such as those caused by wounds, often become worse as bacteria travel throughout the body by way of the bloodstream. Malnourishment weakens the turtle’s resistance and the infection spreads. As vital organs become involved, the turtle’s condition deteriorates and other signs appear. Extreme redness of the skin and bleeding into the skin are often noted in water turtles with septicemia. Aggressive antibiotic therapy and supportive care are required to treat these serious cases.

Shell rot: Defects of the shell may result from direct injury or as a consequence of malnutrition, generalized deterioration, and infection. Bacteria or fungi may cause infections of the shell. Shell rot may also occur from eating shellfish containing disease-causing bacteria. Algae may grow in shell rot defects or can themselves cause shell rot. Algae may also grow on the carapace (shell rot) of normal, healthy water turtles. This usually indicates poor water quality in the turtle's enclosure.

Treatment usually involves restricting the turtle’s access to water, giving appropriate supportive care, and use of topical and injectable medication (antibiotics, vitamin A). The amount of time required for recovery depends on the number and severity of shell rot defects requiring treatment.
Mouth Rot: Bacterial infection of the mouth lining (mouth rot or infectious stomatitis) is usually associated with malnutrition or body-wide illness. Excessive salivation and redness of the mouth lining are early signs of mouth rot. As the disease progresses, cheese-like pus accumulates within the mouth. An objectionable odor from the mouth may be detected as well. Injectable antibiotics, vitamins and appropriate supportive care, including periodic cleaning of the mouth, are necessary in the treatment of this serious condition.

Salmonellosis: before water turtles became common pets, they were frequently housed in ponds and septic tanks contaminated with human sewage and other types of waste. Continual exposure of these turtles to potentially harmful intestinal bacteria allowed the turtles to carry the infection without becoming ill.

The human handlers (frequently children) of these turtles usually do not have the same degree of resistance. Salmonella and other harmful intestinal bacteria, transferred through handling, resulted in numerous cases of human salmonellosis, a severe, often life-threatening disease of the intestinal tract.

Public health laws now require that water turtles with a carapace (upper shell) diameter of less than 4 inches cannot be shipped into or sold in the US, with certain exceptions. The risk of a person’s contracting salmonellosis from a pet water turtle is low. However, you should always wash your hands after handling a water turtle or cleaning its enclosure. Samples from your water turtle can be cultured by your veterinarian to see if it carries Salmonella or related bacteria, if you are especially concerned.

Parasite Problems

Intestinal Parasites: A wide variety of intestinal parasites are found in water turtles, including roundworms, tapeworms and flukes. Stool analysis and white blood cell counts are useful in diagnosing parasite problems. Microscopic examination of stools reveals what type of parasite is present, thereby determining the precise treatment necessary to successfully eliminate them from the turtle.

All newly acquired water turtles should be checked for intestinal parasites. All turtles in a collection should be similarly checked and dewormed as needed at least once yearly. Intestinal parasites are especially harmful if the turtle is already weakened from malnutrition or other disease.
Blood Parasites: Parasites similar to those that cause malaria in people can be found in the red blood cells of water turtles. Owners of such turtles need not be concerned because this type of parasitism is not transmissible to people. This condition can be diagnosed by microscopic examination of blood smears by an experience veterinarian or laboratory technician. Treatment is difficult and not always undertaken. Blood parasites are much more likely to be harmful to water turtles weakened by malnutrition or other disease.

External Parasites: recently captured water turtles are often parasitized by leeches. These should be carefully removed by a veterinarian. The turtle is then given injectable antibiotics for a few days.

Injuries

Most injuries to water turtles result from aggressive encounters with other turtles or household pets. Many water turtles are territorial, and fighting between them (especially between individuals of the same species) often results in serious wounds. Water turtles of widely varying sizes should not be housed together. Housing similarly sized turtles together helps reduce the number of injuries from fighting.

Injuries may also occur during mating. Males may become overly aggressive during copulation and inflict bite wounds on the female. The male’s rapid and sometimes premature withdrawal of an engorged penis also may injure the female’s reproductive tract. Household pets, especially dogs, sometimes inflict serious wounds to the shells or soft tissues of water turtles.

An injured turtle should be examined by an experienced veterinarian as soon as possible. Prompt attention to the wounds and early antibiotic therapy are vital to the favorable outcome of these cases. Usually, these injured turtles must be kept out of water or allowed only limited access to the water so that wound healing is not delayed. Veterinarians often employ epoxy resins or acrylic glues to repair shell injuries.

Foreign Body Ingestion

Water turtles may eat a variety of foreign objects, such as fish hooks, gravel and aquarium parts. Only rarely does the turtle owner see the turtle swallowing the foreign body. Usually these turtles are presented to a veterinarian because of poor appetite, weight loss or emaciation. Radiography (X-rays) is usually necessary to confirm the diagnosis. Sometimes the foreign body does not show up on the radiograph and
a barium study is necessary to make the diagnosis. Most often, surgery must be employed to remove the foreign body.

Drowning
Hobbyists frequently house small or juvenile water turtles within enclosure containing water that is too deep or within enclosures that are in some other way hazardous. All water turtles should be provided with a resting and basking area. Otherwise, exhaustion and drowning may result. Juvenile water turtles often become trapped under plants and rocks or behind filters, and drown. All such environmental hazards must be removed or corrected.

Emergency measures may save some drowning victims because a turtle’s heart will continue to beat for many hours after the animal appears to have died. Treatment for drowning involves holding the turtle with its head toward the ground and its back legs elevated, and moving its legs to force water from its lungs. Mouth-to-nose artificial respiration may also be used. If the turtle can be successfully revived, antibiotics and appropriate supportive care are necessary until the turtle has recovered.

“Beak” Overgrowth
Turtles and tortoises, like birds, have “beaks.” These horny coverings of both the upper and lower jaws tend to grow continuously for life. In the wild, the upper and lower beaks wear down as fast as they grow. In captivity, however, they overgrow, and periodically must be trimmed by an experience veterinarian or veterinary technician.

Reproductive Problems (Other than egg-Binding)
Erections in Males: Erections of the penis, which occur most often during the mating season, may be cause for concern to the novice observer. This condition is perfectly normal, and is most often confused with an organ prolapse (see “prolapses”).

Paraphimosis: Occasionally, the erect penis remains fully engorged and cannot be retracted. This condition is called paraphimosis. Veterinary intervention is necessary in these cases to prevent permanent damage to the penis.

Penile Paralysis: A water turtle’s penis sometimes becomes paralyzed. The cause of this condition is unknown. In such cases, the exposed and vulnerable penis may be mutilated by other turtles. The penis can
sometimes be replaced into the turtle's cloaca. Usually, however the penis must be amputated. This creates no problems for the turtle other than the inability to copulate because this organ is not used for urination.

**Prolapses**

A prolapse occurs when a particular organ “turns inside out” and protrudes through its usual external opening. In contrast to this situation with land turtles, prolapses of the uterus or intestine are rare in water turtles. If you suspect a prolapse, keep the involved organ moist and protected, and seek veterinary attention immediately.