

Incubation of Eggs



Because proper temperature and humidity are vital to insure the success of the eggs hatching, opinions differ on methods of incubation. Of course, there is no one sure method, and eggs of aquatic, semi-terrestrial and terrestrial chelonians must be incubated accordingly.

Many eggs, especially those of water turtles, are incubated naturally - that is, in the ground where they were laid. Using this method, the location is usually marked or recorded and in most cases encircled with a protective screen. Some breeders prefer to remove the eggs from the nest and place them in a coffee can on moist leaves or damp sandy soil. The can is then covered with its plastic lid (holes punched in) and returned to the ground. In either case, the eggs are periodically checked near the end of the incubation period. Natural incubation is not recommended if the turtle or tortoise's native climate is different from your own.

Eggs of most tortoises and some other turtles are incubated artificially, that is, out of the nest in an incubator or similar set-up. Many breeders use commercial chick incubators. Homemade incubators can be constructed from discarded nut warmers, bread boxes, or cardboard boxes as long as a heat source is provided. Eggs have also been hatched in electric skillet on a layer of sand, with the temperature set on low. Others devise a

makeshift incubator from an aquarium, using the reflector lights as the source of heat. The San Diego Zoo incubates its eggs in sand-filled earthenware crocks covered with sheets of glass to contain the condensed moisture. Water turtles and semi-terrestrial eggs are usually placed on moist leaves or damp green (sphagnum) moss or peat moss; tortoise eggs on fine to medium sand or gravel. Some claim that the sand should be sterilized. Theories vary on how deep the eggs should be buried. Some fanciers bury the eggs to a depth of an inch or two; others do not bury them at all. Often newly hatched tortoises can be observed eating bits of gravel or egg shell, and it is believed to be an aid in digestion.

Generally, incubation periods are: (and these are only averages)

Tortoises: 70 to 100 days Exotic tortoises: 100 to 160 days or much longer

Box turtles: 60 to 90 days Water turtles: 60 to 85 days

The anticipation of hatching and caring for the eggs throughout incubation is sometimes disappointing; often all the eggs will not hatch. There are several reasons for this:

Infertile eggs - Female turtles may produce fertile eggs for several years without yearly mating. After the first year, the number of fertile eggs decreases until there are finally no more until another mating takes place.

Death - Sometimes the embryo will die during incubation due to dehydration or lack of humidity. Opinions differ on how much

humidity is needed. Eggs incubated artificially are sometimes lightly sprinkled with water on a weekly or bi-weekly basis.

On the other hand, some breeders feel that a jar of water placed in the incubator is sufficient. Some use no water at all. Too much moisture will certainly rot the eggs. Also it is believed by some that the eggs should touch each other to allow passage of moisture from one egg to another.

Extreme temperature variance can also be fatal to the embryo. Here again, opinions differ greatly as to the ideal maintained temperature. Eggs incubated at between 85 and 90 degrees F. will usually hatch if other conditions are favorable. Don't guess at the temperature - a thermometer should remain in the incubator at all times. Heat lacking moisture can result in the hardening of the egg shell to the degree that the hatchling cannot break through.

Careless handling of the eggs can kill the embryo. Great care must be taken in removing the eggs from their natural nest into the incubator. Turtle eggs, unlike those of birds, must NOT be 'turned'. The chelonian embryo begins its development at the time the egg is laid, and must remain in this nest position throughout incubation. Thus, most breeders mark the top of the egg with a pencil. Once in a very great while, an accident of nature will occur and the embryo will die during incubation because the baby was somehow deformed and/or lacking functioning internal organs.

Accidents - Occasionally an egg will be mistakenly laid in the water and may not be discovered in time for the embryo to survive. A turtle housed in an aquarium with a basking area has no choice in this matter unless a nesting area is provided. Sometimes a turtle or tortoise will break or crack an egg during laying or while covering the nest. Slightly cracked eggs can be successfully hatched - the crack can be gently mended with scotch tape and incubated as usual. When the first signs of breakthrough occur, the tape should be carefully removed with tweezers.

Many newly laid eggs have a dent in one side; this does not necessarily mean the egg is defective. The dent usually smooths out as the embryo grows. Sometimes, too, the eggs will go through slight color changes during incubation. The hatching process itself can take up to 24 hours or much longer as the hatchling rests off and on during its efforts to emerge. There is a theory that naturally incubated eggs require less time to hatch because the hatchling must "dig itself out" of the nest for air.

The hatchlings yolk sac contains its food supply for the first few days and diminishes quickly. Great care must be taken not to rupture the sac as the baby will surely die. However, food should be offered immediately after hatching. A few reports have been made in the past of twin babies; that is, two turtles sharing the same egg and usually the same egg sac. When this occurs, a veterinarian must separate the babies.

Though incubation may sound complicated, it's really not. Nature has played its part, with a little help from the turtle or

tortoise keeper. The real job lies ahead in providing suitable conditions for the baby to continue its survival.

