

AN OUTDOOR ENCLOSURE



Planning, positioning, construction and description of an outdoor enclosure for breeding of water and other snakes from Nordic regions

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■ SUMMARY

The present article describes finding the right position for and the construction of an outdoor enclosure for keeping different Northern colubrid snakes and water snakes.

■ MATERIALS USED

Concrete foundation, 80 cm deep, 14-16 cm wide; glass panes 6-8 mm thick mounted on U-profiles fixed with window putty, 80 cm high for snakes 1 m in length, upper edge with 7-10 cm wide strips of glass attached to the inner side to prevent escaping; plastic pond; a bunker 60x80 cm, 80 cm deep for hibernation, covered with a pane of asbestos and instant lawn, filled with small twigs, bark, peat, leaf litter in layers, and earthenware tubes; furnished with a rainwater drain and covered with a fish net.

Factors to consider: sun exposure; growing trees providing excessive shade in future; access by predators like cats, rats, and birds; easy replacement of components.

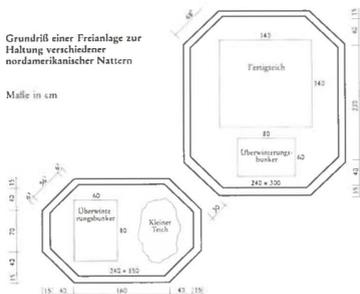
■ INTRODUCTION

The keeping of water snakes and other snakes in a terrarium is often problematic. Even well dosed microclimates of different kinds on minimum space in a terrarium as well as the sun-radiation cannot be re-constructed with the best terrarian technique. This is the reason why it is more favourable to keep snakes in an outdoor enclosure. Although this way of keeping snakes is obviously recommendable, there is only very little literature about keeping snakes in outdoor enclosures. This report shall - among other things - support outdoor terrarianians!

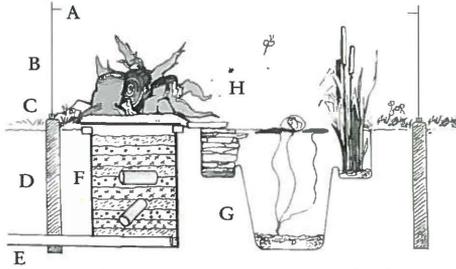
■ HISTORY, THE PLANNING, FINDING THE RIGHT PLACE, CONSTRUCTING AND EXPLAINING THE OUTDOOR ENCLOSURE

For sure keeping reptiles outdoors is definitely nothing new. In 1981, I had a chance to survey an outdoor enclosure in Detmold, Germany, made of concrete by Mr. Heidt, in which he had kept some native amphibians and reptiles already for a couple of years. I have seen a similar enclosure during the same year with Mr. G. Hallmann in Dortmund, Germany. Due to the fact that I was quite impressed by the quality of this enclosure (as well as my special liking of the North American water snakes, especially the *Thamnophis* and *Nerodia* spp.), I started building an outdoor enclosure in 1982 made of glass-fibre strengthened synthetics for my snakes (Heidt 1983; Strathemann 1986; Strathemann 1995). As I had to relocate in 1989, I unfortunately had to destroy this enclosure. In 1991, I built two new-developed outdoor-enclosures with a basement of concrete and a construction

Drawing by U. Strathemann



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Cross-section of the enclosure: A: glass bracket, B: glass pane, C: railing, D: concrete foundation, E: drainage system, F: hibernation quarters, G: pond, H: banking

made of glass on top which I would like to introduce to you in the following.

When planning an outdoor enclosure some very basic and important matters have to be considered. At first, the materials have to be chosen properly among various synthetic stuffs, partially glass-fibre strengthened glass, eternit, concrete plates, wood, metal, metal-strengthened glass and similars. According to the overall harmony of my garden architecture, I decided to use a combination of glass and concrete. This construction turned out to be long-lasting stable and was easy to integrate into the garden arrangement. As a next step the right spot for the enclosure has to be found. However, the enclosure should have a place where it is exposed to sunshine most of the time. Do not forget to consider the growth of surrounding trees. It is both complicated and expensive to change the position of an outdoor enclosure again later on. Small shady places for the inhabitants can be organized within the enclosure by the means of plants, little trees, stones and things like that.

Once the spot is found, further planning needs to be done. First of all the size and the desired shape has to be determined. A sketch is quite helpful. For optical reasons I decided to choose two irregular octagons, standing rectangular to each other with a difference of 30cm in high and 30 cm in distance. I also included a little garden-lake in my planning. It was made of synthetic material and measured 1.4 x 1.4 m and 80 cm in depth. In the smaller enclosure I wanted to include a water basin of 80 x 60 cm with lake

foil and a depth of 60 cm.

In addition to a water basin also a hibernation place for the snakes is very important. According to my experience, this so called „hibernation bunker“ (Heidt 1983) requires at least an area of 80 x 60 cm with a depth of 80 cm. Of course it has to be frost-free. Depending on the ground it is absolutely essential to take care that a drainage for the hibernation bunker prevents the snakes from drowning during heavy rainfalls when they are in hibernation. In my outdoor enclosures I had the possibility to connect the drainage-tubes directly to the rainwater-pipes of my house.

The hibernation bunker should be filled with little branches, bark mulch, peat and leaves in shifts of 8 to 10 cm. Some clay tubes can be added. When it is filled, you should cover the hibernation bunker with eternit plates (they have to be quite stable). The surface can be covered with grass-plates. Naturally the material will rot during the years. But when I opened the hibernation bunker which was in operation from 1982 to 1989, I found that the surface of the material has lowered only 12 cm.

By the way, we never know if the snakes really spend the winter in their bunker. When moving the lake made of synthetics, I noticed that several *Nerodia sipedon sipedon* had hidden deep in the ground in the space between lake-wall and ground. This means that hibernation of the animals at those places has to be regarded. Also the hibernation of the snakes in the included clay-tubes cannot be proven.

A very important factor during the planning is to determine the positioning of the drainage system and the hibernation quarters



Photo by U. Strathemann



The outdoor enclosures of the author upon completion

mine the size and height of the glass surrounding, which, of course, depends on the size of the animals. According to my experience a size of 70-80 cm will work for animals of a length of 100-110 cm. As you can see on the scheme, this height has been chosen for the big outdoor enclosure. Due to the fact that the smaller enclosure was built for breeding young animals, a height of 50 cm was sufficient.

If the construction gets an inner surrounding made of glass on top to avoid that the young snakes (if you get some in late summer) crawl with the help of rain and other moisture up to the top if nothing hinders them. The mentioned dimensions can be considered to make sure that no animal can escape.

Of course the glass construction requires a solid foundation. For this purpose I used a concrete basis, which was frost- and mouse-secure 80 cm deep in the ground. If the outdoor enclosure is positioned on plain ground the concrete construction can easily be hidden under the first centimetres of the ground. The advantage is that little irregularities can easily be hidden by the ground-shifts. With irregular ground (hilly, going up or going down) the concrete foundation will be visible. In this case it is recommended to build a wooden construction or consult a skilled person.

Later, onto the approx. 14-16 cm wide concrete basic construction U-profiles, e.g. from aluminum or other weather-resistant material will be screwed. The U-profiles will hold the glass construction. I favour to lay the glass sheaves (which should be 6 to 8 mm thick) in win-

dow-putty and not in silicon so they can be repositioned when little reparation work has to be done. The vertical side-connections of the single glass-sheaves will be stuck together with silicon as it is done in the aquaristics and terraristics.

The outdoor enclosure has to be covered by a wide-meshed net, for example a net as it is used for fishing. Suction cups - standing upside down - can be positioned on the top-edge of the glass front from the outside to hold the net. Thin wooden sticks put through the border of the net and hooked into the suction cups can help stretching the net equally. This is an absolute must for the protection of the snakes against birds and cats.

The described outdoor enclosure has been finished by myself in the spring of 1991. For decoration purposes and also for offering the animals some hiding-places I have added some stone plates and tree stumps. Naturally growing grass and herbs served as planting. Only the 1.4 x 1.4 m lake was planted with *Pontederia cordata* and a *Iris pseudacorus*.

The pool of the second outdoor enclosure got a little plant-basin with *Eleocharis palustris*.

■ LITERATURE

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