Some Observations on the Trapping Mechanisms of *Nepenthes Inermis* and *N. Rhombicaulis*

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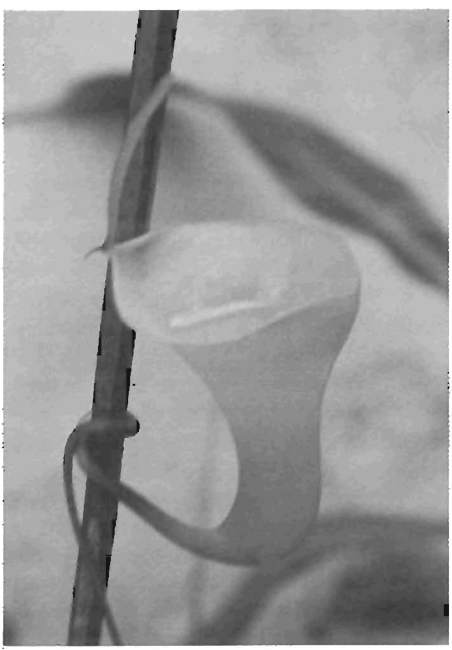
Nepenthes inermis with its funnel shaped lower pitchers must surely be one of the most beautiful *Nepenthes*, but how does it manage to attract and capture its prey? It has virtually no peristome (in upper pitchers) and only a narrow lid which obviously cannot prevent it filling with water every time it rains. The contents of the pitchers point to three different trapping techniques.

1. Nectar feeders (flies,wasps) only seem to visit the under side of the lid. They drink so much nectar that they may become paralyzed and cannot move even if you touch them. It is then only a short drop into the wide bowl of liquid below. Viewed from above you can see that the lid positions the insect directly over the pitcher's mouth. Ants also visit the lid and sometimes the peristome but are seldom caught. It appears that the peristome is of little use in the upper pitchers.

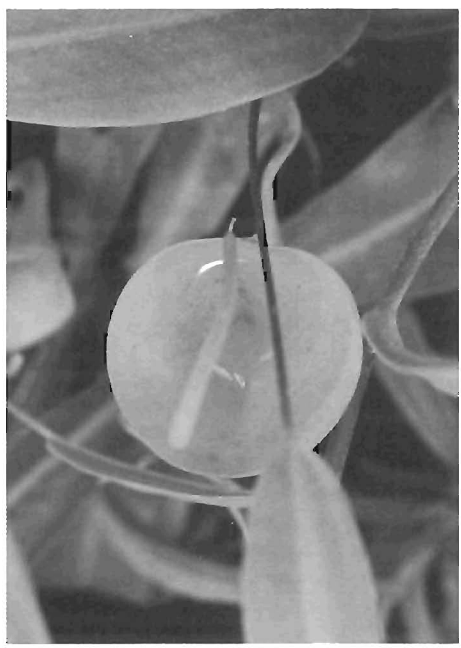
2. Colour attracts insects such as mosquitoes and midges much as in the high school experiment using different coloured water filled saucers to find out which insects were attracted to which colours. The insects are captured when landing in the pitcher fluid.

3. Smell is possibly what attracts the earwigs and other nocturnal insects although I have not proven this yet.

Having postulated the secrets to its trapping success, one wonders how the pitcher manages to keep its prey from being washed out when it rains? The answer lies in the



N. inermis Upper Pitcher



Top view of pitcher. Note very narrow lid.

pitcher fluid itself. The fluid is thick and exceptionally viscous compared to most *Nepenthes.* You can pour some from a pitcher held several feet high and it will keep in an unbroken stream to the ground. Thus when it rains the pitcher sheds the excess water over its rim but its contents are secure. From these observations we can see how wonderfully adapted to a life of carnivory *N. inermis* really is.

N. rhombicaulis on the other hand has no upper pitchers only lowers. These lower pitchers occur from ground level to no more than 2 feet up the stem while the rest of the stem climbs high into the tree tops. The upper stem does not form pitchers on the ends of its tendrils and its only used for climbing.

N. rhombicaulis appears to be adapted to a life of catching ground dwelling insects but more specifically the subterranean ones. Pitchers found above ground are usually small (5cm) and have a thin peristome while those formed in dense moss or in very dark conditions grow larger (10cm) and have quite a large flared peristome, CPN 19(1&2):21. In habitat, the rosette leaves are fairly short and the tendrils are pushed into nearby mounds of moss. When the moss is pulled away a large pitcher is revealed. In cultivation, it seems that to grow the large pitchers the developing pitcher needs darkness and some kind of restriction before it can attain a large size (i.e. down the inside of the pot). It is also necessary that some of the plant be exposed to light as all plants need to photosynthesize to survive. This carnivorous adaptation reminds one of *N. ampullaria*. The contents of these subterranean pitchers were not examined but we will do so on our next visit to prove our theory.

Color Variation of S. *Purpurea* in a Northern Michigan Bog

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While bogging in Michigan's Luce Co. in the summer of 1991, Gary Thieme and I came upon brightly colored plants of *S. purpurea* growing in full sunlight. The plants had a more yellowish appearance and lighter venation than what is typically observed. This made a pleasant display of yellowish and typical reddish plants throughout the bog. There was no success in finding a plant without red coloring. Some plants were blooming with yellow flowers (not in full bloom yet) but had fine red-veined leaves, this was certainly eye catching when growing next to the typically heavily veined *S. purpurea* .

A year later a more thorough investigation of the area was made. Unfortunately, late spring frosts had made it a poor flowering year and our hope to find *S. purpurea f. heterophylla* as a whole plant was diminished. About four plants from several locations were candidate plants of *S. purpurea f. heterophylla*, none of which were blooming. One plant I collected for close observation. Roughly half the plants in all locations were the typical red color while the other half were the yellowish-red plants.

One very interesting location had a highly contrasting color difference. Here *S. purpurea f. heterophylla* candidates were found and very deep red plants could be found even in the shade. Even if it turns out not to be a *S. purpurea f. heterophylla* location it is certainly an eye-catching sight.

Fred Case examined the plant I collected and said it looked liked S. *purpurca forma heterophylla* and that a flowering plant would be better for confirmation.
All plants in the photographs were growing in full sunlight.