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Meetings are held on the second Friday of each month
Time: 7.30pm—10.00pm
Venue: Woodstock Community Centre
Church St, Burwood
Ph. 4684 3478

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Upcoming Speakers and Events

Date	Subject	Speaker
13th April	Lost Worlds DVD	Stewart McPherson
11th May	Tasmania	Greg Bourke
20th May	Koi, Pet and Garden Show at Fairfield Showground	Display and Sales
8th June	To be confirmed	To be confirmed
13th July	To be confirmed	To be confirmed
10th August	To be confirmed	To be confirmed
14th September	Borneo trip	Greg Bourke

Committee 2006

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	Kirk Hirsch

Sarawak Nepenthes Summit 2007

Pitcher Plants as a Beacon for Conservation

18 - 21 August 2007
Sarawak Tourism Complex, Kuching

© W. Taylor

Few plants capture the imagination of people more than the tropical pitcher plants of the genus *Nepenthes*. These carnivorous plants, as well as being famous for their ability to lure, trap, and devour insects and small animals, have an amazing diversity of pitcher designs and have become the fascination of horticultural enthusiasts and biological researchers worldwide. Because of the vulnerable status and commercial potential of many of these species, they have also been the focus of sustainable utilization as well as an important icon for conservation efforts in tropical Asia. In an effort to promote public awareness of *Nepenthes* and to provide an avenue for the dissemination of international research, the Sarawak Society for Natural Science (SSNS) will be hosting the first international Sarawak Nepenthes Summit to be held in Kuching in August 2007.

The conference will include 2 days of seminars on a wide range of *Nepenthes* topics including taxonomy, ecology, conservation, horticulture, ethnobotany, and recent discoveries, presented by both local and international researchers. Also featured will be pitcher plant exhibits, poster presentations, plant sales, books, and artwork. The main conference will be followed by a 2-day field trip to view many species of *Nepenthes* in the wild, including visits to the spectacular Bako National Park and the Bau Limestone Caves.

For those visitors wishing to see more of Sarawak's beautiful rainforests, an optional 1-week post-conference tour will be offered to Mulu National Park, a World Heritage Site in northern Sarawak. The group will visit remote and pristine sites for viewing of rare and endemic plants including *N. campanulata*, *N. faizaliana*, *N. hurrelliana*, *N. vogelii*, and many others.

If you are interested in finding out more about the Sarawak Nepenthes Summit 2007, please submit your contact details to the mailing list at www.wildborneo.com.my/conference2007 and you will be notified as soon as registrations are being accepted.

Heliamphora ionasii - One of the largest and most beautiful species of the Marsh Pitcher Plants

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In 1978, Basset Maguire described two new species of marsh pitcher plants based on the findings of several expeditions to the Guiana Highlands of Venezuela, Guyana and Brazil which he and various colleagues at the New York Botanical Garden led during the 1950s, 1960s and 1970s.

Heliamphora neblinae was one of the new pitcher plants which he authored – it represented a clearly distinct species that was distinguished from the previously described marsh pitcher plants through its hairy foliage and unique flower. Discovered in the remote north of the Neblina Range on the border between Brazil and Venezuela, *H. neblinae* was named in honour of the mountains where it endemically occurs and today represents one of the more obscure but at the same time, one of the most interesting species in the genus.

The other species which Maguire named in 1978 was *H. ionasii* a spectacular marsh pitcher plant which he had first encountered through a 1952 expedition across the Venezuelan Gran Sabana to the common base of the immense sandstone plateaus of Ilu Tepui and Tramen Tepui. The plants had been

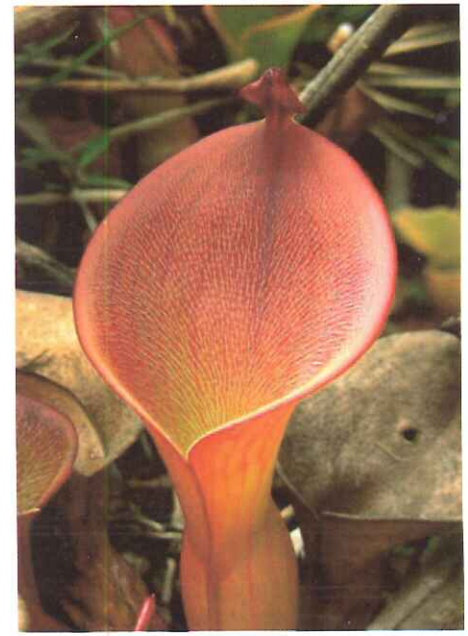

Figure 1. The Mature foliage of *Heliamphora ionasii*

Figure 2. The foliage of a sub-mature specimen of *H. ionasii*

discovered growing amidst dense vegetation on the lower flanks of the mountainsides and displayed unique ecology and morphology as well as leaves that were considerably larger than those of all described *Heliamphora* sp. known at the time. Maguire eventually named the new plants in honour of his friend and colleague Johan Boyan who had accompanied him and co-discovered the new species.

Since Roman Latin lacked the letter 'J', the epithet 'ionasii' was used to represent the Latin version of Boyan's first name.

During the three decades since Maguire's publication of *H. neblinae* and *H. ionasii*, the genus *Heliamphora* has doubled in size yet *H. ionasii* continues to represent one of the most spectacular yet perhaps the least appreciated of all the marsh pitcher plants. *H. ionasii* naturally produces funnel-shaped

leaves between 20-50 cm in height which in direct sunlight develop striking red or pinkish orange colouration often mottled with subtle blotches of yellow and orange. The upper parts of the leaf are strongly infundibular (**Figure 1**), especially towards the pitcher opening which is broad and flared in shape. The conspicuous, stout aspect of the foliage (**Figure 2 and back cover**) perhaps enables *H. ionasii* plants to compete more effectively within their densely vegetated habitat or perhaps ensures that the leaves are conspicuous to insects and other animals and so trap sufficient prey.

The interior surface of the mature leaves of *H. ionasii* is lined with 5 – 11 mm long, downwards pointing, white hairs which project from small bump-like swellings. A second set of 0.1 - 0.5 mm hairs is present on the inner, uppermost 2 - 3 cm of the pitcher opening (**Figue 3**). The nectar spoon lid is concave and consistently dark red or purple.

As in all *Heliamphora* sp. the mature foliage is structurally distinct from the juvenile leaves, which are narrow, tubular and inconspicuous. Unusually however,

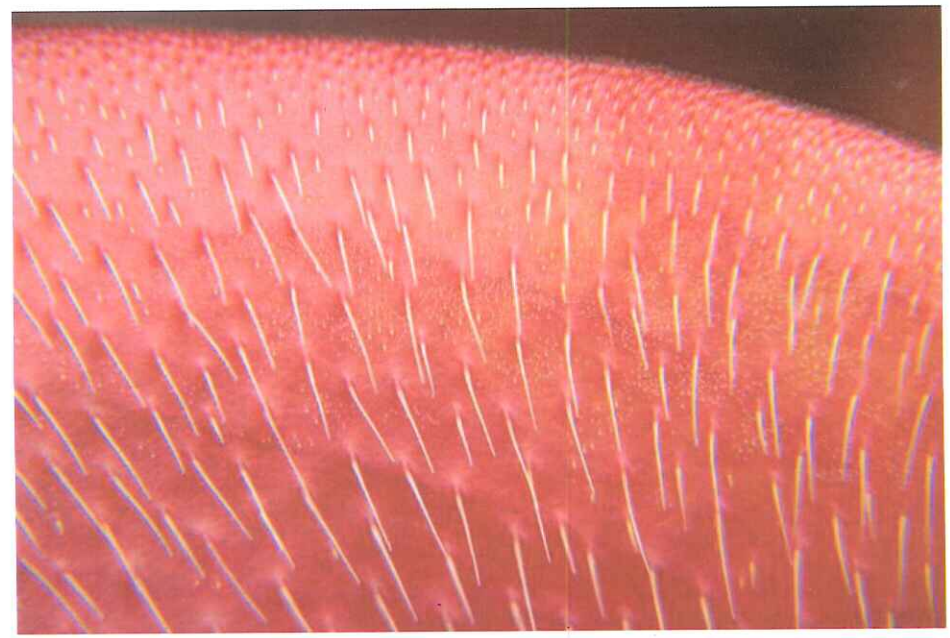

Figure 3. Long downwards pointing hairs on the interior of the leaves of *H. ionasii*

a further distinction is discernable in the leaves of *H. ionasii*; the foliage of sub-mature specimens lack the profoundly infundibular aspect of large, fully mature plants and instead are principally cylindrical in shape.

Despite several newly discovered species of *Heliamphora* during the past decade, only two other marsh pitcher plants compete or possibly surpass *H. ionasii* in terms of size of foliage. The leaves of *H. glabra* and the stemless form of *H. tatei* that is found on Cerro Aracamuni and Cerro Avispa in Venezuela are rivals. Both species produce similarly shaped, infundibular mature leaves that can exceed 50 cm in length in shaded conditions – indeed those of the Cerro Aracamuni and Cerro Avispa form of *H. tatei* are borne on elongated stems which if included in the measurement can make the leaves over 60 cm in length.

Unfortunately as is the case with many *Heliamphora* sp., the majority of plants grown in cultivation as *H. ionasii* are not the true species, but rather most commonly rep-resent hybrids – either *H. ionasii x elongata* (which are extremely common in the wild and presumably have been collected in the past as *H. ionasii*) or artificial crossbreeds that have been produced in cultivation and since confused with true strains of *H. ionasii*. The most reliable characteristics that distinguish *H. ionasii* are the distinct infundibular shape of the mature foliage and the presence of the long, conspicuous, downwards pointing hairs which are seen only in one other, much smaller species, *H. pulchella*.

Stewart McPherson's new book *Pitcher Plants of the Americas* examines the wild ecology and remarkable diversity of all of the known American pitcher plants including *H. ionasii*. Stewart is selling copies personally through his online company www.redfernnaturalhistory.com to raise money for the Meadowview Biological Station - with the goal of donating 5 to 10 acres of *Sarracenia* habitat for permanent protection – please see www.redfernnaturalhistory.com/conservation.htm

Books can also be purchased within Australia by contacting Greg Bourke at sydneycarnivorous@hotmail.com

Exploring the upper reaches of Gunung Trus Madi

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I have been fortunate enough to have had the opportunity to visit Malaysia several times over the past few years and see many species of *Nepenthes* in the wild. The lowlands provide a good range of *Nepenthes* that are easily accessible but it's the mystique of the mountains that draws me here. The mountainous habitats of the highlands are as spectacular as the species that inhabit them. Many of the mountains remain unexplored and most have not been well explored. This article will concentrate on the mysterious species that grow on the upper reaches of Borneo's second highest mountain, Gunung Trus Madi (**figure 1**).

Figure 1. Seen from the Lunar like granite peak of Gunung Kinabalu, the tree covered summit G. Trus Madi can be seen (centre right) pushing through the clouds

Situated in central Sabah the Trus Madi range is constructed of shale and phyllite with siltstone and sandstone. The range was formed as the granite pluton of Mt Kinabalu was pushed through the Eurasian plate. Although Mt Kinabalu is still growing the major uplift concluded towards the end of the Pleistocene era. It was at this time That G. Trus Madi reached its maximum height.

Access to G. Trus Madi is via the town of Tambunan. From here up until the early 90's it was a three day trek to the 2642m (8669ft) above sea level (asl) summit but after many years of logging it is now possible to drive the logging trails to a starting point of 1400m asl and complete the ascent in just over a day.

At an altitude of approximately 1600m asl the main trail to the summit opens up as the ridge narrows. The trees here are covered in Mosses, Lichens and Orchids. Temperatures often change rapidly as burning sun is replaced by strong winds and thick cloud. This is known as mossy forest.

The spectacular *Nepenthes lowii* can be found from 1600m asl all the way to the summit. The form on G. Trus Madi is possibly the largest of the species (**Figure 2**). It is certainly larger than those I have seen on G. Mulu and G. Kinabalu.

Figure 4. The lower pitcher of *Nepenthes lowii* with long bristles under the lid

The transition from lower to upper pitchers in *N. lowii* is quite rapid. The lower pitchers are quite plain except for the incredible hairs that are produced under the lid (**Figure 3**).

The upper pitchers are quite different and unmistakeable. The body of the pitcher remains green throughout its life (as opposed to turning reddish on G. Mulu) while the interior turns from mottled green/red to

Figure 2. A newley opened pitcher of *Nepenthes lowii*

dark maroon with age (**Figure 3**). The vaulted lid of the pitcher is held back to allow rain to be captured as well as possibly to advertise the sweet exude amongst the bristles on the underside of the lid (**Figure 3**).

It is possible that this species has evolved especially to accommodate the needs of birds and tree shrews (*Tupaia montana*) by providing both a reliable source of drinking water as well as a sweet meal. In return, the animal visitor deposits its droppings in the pitcher which form a significant proportion of its nutritional needs (**Figure 3**).

The constricted waist of the pitcher prevents both evaporation of the fluid during drier times as well as preventing dilution of captured

Figure 3. An older *Nepenthes lowii* pitcher clearly showing the sweet exude under the lid. The brown stain of an animal scat that has been washed into the pitcher can be seen on the inner surface at the rear of the pitcher mouth.

Figure 5. *Nepenthes macrophylla.* Juvenile pitcher.

nutrients. *N. macrophylla* has also been found with Tree Shrew scat inside the pitchers (**Figure 7**) but this is extremely rare.

At an altitude of 2200m asl *N. macrophylla* begins competing with *N. lowii* for space on the ridge. Both species occur from this altitude all the way to the summit with the latter preferring sunnier habitats.

Previous publications have been inaccurate with regards altitudinal distribution of *N. macrophylla* with Cheek and Jebb (1997) listing 2200-2400m asl as did Clarke (1997a) although Clarke had not visited the mountain at the time of publishing *Nepenthes* of Borneo (pers.comm.). Phillips and Lamb (1996) listed the species as occurring above 2500m asl.

Lower pitchers on *N. macrophylla* are extremely rare and subsequently have not yet been formally described. Given that there is possibly complex hybrids between *N. lowii* and *N. macrophylla* (which will be discussed below) it can be difficult just to distinguish what is pure *N. macrophylla.*

Figure 6. The lower pitcher of *Nepenthes macrophylla*

Figure 7. The intermediate pitcher of *Nepenthes macrophylla* with shew scat inside the pitcher.

Generally *N. macrophylla* grows immature pitchers (**Figure 5**) followed by intermediate/upper pitchers. I was however fortunate enough to encounter several pitchers on large basal rosettes of mature plants that had what I believe to be lower pitchers (**Figure 6**). As with most *Nepenthes* species, the tendril rises from the front of the pitcher. The pitcher body has a notable kink in the body just above a slight constriction at the half way mark. The pitchers I found had fringed wings that extended from just below the peristome only till the half way mark. This is unusual for a lower pitcher as they usually extend all the way to the base of the pitcher. The size of those encountered was

Figure 8. A upper pitcher of *Nepenthes macrophylla.*

Figure 9. *Nepenthes* x *trusmadiensis* on the summit of G. Trus Madi.

30 - 35cm long and 15cm in diameter.

Intermediate and upper pitchers are quite similar to each other although upper pitchers usually lack wings and are generally waisted higher. The tendril is inserted from the side and the mouth of the pitcher is more elongated. Colouration ranges from green to bronze to red. This character seems to be related to the amount of light the plant receives with the darker redder pitchers occurring in shadier conditions.

One of the most spectacular and sought after hybrid *Nepenthes, N.* x *trusmadiensis* (**Figure 9**) was discovered in 1984 near the summit. All parts of the plant are immense including the spectacular pitchers which occasionally exceed 50cm in length. The altitudinal distribution of the hybrid has not been defined by previous authors.

Figure 10. *Nepenthes* x *trusmadiensis* from 2400m asl

The description given by Clarke (1997a) of *N.* x *trusmadiensis* is the most complete to date but no description is given for the lower pitchers (**Cover**). These are as one would expect being intermediate between both parent species. The lid bares only a few of the hairs seen in *N. lowii.* There is some internal colouration and the fringed wings at the front of the pitcher are well developed. In other respects the pitchers are similar to those seen on juvenile *N. macrophylla* plants. The size of the pitchers is 15 - 25cm.

On my second trip to the mountain in 2005 with Darren O'Brien, plants were discovered above 2400m asl. A group of several individuals were found growing in an area predominantly inhabited by *N. macrophylla*. These fit the description of *N.* x *trusmadiensis* but seemed to carry slightly more of *N. macrophylla* traits than that of the hybrid known to occur on the summit. It was concluded that this group of plants could represent the opposite cross of the hybrid.

With a slightly more elongated pitcher, more elongated and pronounced peristome these plants were possibly even more spectac-

Figure 11. *Nepenthes* x *trusmadiensis* from 2400m asl with the newest pitcher on the left and the older pitcher on the right.

ular than those commonly known as *N.* x *trusmadiensis*. They did however contain more internal pitcher colouration. This trait is obviously taken from *N. lowii* and aged to purple as in this parent (**Figure 11**).

Figure 12. *Nepenthes* x *trusmadiensis* x *macrophylla?* A large intermediate/ upper pitcher.

Interestingly, there was yet another plant found on the mountain that seemed to be derived from the previously discussed species. Unfortunately no lower pitchers of these could be found but there were upper pitchers that hinted towards complex hybridisation (**Figure 12**) . The large pitchers of this plant were found at an elevation of about 2600m asl.

Again this may simply be natural variation but there were certainly a few characteristics that differed from those typically seen in *N. macrophylla* and well worth further investigation.

It would take some time to fully explore the summit and various highland habitats on G. Trus Madi and it's secrets may not be told for many years to come.

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Clarke, C.M. (1997) *Nepenthes of Borneo*, Natural History Publications (Borneo) Kota Kinabalu

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Success with *Aldrovanda vesciculosa*

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Dr. R. Gibson obtained a sprig of *Aldroanda vesciculosa* last year from a collection. We divided it into 3 sections (**Figure 1**). It was one which comes from a naturally occurring colony there up in the Armidale area. In the past success with this plant has been temperamental for us. Determined not to kill it this time we devised three separate methods for growing the 3 sections. I had learned that water with a higher CO_2 level than average benefited *A. vesciulosa*. Remembering my rudimentary chemistry and some talk between my field ecology professors from years back, lentic water with high leaf litter contains tannic acids and carbonic acids in a higher proportion to pure water -- just the kind of habitat *A. vesciculosa* likes in the wild.

Figure 1. Three segments of *Aldrovanda vesiculosa*

We obtained two glass bowls, which hold about 2 litres of liquid each. In one, we'd layered the bottom with some leaf litter, some brown leaves fallen off a *Liquidamber sp.*, some from a *Tibouchina sp.*, and some unknown. It formed a thin covering. On top of this we layered it with some fine sand. Next we filled it with rainwater and let it sit for a day. Our *A. vesciculosa* specimen stayed in the plastic container, floating in about a litre of pure rainwater in the meantime. To this bowl we added a native rush, one from the Armidale area, placing it in the centre of the bowl and put directly into the sand along the bottom.

From my work area at the Hunter Wetlands, I was able to collect from

the Outdoor Education facility there a container full of *Daphne sp.* and some native pond snails. I added these on the 2nd day and let them adjust to their new environment, placing the bowl where it could receive several hours of direct sunlight. By the 3rd day the water began to turn a brown colour as tannins from the leaf litter began to acidify the water. The water fleas were able to control algae blooms, and the pH contributed the rest, for after a week, the water didn't turn green. Some filamentous algae appeared, yet the snails were happy munching on that along the glass sides. Finally, we added a segment of the sprig of *A. vesciculosa* to the water.

The 2nd glass bowl we put in a thicker layer of leaf litter along the bottom consisting of the same mix of brown leaves as the 1st bowl. Then we covered that with a thin layer of peat (not coco-peat), and covered that with sand. We filled this bowl up to the rim as well with rainwater. I added snails and water fleas again. Then after a week I put in a segment of the *A. vesciculosa* sprig.

The 3rd and remaining segment we kept in the pure rainwater, yet along the bottom of the plastic container (cylindrical in shape, some 10 cm in diameter and 15 cm high) I added some native water plants: a small sedge, milfoil, and *Utricularia uliginosa*, which grew beside the mother colony in Armidale all growing in the mud from a pond's edge. After a day, when the water cleared, in came the 3rd segment.

Which one works? I'm happy to say they all do. However, there were some mixed results.

After 2 months the most continuous set of growth came from the 1st bowl. The 2nd bowl developed filamentous algae in thick clumps, some of which were smothering the *A. vesciculosa* segment. The 3rd container showed sporadic bursts of growth, usually after I topped it up with rainwater, as water evaporated quickest from this vessel. It produced the longest threads of the plant. All 3 remain outside. We moved the 2nd glass bowl from a higher amount of sunlight to a lower one eventually, which controlled the filamentous algae growth. I'd also added more snails and water fleas.

Some 4 months on the water in the 2nd bowl remains more brown than the 1st or 3rd containers. Its sprig of *A. vesciculosa* has now surpassed the growth in the 1st bowl which still grows steadily. In the plastic container we'd removed the milfoil, which was overcrowding the other plants in it. The *U. uliginosa* in it died, yet some *U. gibba* and *U. australis* had come up in its stead either from hibernaculum or dormant seed. We removed them as well to keep competition factors out of this horticultural study. Some of the milfoil went into the 1st bowl, where it still grows in a more controlled environment, being deeper and more acidic than the 3rd container. The 3rd container also has a slight green cast to it, which increases when half the water evapourates. We had to drain it twice completely down to the mud layer and refill it to purge the water of mozzie wrigglers. Yes, the plant does catch little ones, yet I'm determined not to breed them, thank you.

Figure 2. Bowl No. 3

So, depending on what kind of factors suit you, these 3 different methods of growing *A. vesciculosa* all produce results. Just keep the water level topped up with rainwater We'll give a follow-up after we've had the plant thriving for a year. In a 3rd bowl we did a similar treatment to the 1st to grow *U. australis*. In the 4+ months, the entire bowl is chokers full of growth and many flower heads have finished and are now going to seed. It's enough that we spread it out to our large ceramic fish bowls, where the native snails are thriving too, as well as several types of water plants.

REDFERN NATURAL HISTORY
PRODUCTIONS LIMITED

NEW CARNIVOROUS PLANT PUBLICATION & CONSERVATION PROJECT

Dear Carnivorous Plant Enthusiast,

As hobbyists we are all aware of the imminent threats facing the majority of carnivorous plants distributed across our world. Several genera are listed in CITES *Appendix II* and thereby considered potentially threatened with extinction. More worryingly at least a dozen species are individually included under *CITES Appendix I* and therefore imminently imperilled. Perhaps the most disturbing example is that of *Sarracenia*, in the South-eastern United States, where at least 98% of the original wetland habitat has already been destroyed and alarmingly even the last, remnant patches continue to be under siege.

It is clear that the current rate of environmental destruction and loss of biodiversity is unsustainable. The risk of extinction of dozens of carnivorous plants species in the wild will loom ever greater in the coming decades. The disappearance of these extraordinary and spectacular plants from natural areas around the world is a tragedy that we cannot allow to take place.

Over the course of the past six years, I have undertaken the task of observing and documenting the diversity and ecology of all known carnivorous plant genera in their wild habitats. During 2006 and 2007, five new books will be released that document the remarkable multiplicity and beauty of carnivorous plants focusing in particular on lesser known and

more imperilled species. Each book is designed to provide a useful account of ecology and diversity as a conservation resource and also to serve as a uniquely detailed and visually spectacular overview that will interest horticulturalists and enthusiasts of all backgrounds.

I will sell copies of each title personally through my online company **Redfern Natural History Productions** and use profits to purchase carnivorous plant habitat that will be donated for sustainable management and permanent protection. My goal is to set up a substantial multi-acre carnivorous plant preserve in the south east of the United States of America within two years – to provide a future for some of the most imperilled species of *Sarracenia*, *Drosera*, *Utricularia* and *Pinguicula*.

The first book to be released is *Pitcher Plants of the Americas* - - a uniquely detailed study of the natural diversity and wild ecology of the American pitcher plants (*Brocchinia, Catopsis, Darlingtonia, Heliamphora,* and *Sarracenia).* This work is intended to be the most substantive and up to date overview of the worlds largest and most spectacular group of carnivorous plants which occur across the most barren and least explored areas of the American continents. Enhanced through the use of over 230 spectacular colour images, *Pitcher Plants of the Americas* represents the first complete overview of the systematics, biology, ecology, biogeography, conservation, and horticulture of the five genera of American pitcher plants as well as the most extensive photographic record of this remarkable and very beautiful group of plants. All currently known forms and varieties of each species is described and examined in detail, in many cases for the very first time.

The introductory chapters of this work outline the taxonomic content and groupings (by trapping methods) of carnivorous plants and briefly review the taxonomy, biology, evolutionary history, and biogeog

raphy of the American pitcher plants. The following five chapters are devoted to individual genera of the American pitcher plants and examine in detail the anatomy, habitat, ecology, trapping process, and distribution of each genus and each member species as well as many naturally occurring hybrids and selected cultivars. The concluding chapters summarize the current conservational status of each family of American pitcher plants in terms of the nature and extent of habitat loss and the resulting threat of extinction and the study closes by considering the various successful conservation approaches and initiatives which are helping to secure a bright future for these rare plants. A more detailed overview and over 40 sample images featured in this work is provided at www.redfernnaturalhistory.com

If you would like to obtain a copy of this book and would like to actively support the conservation of carnivorous plants and their habitats, I warmly invite you to visit www.redfernnaturalhistory.com or email me personally at stewart.mcpherson@redfernnaturalhistory.com

As this project generates profit, I will keep you informed with updated information and report how the intended natural reserve plans are progressing.

Thank you for your enthusiastic support and help.

Stewart McPherson

Absolutely no carnivorous plants at all or any other wildlife were deliberately harmed during the publication of these books

Cephalotus follicularis

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When the *Cephalotus* follicularis was first given to me kindly by Richard Sullivan, it was on the condition that I should write an article on its progress for Carniflora Australis. It was then a leaf cutting with a couple of small pitchers, the largest being about 1.5cm in height. It was growing on a mound in what looked like coarse sand, pine bark and peat moss. In the time until it went dormant it put up a couple of smaller pitchers that were approximately 1cm high. It soon went dormant and started putting up very small non-carnivorous leaves. I started to water it slightly less.

Around September it finally came out of it's dormancy. I could see tiny dark green pitchers starting to form in between the he clumps of non-carnivorous leaves. One of the pitchers was particularly large (about 3cm). I waited for it to grow and by the time it was fully developed it was a little over 4cm high. In colour the plant was a bright green for I had no suitable area with plenty of sunlight to give it that rich crimson colour seen in so many brilliant Cephalotus.

It was around the end of October that I purchased a very small and inexpensive greenhouse from Bunnings, which I placed in the shade (around 60% – 70%). In it I put many carnivorous plants, orchids and other tropical plants. However, just a few days after it was up and running, there was an extremely windy day (up to around 90km/ph at Sydney Airport) and when I arrived home the greenhouse had fallen of some of its weaker foundations and more than half of the plants were on the floor. To my distress, the Cephalotus that I had been so excited about had

Cephalotus follicularis pitcher in moss

come completely out of its pot, roots and all. Indeed I had had to spend quite a while rummaging through much soil, peat, sphagnum and plants until I found it.

Eventually I did find it, being squashed into the ground by a heavy *Brassia* pot. It was a bit bruised but I hoped that no irreparable damage had been done. It was lucky that I had taken note on it's soil mix for now most of it was mixed with all of the other potting mix's on the greenhouse floor. I tried to scrape as much of it's original mix as was possible and then made a pretty good imitation of it and filled up the rest of the pot with that. I planted the remaining plant on a mound and wrapped a strand of *Sphagnum* around the base to keep it slightly more humid while it was acclimatising (I hoped at the time that this was a good idea).

The greenhouse has since been restored, reinforced and replanted and everything is growing splendidly. Especially the *Cephalotus*. It is now a rather large plant and has numerous (over 20) large pitchers, the largest being 4.5cm! It put up a flower stalk which regrettably came into flower while I was away for an extended period of time and I was thus unable to pollinate it. It is however growing well and plays host to a family of spiders which have woven a web all around the plant. It's extremely hard to deal with but I don't think it's of any detrimental effect to the plant.

Until next time, happy growing!

Cephalotus follicularis with 4.5cm pitcher

Tasmania

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This year I was lucky enough to be able to spend ten days in Tasmania observing and photographing many of the carnivorous plants of Tasmania. I was travelling with my partner Michelle, Stewart McPherson and Andy Smith from the UK and Darren (Spot) Cullen from Hobart for parts of the trip.

Tasmania is a large island off the south eastern corner of Australia. It lies at a latitude of between 40 and 43.5 Degrees South and is very mountainous. Habitats vary from the sandy dry heathlands of the east to the alpine moors of the central highlands and many niches in between. Of the fifteen recorded species, we were able to locate ten species in only a few days.

Michelle and I arrived in Tassie a few days earlier than Stew and Andy. This allowed us to see a few of the tourist attractions and stock up on chocolate at the Cadbury factory! Naturally I always had my cp seeking nose in the air but although I spotted some good habitat, no cp at all! Luckily we were to meet up with Spot who promised to point us in the right direction.

After meeting with Spot, Stewart and Andy at Hobart airport we headed to Spot's place to discuss our plan for the next three days and check out his beautiful collection. Given the cool conditions encountered year round in Hobart, Spot grew mostly *Sarracenia* and *Drosera* outside. His *Drosera binata* growing in tall terracotta pots were spectacular. He also successfully cultivates *Nepenthes* and a few others indoors.

After lunch we headed to Mt Wellington in hope of finding a few *Drosera arcturi*. The sun was shining brightly in Hobart when we left as it was only twenty minutes later when we arrived at the summit. By the time we had walked a hundred or so metres from the carpark to a small depression the wind had picked up to what seemed over a hundred kilometres an hour! Dark clouds filled the sky followed shortly after by horizontal snow! While Stewart and Andy tried to photograph the few tiny specimens of *D. arcturi* I laid as flat to the

Figure 1. Left to right, Andy Smith, Stewart McPherson, Darren "Spot" Cullen and Greg Bourke in the Hartz Mountains

ground as possible to preserve what body heat I had left. Before long it became too much for everyone and we made a hasty retreat to the car. It had been so long since I had been in alpine conditions I had forgotten just how swiftly conditions can change. Luckily, the car took us straight to the pub where the body was warmed with the aid of Voldka.

Day two took us to the Hartz Mountains (**Figure 1**) south west of Hobart and this time I was prepared! The weather was fairly poor with wind and light rain on arrival at the carpark. Again we were hunting for *D. arcturi* and it was not long before we were in luck. Growing in the drainage lines amongst pineapple grass (*Astelia alpine*) we found many large plants of the archaic *Drosera*. With leaf blades over twice the length of those found on Mt. Wellington we were all quite impressed. It must be noted that the conditions here are not as harsh as those on Mt. Wellington and it may simply be environmental factors that restrict the size of plants at the latter location.

After some time photographing the *Drosera* at this location we decided to head further out to look at plants on another trail. After all, the weather seemed to be getting better! We were soon rewarded with many small plants found growing along side the boardwalk. The vegetation changed as we hiked with clumps of the Bromeliad

Figure 2. *Drosera arcturi*

Figure 3. *Utricularia dichotoma*

like *Richea pandanifolia* and *Telopea truncata* found growing amongst sub-alpine woodland. This soon changed back to low (>1.5m) Coniferous shrubbery and Sclerophyl heath where *Stylidiums* and *Drosera* were commonly encountered. There was even a species of a few species of ferns including a species of *Gleichenia* (*G. alpina*) which I usually relate with cp habitat.

As we got further from the car (and warmth and chocolate!) the *D. arcturi* got bigger and better! Occasionally we found large cushion plants with many *D. arcturi* growing in them (**Figure 2**). Also in this area grew what is referred as a giant form. These plants grow less trapping leaves than the typical form (often only one) but as the name suggests, the leaves are much longer. We found plants with leaf blades up to 17cm in length at this site! Again as we returned to the car, the wind picked up and snow fell.

Lake Pedder was our next stop. We drove west of Hobart for an hour and parked right next to the lake. Carnivorous plants were abundant in the drainage lines leading into the lake with the following species encountered. *D. auriculata, D. binata, D. pygmaea, Utricularia dichotoma, U. lateriflora, U. monanthos*, and *U. uniflora*. Of

Figure 4. *Utricularia monanthos*

particular interest was the D. binata which was found to be forked up to 6 times. Otherwise, these plants were typical of the "T form" with narrow red lamina and short (>30cm) self supporting petioles. I was also interested to see the differences between *U. dichotoma* (**Figure 3**) and U. monanthos (**Figure 4**) given that they were found growing side by side. I have no doubt that these two are distinct species. *U. monanthos* keeps its flowers so low to the ground it is very difficult to locate. It is likely that this species attracts a different pollinator to *U. dichotoma.*

After a long day at Lake Pedder we bid farewell to Spot, Michelle went site seeing and the rest of us headed up the north/east coast in search of *D. spatulata* and *U. australis*. Spot had pointed us towards a small lake only 100m from the beach near St Helens. This lagoon reminded me a lot of Jibbon Lagoon near Sydney in both topography and botanically. We found *U. dichotoma* flowering just above the water line and a few strands of *U. australis* growing amongst the reeds. What was most exciting though was the *D. pygmaea* (**Figure 5**) found growing in the peaty soil above the high water mark. Literally millions of plants growing on the north and western sides of the lagoon. *D. spatulata* was also found in this area but was nowhere near as successful as the pygmy.

Another day and we bid farewell to Andy who headed to Queensland in search of warmer weather. This left two days for Stewart and I to explore a loop right across the centre of the island, up to Cradle Mountain and down through the centre. This is an area that probably requires a week as a minimum to explore just the roadside properly.

On the road between Hobart and Queenstown there is so much good habitat for carnivorous plants. We stopped roughly every 5km once out of the farmland. It didn't take long before we found *D. peltata*. These plants were typical of the

Figure 5. *Drosera pygmaea*

"gracilis form" being red and slender. We also located at the same site *U. dichotoma, U. monanthos* and an interesting dwarf form of *D. binata.* These plants had petioles no longer than 7cm!

As we came through the hilly area closer to Queenstown we located a good colony of *D. auriculata* with hundreds of plants glistening in the afternoon sun and a colony of *U. uniflora* with three distinct colour forms.

On our last day of botanising, we headed to Cradle Mountain National Park in search of *D. arcturi*. We stopped at many locations along the way. One site yielded more plants of the "Giant form" of *D. arcturi* but this time they were found in rocky soil on the side of a hill. Nearly all the plants at this site had only one long trapping leaf. Stewart found one specimen with no carnivorous leaves at all! We spent some time here photographing these spectacular plants while being hounded by hundreds of March flies before heading up to Cradle Mountain.

In a small depression beside the road near Cradle Mountain we found *U. dichotoma* and *D. arcturi*. It was again a different niche to find the latter species as they were

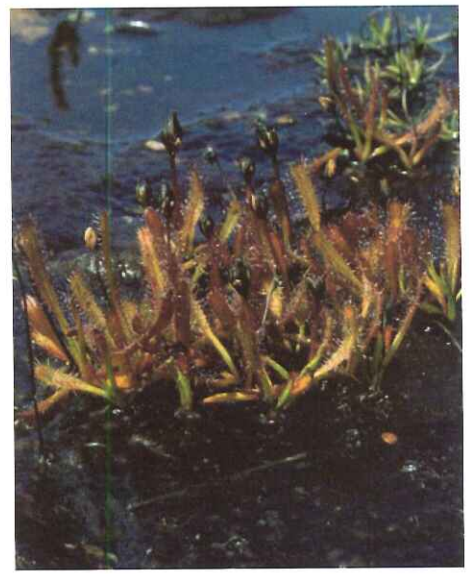

Figure 5. *Drosera arcturi* at Cradle Mt.

growing in clumps protruding from the still water of this shallow pond. Unfortunately we only had a short period to photograph before making the long dash back to Hobart to meet up with Michelle.

Tasmania is an amazing place with some of the most amazing scenery I have seen anywhere! Carnivorous plants are abundant at many natural tourist attractions as well as being common at the roadside. If you have not yet been to Tasmania, plan a trip around Christmas time and enjoy the beauty. Don't forget to pack warm clothes!

Notes to contributors

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Contributions to the journal may be submitted on 3.5inch (PC) disc, CD or by email. Use Microsoft Word whenever possible. For instructions on submitting photographs and diagrams please contact the editor (sydneycarnivorous@iinet.net.au). Contact details are preferred for publication but may be excluded by the authors request.

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