

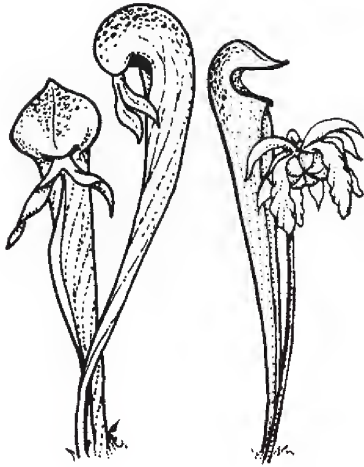
CARNIVOROUS PLANT NEWSLETTER

Journal of the International Carnivorous Plant Society

Volume 41, No. 2

June 2012





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Front Cover: This issue of CPN is dedicated to the memory of Peter Taylor. The cover photo was originally printed in CPN vol. 20, no. 1-2, March-June 1991.

Carnivorous Plant Newsletter is dedicated to spreading knowledge and news related to carnivorous plants. Reader contributions are essential for this mission to be successful. Do not hesitate to contact the editors with information about your plants, conservation projects, field trips, or noteworthy events. Advertisers should contact the editors. Views expressed in this publication are those of the authors, not the editorial staff.

All correspondence regarding dues, address changes and missing issues should be sent to the Membership Coordinator at the ICPS. Do not send such correspondence to the editors. Checks for subscriptions should be made to the ICPS in US funds. Dues for 2012 are \$35 for the first year of membership; renewals are \$30 per year.

ICPS, Inc.
2530 Patra Drive
Richmond, CA 94803, USA
icps@carnivorousplants.org

President	Michael Baldwin, michael@carnivorousplants.org
Vice President	Marcel van den Broek, marcel@carnivorousplants.org
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Board Member	Brian Barnes, Conservation Director, brian@carnivorousplants.org
Seed Bank Manager	John Brittnacher, john@carnivorousplants.org (see seed bank ad in this issue)

Editors:	
Managing Editor	Bob Ziemer, bob@carnivorousplants.org
Science Editor	Jan Schlauer, jan@carnivorousplants.org
Science Editor	Fernando Rivadavia, fernando@carnivorousplants.org
Editor	Barry Rice, barry@carnivorousplants.org

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Peter Taylor at Royal Botanical Garden, Kew in 1973. Photo courtesy RBG, Kew.

ICPS BOARD – WE ARE RECRUITING!

The ICPS Board of Directors is recruiting for a board member vacancy that will become available in January 2013. This is an important time for the ICPS as we are evolving in the 21st Century. There are many exciting opportunities ahead. This is a working board so we are looking for a capable individual with a passion for CPs. Exposure to non- or not-for-profit organizations is a bonus and would help us cultivate our future. It's a great chance to work with and make friends with people around the world – and to make a difference by helping to encourage the cultivation, conservation, and appreciation of CPs!

If you are interested and would like more information please feel free to contact us. If you would like to apply – please email a letter describing why you are interested, and how your skills and relevant experience can help the ICPS thrive to: michael@carnivorousplants.org

PETER GEOFFREY TAYLOR
1926-2011

Born the 16th of January 1926 in Dunstable – departed the 20th of October 2011 in Kirdford.

For many people the name Taylor is associated with an unpretentious blue book on remarkably beautiful plants—the monograph he wrote on the genus *Utricularia*. However, there is much more to this remarkable man.

Peter Taylor was largely self-taught in botany and entomology, his main scientific interests; originally he was trained as a cabinet maker. During World War II he worked in a factory that produced military vehicles. During this time he met several people, including a Kew botanist serving in the army. This resulted in an invitation to work at Kew, which he accepted in 1948.

Peter worked as an assistant at the herbarium and supplemented his income by doing all kinds of extra work, making some excellent illustrations among them. The Deputy Keeper of the Herbarium, Edgar Milne-Redhead, noticed these drawings and asked him to make drawing of *Utricularia* he had collected in 1937, in what is now Zambia. A lifelong fascination with these plants was born. He began his own studies of the genus, and in 1954 he named his first species (*Utricularia pentadactyla* P.Taylor).

Peter advanced in the Kew hierarchy and in 1972 was named head of the Orchid Section of the herbarium. He occupied this position until 1984, while continuing to work on *Utricularia*, often in his own time. For example, he published many regional treatments on the genus.

During the last years before his retirement in 1986 he finally got the opportunity to work full time on his beloved *Utricularia*. This resulted in the global monograph for which he is rightly famous (The Genus *Utricularia*: a Taxonomic Monograph, Kew Publishing, 1989, ISBN 0947643729), which he finished in his spare time in 1989. After more than 20 years, his magnificent work is still the best book on *Utricularia* around.

Even after all these achievements Peter didn't sit down in his retirement. He was still working on his plants, and produced more regional works. In 1991 the ICPS did a special issue focusing on *Utricularia* and *Genlisea* (Carnivorous Plant Newsletter vol. 20, number 1&2). For this issue Peter produced not only a totally new key to the *Utricularia* of North America that could be used for both flowering and non-flowering specimens, but also a revised world list of *Genlisea* accompanied by some of his excellent line drawings.

In 1994 he brought herbarium specimens of an undescribed member of the Scrophulariaceae family to Ray Harley. Peter had finally found time to describe specimens he and David Philcox received in 1966. Harley made the connection to specimens collected in Brazil and under study by Vinicius Souza at the University of São Paulo. In 2000, 34 years after the first collection, the genus *Philcoxia* was described in Kew Bulletin (Kew Bulletin 55, 155-163). Research on the possible carnivorous nature of this genus is ongoing.

Meanwhile, at home he paid attention to managing a woodland that he owned, producing wood for his woodworking that went from cabinet making to the building of high-end musical instruments, specifically harpsichords and clavichords.

On the entomological side of things, he managed his woodland so well that he was able to have about half of the British butterfly species on his own land, most notably the Purple Emperor (*Apatura iris*).

Peter died peacefully in his sleep at his home in Kirdford.

The International Carnivorous Plant Society offers its condolences to his wife Shirley and to his family.

MARCEL VAN DEN BROEK
Vice President ICPS Board of Directors
marcel@carnivorousplants.org

MEMORIES OF PETER GEOFFREY TAYLOR (1926-2011)

GILBERT TAYLOR • Christchurch • England • UK • gilbygrape@hotmail.co.uk

I'm Peter's eldest son. I would like to share with you some of my memories of my Dad—in particular his many other skills beyond botany; he was always a scientist and curious about how things worked and this has been passed on to me, except I'm interested in mathematics and physics. I'm very proud of my Dad and was pleasantly surprised how often his name appears on the web, especially since he didn't touch it himself. Because these web references are largely in the context of *Utricularia*, I want to get some of his other interests on file. For example, he was an especially fine cabinet maker and I have many pieces of furniture made by him. He has made quite a few ancient keyboard instruments. He also had a great love of butterflies and other insects.

Before I was Born – WWII Stories

My Dad was only 13 when WWII broke out. He spent his time collecting and raising butterflies in Bedfordshire. Of course caterpillars have to eat! They are quite fussy so my Dad developed an interest in plants and botany as well. My Dad cycled everywhere on these trips. When my Dad left school he was apprenticed to Commer Cars, and made armoured cars and lorries in their metal workshop. My Dad was very fond of telling stories about when he was a lad and here are a few....



My Dad with his Baffo harpsichord in his workshop at Kirdford. Photo from David Hunt.

Once, while out botanising during the war on his bicycle he sat down for his lunch beside the road. Only later did he realize he was resting on stockpiled canisters of chlorine gas. The Germans never dared use gas in WWII, but we kept our own supply just in case.

Once my Dad was cycling home during a blackout. He tucked in behind a car because its lights were better than his. He kept his eyes on the car's rear lights, but ended up following them all the way up their drive by mistake, it was so dark.

Towards the end of WWII a V2 missile struck the canteen where he was apprenticing at Commer. He used to describe how it raised the roof of the building he was working in and then how the dust settled back in place. A newspaper article that covered the event noted that 19 people were killed.

When my Dad was given the opportunity to work at Kew, the Foreman at Commer Cars offered him an extra penny an hour to stay. (My Dad went to Kew anyway.)

My Dad told me that the pesticide used to kill insects on plant specimens at Kew was the same stuff the Germans used during the war. My Dad used to recount how he would open a tin and putting it quickly in with the plants in a cabinet that could be exhausted afterwards.

Africa Stories

Soon after my Dad and Mum got married he went on a botanising trip (Sept. 1955—Aug. 1956) to East Africa for Kew. He went with Edgar Milne-Redhead who was to become one of my god-parents. They visited the Songea district of Tanganyika (now Tanzania). My Dad had his 30th birthday while in Africa. This trip resulted in countless stories that he loved to recount....

My Dad and Edgar were travelling in the deserted country between two towns—no one was in sight. As they drove, they saw an African in khaki uniform at the side of the road who flagged them down. He asked if one of them was Peter Taylor. Apparently there was a phone call for my Dad! The man promptly shinned up a telephone pole, attached a phone to the line, and handed it to my Dad. (I think it was to say a part for one of their vehicles was ready; it had been specially flown in.)

The bridges on the East African road were always being washed away in the wet season, so my Dad designed and helped the Africans build a good one. He was obviously very proud of its construction. He took photos of it and colour film was expensive! Every night while on safari, my Dad and Edgar engaged in the nightly ritual of changing the paper in the plant presses. They had a drying tent, and one night it caught fire. They didn't lose any plant presses, but their straps (or rather what was left of them) had to be sown together. Dad had lots of these canvas straps at home, they were very useful.

One night their sleeping tent was burgled. One of their African "boys" threw a machete after the escaping burglars, and the blade glanced one in the back of the neck. This culprit was arrested when he went to a local doctor for stitches. He was lucky not to be more seriously damaged! Most of the stolen stuff was recovered; the burglars dropped most during their escape.

Phillip Cribb at my Dad's memorial at the Linnean Society said my Dad made a model of their camp, which is still at Kew. Phillip Cribb is the son of Peter Cribb one of my Dad's butterfly friends that he met through the Amateur Entomologists' Society.

My Dad picked up a little Swahili while he was in Africa. I got the impression Edgar was the boss and my Dad did the work that couldn't be done by the Africans. One time my Dad asked the Africans what a river was called. Later he discovered the Swahili word he had been given as an answer was simply "River"!

Childhood Memories

We lived in two houses during my childhood. The first house (Old Manor Drive) didn't need much work, but the second house (Conway Road) required a lot of restoration work. My Dad did everything himself and was a very capable carpenter, brick layer, and plasterer. He would try his hands at anything....



A bridge that Peter and helpers made. And, yet, there was always another missing bridge.

My Dad kept us children under strict control and followed the mantra “Children should be seen and not heard”. He brought back from Africa a large heat-hardened spoon-like paddle. This was used as a threat so that we would be good. My Mum says she was under strict instructions to make sure all toys were put away before he got home from work. At the dinner table I still can't eat food quickly because it has to be chewed first. I certainly wouldn't eat with my mouth open or talk with my mouth full.

As a child I used to hang around with my Dad in his workshop; often holding pieces of wood while he chiselled. The smell of wood shavings was quite intoxicating. One time he said “Hold it still, don't worry about the chisel, you'll mend—the wood won't.”

Peter made us children a climbing frame with a difference: a reproduction of an Apollo service module, complete with a capsule on top. It was made from sheet aluminium wrapped around a wooden frame. This was around the time that man landed on the moon. Other friends were quite envious.

Also because we were Dr Who fans, Dad made Dalek costumes for us. They had wooden head bits like an inverted barrel, an eye piece, silvered cloth bodies and arms. EXTERMINATE!

At Conway Road he added a brick extension to our house. He did all the doors, windows, plumbing, and electrical wiring himself. I remember this house had many doorways filled in and alternatives knocked through. That was a lot of door hanging, brickwork, and plastering. He also built and installed a new set of stairs. It was assembled in his workshop and had to be moved to the house. His helper joked that it would never fit, but my Dad was confident and it fitted the first time.

I still remember when I was first allowed to eat dinner with my parents. I was sent to bed as usual and had to creep down later. I recall us children listening at the top of the stairs in our pyjamas when my parents were entertaining.

My Dad was one for routine, especially meals. When my Dad got home after work we would all sit down at the table for tea at 17:30. We would always sit at the table as a family. He had made the table, but not the chairs, he didn't like chairs. We would have bread, butter, and jam followed by some cake and biscuits. The jam was homemade and so were the cakes. This is a very middle class custom. Afterwards my Dad would disappear off to his workshop. We children always had dinner earlier and then my parents always had dinner at 19:30—that was the rule. Dad always came in when the dinner was about to go on the table. The routine and hobbies were only possible because of the tireless efforts of my Mum.

We didn't have a television until a primary school teacher observed that my current affairs awareness was rather poor. My Dad was against the TV and called it the "goggle box".

My Dad planted a plant that smelled like rotting flesh at the bottom of the garden in our 2nd house (Conway Road). It was outside his workshop! I never understood this, but it appeared to amuse him.

My Dad was certainly a perfectionist, but he allowed my sister to paint the underside of his 1st harpsichord lid – the bit that is visible when the lid is up to play. This was quite an honour. Sarah was allowed to paint one small mammal in addition to my Dad's plants and butterflies. My sister enjoys painting the eyes of birds and mammals.

I have many memories of walks in the country as a family. My Dad knew many places that few people went on the North Downs. At one place that we visited often, which my sister called The Walking Place, was awash with butterflies. You could sit still and let them come to you. My Dad caught many butterflies there, and he always had a fold-up net with him.

Once my sister and I got stuck while climbing the walls of a chalk quarry that we used to visit. My Mum had to find another way to the top and lowered a rope. My Dad followed us up and got us all to the top. We were very tearful and sorry we had caused so much anguish and stress.

My Dad always encouraged an interest in many scientific subjects and I was introduced to astronomy, chemistry, geology, and electronics. My Dad's technique was to take an interest in something and see what took hold. For example, he made short-wave radios. We always had a long horizontal aerial setup while camping. In those days you could order and have posted some pretty nasty chemicals. We had a cellar at our second house so I had a lab down there. My Dad allowed me to play with concentrated sulphuric and nitric acid, etc. Eventually my interests shifted to electronics and especially computers. (I am now a software engineer.)

One of my secondary school projects was a pen and paper recorder like you see on seismographs, but my project was to record the voltage decay of a battery. I made my recorder from Meccano fabrication kits, and some wood/metalwork that my Dad supplied.

I have a picture in my mind of my Dad with a stainless steel magnifying glass around his neck and a sharp pen knife in his pocket. One camping holiday I closed my pen knife on my finger and nearly chopped the end of my finger off. Luckily I didn't have my pen knife as sharp as my Dad's! As my Dad said so long ago "I'll mend" and I did.

One time when I was a teenager and late home my Dad locked me out and went to bed. I would have had to wake the house to get in, but luckily my wrist was so small that I managed to get the chain off the door. Another time my Dad mentioned that his Dad had locked his sister Mary out as well, but she managed to climb in a bedroom window with my Dad's help.

After Retirement from Kew (Kirdford, Woods, and Me in My 30s)

After he retired from Kew, my Dad bought himself 10 acres of woodland near Kirdford. There were two woods, one largely hazel (Bow Copse) and the other oak and ash (Spar

Rough). In the oak and ash wood he installed a large band sawmill, driven by a tractor that was also used to attach a forklift. I spent many weekends and holidays in these woods. My Mum and Dad spent almost all their time in the woods. He had a wood workshop (band saws, planning machines, and vertical drills), a metal workshop (lathe, milling machine, and vertical drills) and a metal heat treatment workshop at Kirdford. The barn was full of various woods, a lot of it oak from the woods. My Dad was fascinated by a species of fly that laid their eggs in the end of freshly cut oak logs. The flies always turned up when a freshly cut log was available. Dad would wonder aloud, “How do the flies know when a fresh log was available”, and “What did the flies do before mankind started cutting logs with saws”? The fly larvae would emerge from the end of the logs when they were wet. He used to conduct experiments with logs outside in his garden. He had three microscopes in his study, one with a camera attached.



My Dad and Mum (Shirley) in the hazel copse wood (Bow Copse) with George Higgs who does nice water paintings of butterflies and moths.

Also he always had many keys jangling from his pocket, for the large number of out-buildings in the garden (wood workshop and extension, metal workshop, metal annealing workshop, garage). He was king of workshops and their extension. They could never be big enough.

I have many a fond memory about the woods. I recall the initial checking of the boundary for rabbits that have dug their way under the fence. My Dad used to have a shotgun and shot any rabbits that had got into the woods. (How dare the rabbits eat his plants?) We would light huge bonfires after clearing the undergrowth. He would always point out a “rare plant” of which he was proud. It was rare for the area, not for the country, but I don’t recall its name.

The Hazel Copse wood was especially nice because it would change throughout the seasons. Spring was marked by the arrival of the wood anemone, primroses, and then the bluebells. Fox-gloves were next. Adders basked in the sun, as woodpeckers pecked overhead. It was very lovely.



Dad's first instrument (left), a clavichord dated 1965. My sister Sarah did the painting on green harpsichord (right) and my Dad was very fond of the Latin phrase on underside of the lid (*Sic Transit Gloria Mundi*). Photos from David Hunt.

One of the trees he cut down was too big for his sawmill so we split it apart with wooden wedges banged in with a sledgehammer. When a wedge disappeared into the trunk, another was used to proceed. Eventually the trunk split in half and was small enough to fit on sawmill. (The trick was not to run out of wedges.) We used sawmill “dogs” to hold the log in place. Dad didn’t like real dogs, as one terrorised him in his pram when he was a baby. I think he liked banging the sawmill “dogs” hard.

My Mum and I used to dig ditches and otherwise repair the track leading to one of the woods. One day we were not amused when a fox hunt galloped along the track, undoing all our efforts. One winter we set up a clay pigeon trap in one of the woods. We both enjoyed that.

We would break at 11 o’clock for coffee (with plain biscuits) and 3 o’clock for tea (with chocolate biscuits) in the Shepherd’s Hut in Spar Rough. We dug a large pond that we called Shirley Lake. We had another pond at the front of the wood that was good for dragonflies.

My Mum and Dad were staying in Kew on the night of the Big Storm of 1987. Many oaks came down on their property, including one that fell through some overhead electricity cables. Luckily my Dad had his chainsaw in the car; otherwise they wouldn’t have got home—even with it, they had to make many diversions. We’d fell trees with my Mum and me pulling on a rope to help bring the tree down in the correct direction while my Dad worked with a chainsaw. After it was felled we all set to dismembering the tree. The smaller stuff for burning and the trunk for sawmill.

I have many of my Dad’s furniture that he made for me, including a table with twenty-four drawers. His drawers were always perfectly made. I have a lot of furniture that my Dad made from various woods: a walnut dining table, a CD case in ash, an oak desk, and bookcases made from London plane tree, mahogany, oak, and elm, and a kitchen table of elm.

My Dad has made clavichord, a virginal and several harpsichords. They have mostly been donated to the English Organ School and Museum (EOS) in Somerset. David Hunt (from Kew) and his wife Margaret Phillips founded the EOS and housed a few organs and my Dad’s instruments in a chapel.

When my Dad and I went down to the EOS to a recital once, Margaret played my Dad’s 1st harpsichord and when she was finished asked the builder to stand up. My Dad did some work for David Hunt when they were both at Kew—my Dad adapted David’s garage to get some organ pipes through the ceiling. My Dad paid for one of his granddaughters to have keyboard lessons. He was making her a small harpsichord when he died. He had almost finished an-

other harpsichord that was a replica of a harpsichord at the Victoria and Albert Museum, by Baffo. My sister is going to do the painting. Videos of my Dad and this harpsichord can be seen on line at <http://www.youtube.com/watch?v=Ma2xAGq66bo> (the original Baffo at the V&A) and <http://www.youtube.com/watch?v=ve9v51YB-8M> (Dad's replica).

I remember the changing the caterpillar food ritual for butterflies he was breeding for release in his woods. My Mum had to continue this ritual while my Dad was off on his various botany trips in America, Australia, and India. Obviously he made the butterfly cages. When he stopped collecting butterflies he collected moths using a moth lamp in the back garden.

His chair at home was surrounded by books. He had many dictionaries in different languages, thesauruses, and books on etymology. He loved words and their use. He also had a love of limericks especially if they were a little risqué.



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MY MEMORIES OF PETER TAYLOR

DR. RAY M. HARLEY • Honorary Research Fellow • Royal Botanic Gardens • Kew • and Visiting Professor • Federal University • Feira de Santana • Bahia • Brazil • rharley05@aol.com

I first met Peter Taylor when I was at Oxford University, reading Botany and attending lectures on plant systematics given by E.F. (Heff) Warburg, one of the leading authorities on the British flora. I had been selected for a University expedition to East Africa, to the Mahali Mountains, by Lake Tanganyika. Tropical East African Botany was at that time the principal flora project at the Royal Botanic Gardens, Kew, which was why I arrived there in 1959, as a young student still wet behind the ears, to be given a crash course in collecting plants in East Africa. One of the most memorable activities was a long session going through a newly arrived collection of dried specimens and sorting them into the correct families and providing provisional determinations, where possible. These occasions, known as “family sorts”, were popular events and involved most of the botanists in the Kew Herbarium who studied tropical African flora. It was on one of these occasions that I first met Peter. I was meeting a lot of new people at Kew, and so my memories are somewhat unclear at this juncture, but I remember him as being very approachable, extremely helpful with good advice and a good sense of humour. It was later, on my return from the expedition to Africa that I got to know him better, when I was studying some of the plants we had collected, and was occasionally invited on local field trips to the English countryside with members of Kew staff. Peter was originally much interested in ferns and gave me good advice on recognizing hybrid horsetails (*Equisetum*) in the field.

It was some years later, after a period as lecturer at Bristol University, that I applied and gained a post at RBG Kew, enabling me to study the flora of Brazil. At this time, Peter was much involved in the study of *Utricularia*, and encouraged me to make detailed collections, including material in spirit to include the traps, which were taxonomically important. In 1971, I joined a group from the New York Botanical Garden, led by Dr. Howard Irwin, and spent several months in Minas Gerais, Goiás, and Bahia States, collecting a fascinating range of flora, both the Lamiaceae, which was my own particular interest, but also a whole range of species of *Utricularia*. It was the first time that some of these had been collected with traps, as most collections are made only of the aerial parts. When subsequently I organized a series of expeditions to Bahia, to study its rich flora, I made sure to continue my *Utricularia* activities. Peter was always pleased to see this material, and occasionally jokingly said that he was going to name a species after me. At this time, he had a rather beautiful young lady assistant, originally from Sweden, and he enjoyed teasing me about what he thought was my obvious interest in her. Among the plants I had collected in Bahia was a small terrestrial species with small white or palest lilac flowers, growing in the Chapada Diamantina. One day, to my surprise, he said “Oh, by the way, I have named that species after you”. I looked it up, but it had a name that meant nothing to me! When I asked him what *Utricularia parthenopipes* referred to, he said, with a wicked smile, it was from the Greek, meaning “ogling young virgins”. I have dined out on that story quite a bit!

Apart from his botanical activities, Peter was also a brilliant cabinet maker in his spare time, selecting and maturing the timber that he used. He made a whole range of beautiful objects, including a harpsichord and, for me, rebuilding in oak the body of an antique grandfather clock.

The last project, that we worked on together, was after his retirement, when I was studying a new genus of Scrophulariaceae, which we had recently collected in Bahia. It was a strange little plant growing in an area resembling an inland dune, with the tiny peltate leaves sitting on the surface of the sand. The petioles and stems were all buried below the surface and there was a lilac haze

of many inflorescences of small flowers, covering a large area. At the time, we thought it might be Lentibulariaceae. While I was engaged in preparing text for a paper in which this plant would be described as a new genus of Scrophulariaceae, Peter came into my room, saying that he had been clearing out his desk, and handed me a folder. Inside was a small specimen with tiny peltate leaves which had been sent to him in the 1970s as a *Utricularia*, collected by Howard Irwin, in Goiás State. I am almost certain that, at this point, my jaw dropped! The specimen had been annotated by Peter as a new genus of Scrophulariaceae: *Philcoxia*, commemorating David Philcox from Kew who had worked extensively on the family. Peter had never got round to publishing it. I was able to show him a plate of the new but different species, which we had collected in Bahia. This had been drawn and sent to me by Dr. Ana Maria Giulietti, with whom I was collaborating, from the University of São Paulo and who was working with her student Vinicius Souza, specialist of Brazilian Scrophulariaceae. We four agreed to write a joint paper, and I was given the task of preparing the various texts and concerting any differences of opinion. Finally we had our paper, on *Philcoxia*, a new genus of Scrophulariaceae, accepted for publication in Kew Bulletin, and including a third species from Minas Gerais State, which Vinicius brought to our attention. It is most unusual to be able to publish simultaneously a new genus composed of three new species! That it has recently been shown to be carnivorous, is another fortuitous discovery, linking it even more closely to Peter Taylor and his magnum opus on bladderworts. Long will he be remembered by many of us as a distinguished botanist and a great friend.



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IN MEMORY OF A MENTOR

BARRY A. RICE • P.O. Box 72741 • Davis • California 95617 • USA • bamrice@ucdavis.edu

Twenty years ago I was a confused young scientist. Five years into my graduate studies in astronomy, I fit the classic stereotype of a distracted graduate student. The focus of my preoccupation was carnivorous plants.

I was a beginner in the carnivorous plant community, and my plant collection was microscopic. I wrote a few minor articles for Carnivorous Plant Newsletter (CPN), while I read, reread (and re-reread) my copies of books by Lloyd, Schnell, and Slack. Unfortunately, even those benchmark resources seemed to fall short of authoritativeness whenever *Utricularia* species were involved. This deficiency was further reflected in CPN travelogue articles—while explorers reported in detail all the plants they saw, they usually dismissed the *Utricularia* as “some yellow flowering utrics.”

With the 1989 publication of Peter Taylor’s *Utricularia* monograph, the landscape changed. Finally, in one place, we had a complete tabulation of all the *Utricularia* known, described in a consistent and uniform format. What a huge boon to science! “Taylor” was a challenge for my remedial knowledge of nomenclature, but I rose to the challenge and it became my constant companion. I literally read it cover to cover, species after species, like a novel. However silly this might have been, it shaped my understanding of *Utricularia* (and botany in general). The genus was fascinating because, while it was so big and complex, Taylor made it tractable to my methodical (if pedantic) mind.

One day in 1990, filled with enthusiasm and undeserved confidence, I wrote a letter to Taylor—in this case, Taylor the botanist and not Taylor the book. My letter was not very insightful; rather it was mostly filled with trivial thoughts, questions about the genus, and compliments about his monograph. I mailed it to him with the same feelings you might have in writing to a movie star—I was confident I would never hear from him. Much to my extreme pleasure, he quickly wrote back.

Peter Taylor wrote back!

And thus started several years of correspondence between us. To this day, I am astonished that he persisted in writing to me during those years. After all, he was enormously busy, being involved in drafting countless publications; in comparison I was a graduate student struggling to settle upon even a general direction for my professional path. Yet he took the time to write, and to mentor. It is a tangible expression of his humanity.

During our correspondence, we talked about many things—scientific puzzles, projects, and ideas. I also discovered that Peter (as he allowed and encouraged me to call him) had a wonderful sense of humor that came across the page marvelously. For example, he described a time in the USA when he needed an eraser—he visited a store and asked for a “rubber,” and was given something very different from what he expected! (Some of his other jokes are not appropriate for CPN!)

We quickly discovered we had a shared interest in device design and construction. In my graduate work I was using computer-aided design software and machine-shop equipment to fabricate a remotely controlled instrument that I would later use in my research with major mountaintop telescopes. Peter related that he had assembled a fully equipped and ever-enlarging metal workshop, and in it he built, among other things, harpsichords. Harpsichords! I point out that when Peter would

build something—bookcases, ornamental turning slide-rests, or other obscure devices—he would often start from raw materials, including wood from trees he had harvested from his own property.

The man would start with trees! And end up with harpsichords!

His attention to construction detail and craftsmanship was extraordinary—one of his turning slide-rests took several hundred hours to design and construct (and won him a silver cup at an annual meeting of the Society of Ornamental Turners). He also took pride in carefully preparing planks of “brown oak” harvested from his woods; I learned from him that this kind of timber is produced by *Quercus robur* that has been attacked by a fungus. This disease results in the normally pale wood being attractively dark brown, but otherwise the wood is left unimpaired in strength and working characteristics. With his busy schedule many of his projects took a long time to complete—he noted that his wife had been patiently awaiting the construction of a small element of furniture (from elm) for 15 years! But this was all fine with him—if one of his projects developed a temporary obstacle, he had many others to advance.

He obviously approached the construction of his *Utricularia* monograph the same way. The work spanned 40 years of labor, and was meticulously crafted.

Unfortunately, over the following years, Peter reported increasing problems with illness—not only his own, but also in his family. However, this was offset in part with delights, such as the arrival of his granddaughter. Despite obvious challenges in his personal situation he retained a positive outlook. Meanwhile, I had obtained my Ph.D. and had decided to leave astronomy to work for The Nature Conservancy. He encouraged my change in career.

At the same time I began my new career, I also took on many responsibilities helping to edit CPN. Stupidly, I stopped writing to Peter. This was a mistake. Despite the occasional free moments here and there, I never did write him again. This too was a mistake. Only when Martin Cheek at Kew wrote to me of Peter’s passing, did I fully realize how unwisely I had squandered my time.

I think that Peter would be happy to hear that I have fused my interests and now work as an astro-biologist during the academic session, and a botanist (largely focusing on *Utricularia*) on my breaks in the academic year. And, having taken a page from Peter’s generosity, I always reply to letters from beginners. I always try to find that time.

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PETER TAYLOR'S NOMENCLATURAL LEGACY (PHANEROGAMS)

Compiled by Jan Schlauer in memoriam of the great carnivorous plant personality

Part I: Names published by Peter Geoffrey Taylor (1926 - 2011)

Name	Publication	Family	Comment/Synonymy
<i>Acanthus guineensis</i> Heine & P.Taylor	Kew Bulletin 16(2) : 161 (1962)	Acanthaceae	
<i>Bidens paupercula</i> var. <i>filirostris</i> P.Taylor	Hooker's Icones Plantarum 36 : tab. 3580 (1962)	Asteraceae	<i>Bidens acuticaulis</i> var. <i>filirostris</i> (P.Taylor) T.G.J.Rayner
<i>Djaloniella</i> P.Taylor	Taxon 12 : 294 (1963)	Gentianaceae	monotypic genus
<i>Djaloniella ypsilostyla</i> P.Taylor	Taxon 12 : 294 (1963)	Gentianaceae	
<i>Faroa acuminata</i> P.Taylor	Bulletin du Jardin Botanique National de Belgique 41(2) : 266 (1971)	Gentianaceae	
<i>Faroa ffinis</i> auct. non De Wild.; P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 77 (1973), pro parte	Gentianaceae	<i>Faroa malaissei</i> P.Bamps, known from copper-and cobalt mines
<i>Faroa alata</i> P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 75 (1973)	Gentianaceae	
<i>Faroa chalcophila</i> P.Taylor	Bulletin du Jardin Botanique National de Belgique 41(2) : 265 (1971)	Gentianaceae	accumulator of copper and cobalt
<i>Faroa corniculata</i> P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 76 (1973)	Gentianaceae	
<i>Faroa fanshawii</i> P.Taylor	Bulletin du Jardin Botanique National de Belgique 41(2) : 267 (1971)	Gentianaceae	known from quartzite kopjes
<i>Faroa hutchinsonii</i> P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 76 (1973)	Gentianaceae	<i>Faroa amara</i> auct. non Gilg ex Baker: Hutchinson
<i>Faroa minutiflora</i> P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 79 (1973)	Gentianaceae	
<i>Faroa richardsiae</i> P.Taylor	Garcia de Orta, Ser. Bot. 1(1-2) : 73 (1973)	Gentianaceae	known from granite rocks on inselbergs
<i>Sebaea luteo-alba</i> (A.Chev.) P.Taylor	Taxon 12 : 294 (1963)	Gentianaceae	<i>Belmontia luteo-alba</i> A. Chev., <i>Exochaenium gracile</i> (Welw.) Schinz, <i>Belmontia gracilis</i> Welw., <i>Parasia gracilis</i> (Welw.) Hiern, <i>Sebaea gracilis</i> auct. non Spreng.: (Welw.) Paiva & Nogueira
<i>Sebaea teuszii</i> (Schinz) P.Taylor	Taxon 12 : 294 (1963)	Gentianaceae	<i>Belmontia teuszii</i> Schinz, <i>Exochaenium teuszii</i> (Schinz) Schinz, <i>Belmontia teuszii</i> var. <i>angustifolia</i> De Wild., <i>Tachitadenus continentalis</i> Baker, <i>Belmontia mechowiana</i> Schinz, <i>Exochaenium mechowianum</i> (Schinz) Schinz, <i>Tachitadenus mechowianus</i> (Schinz) Hill, <i>Belmontia chevalieri</i> Abbayes & Schnell

Name	Publication	Family	Comment/Synonymy
<i>Pelargonium apetalum</i> P.Taylor	Hooker's Icones Plantarum 36 : tab. 3579 (1962)	Geraniaceae	
<i>Gentlisea africana</i> subsp. <i>stapfii</i> (A.Chev.) P.Taylor	Flore d' Afrique Centrale Spermatophyt. Lentibulariac.: 58 (1972)	Lentibulariaceae	<i>Gentlisea stapfii</i> A.Chev.
<i>Gentlisea glabra</i> P.Taylor	Memoirs of the New York Botanical Garden 17(1) : 203 (1967)	Lentibulariaceae	
<i>Gentlisea hispidula</i> subsp. <i>subglabra</i> (Stapf) P.Taylor	Kew Bulletin 26(3) : 444 (1972)	Lentibulariaceae	<i>Gentlisea subglabra</i> Stapf
<i>Gentlisea oxycentron</i> P.Taylor	Flora of Trinidad & Tobago 2 : 288 (1954)	Lentibulariaceae	<i>Gentlisea pygmaea</i> St.Hil.
<i>Gentlisea pallida</i> Fromm & P.Taylor	Bradea 4(27) : 177 (1985)	Lentibulariaceae	
<i>Gentlisea uncinata</i> P.Taylor & Fromm	Bradea 3(41) : 365 (1983)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Aranella</i> (Barnhart) P.Taylor	Kew Bulletin 41(1) : 7 (1986)	Lentibulariaceae	<i>Aranella</i> Barnhart
<i>Utricularia</i> sect. <i>Australes</i> P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 179 (1989)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Benjamina</i> P.Taylor	Kew Bulletin 41(1) : 11 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Candollea</i> P.Taylor	Kew Bulletin 41(1) : 6 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Chelidon</i> P.Taylor	Kew Bulletin 41(1) : 10 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Choristothecae</i> P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 508 (1989)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Enskide</i> (Raf.) P.Taylor	Kew Bulletin 41(1) : 9 (1986)	Lentibulariaceae	<i>Enskide</i> Raf.
<i>Utricularia</i> sect. <i>Iperua</i> P.Taylor	Kew Bulletin 41(1) : 10 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Kamienskia</i> P.Taylor	Kew Bulletin 41(1) : 11 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Lloydia</i> P.Taylor	Kew Bulletin 41(1) : 6 (1986)	Lentibulariaceae	

Name	Publication	Family	Comment/Synonymy
<i>Utricularia</i> sect. <i>Martinia</i> P.Taylor	Kew Bulletin 41(1) : 7 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Meionula</i> (Raf.) P.Taylor	Kew Bulletin 41(1) : 5 (1986)	Lentibulariaceae	<i>Meionula</i> Raf.
<i>Utricularia</i> sect. <i>Mirabiles</i> P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 503 (1989)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Nelipus</i> (Raf.) P.Taylor	Kew Bulletin 41(1) : 15 (1986)	Lentibulariaceae	<i>Nelipus</i> Raf.
<i>Utricularia</i> sect. <i>Oliveria</i> P.Taylor	Kew Bulletin 41(1) : 13 (1986)	Lentibulariaceae	
<i>Utricularia</i> subgen. <i>Polypompholyx</i> (Lehm.) P.Taylor	Kew Bulletin 41(1) : 1 (1986)	Lentibulariaceae	<i>Polypompholyx</i> Lehm.
<i>Utricularia</i> sect. <i>Polypompholyx</i> (Lehm.) P.Taylor	Kew Bulletin 41(1) : 2 (1986)	Lentibulariaceae	<i>Polypompholyx</i> Lehm.
<i>Utricularia</i> sect. <i>Psyllosperma</i> P.Taylor	Kew Bulletin 41(1) : 8 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Setiscapella</i> (Barnhart) P.Taylor	Kew Bulletin 41(1) : 15 (1986)	Lentibulariaceae	<i>Setiscapella</i> Barnhart
<i>Utricularia</i> sect. <i>Sprucea</i> P.Taylor	Kew Bulletin 41(1) : 13 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Steyermarkia</i> P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 517 (1989)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Tridentaria</i> P.Taylor	Kew Bulletin 41(1) : 2 (1986)	Lentibulariaceae	
<i>Utricularia</i> sect. <i>Vesiculina</i> (Raf.) P.Taylor	Kew Bulletin 41(1) : 17 (1986)	Lentibulariaceae	<i>Vesiculina</i> Raf.
<i>Utricularia antenniferia</i> P.Taylor	Kew Bulletin 41(1) : 2 (1986)	Lentibulariaceae	
<i>Utricularia arnhemica</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia asplundii</i> P.Taylor	Opera Botanica, B 4(183) (Flora of Ecuador): 16 (1975)	Lentibulariaceae	

Name	Publication	Family	Comment/ Synonymy
<i>Utricularia benthamii</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia biovularioides</i> (Kuhlmann) P.Taylor	Kew Bulletin 41(1) : 16 (1986)	Lentibulariaceae	<i>Saccolaria biovularioides</i> Kuhlmann
<i>Utricularia buntingiana</i> P.Taylor	Acta Botánica Venezuelica 10(1-4) : 188 (1975 ?publ. 1976)	Lentibulariaceae	
<i>Utricularia cecilii</i> P.Taylor	Proceedings of the Indian Academy of Sciences, Plant Sci. 93(2) : 99 (1984)	Lentibulariaceae	
<i>Utricularia cheiranthos</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia choristotheca</i> P.Taylor	Kew Bulletin 41(1) : 14 (1986)	Lentibulariaceae	
<i>Utricularia christopheri</i> P.Taylor	Kew Bulletin 41(1) : 12 (1986)	Lentibulariaceae	
<i>Utricularia circumvoluta</i> P.Taylor	Kew Bulletin 41(1) : 9 (1986)	Lentibulariaceae	
<i>Utricularia corynephora</i> P.Taylor	Kew Bulletin 41(1) : 12 (1986)	Lentibulariaceae	
<i>Utricularia costata</i> P.Taylor	Kew Bulletin 41(1) : 7 (1986)	Lentibulariaceae	
<i>Utricularia determannii</i> P.Taylor	Kew Bulletin 41(1) : 14 (1986)	Lentibulariaceae	
<i>Utricularia dicardia</i> Standl. ex P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 354 (1989), in syn.	Lentibulariaceae	<i>Utricularia erectiflora</i> St.Hil. & Gir.
<i>Utricularia dunlopii</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia elmeri</i> Stapf ex P.Taylor	Flora Malesiana, Ser. 1, Spermatophyta 8(2) : 284 (1977), in syn.	Lentibulariaceae	<i>Utricularia heterosepala</i> Benj.
<i>Utricularia fistulosa</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia forrestii</i> P.Taylor	Kew Bulletin 41(1) : 13 (1986)	Lentibulariaceae	
<i>Utricularia garrettii</i> P.Taylor	Kew Bulletin 41(1) : 13 (1986)	Lentibulariaceae	
<i>Utricularia georgei</i> P.Taylor	Kew Bulletin 41(1) : 3 (1986)	Lentibulariaceae	
<i>Utricularia gibba</i> subsp. <i>exoleta</i> (R.Br.) P.Taylor	Mitteilungen der Botanischen Staatssammlung München 1961 : 4 (1961)	Lentibulariaceae	<i>Utricularia gibba</i> L., <i>Utricularia exoleta</i> R.Br.
<i>Utricularia helix</i> P.Taylor	Kew Bulletin 41(1) : 4 (1986)	Lentibulariaceae	
<i>Utricularia himtonii</i> P.Taylor	Kew Bulletin 41(1) : 8 (1986)	Lentibulariaceae	
<i>Utricularia huntii</i> P.Taylor	Kew Bulletin 41(1) : 8 (1986)	Lentibulariaceae	

Name	Publication	Family	Comment/Synonymy
<i>Utricularia inflexa</i> var. <i>stellaris</i> (L.f.) P.Taylor	Mitteilungen der Botanischen Staatssammlung München 1961 : 4 (1961)	Lentibulariaceae	<i>Utricularia stellaris</i> L.f.
<i>Utricularia kennealhyi</i> P.Taylor	Kew Bulletin 41(1) : 4 (1986)	Lentibulariaceae	
<i>Utricularia lazulina</i> P.Taylor	Proceedings of the Indian Academy of Sciences, Plant Sci. 93(2) : 101 (1984)	Lentibulariaceae	
<i>Utricularia letestui</i> P.Taylor	Kew Bulletin, Addit. Ser. 14 (The Genus <i>Utricularia</i>): 401 (1989), in syn.	Lentibulariaceae	
<i>Utricularia macrocheilos</i> (P.Taylor) P.Taylor	Kew Bulletin 41(1) : 9 (1986)	Lentibulariaceae	<i>Utricularia micropetalata</i> var. <i>macrocheilos</i> P.Taylor
<i>Utricularia microcalyx</i> (P.Taylor) P.Taylor	Bulletin du Jardin Botanique National de Belgique 41(2) : 270 (1971)	Lentibulariaceae	<i>Utricularia welwitschii</i> var. <i>microcalyx</i> P.Taylor
<i>Utricularia mirabilis</i> P.Taylor	Kew Bulletin 41(1) : 14 (1986)	Lentibulariaceae	
<i>Utricularia moniliformis</i> P.Taylor	Kew Bulletin 41(1) : 13 (1986)	Lentibulariaceae	
<i>Utricularia naviculata</i> P.Taylor	Memoirs of the New York Botanical Garden 17(1) : 226 (1967)	Lentibulariaceae	
<i>Utricularia panamensis</i> Steyerl. ex P.Taylor	Kew Bulletin 41(1) : 8 (1986)	Lentibulariaceae	
<i>Utricularia parthenopipes</i> P.Taylor	Kew Bulletin 41(1) : 7 (1986)	Lentibulariaceae	
<i>Utricularia pentadactyla</i> P.Taylor	Memoirs of the New York Botanical Garden 9 : 16 (1954)	Lentibulariaceae	
<i>Utricularia peranomala</i> P.Taylor	Kew Bulletin 41(1) : 12 (1986)	Lentibulariaceae	
<i>Utricularia perversa</i> P.Taylor	Kew Bulletin 41(1) : 16 (1986)	Lentibulariaceae	
<i>Utricularia petersoniae</i> P.Taylor	Kew Bulletin 41(1) : 8 (1986)	Lentibulariaceae	
<i>Utricularia physocerus</i> P.Taylor	Kew Bulletin 41(1) : 15 (1986)	Lentibulariaceae	
<i>Utricularia podadena</i> P.Taylor	Kew Bulletin 18(1) : 78 (1964)	Lentibulariaceae	
<i>Utricularia praeterita</i> P.Taylor	K.M. Matthew, Flora of the Tamilnadu Carnatic 3(1) : 1120 (1983)	Lentibulariaceae	
<i>Utricularia praetermissa</i> P.Taylor	Annals of the Missouri Botanical Garden 63(3) : 576 (1976 publ. 1977)	Lentibulariaceae	
<i>Utricularia pulchra</i> P.Taylor	Flora Malesiana, Ser. 1, Spermatophyta 8(2) : 290 (1977)	Lentibulariaceae	

Name	Publication	Family	Comment/Synonymy
<i>Utricularia quinquedentata</i> F.Muell. ex P.Taylor	Kew Bulletin 41 (1): 4 (1986)	Lentibulariaceae	<i>Utricularia albiflora</i> var. <i>quinquedentata</i> F.Muell ex P.Taylor
<i>Utricularia raynalianii</i> P.Taylor	Kew Bulletin 41 (1): 17 (1986)	Lentibulariaceae	
<i>Utricularia recta</i> P.Taylor	Kew Bulletin 41 (1): 10 (1986)	Lentibulariaceae	
<i>Utricularia reflexa</i> var. <i>parviflora</i> P.Taylor	Kew Bulletin 18 (1): 168 (1964)	Lentibulariaceae	<i>Utricularia reflexa</i> Oliv.
<i>Utricularia rhododactylos</i> P.Taylor	Kew Bulletin 41 (1): 5 (1986)	Lentibulariaceae	
<i>Utricularia sandwithii</i> P.Taylor	Memoirs of the New York Botanical Garden 17 (1): 218 (1967) Taxon 12 : 294 (1963)	Lentibulariaceae	
<i>Utricularia scandens</i> subsp. <i>schweinfurthii</i> P.Taylor	Taxon 12 : 294 (1963)	Lentibulariaceae	<i>Utricularia capillacea</i> Willd., <i>Utricularia schweinfurthii</i> Baker ex Stapf
<i>Utricularia spiralis</i> var. <i>pobeguinii</i> (Pellegr.) P.Taylor	Taxon 12 : 294 (1963)	Lentibulariaceae	<i>Utricularia pobeguinii</i> Pellegr.
<i>Utricularia spiralis</i> var. <i>tortilis</i> (Welw. ex Oliv.) P.Taylor	Taxon 12 : 294 (1963)	Lentibulariaceae	<i>Utricularia tortilis</i> Welw. ex Oliv.
<i>Utricularia stanfieldii</i> P.Taylor	Taxon 12 : 294 (1963)	Lentibulariaceae	
<i>Utricularia steenisi</i> P.Taylor	Kew Bulletin 41 (1): 13 (1986)	Lentibulariaceae	
<i>Utricularia steyermarkii</i> P.Taylor	Acta Botánica Venezuelica 2 (5-8): 326 (1967)	Lentibulariaceae	
<i>Utricularia terrae-reginae</i> P.Taylor	Kew Bulletin 41 (1): 5 (1986)	Lentibulariaceae	
<i>Utricularia tetraloba</i> P.Taylor	Taxon 12 : 293 (1963)	Lentibulariaceae	
<i>Utricularia tridactyla</i> P.Taylor	Kew Bulletin 41 (1): 5 (1986)	Lentibulariaceae	
<i>Utricularia triflora</i> P.Taylor	Kew Bulletin 41 (1): 5 (1986)	Lentibulariaceae	
<i>Utricularia troupinii</i> P.Taylor	Bulletin du Jardin Botanique National de Belgique 41 (2): 269 (1971) Kew Bulletin 18 (1): 148 (1964)	Lentibulariaceae	<i>Utricularia odontosepala</i> Stapf
<i>Utricularia welwitschii</i> var. <i>odontosepala</i> (Stapf) P.Taylor	Kew Bulletin 41 (1): 2 (1986)	Lentibulariaceae	
<i>Utricularia westonii</i> P.Taylor	Kew Bulletin 41 (1): 10 (1986)	Lentibulariaceae	nom. nov.: <i>Utricularia squamosa</i> auct. non Benj.: R. Wight
<i>Utricularia wightiana</i> P.Taylor	Kew Bulletin 35 (2): 433 (1980)	Orchidaceae	
<i>Bulbophyllum concatenatum</i> P.J.Cribb & P.Taylor	Kew Bulletin 35 (2): 436 (1980)	Orchidaceae	<i>Bulbophyllum unifoliatum</i> subsp. <i>flectens</i> (P.J.Cribb & P.Taylor) J.J.Verm.

Name	Publication	Family	Comment/Synonymy
<i>Coelogyne judithiae</i> P.Taylor	Orchid Review 85(1012) : 289 (1977)	Orchidaceae	<i>Coelogyne rhabdlobulbon</i> Schltr.
<i>Cypripedium guttatum</i> var. <i>wardii</i> (Rolfe) P.Taylor	U.C. Pradhan, Indian Orchids: Guide Identif. & Cult. 1 : 35 (1976)	Orchidaceae	<i>Cypripedium wardii</i> Rolfe
<i>Epidendrum simum</i> (Dressler) P.Taylor	Curtis's Botanical Magazine 182(1) : 39 (1978)	Orchidaceae	<i>Prosthechea sima</i> (Dressler) W.E. Higgins, <i>Encyclia sima</i> Dressler, <i>Anacheilium simum</i> (Dressler) Withner & P.A.Harding <i>Neottia divaricata</i> (Panigrahi & P.Taylor) Szlach.
<i>Listera divaricata</i> Panigrahi & P.Taylor	Kew Bulletin 30(3) : 559 (1975)	Orchidaceae	
<i>Oeceoclades alismatophylla</i> (Rchb.f.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 258 (1976)	Orchidaceae	<i>Eulophia alismatophylla</i> Rchb. f., <i>Eulophidium alismatophyllum</i> (Rchb. f.) Summerh.
<i>Oeceoclades ambongensis</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 258 (1976)	Orchidaceae	<i>Eulophidium ambongense</i> Schltr., <i>Eulophia schlechteri</i> H. Perrier, <i>Lissochilus schlechteri</i> (H. Perrier) H. Perrier
<i>Oeceoclades analamerensis</i> (H. Perrier) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 259 (1976)	Orchidaceae	<i>Lissochilus analamerensis</i> H. Perrier, <i>Eulophidium analamerense</i> (H. Perrier) Summerh.
<i>Oeceoclades analavelensis</i> (H. Perrier) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 259 (1976)	Orchidaceae	<i>Lissochilus analavelensis</i> H. Perrier, <i>Eulophidium analavelense</i> (H. Perrier) Summerh.
<i>Oeceoclades angustifolia</i> (Senghas) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 259 (1976)	Orchidaceae	<i>Eulophidium angustifolium</i> Senghas
<i>Oeceoclades atrovirens</i> (Lindl.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 260 (1976)	Orchidaceae	<i>Eulophia atrovirens</i> Lindl., <i>Graphorchis atrovirens</i> (Lindl.) Kuntze
<i>Oeceoclades boinensis</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 260 (1976)	Orchidaceae	<i>Eulophidium boinense</i> Schltr., <i>Lissochilus boinensis</i> (Schltr.) H. Perrier
<i>Oeceoclades calcarata</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 261 (1976)	Orchidaceae	<i>Cymbidium calcaratum</i> Schltr., <i>Eulophia calcarata</i> (Schltr.) Schltr., <i>Eulophia paniculata</i> Rolfe, <i>Lissochilus paniculatus</i> (Rolfe) H. Perrier, <i>Eulophidium paniculatum</i> (Rolfe) Summerh.
<i>Oeceoclades cordylimophylla</i> (Rchb.f.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 261 (1976)	Orchidaceae	<i>Eulophia cordylimophylla</i> Rchb. f., <i>Eulophidium cordylimophyllum</i> (Rchb. f.) Summerh., <i>Lissochilus cordylimophyllum</i> (Rchb. f.) H. Perrier, <i>Eulophia lokobensis</i> H. Perrier, <i>Eulophidium lokobense</i> (H. Perrier) Summerh., <i>Lissochilus lokobensis</i> (H. Perrier) H. Perrier
<i>Oeceoclades decaryana</i> (H. Perrier ex Guillaumin & Manguin) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 262 (1976)	Orchidaceae	<i>Eulophia decaryana</i> H. Perrier, <i>Eulophidium decaryanum</i> (H. Perrier) Summerh., <i>Lissochilus decaryanus</i> (H. Perrier) H. Perrier

Name	Publication	Family	Comment/Synonymy
<i>Oeceoclades gracillima</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 262 (1976)	Orchidaceae	<i>Eulophidium gracillimum</i> Schltr., <i>Eulophia gracillima</i> auct. non Ridl.: Schltr., <i>Lissochilus gracillimus</i> (Schltr.) H. Perrier, <i>Eulophidium roseovariiegatum</i> Senghas, <i>Oeceoclades roseovariiegata</i> (Senghas) Garay & P.Taylor <i>Lissochilus hebdingianus</i> Guillaumin
<i>Oeceoclades hebdingiana</i> (Guillaumin) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 263 (1976)	Orchidaceae	<i>Eulophia lanceata</i> H. Perrier
<i>Oeceoclades lanceata</i> (H.Perrier) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 263 (1976)	Orchidaceae	<i>Eulophia latifolia</i> Rolfe, <i>Eulophidium latifolium</i> (Rolfe) Summerh.
<i>Oeceoclades latifolia</i> (Rolfe) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 264 (1976)	Orchidaceae	<i>Eulophia lonchophylla</i> Rehb. f., <i>Eulophidium lonchophyllum</i> (Rehb. f.) Schltr., <i>Lissochilus lonchophyllus</i> (Rehb. f.) H. Perrier, <i>Eulophia dissimilis</i> R.A. Dyer, <i>Eulophidium dissimile</i> R.A. Dyer, <i>Eulophia tainoides</i> Schltr., <i>Eulophidium tainoides</i> (Schltr.) Summerh.
<i>Oeceoclades lonchophylla</i> (Rehb.f.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 264 (1976)	Orchidaceae	<i>Eulophia lubbersiana</i> Laurent & De Wild., <i>Eulophidium lubbersianum</i> (Laurent & De Wild.) Summerh.
<i>Oeceoclades lubbersiana</i> (De Wild. & Laurent) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 265 (1976)	Orchidaceae	<i>Oeceoclades maculata</i> (Lindl.) Lindl., <i>Eulophia mackenii</i> Rolfe ex Hemsl., <i>Eulophidium mackenii</i> (Rolfe ex Hemsl.) Schltr., <i>Oeceoclades mackenii</i> (Rolfe ex Hemsl.) Garay & P.Taylor
<i>Oeceoclades mackenii</i> (Rolfe ex Hemsl.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 265 (1976)	Orchidaceae	<i>Eulophia lubbersiana</i> Laurent & De Wild., <i>Eulophidium lubbersianum</i> (Laurent & De Wild.) Summerh.
<i>Oeceoclades mackenii</i> (Rolfe ex Hemsl.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 265 (1976)	Orchidaceae	<i>Oeceoclades maculata</i> (Lindl.) Lindl., <i>Eulophia mackenii</i> Rolfe ex Hemsl., <i>Eulophidium mackenii</i> (Rolfe ex Hemsl.) Schltr., <i>Oeceoclades mackenii</i> (Rolfe ex Hemsl.) Garay & P.Taylor
<i>Oeceoclades maculata</i> var. <i>pterocarpa</i> (Hauman) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 267 (1976)	Orchidaceae	<i>Oeceoclades maculata</i> (Lindl.) Lindl., <i>Eulophia mackenii</i> Rolfe ex Hemsl., <i>Eulophidium mackenii</i> (Rolfe ex Hemsl.) Schltr., <i>Oeceoclades mackenii</i> (Rolfe ex Hemsl.) Garay & P.Taylor
<i>Oeceoclades maculata</i> var. <i>pterocarpa</i> (Hauman) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 267 (1976)	Orchidaceae	<i>Oeceoclades maculata</i> (Lindl.) Lindl., <i>Eulophidium maculatum</i> var. <i>pterocarpum</i> Hauman
<i>Oeceoclades monophylla</i> (A.Rich.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 267 (1976)	Orchidaceae	<i>Oeceoclades maculata</i> (Lindl.) Lindl., <i>Angraecum monophyllum</i> A. Rich.
<i>Oeceoclades pandurata</i> (Rolfe) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 268 (1976)	Orchidaceae	<i>Eulophia pandurata</i> Rolfe, <i>Eulophidium panduratum</i> (Rolfe) Summerh., <i>Lissochilus panduratus</i> (Rolfe) H. Perrier

Name	Publication	Family	Comment/Synonymy
<i>Oeceoclades perrieri</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 268 (1976)	Orchidaceae	<i>Eulophidium perrieri</i> Schltr., <i>Eulophia ambongensis</i> Schltr., <i>Lissochilus ambongensis</i> (Schltr.) H. Perrier
<i>Oeceoclades petiolata</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 269 (1976)	Orchidaceae	<i>Eulophia petiolata</i> Schltr., <i>Eulophidium petiolatum</i> (Schltr.) Schltr., <i>Lissochilus petiolatus</i> (Schltr.) H. Perrier
<i>Oeceoclades quadriloba</i> (Schltr.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 269 (1976)	Orchidaceae	<i>Eulophia quadriloba</i> Schltr., <i>Eulophidium quadrilobum</i> (Schltr.) Schltr., <i>Lissochilus quadrilobus</i> (Schltr.) H. Perrier
<i>Oeceoclades rauhii</i> (Senghas) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 270 (1976)	Orchidaceae	<i>Eulophidium rauhii</i> Senghas
<i>Oeceoclades roseovariiegata</i> (Senghas) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 270 (1976)	Orchidaceae	<i>Oeceoclades gracillima</i> (Schltr.) Garay & P.Taylor, q.v.
<i>Oeceoclades saundersiana</i> (Rchb.f.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 270 (1976)	Orchidaceae	<i>Eulophia saundersiana</i> Rchb. f., <i>Eulophidium saundersianum</i> (Rchb. f.) Summerh., <i>Graphorchis saundersiana</i> (Rchb. f.) Kuntze, <i>Graphorchis saundersiana</i> (Rchb. f.) Kuntze
<i>Oeceoclades sclerophylla</i> (Rchb.f.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 271 (1976)	Orchidaceae	<i>Eulophia sclerophylla</i> Rchb. f., <i>Eulophidium sclerophyllum</i> (Rchb. f.) Summerh., <i>Eulophia elliotii</i> Rolfe, <i>Lissochilus elliotii</i> auct. non Rolfe: (Rolfe) H. Perrier, <i>Eulophia ramifera</i> Summerh.
<i>Oeceoclades seychellarum</i> (Rolfe ex Summerh.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 272 (1976)	Orchidaceae	<i>Eulophia seychellarum</i> Rolfe ex Summerh., <i>Eulophidium seychellarum</i> (Rolfe ex Summerh.) Summerh.
<i>Oeceoclades spatulifera</i> (H.Perrier) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 272 (1976)	Orchidaceae	<i>Eulophia spatulifera</i> H. Perrier, <i>Eulophidium spatuliferum</i> (H. Perrier) Summerh., <i>Lissochilus spatulifer</i> (H. Perrier) H. Perrier
<i>Oeceoclades ugandae</i> (Rolfe) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 273 (1976)	Orchidaceae	<i>Eulophia ugandae</i> Rolfe
<i>Oeceoclades zanzibarica</i> (Summerh.) Garay & P.Taylor	Botanical Museum Leaflets 24(9) : 273 (1976)	Orchidaceae	<i>Eulophidium zanzibaricum</i> Summerh.
<i>Paphiopedilum pereirae</i> (Ridl.) P.Taylor	Orchid Review 84(998) : 219 (1976)	Orchidaceae	= <i>P. exul</i> × <i>P. niveum</i> , <i>Cypripedium</i> × <i>pereirae</i> Ridl.
<i>Paphiopedilum primulinum</i> M.W.Wood & P.Taylor	Orchid Review 81 (955) : centre page pull-out p. 10 (1973)	Orchidaceae	<i>Paphiopedilum chamberlainianum</i> f. <i>primulinum</i> (M.W.Wood & P.Taylor) Fowlie, <i>Paphiopedilum chamberlainianum</i> var. <i>primulinum</i> (M.W.Wood & P.Taylor) Braem, <i>Paphiopedilum liemianum</i> var. <i>primulinum</i> (M.W.Wood & P.Taylor) K.Karas. & K.Saito, <i>Paphiopedilum victoria-regina</i> subsp. <i>primulinum</i> (M.W.Wood & P.Taylor) M.W.Wood

Name	Publication	Family	Comment/Synonymy
× <i>Papilioecentrum</i> Garay & H.R.Sweet ex P.Taylor	Kew Bulletin 30(3) : 592 (1975)	Orchidaceae	<i>Ascoenda</i> Hort. ex Garay & H.R.Sweet, <i>Ascoentrum</i> × <i>Papilionanthe</i> (= <i>Vanda</i>).
<i>Polygala cristata</i> P.Taylor	Kew Bulletin 8(1) : 78 (1953)	Polygalaceae	
<i>Anagallis</i> subgen. <i>Centunculus</i> (L.) P.Taylor	Kew Bulletin 10(3) : 322 (1955)	Primulaceae	<i>Lysimachia</i> L.
<i>Anagallis</i> subgen. <i>Jirasekia</i> P.Taylor	Kew Bulletin 10(3) : 322 (1955)	Primulaceae	<i>Lysimachia</i> L.
<i>Anagallis brevipes</i> P.Taylor	Kew Bulletin 13(1) : 135 (1958)	Primulaceae	<i>Lysimachia brevipes</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis elegantula</i> P.Taylor	Kew Bulletin 10(3) : 341 (1955)	Primulaceae	<i>Lysimachia elegantula</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis gracilipes</i> P.Taylor	Kew Bulletin 13(1) : 135 (1958)	Primulaceae	<i>Lysimachia gracilipes</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis hexamera</i> P.Taylor	Kew Bulletin 10(3) : 339 (1955)	Primulaceae	<i>Lysimachia hexamera</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis oligantha</i> P.Taylor	Kew Bulletin 13(1) : 137 (1958)	Primulaceae	<i>Lysimachia oligantha</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis pumila</i> var. <i>barbata</i> P.Taylor	Kew Bulletin 10(3) : 345 (1955)	Primulaceae	<i>Anagallis barbata</i> (P.Taylor) Kupicha, <i>Lysimachia barbata</i> (P.Taylor) U.Manns & Anderb.
<i>Anagallis pumila</i> var. <i>djalonis</i> (A.Chev.) P.Taylor	Kew Bulletin 10(3) : 346 (1955)	Primulaceae	<i>Anagallis djalonis</i> A.Chev., <i>Lysimachia djalonis</i> (A.Chev.) U.Manns & Anderb.
<i>Anagallis serpens</i> var. <i>meyeri-johannis</i> (Engl.) P.Taylor	Kew Bulletin 10(3) : 334 (1955)	Primulaceae	<i>Anagallis meyeri-johannis</i> (Engl.) Engl., <i>Anagallis quarimiana</i> (A.Rich.) Engl. var. <i>meyeri-johannis</i> Engl., <i>Lysimachia serpens</i> (Hochst. Ex A.DC.) U.Manns & Anderb.
<i>Cayusea latifolia</i> P.Taylor	Kew Bulletin 13(2) : 285 (1958)	Resedaceae	genus basal in Resedaceae
<i>Dopatrium caespitosum</i> P.Taylor	Kew Bulletin 8(3) : 441 (1953)	Plantaginaceae	sympatric with <i>Genlisea taylorii</i>
<i>Dopatrium pusillum</i> P.Taylor	Kew Bulletin 8(3) : 443 (1953)	Plantaginaceae	sympatric with <i>Genlisea taylorii</i>
<i>Philcoxia</i> P.Taylor & V.C.Souza	Kew Bulletin 55(1) : 159 (2000)	Plantaginaceae	suspected affinity to Lentibulariaceae turned out to be superficial
<i>Philcoxia goiasensis</i> P.Taylor	Kew Bulletin 55(1) : 160 (2000)	Plantaginaceae	

Name	Publication	Family	Comment/Synonymy
<i>Phyllanthus taylorianus</i> Jean F. Brunel ex Radcl.-Sm.	Kew Bulletin 51(2) : 322 (1996)	Euphorbiaceae	
<i>Indigofera taylorii</i> J.B. Gillett	Kew Bulletin, Addit. Ser. 1 : 75 (1958)	Fabaceae	
<i>Karina tayloriana</i> Boutique	Bulletin du Jardin Botanique National de Belgique 41(2) : 262 (1971)	Gentianaceae	supposed copper endemic
<i>Gentlisea</i> subgen. <i>Tayloria</i> (Fromm) Eb. Fisch., Porembski & Barthlott	Nordic Journal of Botany 20(3) : 293 (2000)	Lentibulariaceae	<i>Gentlisea</i> sect. <i>Tayloria</i>
<i>Gentlisea taylorii</i> Eb. Fischer, Porembski & Barthlott	Nordic Journal of Botany	Lentibulariaceae	
<i>Utricularia peteritaylorii</i> Lowrie	Nuytsia 14 :406 (2002)	Lentibulariaceae	
<i>Utricularia tayloriana</i> Joseph & Mani	Bulletin of the Botanical Survey of India 24 :108 (1983)	Lentibulariaceae	
<i>Acacia taylorii</i> Brenan & Exell	Boletim da Sociedade Broteriana sér. 2, 31 : 139 (1957)	Mimosaceae	
<i>Platystele taylorii</i> Luer	Selbyana 3(1-2) : 30 (1976)	Orchidaceae	
<i>Chaetopoa taylorii</i> C.E. Hubb.	Hooker's Icones Plantarum 37 : p. 2, tab. 3646 (1967) [1971 publ. Oct 1967]	Poaceae	
<i>Spermacoce taylorii</i> Verdc.	Kew Bulletin 30(2) : 303 (1975)	Rubiaceae	

THE NEW *UTRICULARIA* SPECIES DESCRIBED SINCE
PETER TAYLOR'S MONOGRAPH

ANDREAS FLEISCHMANN • University of Munich, LMU • Department of Systematic Botany and Mycology • Menzinger Strasse 67 • 80638 Munich • Germany • fleischmann@lrz.uni-muenchen.de

In his elaborate monograph of the genus *Utricularia* (Lentibulariaceae), Peter Taylor recognized 214 species of bladderworts. For this comprehensive revision of that large genus, which took him 41 years of passionate work, he studied the plants in their natural habitats and such cultivated in the greenhouses of Kew Gardens, but mainly his work is based on the thousands of herbarium specimens from all over the world that he thoroughly examined. As the bladderworts are a large and species-rich genus, and many species are often difficult to distinguish (several only with the aid of a magnifying glass by minute seed and trap details), a lot of different species and names have been published for over 200 years since Linnaeus put up the genus in 1753. Peter Taylor took the Sisyphean task to work through the more than 900 names for taxa of *Utricularia* that had been published. He studied and compared type specimens and descriptions, and finally was able to recognize that more than 3/4 of the names were actually representing synonyms of already described taxa, or invalid names. His all-encompassing monograph left nothing more to add!

In the 22 years that have passed since, about two dozen new species of *Utricularia* have been discovered and described. The ones which are considered to represent taxonomic novelties (in the personal opinion of this author) are discussed in more detail below. This brings the total number of accepted species in the genus *Utricularia* to at least 228 today. For synonymy and further names published since 1989 see the checklist at the end of this article.

Subgenus *Polypompholyx*¹

From Western-Australia, two additional species have since been described from *U.* section *Pleiochasia* (i.e. from the affinity of *U. dichotoma*). The annual *Utricularia petertaylorii* and the perennial *U. paulineae* (Lowrie 1998, 2002), both with rather large, showy flowers (see Figs. 1 and 2). The later species is named after Allen Lowrie's wife Pauline, who initially discovered the plant. The former honours *Utricularia* specialist Peter Taylor – who, by the way, was already aware of a population of this beautiful plant, however considered it to represent a possible hybrid swarm between *U. violacea* and *U. inaequalis* (Lowrie 1998).

From southeast Australia, a further species has been added to *U.* section *Pleiochasia*: the rarely found, annual *U. beagleholei* (Gassin 1993). This species is closely related to the perennial *U. dichotoma*, however differs in its narrowly lanceolate acute leaves, different traps, and a different flower-shape (see Fig. 3).

Subgenus *Bivalvaria*

The stunningly deep blue-flowered *U. babui* was originally described from the Western Ghats of western India (Yadav *et al.* 2005), however has since been found in northern Thailand as well

¹ The infrageneric classification used here for the genus *Utricularia* is following Müller & Borsch (2005).



Figure 1: *Utricularia petertaylorii*, an annual bladderwort species from Western Australia that was named in honour of Peter Taylor. The plants on the left are growing together with *U. multifida*.



Figure 2: The showy flowers of *Utricularia paulineae*, plants cultivated by the author. On the left plants from the type location near Walepole, on the right plants with slightly distinct corolla shape and coloration from a different location in south-west Western Australia.

(see Fig. 4; A. Fleischmann, pers. obs. 2005; Suksathan & Parnell 2010). It obviously is closely related to *U. graminifolia*, from which it differs mainly in having narrower leaves which are vascularised by only a single vein (three nerves in the leaves of *U. graminifolia*).

Utricularia subramanyamii from southern India (Janarthanam & Henry 1990) was described to be unique among Indian *Utricularia* mainly because of a “diagnostic ligule” (Janarthanam & Henry 1990, 1992) on the palate of the lower lip, however a quite similar projection is also found regularly on the gibbous palate of *U. capillacea* – formerly *U. scandens* – a variable species widespread in the Old World tropics (see Fig. 5). However *U. subramanyamii* further differs from that species by its very short pedicels and different seed shape, and thus is considered a distinctive species here.

All other species that have been described from the large and taxonomically difficult *U.* section *Oligocista* since Taylor’s treatment in 1989 are considered of doubtful taxonomic value, and are included in the synonym list at the end of this article. E.g. *U. malabarica* is perfectly matching Taylor’s *U. praeterita* in all morphological characters (including fruiting pedicel pattern and seed shape). *Utricularia jackii* (Parnell 2005) is based on a mixed collection of *U.*

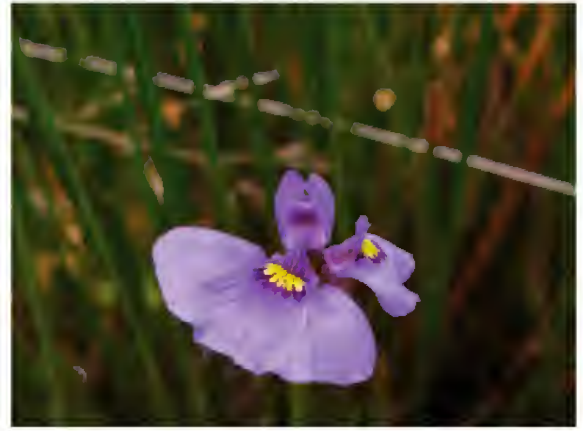


Figure 3: *Utricularia beaugleholei* in habitat in southern Australia and close-up of a flower. The flowers resemble those of the related *U. dichotoma*, however the latter has fewer yellow rims on the palate. Photos by Steve Fretwell.



Figure 4: The bright ink-blue flowers of *Utricularia babui* plants, growing on Doi Inthanon of northern Thailand. At this location, the plants were growing sympatrically with a stunted form of *U. recta* (yellow flower on the right photo), which has been described as *U. jackii* (Parnell 2005).

babui (a single specimen on the holotype sheet) and stunted specimens of the yellow flowered *U. recta*², which both grow sympatrically on Doi Inthanon of northern Thailand (see Fig. 4). *Utricularia janarthanamii* from the Western Ghats of India (Yadav *et al.* 2000) is perfectly matching the Philippine endemic *U. heterosepala* in all of its remarkable morphological characters - the absence of bracteoles (due to fusion with the bracts), a rather unusual feature in this group of bladderworts, as well as the unique and distinctive seeds with finely sinuate testa ornamentation. Therefore it is regarded as conspecific with *U. heterosepala* here, and extends the range of that species to western India. Like a few other species of *Utricularia*, *U. janarthanamii* is reported to exhibit both chasmogamous flowers with well-developed corollae, as well as much smaller cleistogamous flowers, the latter even developing underground (Yadav *et al.* 2000; Sardesai &

² or likewise robust specimens of *U. capillacea* (formerly known as *U. scandens*)



Figure 5 (left): *Utricularia capillacea*, an old species with a “new” name. This species was called *U. scandens* in Taylor’s monograph, however it recently became evident that this name actually represents a younger synonym of *U. capillacea*. This photo shows a plant growing in Zambia.

Figure 6 (right): The delicate *Utricularia rostrata* growing in cracks of wet rock at the Chapada Diamantina, Brazil. Note the capsule, with a spreading lower calyx lobe which acts for seed dispersal.

Yadav 2008). This feature is not known from the Philippine plants, however might represent an adaptation to the ephemeral habitats of the Indian populations. *Utricularia naikii* agrees with cleistogamous specimens of *U. praeterita*, a species with which it is reported to occur sympatrically (Yadav *et al.* 2000). The Brazilian *U. densiflora* (Souza & Bove 2011) seems to represent a stunted specimen of the sympatrically occurring *U. erectiflora*, with a strongly congested raceme (these compact specimens frequently occur among normal sized plants, and already had been described as *U. micrantha* Benj. and *U. cearana* Steyerem. respectively (Taylor 1989)). The papillose subterranean parts of *U. erectiflora* have also been described and depicted by Taylor (1989) already, and apparently these glands are also found up to the base of the scape of some specimens.

A single species was added to *U.* section *Aranella* in 2009, namely *U. rostrata*, a widespread and rather common species from the mountains of the Chapada Diamantina range of Bahia state, Brazil (Fleischmann & Rivadavia 2009). It has small whitish or violet flowers (see Fig. 6), and differs from all members of the same affinity by flower and calyx characters. This species already has entered several carnivorous plant collections under the informal name “*U.* sp. Chapada Diamantina”, and it proved to be a weedy grower easily spreading from seed, like *U. subulata*.

From the poorly-studied section *Phyllaria* (the Asian lithophytic or epiphytic, moss-dwelling species related to *U. striatula*), three new species have been described from northern Thailand recently, all from high mountain summits (see Fig. 7; Suksathan & Parnell 2010). Two of them have been named after their type location: *U. inthanonensis* is endemic to Doi Inthanon (the highest peak of Chiang Mai province), *U. phusoidaoensis* to Phu Soi Dao of Phitsanulok province. The third one, *U. spinomarginata*, has seeds with a spiny testa surface (like many members of this group of bladderworts, most likely in adaptation to their moss-growing or lithophytic habit), and the specific epithet is referring to that character.



Figure 7: The impressive flowers of *Utricularia inthanonensis*, growing on wet vertical rocks on Doi Inthanon, northern Thailand.

The Asian highland rainforest species of *Utricularia* section *Phyllaria* are indeed highly overlooked (and underestimated), both in regards of diversity, as well as the distribution of certain species: *Utricularia furcellata*, hitherto regarded as an endemic of Himalayan India (Taylor 1989), has recently been found at several sites in northern Thailand (A. Fleischmann pers. obs. 2005; Suksathan & Parnell 2010). Another species of the same group, *U. moniliformis*, which was thus far thought to be endemic to mountains of central Sri Lanka (Taylor 1989) has recently been found in Borneo, Sumatra and the Philippines (Palawan) on various occasions by several carnivorous plant enthusiasts (Ch. Klein, pers. com., K. Pasek, pers. com., S. McPherson, pers. com.). This perennial species, which forms little tubers, has shown to be the most easy to grow in long-term cultivation,



Figure 8: *Utricularia moniliformis* of *Utricularia* section *Phyllaria*, cultivated by the author. Not new to science, but much more widespread than Taylor (1989) assumed at the time, and one of the very few species of that intriguing group which seem to last in cultivation.

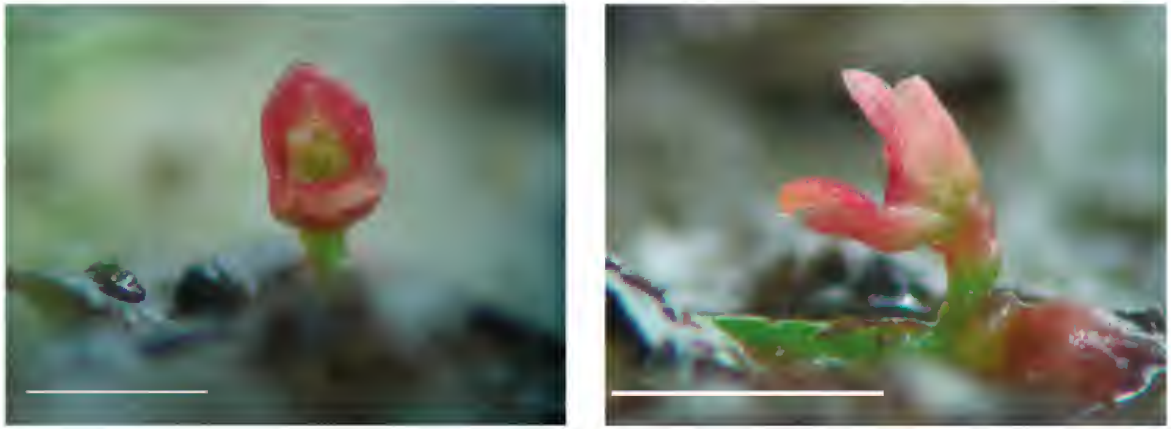


Figure 9: The microscopic flower of *Utricularia simmonsii*, from a plant cultivated by the author. The scale bar is 1 mm.

out of these really picky lithophytes, and actually the majority of plants currently grown as “*U. striatula*” in carnivorous plant collections in fact represent *U. moniliformis* (see Fig 8).

To the small *U.* section *Kamienskia* of southeastern China, which thus far only comprised a single, enigmatic and locally endemic species - *U. peranomala* - a second curious, narrowly endemic and even more poorly-known species has been added recently: *U. mangshanensis* from the Mangsha Mountains of Hunan Province, China (Hu *et al.* 2007). Like its closely related sister, it grows as a lithophyte on moss-covered wet rocks, and differs from that species by having whitish flowers and distinctive irregularly lobed leaves.

The smallest bladderwort species known today (and probably also the angiosperm with the smallest fully-developed corolla) was rather fortuitously discovered in tropical northern Australia by Allen Lowrie and co-workers, and named in 2008 as *U. simmonsii* - after the original discoverer of this lucky dip (Lowrie *et al.* 2008). The tiny corolla of this new species is just about one millimetre long, but bright purple-red, with widely open throat, lacking both a palate and spur (see Fig. 9). This plant apparently has been overlooked before due to its diminutive size, but it seems to be rather widespread in the Northern Territory and in northern Queensland. The authors proposed a separate section for this curious new species, *U.* section *Minutae*, however recent molecular phylogenetic reconstructions (Reut & Jobson 2010) revealed that *U. simmonsii* is closely allied with *U.* section *Enskide* (thus far only comprising two tropical Australian species, namely *U. fulva* and the polymorphic *U. chrysantha*), a position which is also supported by morphological characters like common trap design and a similar seed structure.

Subgenus *Utricularia*

A newly described species from the remote Sierra Madre del Sur, Guerrero, Mexico, which has flowers that are remarkable both in coloration and shape, is the annual *U. regia* (see Fig. 10; Zamudio & Olvera 2009). This species belongs to *U.* section *Foliosa* (formerly Taylor’s section *Psyllosperma*, which got included in section *Foliosa* based on molecular evidence, see Müller & Borsch 2005), and is closely related to two other Mexican endemic species from that group (*U. hintonii* and *U. petersoniae*). From all known *Utricularia* species, it can be distinguished by its deeply bilobate upper lip with bifid lobes, and a marking on the lower lip which resembles an inverted crown (hence the species’ name).

One additional aquatic species of *U.* section *Utricularia* from the northern hemisphere that



Figure 10 (left): *Utricularia regia* from the type location in Mexico. Note the deeply bifid, spreading upper corolla lobes, and the characteristic mark on the lower lip, resembling an inverted, 3-pronged crown. Photo by Ricardo de Santiago.

Figure 11 (right): *Utricularia stygia*, growing in a bog in southern Germany, accompanied by *Drosera intermedia*. This temperate bladderwort species was formally described at the time Taylor's monograph had already been completed, and thus is not separately included in that work.

has been formally described in 1988, shortly before Taylor's monograph was printed, was already mentioned in that work, however without being included as a distinct species: *U. stygia* (see Fig. 11; Thor 1988). It was tentatively treated under *U. ochroleuca* in Taylor's monograph, in order to get his four decades work to a final end ("[...] I am unable to assess its status without further delaying the publication of this present work." Taylor 1989). This hitherto neglected species probably is the most common *Utricularia* species of temperate hill moors and *Sphagnum* peat bogs (together with the often sympatric occurring *U. minor*), where it usually grows in small acidic pools and mud bottoms. However it has often been mistaken for the superficially similar *U. intermedia* in the past, or been lumped with the even more reminiscent *U. ochroleuca*. Several recent publications are dealing with the distribution, ecology, morphology, and taxonomy of *U. stygia* (for a detailed treatment, see e.g. Schlosser 2003).

The free-floating aquatic *Utricularia tenuicaulis* from Japan, which has been considered to be conspecific with *U. australis* by most authors (including Taylor 1989), has recently been found to actually represent one of the parent species of the diploid sterile hybrid *U. australis* (which originated from natural asymmetric hybridization between *U. tenuicaulis* (female) and *U. macrorhiza* (male); Kameyama *et al.* 2005). It therefore is considered as a species distinct from the widespread, sterile *U. australis* here (although not so much morphologically distinct, but reproductively separated, see Kameyama & Ohara 2006). Whether *U. australis* is indeed a diploid hybrid throughout its range (and should thus be best classified as *U. × australis*), or also contains amphiploid populations remains unclear yet.

Checklist of the *Utricularia* species to add to Taylor's monograph from 1989

Accepted taxa in bold, synonyms in regular font. The source publication is given abbreviated, the year of publication in parenthesis. The distribution for accepted taxa is given with country and lower geographical unit (states or provinces) where these species occur.

1. Taxa described since Taylor's monograph from 1989

- Utricularia aurea* Lour. var. *gracilis* (Oliv.) Phuong - Danh luc cac loai thuc vat viet nam 3: 248 (2005). nom. inval. = *aurea* Lour.
- Utricularia australis* R.Br. var. *tenuicaulis* (Miki) Hatus. - Fl. Ryukyus, ed. 2: 204, without basionym reference (1994). = *tenuicaulis* Miki
- Utricularia babui* S.R.Yadav, Sardesai & S.P.Gaikwad - Rheedeia 15: 71 (2005). India (Maharashtra), Thailand (Chiang Mai).
- Utricularia beaugleholei* Gassin - Muelleria 8: 37 (1993). Australia (Victoria, New South Wales, South Australia).
- Utricularia bentensis* Komiya - Bull. Nippon Dent.Univ.Gen.Educ.26:184 (1997) = *bremii* Heer.
- Utricularia catolesensis* G.L.Campos, Cheek & Giul. - Sientibus Sér. Ci. Biol. 10: 233 (2010) = *rostrata* A.Fleischm. & Rivadavia
- Utricularia chiakiana* Komiya & C.Shibata - Bull. Nippon Dental Univ. Gen. Educ. 26: 209 (1997) = *gibba* L.
- Utricularia cochleata* C.P.Bove - Revista Brasil. Bot. 31: 555 (2008) = ? *subulata* L. (mixed with fern leaves?)
- Utricularia cornigera* Studnička - Thaiszia 19: 135 (2009) = *reniformis* A.St.-Hil. / ? *reniformis* A.St.-Hil. x *nelubmifolia* Gardn.
- Utricularia densiflora* P.C. Baleeiro Souza & C.P. Bove - Systematic Botany 36: 465 (2011). = *erectiflora* A.St.-Hil. & Girard
- Utricularia humboldtii* R.H.Schomb. f. *albiflora* Komiya & C.Shibata - Bull. Nippon Dental Univ. Gen. Educ. 26: 210 (1997) = *humboldtii* R.H.Schomb.
- Utricularia inthanonensis* Suksathan & J.Parn. - Thai Forest Bulletin, Botany 38: 25 (2010). Thailand (Chiang Mai).
- Utricularia jackii* J.Parn. - Thai Forest Bulletin, Botany 33: 128 (2005). = *recta* P.Taylor (based on a mixed collection with *U. babui*)
- Utricularia janarthanamii* S.R.Yadav, Sardesai & S.P.Gaikwad - Rheedeia 10: 107 (2000). = *heterosepala* Benj.
- Utricularia linearis* Wakabayashi - J. Insectiv. Pl. Soc. 61: 90 (2010) = *fistulosa* P.Taylor
- Utricularia malabarica* Janarth. & A.N.Henry - J. Bombay Nat. Hist. Soc. 86: 84 (1989). = *praeterita* P.Taylor
- Utricularia mangshanensis* G.W.Hu - Ann. Bot. Fenn. 44: 389 (2007). China (Hunan).
- Utricularia naikii* S.R.Yadav, Sardesai & S.P.Gaikwad - Rheedeia 10: 110 (2000). = *praeterita* P.Taylor (cleistogamous plants of that species).
- Utricularia paulineae* Lowrie - Nuytsia 12: 38 (1998). Australia (Western Australia).
- Utricularia petertaylorii* Lowrie - Nuytsia 14: 406 (2002). Australia (Western Australia).
- Utricularia phusoidaoensis* Suksathan & J.Parn. - Thai Forest Bulletin, Botany 38: 27 (2010). Thailand (Phitsanulok).
- Utricularia regia* Zamudio & Olvera - Brittonia 61: 119 (2009). Mexico (Guerrero).
- Utricularia ramosissima* Wakabayashi - J. Insectiv. Pl. Soc. 61: 35 (2010) = *geoffrayi* Pellegr. (the spur length in this species seems to be more variable, and aged scapes of both *U. geoffrayi* and *U. minutissima* frequently branch in cultivation).
- Utricularia rostrata* A.Fleischm. & Rivadavia - Kew Bulletin 64: 155 (2009). Brazil (Bahia).
- Utricularia simmonsii* Lowrie, Cowie & Conran - Telopea 12: 32 (2008). Australia (Northern Territory, Queensland).
- Utricularia spinomarginata* Suksathan & J.Parn. - Thai Forest Bulletin, Botany 38: 27 (2010). Thailand (Phitsanulok).

Utricularia subramanyamii Janarth. & A.N.Henry - J. Bombay Nat. Hist. Soc. 87: 441 (1991), as '*subramanii*'. India (Kerala). (= ? *capillacea* Willd.)

Utricularia uxoris Gómez-Laur. - Lankesteriana 5: 137 (2005) = *jamesoniana* Oliv. (specimen with atypical unripe or malformed corolla)

2. Names rejected by Taylor, but accepted by the author of this article

Utricularia stygia Thor - Nordic J. Bot. 8: 219 (1988). Circumboreal (widespread in temperate Europe, Asia and North America).

Utricularia tenuicaulis Miki - Bot. Mag. Tokyo 49: 847 (1935). Japan (exact range unknown).

3. Species treated under a different name by Taylor 1989

Utricularia capillacea Willd. - Sp. Pl., ed. 4, Vol. 1(1): 113 (1797). Tropical Africa and Asia, widespread. Synonym: *U. scandens* Benj.

Taylor was not able to assign with certainty the fragmented herbarium specimen on which Willdenow based his description of *U. capillacea* to any of the known species of section *Oligocista*. However it was recently identified to be conspecific with Benjamin's *U. scandens*, species number 109 of Taylor's treatment (Bhattacharyya 2003). Although that latter name is well-established and widely used in flora treatments, Willdenow's name is older and thus has to be considered priority.

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PHILCOXIA:
A NEW GENUS OF CARNIVOROUS PLANT

ANDREAS FLEISCHMANN • University of Munich, LMU • Department of Systematic Botany and Mycology
• Menzinger Strasse 67 • 80638 Munich • Germany • fleischmann@lrz.uni-muenchen.de

Keywords: *Philcoxia*, Brazil.

Philcoxia P.Taylor & V.C.Souza is a genus of three small, rare, enigmatic plant species from Brazil. This fairly new plant genus was first described to science in 2000 by Peter Taylor and co-workers, and consists of the species *Philcoxia bahiensis* from Bahia, *P. goiasensis* from Goiás, and *P. minensis* from Minas Gerais, each named for the Brazilian state to which it is endemic (Taylor *et al.* 2000). All species of *Philcoxia* are characterized by thickened subterranean stems that bear small and lax rosettes of tiny peltate leaves on very long petioles (see Fig. 1). The minute leaves, only 1-3 mm in diameter, are lined with stalked, sticky glandular hairs on their upper surface and lie flat on the ground, usually covered by a thin layer of sand grains. Although two of the species were presumed to be annuals by Taylor *et al.* (2000), more recent collections show that all of them possess a well-developed underground stem, and are thus certainly perennials (probably even very long-lived). The erect inflorescence can reach up to *ca.* 30 cm tall, it is many-flowered and multiply-branched, the lilac to purple flowers consisting of a tubular corolla are vaguely reminiscent of flowers of Lentibulariaceae (see Fig. 2).

All three species of *Philcoxia* exclusively grow in a very unique habitat of the Brazilian *cerrado* scrublands or *campos rupestres* vegetation (“rocky fields”, an open vegetation type of nutrient-poor sandstone-based soils), namely in open plain patches consisting of deep, bare, white silica sand (see Fig. 3). These deep sand patches are well drained, and thus remain very dry for most of the year. They only seem to be moist during the rainy season, when constantly water-fed by rainfall. During the dry season, the uppermost few millimetres of this substrate consist of a hardened, but fragile crust of baked sand grains, glued together by cohesion. It is underneath or within this thin layer, where the leaves of *Philcoxia* are found, protected from intense radiation and heat, and where they might receive some moisture from nocturnal condensation. Only few plants are able to survive in these exposed and inert sand patches, accompanying *Philcoxia* – mainly few globose cacti of the genus *Melocactus*, and annual Eriocaulaceae (pipeworts), both which are mainly found at the margins of the sand pits. *Philcoxia*, however, is perfectly adapted to this extreme habitat, by forming thickened, very long, tap-root like rhizomes, which serve as storage organs (and which may reach some moisture in deeper soil layers), and small subsoil leaves to minimize evaporative loss of water. Only the comparatively tall, branched inflorescences are produced above the soil surface, and scapes of many individuals are usually sticking out of the sand well spaced from each other, but in great numbers (see Fig. 3). Although *Philcoxia* is really rare and localized across Brazil, only known from a handful of small restricted sites, it is usually dominating the centers of the sand plain habitats where it occurs. Nevertheless all three species can be considered as endangered, as their habitats are under threat of human development, and most of the sand pits where they occur are exploited by mining companies.

Proof of carnivory

Large numbers of dead nematodes or their chitin cuticles have been found adhering to the glandular leaves of herbarium specimens of *Philcoxia*, along with numerous sand grains (Fritsch *et al.* 2007; Pereira & Oliveira 2010). Although Taylor *et al.* (2000) initially doubted



Figure 1: (Left) Partially excavated plant of *Philcoxia minensis*, illustrating only the uppermost part of the extensive underground system. Note the pale brownish, thick stem, which is proportionally large compared to the small rosettes of leaves, which are borne on long pale-whitish petioles and stolons. (Right) The small peltate leaves of *Philcoxia minensis*. The shallow layer of sand grains which naturally covers the leaves was removed to take this photograph.

that *Philcoxia* might be carnivorous, most botanists who have examined herbarium specimens of these plants have speculated about carnivory in this genus, but conclusive evidence could not be gathered. A first test for carnivory conducted on *Philcoxia minensis* on living greenhouse-grown plants showed negative results (Fritsch *et al.* 2007), however only the very simple photo-film test method was applied, and negative results have also been gained in their experimental setup for the well-known, doubtlessly carnivorous plant *Pinguicula*. Subsequently a more detailed study showed compelling evidence for carnivory in *Philcoxia*: Pereira *et al.* (2012) gained positive results for enzyme activity in the leaf glands of *Philcoxia minensis* (by a phosphatase activity test), and the even more convincing isotope tracing experiments of the same study demonstrate the uptake of nitrogen originating from the nematode prey into the plant tissue directly. Nematodes from lab-cultures that were fed with heavy nitrogen (^{15}N) were applied to the glandular leaves of *Philcoxia minensis* plants under controlled conditions of a greenhouse. After only 1-2 days (a time-frame we would call “prey digestion time” in the more well-known sticky-leaved carnivorous plants, like *Drosera* or *Pinguicula*), the nematodes were dead and a significant amount of the heavy nitrogen could already be found in the plant tissue. This means that the nematodes had to be digested by the plant (the enzyme activity of the leaf glands was also verifiably shown by Pereira *et al.* 2012), and that the nutrients released from the prey were absorbed by the leaves (natural organic decomposition of the nematodes, *e.g.* by soil bacteria, can likely be excluded in such a short time; moreover nematodes have a robust chitin exoskeleton, which has to be enzymatically cracked open –like in the common insect prey of “bigger” carnivorous plants– in order to release their soluble nutrient content). And even if we would find out that it was not the plant glands who finally digested the caught

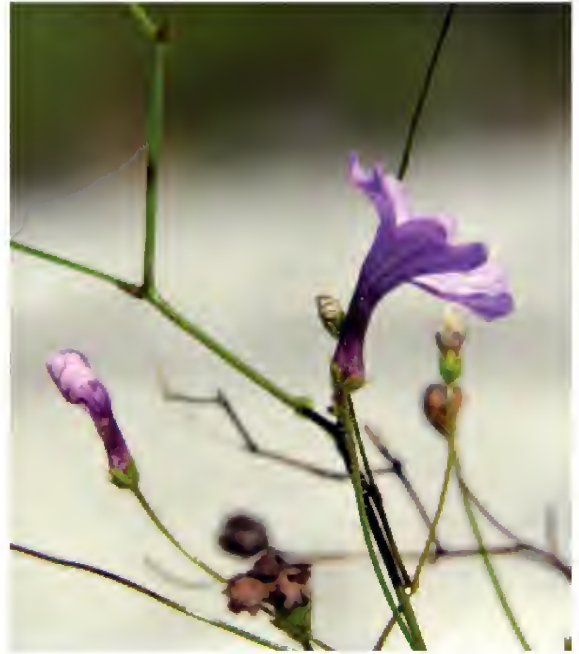


Figure 2: Close-up of the purple flowers of *Philcoxia minensis*, which are about 5 mm in diameter.

nematodes, but associated bacteria, this does not mean that the carnivorous nature of *Philcoxia* has to be questioned: Ellis & Midgley (1996) demonstrated the digestive mutualism of the enzyme-lacking carnivorous plant *Roridula* in the very same way, by applying nitrogen-traced *Drosophila* flies to *Roridula* leaves. After a few days, an impressive amount of the nitrogen isotopes was already found incorporated into the *Roridula* leaves, after it has been sucked from the flies by the associated *Pameridea* bugs, which then deposited their heavy nitrogen enriched faeces on the plant leaves, where it was absorbed from specialized cells. If you will place isotope-traced insects on non-carnivorous sticky plants like *Proboscidea*, *Ibicella*, or tomatoes, however, barely any nutrients from that prey will be found in the plants. That makes the difference between a carnivorous plant like *Philcoxia*, and a non-carnivorous plant like *Proboscidea*.

Affinity of *Philcoxia* to other carnivorous plants

Although *Philcoxia* superficially resembles terrestrial members of *Utricularia* and *Genlisea*, and it indeed was initially thought to be an unknown member of Lentibulariaceae when the first specimens were collected in Brazil (Taylor *et al.* 2000), a closer examination of the plants revealed that this genus is not closely related with any of the “classic” carnivorous plant genera.

Philcoxia without any doubt belongs to the tribe Gratiroleae of Plantaginaceae (the plantain family, part of which formerly was included in the figwort family Scrophulariaceae), as it is both evident from flower morphology (Taylor *et al.* 2000) and molecular phylogenetic data (Fritsch *et al.* 2007; Schäferhoff *et al.* 2010). The firm proof of Pereira *et al.* (2012) that *Philcoxia* is in fact carnivorous makes this the first carnivorous plants known from the Plantaginaceae family, and adds a new genus of carnivorous plants to our knowledge. This also means that carnivory has independently evolved at least three times in parallel in the large



Figure 3: *Philcoxia minensis* in habitat in the Serra do Cabral, Minas Gerais state, Brazil. The plant grows in open plains of very dry, pure, fine quartzitic sand, accompanied only by a few cacti and annual Eriocaulaceae (in the background in the upper right).

order of dicotyledonous flowering plants, the Lamiales (the mint-allies), in only distantly related groups: namely in *Philcoxia* from the Plantaginaceae, in the carnivorous Lentibulariaceae (*i.e.* *Pinguicula*, *Utricularia*, and *Genlisea*), and in the even more distantly related *Byblis* from the Byblidaceae.

Considering the rare and endemic distribution of the three species of *Philcoxia*, as well as their fragile and complex natural sand habitat, which for obvious reasons will be very difficult to imitate artificially, it is not surprising that this genus of carnivorous plant is not likely to be widely cultivated by carnivorous plant enthusiasts in the near future. Long-term greenhouse cultivation of *Philcoxia minensis* proved to be difficult (P. Fritsch, pers. com.), and seeds of *Philcoxia* have not been successfully germinated yet (P. Fritsch, pers. com.; R. Oliveira pers. com.).

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ATLAS OF BLADDERWORTS

MARTIN SPOUSTA • JAN FRANTA • Za Hládkovem 677/18 • Praha 6 - Střešovice, 169 00 • Czech Republic • martin.spousta@yahoo.com

We would like to report on a new project currently in progress. Thanks to the international cooperation with many photographers, which resulted in the creation of a 2010 exhibition called “Carnivorous Plants and Their Biotopes,” we can now focus on processing the atlas of genus *Utricularia*. The 1989 monograph, “The genus *Utricularia*,” by Peter Taylor, is an extraordinary book, that deserves our continued attention. This extensive work contains 214 species, including 50 species that Taylor described himself. In the nearly quarter of a century since this work was released, many things have happened within the genus, for example there are now close to 30 newly described species.

Peter Taylor’s work is very inspiring for us. Working with many colleagues from around the world, we are preparing a new photographic atlas of bladderworts to complement Taylor’s work. It will contain all of the species listed in IPNI (International Plants Name Index). It will also include a summary of habitat information. We plan to release the atlas in three volumes. The first volume will come out this year (2012) and it will contain more than 300 color photographs from more than 70 authors from around the world (see Fig. 1). The text will be both English and Czech. The atlas is being prepared by Dr. Miloslav Studnička, Martin Spousta, and Jan Franta. Publisher of this **Atlas of bladderworts** will be Botanical Garden in Liberec in the Czech Republic (<http://www.botaniliberec.cz>).

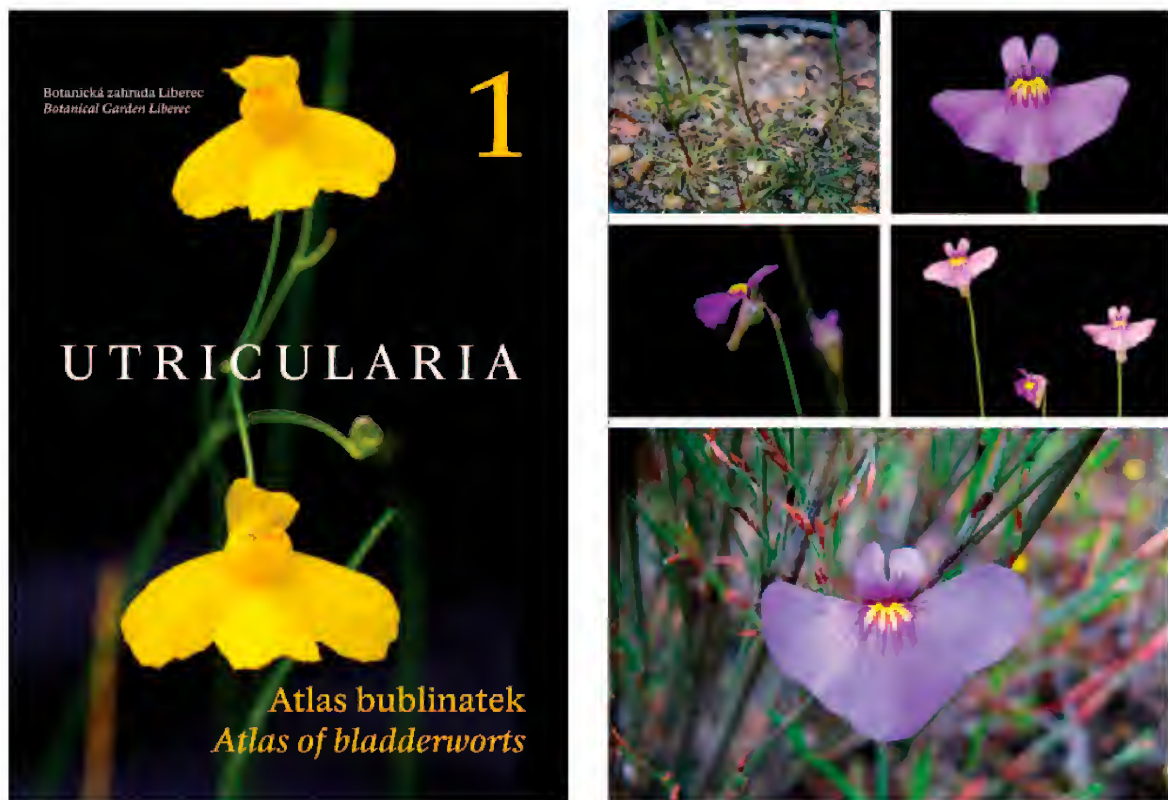


Figure 1: Cover of Atlas of bladderworts and a page from the Atlas showing *Utricularia inaequalis* (top four photos are from culture at Liberec Botanical Garden by Miloslav Studnička and the bottom photo is from habitat by Arthur Yin).

BOOK REVIEW

McPherson, S., and Schnell, D. 2011. *Sarraceniaceae of North America*. Hardcover, 810 + xv pp., 571 figures, most in color, ISBN: 978-0-9558918-6-1.

McPherson, S., Wistuba, A., Fleischmann, A., and Nerz, J. 2011. *Sarraceniaceae of South America*. Hardcover, 566 + xi pp., 488 figures, most in color, ISBN: 978-0-9558918-7-8.

Each volume: Redfern Natural History Productions. £34.99/\$55.33 + shipping (£36.99/\$58.49 signed), from redfernnaturalhistory.com.

Reviewed by Barry Rice

Stewart McPherson is a publishing whirlwind—a veritable force of nature. Just four years after he published a very attractive book called *Pitcher Plants of the Americas* (2007, 320 pages), he was compelled to return to essentially the same topic in an expanded, two volume set spanning about 1400 pages! Furthermore, in those same four years, he published six other books and a few small field guides, with another 3600 pages of content. His output is simply incredible.

His newest work is divided into two volumes: *Sarraceniaceae of North America*, and *Sarraceniaceae of South America*. The build quality is excellent—the paper is good quality, the print is clear, and the color fidelity of the imagery is magnificent. The books are filled with beautiful images throughout, many from other photographers. (Unfortunately, not all are correctly captioned or attributed.)

McPherson is not slaving alone—in these volumes, as in others, he relies upon the contributions of other workers. Some helped with specific sections, for example Jan Schlauer saw and worked only with the taxonomic descriptions of new taxa. Others helped to the extent that they are listed as coauthors.

We first consider McPherson & Schnell (hereafter M&S), which starts with a seventy page treatment of *Darlingtonia*. (In the spirit of full disclosure, I note that I supplied McPherson with a substantial amount of information about my own *Darlingtonia* research, which he included in this chapter, although I have no financial interests in the publication.) M&S treats the genus effectively and completely, starting with early historical records and following with modern observations, and an excellent summary of conservation threats.

M&S includes range information in the format of a county-by-county status. While not perfect, this practice is far better than the usual balloon-outlines that can give very misleading impressions of the ranges of rare or sporadic plant populations.

Because of my own involvement with *Darlingtonia*, M&S graciously asked me to include a description of the anthocyanin-free form of *Darlingtonia* (i.e., *Darlingtonia californica* f. *viridiflora*). That this is the only new taxon M&S recognizes within the genus is perhaps surprising, since M&S recognized and described many new pigmentation patterns within the genus *Sarracenia*. Perhaps we will see more about this in the future!

M&S clearly has an interest in the historical development of carnivorous plant knowledge. In the several pages devoted to *Darlingtonia* cultivation, we learn about interesting horticultural successes and failures in the 1800s. However, there is surprisingly little information more recent than 1900. The fascination with early cultivation practices is almost bizarre. For example, the section describing growing media relies on publications from 1875 and 1893. The repotting paragraph relies on

a reference from 1898. Yes, there are a few modern citations, but these are quite in the minority. A more coherent treatment of modern cultivation techniques would have strengthened this section considerably.

The treatment of *Sarracenia* follows the same basic format, but it is enormous in comparison. There is essentially nothing that is excluded; at times one feels that perhaps M&S err in including too much. (Why, for example, are we given a fold-out map of Canada and the entire USA that indicates all the counties and parishes for each state and province? Interesting—yes—but why?)

The real meat of the entire work is the 450 pages in which each species is discussed and analyzed in delightful detail. For example, the original historical range of each species is given at the level of county/parish, and the current status for each county/parish is also noted. Assembling this kind of information can be extremely difficult, and this 2011 range snapshot will be very useful for future researchers, as the species in the genus continue on their paths towards extinction.

Collectors in particular will take great interest in the detailed discussion and dissection of each species. However, here we see that the speed with which McPherson publishes his works has an Achilles' heel—there is a great deal of repetition in the work—repetition that should have been caught by a more careful (and time consuming) reviewing and editing process. For example, in the treatment of a newly described variety, we learn that, “Sporadic, generally small and localized populations of *Sarracenia alata* var. *cuprea* occur in Mississippi and eastern Louisiana, although the plant is extremely rare overall.” For the variety *nigropurpurea*, we are given the exact same analogous text (with the exclusion of the word “extremely”). The same exact phrase appears again for both var. *ornata* and var. *rubrioperculata*. Similar examples of parallel text/paragraph structure occur elsewhere in the book. (Compare the treatment of areolation in *S. alata* [p181] and pubescence in *S. leucophylla* [p279].) Is this technically wrong? No. But it seems somewhat lazy, and if one of my students submitted a paper with the same parallel structure I would circle the incidences in red ink and ask for a rewrite.

Taxonomically, M&S add seventeen new infraspecific varieties and forms, which I list briefly in Table 1. (The number enlarges to nineteen, if you include *Darlingtonia* and a technical establishment of an already-familiar name.)

Despite the enormity of this work, and the energy with which M&S present their viewpoints about taxonomy, it is a mystifying and serious omission that they include no botanical keys for the genus.

Generally speaking, M&S follow the taxonomy of Schnell (2002). This system diverges from some other contemporary researchers in treating “Gulf Coast purps” as *Sarracenia purpurea* subsp. *venosa* var. *burkei* (instead of *Sarracenia rosea*), and in the treatment of *S. rubra* with five subspecies (instead of as many as three species: *S. rubra*, *S. jonesii*, and *S. alabamensis*). This is a continuation of a long-lasting argument, and with this publication, we see M&S squarely at odds with treatments such as Flora of North America (Mellichamp, T.L., and Case, F.W. 2008, <http://www.eFloras.org>, Vol. 8, *Sarracenia*, accessed 15 Feb 2012). M&S use every opportunity to provide their rationale in detail, and their derision of alternate viewpoints is not concealed! The reader is encouraged to draw their own conclusions. In Table 1, I provide a conversion between these two warring camps. (And make no mistake about it—a taxonomic war it is!)

M&S present a few statements as fact, when perhaps they are subject to debate. However, with the authority of Schnell as a coauthor, these statements should not be readily dismissed. For example, they state as simple fact that yellow-flowered (but not anthocyanin-free) clones of *S. psittacina* or *S. leucophylla* are showing signs of prior hybridization (instead of novel mutation). While likely correct, I am not sure this has been proven. In their extensive discussion of all naturally occurring

hybrids (itself quite a feat!), the authors claim that the binomial system for hybrids (i.e., *S. ×catesbaei*) has been “abandoned.” While I suspect they mean that they have stopped using the system in their publication, it certainly has not been abandoned by other botanists or the botanical code in general!

On the other hand, I wish that M&S had been equally bold when dealing with one of the taxa associated with *Sarracenia rubra*. It has long been known that an interesting expression of what appears to be *Sarracenia rubra* occurs in central Georgia and southwestern South Carolina. This has been given a variety of names, for example *Sarracenia rubra* “ancestral form” (based upon a hypothesis of its being an antecedent of *Sarracenia rubra* subsp. *gulfensis*). M&S devote six pages to this plant, and coin the name “*Sarracenia rubra* ‘Incompletely diagnosed taxon from Georgia and South Carolina’” to refer to it. Using single quotes like this is inappropriate, as it is the format reserved for cultivars. This weird name is used in figure captions, in table captions, in the index, and at least nine times in the text, as in “Note the intricate veining of *Sarracenia rubra* ‘Incompletely diagnosed taxon from Georgia and South Carolina.’” Complicated phrase names like this are no better than pre-Linnaean names like *Limonium peregrinum foliis forma floris Aristolochiae*. Why not just establish a Latin name at some rank? Future research might reduce it into synonymy or place it at a new rank, but at least in the interim we would have a valid name we could use.

Once again, the section on cultivation suffers from the preponderance of historical information from the 1800s. Of modern methods such as tissue culture, not a word is breathed. M&S also err when they repeat the oft-claimed fallacy that cultivars must be reproduced vegetatively. Whether you like the ICNCP rules or not, they are quite clear that cultivars may be reproduced via seed as long as the key characters that define the cultivar are also reproduced—this underscores the need for good cultivar descriptions.

The second volume in the set treats *Heliamphora*. McPherson’s training as a geographer shows, for not only are we given a fold-out map of the Guiana Highlands, but the range of each taxon is also carefully indicated. This is very useful. The imagery throughout is exceedingly attractive. Five new species are included (*Heliamphora arenicola*, *H. ceracea*, *H. collina*, *H. parva*, *H. purpurascens*).

Astonishingly, as in the first volume, this monograph lacks botanical keys. It is fabulous and convenient to have a rogue’s gallery including all the species, new and old, and also all the wild hybrids, but other than picture-IDing or reading every species description in turn, there is no coherent synopsis guiding us on how to differentiate species.

Both volumes draw to an end with profiles of several carnivorous plant nurseries, appendices complete with new taxon descriptions, and (what the heck, why not?) some conversion tables. What? No periodic table?

Make no mistake—these are beautiful books with wonderful images and lots of fascinating details. With a little more time and reflection in their construction and editing, they could have been superb and complete monographs. I suspect that the shortcomings of both volumes are due to an overly-speedy publication schedule at Redfern Natural History Productions. Perhaps working on a monograph for 40 years may be too long, but certainly spending a little more time on a work fosters a superior outcome.

Should you buy these two books? Of course. They will update your species lists from McPherson’s 2007 work, and Schnell’s 2002 book, and give you instant access to spectacular images of all the species the various authors currently recognize. Of course, these works have errors and flaws, but do not wait for second editions—buy them now. You will not regret it.

Table 1. The taxonomic system from McPherson & Schnell (2011) compared to the Sarraceniaceae treatment given in FNA (Flora of North America). New names are given in bold text. These new names were established after FNA was published—to aid the user of the FNA system, I have inserted the new names in the appropriate places. For simplicity, autonyms are not explicitly given at the forma level (*i.e.*, *Darlingtonia californica f. californica*). Each taxon is indented one interval for each step on the ranking of species-subspecies-variety-form.

McPherson & Schnell	Flora of North America
<i>Darlingtonia californica</i>	<i>Darlingtonia californica</i>
<i>D. californica f. viridiflora</i>	<i>D. californica f. viridiflora</i>
<i>Sarracenia alata</i> var. <i>alata</i>	<i>Sarracenia alata</i> var. <i>alata</i>
<i>S. alata</i> var. <i>alata f. viridescens</i> ¹	<i>S. alata</i> var. <i>alata f. viridescens</i>
<i>S. alata</i> var. <i>atrorubra</i>	<i>S. alata</i> var. <i>atrorubra</i>
<i>S. alata</i> var. <i>cuprea</i>	<i>S. alata</i> var. <i>cuprea</i>
<i>S. alata</i> var. <i>nigropurpurea</i>	<i>S. alata</i> var. <i>nigropurpurea</i>
<i>S. alata</i> var. <i>ornata</i>	<i>S. alata</i> var. <i>ornata</i>
<i>S. alata</i> var. <i>rubrioperculata</i>	<i>S. alata</i> var. <i>rubrioperculata</i>
<i>Sarracenia flava</i> var. <i>flava</i>	<i>Sarracenia flava</i> var. <i>flava</i>
<i>S. flava</i> var. <i>flava f. viridescens</i>¹	<i>S. flava</i> var. <i>flava f. viridescens</i>
<i>S. flava</i> var. <i>atropurpurea</i>	<i>S. flava</i> var. <i>atropurpurea</i>
<i>S. flava</i> var. <i>cuprea</i>	<i>S. flava</i> var. <i>cuprea</i>
<i>S. flava</i> var. <i>maxima</i>	<i>S. flava</i> var. <i>maxima</i>
<i>S. flava</i> var. <i>ornata</i>	<i>S. flava</i> var. <i>ornata</i>
<i>S. flava</i> var. <i>rubricorpora</i>	<i>S. flava</i> var. <i>rubricorpora</i>
<i>S. flava</i> var. <i>rugelii</i>	<i>S. flava</i> var. <i>rugelii</i>
<i>Sarracenia leucophylla</i> var. <i>leucophylla</i>	<i>Sarracenia leucophylla</i> var. <i>leucophylla</i>
<i>S. leucophylla</i> var. <i>leucophylla f. viridescens</i>¹	<i>S. leucophylla</i> var. <i>leucophylla f. viridescens</i>
<i>S. leucophylla</i> var. <i>alba</i>	<i>S. leucophylla</i> var. <i>alba</i>
<i>Sarracenia minor</i> var. <i>minor</i>	<i>Sarracenia minor</i> var. <i>minor</i>
<i>S. minor</i> var. <i>minor f. viridescens</i>	<i>S. minor</i> var. <i>minor f. viridescens</i>
<i>S. minor</i> var. <i>okefenokeensis</i>	<i>S. minor</i> var. <i>okefenokeensis</i>

Table 1 Cont.

<p><i>Sarracenia oreophila</i> var. <i>oreophila</i> <i>S. oreophila</i> var. <i>ornata</i> <i>Sarracenia psittacina</i> var. <i>psittacina</i> <i>S. psittacina</i> var. <i>psittacina</i> f. <i>viridescens</i> <i>S. psittacina</i> var. <i>okefenokeensis</i> <i>S. psittacina</i> var. <i>okefenokeensis</i> f. <i>luteoviridis</i> <i>Sarracenia purpurea</i> subsp. <i>purpurea</i> <i>S. purpurea</i> subsp. <i>purpurea</i> f. <i>heterophylla</i> <i>Sarracenia purpurea</i> subsp. <i>venosa</i> var. <i>venosa</i> <i>S. purpurea</i> subsp. <i>venosa</i> var. <i>pallidiflora</i> <i>S. purpurea</i> subsp. <i>venosa</i> var. <i>burkii</i> <i>S. purpurea</i> subsp. <i>venosa</i> var. <i>burkii</i> f. <i>luteola</i> <i>S. purpurea</i> subsp. <i>venosa</i> var. <i>montana</i> <i>Sarracenia rubra</i> subsp. <i>rubra</i> <i>S. rubra</i> subsp. <i>gulfensis</i> <i>S. rubra</i> subsp. <i>gulfensis</i> f. <i>luteoviridis</i> <i>S. rubra</i> subsp. <i>alabamensis</i>² <i>S. rubra</i> subsp. <i>wherryi</i> <i>S. rubra</i> subsp. <i>jonesii</i> <i>S. rubra</i> subsp. <i>jonesii</i> f. <i>viridescens</i> <i>S. rubra</i> taxon <i>nomen nudum</i>⁴</p>	<p><i>Sarracenia oreophila</i> var. <i>oreophila</i> <i>S. oreophila</i> var. <i>ornata</i> <i>Sarracenia psittacina</i> var. <i>psittacina</i> <i>S. psittacina</i> var. <i>psittacina</i> f. <i>viridescens</i> <i>S. psittacina</i> var. <i>okefenokeensis</i> <i>S. psittacina</i> var. <i>okefenokeensis</i> f. <i>luteoviridis</i> <i>Sarracenia purpurea</i> subsp. <i>purpurea</i> <i>S. purpurea</i> subsp. <i>purpurea</i> f. <i>heterophylla</i> <i>Sarracenia purpurea</i> subsp. <i>venosa</i> <i>S. purpurea</i> subsp. <i>venosa</i> f. <i>pallidiflora</i> <i>Sarracenia rosea</i> <i>Sarracenia rosea</i> f. <i>luteola</i> (not considered distinct from other <i>S. purpurea</i> taxa) <i>Sarracenia rubra</i> subsp. <i>rubra</i> <i>S. rubra</i> subsp. <i>gulfensis</i> <i>S. rubra</i> subsp. <i>gulfensis</i> f. <i>luteoviridis</i> <i>Sarracenia alabamensis</i> subsp. <i>alabamensis</i> <i>S. alabamensis</i> subsp. <i>wherryi</i> <i>Sarracenia jonesii</i> <i>S. jonesii</i> f. <i>viridescens</i>³ (as yet unassignable)</p>
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¹M&S did not specify a varietal rank for this form, so botanical code automatically assigns it to the autonomous variety.

²A previous attempt to establish this name had technical errors; the name has now been correctly established.

³This new combination is made here, as follows:

Sarracenia jonesii f. *viridescens* (S.McPherson & Schnell) B.Rice *comb. nov.*

Basionym: *Sarracenia rubra* subsp. *jonesii* f. *viridescens* S.McPherson & Schnell, Sarr.N.Am.:759 (2011).

⁴This taxon is referred to by M&S as *Sarracenia rubra* 'incompletely diagnosed taxon from Georgia and South Carolina.'

New Books - Just Published

New Nepenthes Volume One. This 596 page work comprises 491 images and provides an update on the genus *Nepenthes*, covering all new species and discoveries made since the publication of the first complete monograph in 2009. Highlights include; descriptions of eight new *Nepenthes* species, emended descriptions of *N. lamii* and *N. thorelii*, an account of a newly discovered population of *N. pitopangii*, new understanding of the diversity of *N. philippinensis* and related taxa, expedition reports, a comparison of all highland *Nepenthes* of Palawan, complete descriptions and a comparison of all recently described Indochinese taxa... and much, much more.

Field Guide to the Pitcher Plants of the Philippines. A lavishly illustrated and colourful overview of the twenty seven species of Philippine *Nepenthes*. Several of the species that feature in this work have been discovered only in the last two years and are documented here in unique detail (*N. ceciliae*, *N. palawanensis* and *N. pulchra*).

Field Guide to the Pitcher Plants of Sulawesi. A beautiful guide to all *Nepenthes* of Sulawesi, including never-before published images of *N. hamata*, *N. eymae*, *N. nigra*, *N. undulatifolia* and a unique variant of *N. mirabilis*. This work also includes the first ever listing of all *Nepenthes* hybrids known from Sulawesi and photos of three hybrid plants.

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