Literature Reviews

Clarke, C., Lee, C. & McPherson, S. 2006. *Nepenthes chaniana* (Nepenthaceae), a New Species from North-Western Borneo. Sabah Parks Nature Journal 7: 53-66

At long last the authors finally acknowledge that the material from Northern (Malaysian) Borneo prematurely assigned to *Nepenthes pilosa* by Smythies (1964) and almost all subsequent authors (ignoring the fact that the type specimen collected in Kalimantan has quite different, broadly infundibuluform pitchers that were compared to *N. burbidgeae* by the original author Danser!) is in fact distinct at species level. The "new" species *N. chaniana* (with comparatively narrow tubular pitchers) is actually the most widespread and best known from a group of three (*N. pilosa*, *N. chaniana*, and the recently described *N. glandulifera* v.i.), to which the even more widespread *N. fallax* (*syn. N. stenophylla* auct. non Mast: Danser) can be added as a "sister." (JS)

Estes, D. 2006. Tennessee's Lost Emerald: The Green Pitcher Plant. Tennessee Conservationist

Botanists and native plant enthusiasts from Tennessee have doubtless heard some of the tale of Tennessee's only pitcher plant, *Sarracenia oreophila.* In 1935, a single living plant was found in the wild and placed in a University greenhouse in an attempt to produce flowers for positive identification. Due to a mishap, the plant was lost in cultivation and no herbarium specimen was made. The entire record of *Sarracenia* in Tennessee is based on this anecdote. The author presents the people and events surrounding the fate of possibly the last wild pitcher plant in Tennessee. Optimistically, Estes suggests *S. oreophila* could still exist in the state, as evidenced by additional reports and potential sightings around the Cumberland Plateau. The article is well illustrated with photos of early plant collectors, *Sarracenia oreophila* in habitat (in Alabama) and other native plants which could be confused with the pitcher plant (Reviewer: M. Chamberland).

Gomez-Laurito, J. 2005. *Utricularia uxoris* (Lentibulariaceae), una nueva especie costaricense de la sect. *Orchidioides*. Lankesteriana 5: 137-139.

The new bladderwort species described in this paper looks like a *Utricularia jamesoniana* with smaller, green (not white suffused with pink) and less hairy flowers. The lower lip of the corolla is less deeply lobed. Given the variability of *U. jamesoniana* across its large range in central and South America, it is difficult to judge whether specific segregation is really justified. (JS)

Krol E., Dzubinska H., Stolarz M., and Trebacz K. 2006. Effects of ion channel inhibitors on cold- and electrically-induced action potentials in *Dionaea muscipula*. Biol. Plant. 50: 411-416.

The trap-closing of *Dionaea*, and its sister genus *Aldrovanda*, has long been known to involve electrical signals. These signals involve pulses of electrical potential, also found in animal cells, called action potentials. Here, the authors studied the nature of the generation of these signals using inhibitors of the transport of various ions, and they used either sudden decreases in temperature or shocks with direct current to induce the action potentials involved in closing. It is interesting to note the nature of action potentials involved in closing, since for both stimuli, anions, potassium ions, and calcium ions were involved, but not to the same degree. Thus the plants can in some way differentiate among triggers and produce their action potentials in different ways for different stimuli. (DWD)

Lee, C.C. 2004. New Records and a New Species of *Nepenthes* (Nepenthaceae) from Sarawak. Sandakania 15: 93-103

The newly described species *N. glandulifera* is the most recent addition to the Bornean

group of *Regiae* with long brown hairs. It differs from its relatives by a missing appendage on the lower lid surface and by dark glands at stems, leaf bases, and lower parts of pitchers (only on petioles and nodes in *N. pilosa*, and missing in *N. chaniana*). (JS)

Matusikova I., Salaj J., Moravcikova J., Mlynarova L., Nap. J.-P., and Libantova J. 2005. Tentacles of in vitro-grown round-leaf sundew (*Drosera rotundifolia* L.) show induction of chitinase activity upon mimicking the presence of prey. Planta 222: 1020-1027.

Carnivorous plants secrete a range of enzymes for the digestion of their prey, and one obvious but often-overlooked or under-explored enzyme from this group is chitinase. This enzyme decomposes chitin, the principal component of fungal cell walls and, more importantly, the exoskeletons of insects and crustaceans. *Drosera rotundifolia*, raised in tissue culture to prevent any surface microorganisms from contaminating the plants, adjusted enzyme expression to match the material offered, making more proteases in response to the protein in gelatin and more chitinases in response to chitin isolated from crustaceans. This very sensible and efficient sort of response is perhaps not surprising but nonetheless very interesting for physiologists. The authors are quite thorough, examining the expression of chitinase not only at the protein level but also at the level of mRNA—this strengthens the identification of chitinase as being produced by the plants themselves. Chitinase was only expressed in the secretory parts of the glandular hairs in response to chitin being applied to the plants. (DWD)

Neyland, R., and Merchant, M. 2006. Systematic Relationships of Sarraceniaceae inferred from Nuclear Ribosomal DNA Sequences. Madrono 53: 223-232.

Using molecular methods that are so popular, the authors explore the relationships among *Darlingtonia*, Sarracenia, and *Heliamphora*. Their displayed consensus tree is intriguing, and suggests that *Sarracenia purpurea* is a sister clade to all the other species in its genus. The remaining species are grouped in two groups (one including *S. flava*, *S. minor*, *S. psittacina*; the other containing *S. alata*, *S. leucophylla*, *S. oreophila*, and *S. rubra*). No phylogenetic structure could be detected among plants in the *S. rubra* complex, here discussed as five subspecies. Within *Sarracenia purpurea*, the var. *burkii* taxon is apparently a sister group to the rest of *S. purpurea*, supporting recent moves to elevate the taxon to species status (i.e. *S. rosea*). On the generic level, *Darlingtonia* is seen to be a sister clade to *Heliamphora*/*Sarracenia*, which does not provide much clarity into the question of the geographic origin of the Sarraceniaceae.

This paper is marred by the apparent ignorance of the authors as to the correct nomenclature regarding infraspecific taxa in *Sarracenia purpurea*. In this paper, the northern subspecies is treated as "*Sarracenia purpurea* subsp. *gibbosa*" and the southern subspecies is treated as "*Sarracenia purpurea* subsp. *purpurea*." The origin for this confusion is summarized in Cheek, M. CPN 2001, p29-30. (BR)