# Review of Recent Literature

Crow, G. E., et. al. 1981. Rare and endangered vascular plant species in New England. Rodora 83:259-299.

Among the CP evaluated by the authors as rare, or threatened and endangered, or both (E/T), are the following (states are new official two-letter abbreviations). *Drosera anglica* and *D. linearis*, found so far only in ME, are E/T, and their endangered status is of national significance in that there is a decrease in numbers and stations throughout the U.S. range. *D. filiformis* is rare in MA, RI, and CT, but is not E/T. *Pinguicula vulgaris* is listed from NH and VT only, E/T in the region only. *Utricularia biflora* is rare (not E/T) and is found in MA and CT. *U. fibrosa* is E/T for the region and found in MA and CT. Finally, *U. subulata* has been reported rarely to the extent of E/T, but there is taxonomic uncertainty of the specimen. (DES)

Dwyer, J. D. 1981 A list of the Dicotyledoneae of Belize. Rhodora 83:161-236.

Among the lengthly list of species found in this Central America country are the following CP: *Drosera capillaris, D. intermedia, Genlisea filiformis, G. luteoviridis, Utricularia adpressa, U. areola, U. cornuta, U. erectiflora, U. fimbriata, U. foliosa, U. guianensis, U. hispida, U. hydrocarpa, U. juncea, U. juncea* f. *minima, U. macerrima, U. mixta, U. obtusa, U. peckii, U. pinetorum, U. purpurea, U. pusilla, U. resupinata, U. simulans* and *U. subulata.* (DES)

Fahn, A. 1979. Chapter 6, "Glands of carnivorous plants," in *"Secretory tissues in plants,"* Academic Press, London, New York, and San Francisco, pp. 129-146.

A pretty good, illustrated review of secretory glands in all major genera of CPs. The review seems a bit dated in checking the reference dates, but this is likely due to the explosion of papers on this subject in the last 4-5 years and the normal lead time delay in publishing material in a book. A good baseline starting point for groundwork and references relatively current to about 1975, and then more current material such as reviewed in recent issues of CPN to be added by the student. (DES)

Fineran, B. and Lee, M. The organization of the epidermal glands on the trap and other organs of the bladderwort *Utricularia monanthos*. Protoplasma 103(1):17-34 1980.

The authors examined the ultrastructure of mature dome-shaped glands which cover the entire plant. The glands are apparently responsible for secreting water, with those on traps being particularly active during the resetting of the organ.

Kisha, Jennifer S. 1981. Observations on the trapping of the whitefly *Bemisia tabaci* by glandular hairs on tomato leaves. Ann. Applied Biol. 97:123-127.

While no more "carnivorous" than similar trapping by other glandular plants (e.g., *Silene* ssp.), the paper is interesting since the trapping of pests such as whiteflies and aphids in mired glandular secretions is of benefit to the plant in eliminating the activities of the insects, including oviposition. Attempts are being made to breed domestic tomato varieties with their more glandular wild relatives to increase this insect immobilizing factor for economic reasons. (DES)

Kral, R. 1981. Further additions to some notes on the flora of the southern states, particularly Alabama and middle Tennessee. Rhodora 83:301-315.

In this paper, the author lists new finds for the area covered (previously unreported) with a brief paragraph or

so of discussion. One CP is mentioned, namely *Utricularia floridana*, usually confined to FL and GA, and found for the first time in Alabama in Covington County. (DES)

Lysek, G. and Nordbring-Hertz, B. 1981. An endogenous rhythm of trap formation in the nematophagous fungus *Arthrobotrys oligospora*. Planta 152:50-53.
This interesting article was sent to us by Stephen Williams and represents a significant contribution to the apparently lean literature on carnivorous fungi. Actually, consultation of the references in this paper indicate many physiologic papers by the junior author and some others on trap formation and function and should be consulted by interested parties. This paper indicates that trap formation under constant conditions and stimulus with prey occurs in peak bursts of 42 hours, independent of photoperiod and many other factors. However, lowering the temperatures to certain critical levels caused the peaks of trap formation to approach and finally overlap. (DES)

Muller, J. 1981. Fossil pollen records of extant angiosperms. Bot. Rev. 47:1-145.
Among the presently extant taxa of angiosperms whose pollen has been found in deep drill cores (usually in bog or peat areas) are: *Aldrovanda* (p. 59), *Drosera* sp. (p. 59, New Zealand); and *Droserapolis* from central Europe, similar to *Drosera* pollen, *Dionaea* (p. 59, *central Europe*!), *Nepenthes* (p. 59, Borneo), *Utricularia minor* (p. 97, Mexico, Senegal and Georgia). Pertinent pages should be consulted for detail. Not many CP pollens have been found preserved in such palynological studies since the pollen exines of nearly all CP are quite fragile. These skeleton results are intriguing. (DES)

Nelson, E. Charles and Seaward, Mark E. D. 1981. Charles Darwin's correspondence with David Moore of Glasnevin on insectivorous plants and potatoes. Biol. Jor. Linn. Soc. 15:157-164.
This is a fascinating recounting of some interesting CP history in letters only recently discovered. David Moore (1807-1879) was horticultural director of Glasnevin Botanical Gardens (Dublin) and supplied Darwin with much of the latter's CP material for research. Among the more interesting things we learn is the difficulty Kew had in keeping *Drosophyllum* (Moore in Dublin was able to supply it), the experience that *Pinguicula grandiflora* lent itself easily to continuous horticulture at Glasnevin (requiring little care) while *P. vulgaris* required yearly replacement, that Moore was one of the first breeders of *Sarracenia* hybrids and that *S.* × *moorei* was named for him (his earliest hybrid winning first prize at a show) and he named *S.* × *popei* after his head gardener. Those with a historical bent will find the complete article fascinating. (DES)

Taylor, David. 1981. Tender traps. Greenhouse 5:38-41.
This article appears in a relatively new British magazine devoted to greenhouse growing. The article is an excellent summary of CP in the greenhouse with many specific hints and comments on cultivation. The article has some excellent photos, including a cover color, five interior color and three black and white, all of the author's vigorous and well-grown plants. (DES)

Wexler, Jerome. Secrets of the Venus' Fly Trap. Dodd, Mead & Co., Inc.
In this book, the black and white photographs are very nice. I particularly like the ones of the rhizome, seeds, seedlings and fruits. I think the book is excellent for young people who start with nothing but an interest in a plant that "eats" animals. It leads them through a few "what if" observations and experiments that hopefully they will carry further and

# WANT ADS

When submitting Want Ads, please be sure to print clearly for best results and to eliminate mistakes. Please circle the correct letter before each item (Want, Trade, Sell or Buy). Want ads are limited to carnivorous plants, terrariums, greenhouses and moss. There is a charge of ten cents per item, with no limit to the number of items you may submit per issue.

Send coin or check to:
Arboretum, Want Ads
California State University
Fullerton, CA 92634

Dow Airen (12 Ross St.; Yeppoon; Qld 4703; Australia). [T] only *N. pervillei* seedlings of ca. 40-75 mm diam. for other *Nepenthes* except *N. alata, ampullaria, gracilis, gracilima, hirsuta, kampotiana, mirabilis, rafflesiana, thorelli, veitchii, ventricosa, × bossiense, × coccinea, × dormanniana, × dyeriana, × hookeriana, × wrigleyana, × ventrata.*

Ron Galiardo (1216 Cooper Dr.; Ralieigh, NC 27607). [B] *Heliamphora* spps., *Byblis gigantea* (plants), *Drosera gigantea, D. schizandra, D. auriculata, D. peltata, D. capensis* crestate, *D. prolifera, D. whittakeri, D. × hybrida, D. drummondii, D. petiolaris, D. linearis, D. anglica, D. platypoda, Cephalotus, Nepenthes rafflesiana, N. ampullaria, N. alata* large plants, *Polypompholyx, Sarracenia oreophila, S. rubra jonesii,* large *Darlingtonia.*

Marabini Johannes (St.-George-Str. 62; D-8552 Hochstadt/A; West Germany). [WT] *Heliamphora tatei, H. tyleri, Nepenthes clipeata, N. hirsuta, N. inermis, N. peniculata, N. rajah, N. edwardsiana, N. vieillardii, N. tobaica, N. truncata, N. veitchii.* [T] ca. 100 CP species available.

**ALDROVANDA** continued from p. 76.

mucous swellings bulge either inward toward the cell lumen, or toward the outside. If they bulge outward, the cuticle is stretched so tightly that it is often separated from adjacent parts of the elongated cells. This chemical transformation is accompanied by great flexibility and elasticity of the outer walls of the hinge. They are extraordinarily easily crumpled; their cuticle has a strong tendency to collapse in transverse folds.

(to be continued)

## Literature Review

continued

thus gives them some of the real spirit of scientific investigation while it teaches them a good deal of botany. It is an empirical or "hands on" approach which is the best way to teach science and the only way to do science.

On the negative side I have only a few comments. First I hope that any future printings will have page numbers. Some parts of the book may be referred to in the future by others, particularly the parts on growing plants and the lack of page numbers will make this difficult. Secondly, not all of the experiments have an emphasis which leads people to understand the plant as it functions in nature and I think the role of chemical stimuli in inducing and maintaining narrowing is understated, but these are minor points because the book is presented as a series of experiments. The results for the work that was done are there and the young reader can hopefully do more experiments of his own. It is more important to get young people asking questions and doing experiments than it is for them to gain a sophisticated understanding of the Venus' flytrap. (Stephen E. Williams, Dept. of Biology, Lebanon Valley College, Annville, PA 17003)

Zachariah, K. 1981. Chemotropism by isolated ring traps of *Dactylella doedycoides*. Protoplasma 106:173-182.

New work with carnivorous fungi continues apace! In this work, the author placed uninflated ring traps of the above fungus species on agar near dead or moribund nematodes. Some rings were then induced to inflate with chlorobutanol. All rings produced hyphae which grew towards the prey, eventually differentiating into feeding hyphae which digested the carcass. More very useful references at the end of paper. (DES)