

A LATE SUMMER CP FORAY INTO MICHIGAN AND ONTARIO

by D.E. Schnell and R. Sivertsen

The main purpose of our trip in the last days of August, 1974, was to observe and photograph Drosera linearis as well as to search for the interesting hybrids between this species and D. rotundifolia. We had some locations for sites noted 10+ years previously in southeastern Michigan, particularly the marl bog areas from Brighton Lakes eastward to Pontiac. However, a search of the area disclosed marked acidification (pH readings of lakes, streams, ponds, and puddle waters--6.0-6.25) with considerable overgrowth by tall reeds and Typha over former seepage flats. In fact, as our search progressed that day, we soon learned that the presence of Typha, spotted easily from roads, was a good negative association. One area, Bridge Lake in Oakland Co., is extensively developed on one shore while the other--where many orchids and Droseras had been described as late as ten years previously--was covered with dense vegetation into the water. Near Bridge Lake, we found locations around other springs, etc., that still had the open, marly appearance necessary to sustain D. linearis, but in each case the water was definitely acidic and only scattered D. rotundifolia was found.

The decrease of D. linearis in lower Michigan is pretty well documented. (C.E. Wood, Rhodora 57:105-130, 1955; L. Mellichamp, personal communication.) In fact, field botanists have actually watched good stands disappear in a matter of a few years, the change being most often correlated with acidification, floristic changes and particularly, rising water levels of lakes and ponds adjacent to marl seepage flats. Unusually wet years and impoundment contribute to the latter. Larry Mellichamp informs us that of several previously known good locations in southeastern Michigan passed on to him, none retain D. linearis, the closest remaining Michigan plants being found much farther north near Cheboygan on Lake Huron.

After disappointment in lower Michigan, we proceeded to the Bruce Peninsula in Ontario where the species had been seen by one of us (R.S.) in a rapidly declining bog the year previously, and where we would investigate another location* where the plants had been seen as recently as six years ago. We were amply rewarded at the latter location which is a typical white cedar-sedge, marl seepage flat of about four acres just a few hundred yards from the shore of Lake Huron. pH checks of the waters in this area disclosed neutrality (pH 7.0) and the water was highly buffered. There were many S. purpurea purpurea with the small, brightly colored, increased number of pitchers per crown associated with marl edaphic conditions (A.J. Mandossian, The Mich. Botanist 5:26-35, 1966). Typha was conspicuously absent.

The Droseras presented a most interesting situation. D. linearis was there by the hundreds, occurring mainly in the open marl flats area where there was often water. No D. linearis was found in shaded areas. Early winter bud formation was noted along with many ripe seed capsules. Scattered throughout the bog were numerous grassy and mossy hummocks a foot or more across and many D. linearis also grew around the lower margins of these more acidic islands.

Occurring higher up on the hummocks were numerous D. rotundifolia of the usual large northern bog form. Finally, on several hummocks of one sector of the bog near a partially shaded wooded margin were many plants that could be interpreted as D. anglica, or various degrees of hybridization between D. linearis, D. rotundifolia, and possible fertile F₁ hybrids ("D. anglica"). Most of these intermediate plants had sterile scapes but a few had full seed capsules. Microscopic examination of this seed revealed that it is identical to that of fertile D. anglica (Wynne, F.E. Bull. Tor. Bot. Club. 71:173, 1944). Leaf form varied from a typical, though large D. anglica appearance towards more linearity, and a few plants (that had they been in South Africa) looked very much like D. capensis. The intermediates were all growing on the tops of the hummocks or else on the sloping sides; never in the flat, wet marl areas.

D. linearis x D. rotundifolia, and the place of D. anglica is a complex interrelated problem. It has been proposed that D. anglica (Wood, 1955) is of amphiploid origin from the above hybrid. This concept is strongly supported by morphological, anatomic and karyologic evidence. D. linearis, D. rotundifolia and the sterile hybrid are all 2n=20, while D. anglica found in locations far distant from the above species, and fertile hybrids of the above species morphologically indistinguishable from D. anglica are 2n=40, thus strongly suggesting that allopolyploidy has occurred. An extreme interpretation of this data would be to declare all D. anglica as fertile hybrid, and indeed Wagner (W.H. Wagner, Jr., in V.H. Heywood [ed.], Modern Methods in Plant Taxonomy, Academic Press, New York, 1968, pp. 115, 132-133) suggests designating the plant as D. x anglica with sterile and fertile forms and not giving it specific status at all.

So the Droseras in this little marl bog have presented us with a real series of problems and we will be some time untangling the situation. There will undoubtedly be fertile and sterile hybrids, and possibly the capensis-like plant will prove to be either a backcross of fertile hybrid x D. linearis, or possibly even a tetra- or higher ploid of D. linearis.

After Ontario, we re-entered Michigan and could not leave without visiting a bog of the interesting S. purpurea purpurea f. heterophylla.* This was a beautiful northern bog where the form was quite abundant and easily found even in late summer: the pale yellow-green scapes, sepals, bracts and expanded styles stood out above the grass in marked contrast to the red pigmented typical forms and presumed intermediates. The pitchers were similarly pale yellow-green, often with bright yellow margination of the hoods. Side-by-side plants made excellent comparison photos. Here is another important problem that needs work: how this form manages to retain integrity and is not swamped into the typical genome even though some interbreeding does apparently occur as suggested by the intermediates.

Our last stop was Wilderness State Park at the very northern tip of the lower peninsula where we were to observe Pinguicula vulgaris. One of us (D.S.) had seen the plants at the tip of Waugoshance Point exactly ten years previously and we were anxious to see how they had been doing. We were somewhat disappointed. Storms and rising water levels coincident with several unusually wet seasons in Michigan had so remolded the shoreline that the parking lot at the point had been moved back about 50 yards, the old pilings still visible out in the water! What was once a broad sand spit was now a smaller semi-island to which we waded and found the plants growing among rocks in shallow humus-sand with bedrock no more than an inch below the surface. A few other plants were found in the arc of shoreline immediately behind the island. These are particularly fine, large specimens and they were in early winter bud but with this season's leaves still present. This stand is clearly endangered and any further water rise will likely eliminate them from this location.

(*We cannot give out directions for these locations since the people from whom we obtained them would prefer they not be publicized. However, those who make serious inquiry to us will be given the names and addresses of the original informants to whom they may write directly to request any information. Those who do make such further inquiries should consider no reply as a negative reply in order not to work a hardship on these people with a great return letter burden.)

DROSERA FILIFORMIS RAF. IN FLORIDA

by R.K. Godfrey

Drosera filiformis is variously interpreted by authors to be identical with D. tracyi MacFarlane; or that the two are specifically distinct; or that they are varietally distinct. I lean strongly to the view that they are specifically distinct but have no great qualms about treating them as two varieties of D. filiformis. Some years ago I became acquainted with D. filiformis (or D. filiformis var. filiformis) on Cape Cod and in the New Jersey Pine Barrens. Later, in Florida, specially in the Florida Panhandle, I have "lived with" D. tracyi (or D. filiformis var. tracyi) and have not hitherto observed any plants which "rang my bell" for the Cape Cod or New Jersey Pine Barrens version. This past week, however, I nostalgically revisited a locality in Bay County in the Florida Panhandle, a sinkhole pond or lake, Merial Lake, where some years ago some colleagues and I discovered four then undescribed flowering plants: Rhexia salicifolia Kral and Bostick, Hypericum lissophloeus Adams, Xyris longisepala Kral and X. isoetifolia Kral. This time I was astonished and delighted to find the more northern version of Drosera, D. filiformis, there. I immediately reached Kral in Nashville by telephone and asked whether he had ever encountered the northern D. filiformis in Florida. His response, "Well, on one of my visits to the Bay County lakes I got a Drosera which appeared to me like the one I had previously seen in the New Jersey Pine Barrens. Not being especially interested in Drosera, though, I put it aside in my undetermined boxes and there it remains still, I think."

Inasmuch as there is the difference of interpretation as to the identity of these plants, ranges given in the manuals mean little. There may be prior records for Drosera filiformis for Florida. In any case, this records it definitely if my identification is correct. The citation: Wet sands, shores of Merial Lake, below high water mark; north of Vicksburg, Bay County, Florida; 10 October 1974, R. K. Godfrey 73947 (FSU).