

DROSERA PAUCIFLORA – THE QUEEN OF THE SUNDEWS

ROBERT GIBSON • 5 Kristen Close • Cardiff Heights • NSW 2285 • Australia • robert.gibson@environment.nsw.gov.au

Drosera pauciflora Banks ex DC is a flat-rosetted sundew endemic to the Western Cape of South Africa which produces flowers up to 6 cm diameter that are the largest in the genus (Obermeyer 1970). These magnificent flowers make *Drosera pauciflora* an apt queenly partner to the king sundew, *Drosera regia*. *Drosera pauciflora* is perhaps better known from plants in cultivation than in the wild, to help rectify this I present information from field and herbarium studies to give this species more context.

Drosera pauciflora (Fig. 1) has been described by Obermeyer (1970: p. 196) to which I add the following details: The lower surface of the leaf have three to five raised longitudinal veins that are most conspicuous in the basal half of the leaf. Two small filiform stipules to 3 mm long are present on either side of the lowermost edge of the leaf. Plants can produce a second scape in spring under favorable conditions that extend the growing season, and flowers have either white or pink – purple petals. Each style segment is bifurcated near its apex into the stigma which comprises a fan-shaped array of about 20 filiform to narrowly obtuse segments (Fig. 1(a, b)). In cultivation the flowers do not set seed when self-pollinated but will set seed when crossed with other clones of *D. pauciflora*, or even some forms of the closely-related *D. cistiflora*. Mature seeds are small, dark grey, ovoid to ellipsoid to about 0.5 mm long by 0.2 mm maximum diameter, lacking a funicle, with an obtuse apex, and with a foveolate testa (Fig. 1(c)).

The conspicuously tall scapes of *D. pauciflora* appear to have developed, at least in part, to ensure that flowers are held above the surrounding herbage. This results in flowers that are visible and readily accessible to potential pollinators (Anderson 2010).

Distribution

Drosera pauciflora occurs in the South West Cape, where it primarily occurs on the coastal plain on the eastern outskirts of Cape Town (the ‘Swart land’), with most records between Cape Town, Stellenbosch, Malmesbury, and Darling (Rivadavia 2000; The Open University 2016). It also grows in the Tulbagh basin to its east, between Wolseley and Tulbagh. There are also collections from some adjoining sandstone ranges on Table Mountain Sandstone at locations to about 1000 m elevation. Strangely there is also a disjunct population near Garies in the Kamiesberg, about 400 km north of Cape Town where plants occur at about 1000 m elevation in herbfields naturally irrigated by rain falling on adjacent granite outcrops (Fig. 2).

Variation

Drosera pauciflora plants typically have pink-petalled flowers across their range. However, white-petalled plants occur primarily in the southern part of its range particularly between Paarl, Tygerberg, Stellenbosch, and the adjacent Jonkershoek valley. Around Darling are plants that readily produce daughter plants and form large clonal colonies over 1 m across (Fig. 1(d)). Plants with pink petals with yellow markings near their otherwise black bases have been collected around Wolseley,

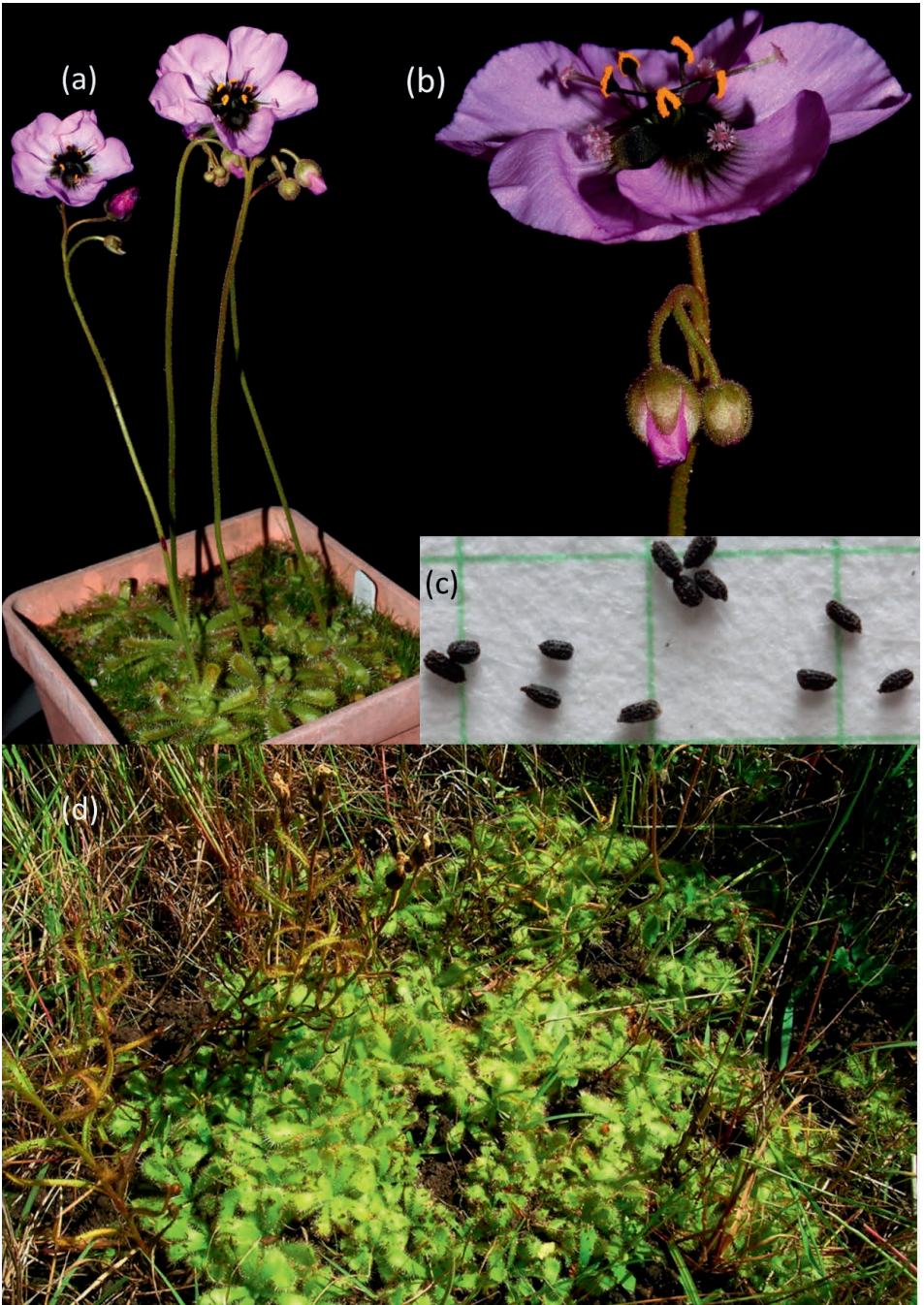


Figure 1: Photomosaic of *Drosera pauciflora*: (a) Plants in flower in cultivation; (b) Buds and open flower of *D. pauciflora*. Note the abundant stigmas at the ends of each style segment; (c) Ripe seeds on a 2 mm grid; and (d) Clonal colony of *D. pauciflora* near Darling (growing with *D. cistiflora*).

and have been described as a separate species, *D. atrostyla* P. Debbert (Debbert 1991). Plants from the Kamiesberg have rosettes to 5 cm across and flowers to 2 cm diameter, and are thus smaller than the typical form of this species (Bean & Viviers 25759, NBG). These variants require further study.

Small rosetted plants in the South West Cape with narrow leaves and with commensurately smaller scapes and flowers have previously been treated as *D. pauciflora* var. *minor*. However they lack stipules, may develop a few cauline leaves, and only have short obovoid insect-trapping glands on the leaves and thus have more affinity with *D. cistiflora* L. Such plants have been described as distinct species: *D. zeyheri* T.M. Salter (Salter 1940) and *D. coccipetala* P. Debbert (Debbert 2002). The taxonomic status of these two taxa are controversial and are considered to be within the large and variable *D. cistiflora* (Obermeyer 1970; Brittnacher 2014).

Cultivation

In Newcastle, New South Wales, *Drosera pauciflora* is grown best in large, full length black plastic pots about 20 cm diameter in a mix of about equal parts peat moss and medium-grained sand. During the summer when plants are dormant, the pots are stored outside in a shelf. The shelf is protected from the rain and direct sunlight by the house. They are stacked with pots containing tuberous *Drosera* and watered lightly every month or so to ensure that the mix does not completely dry out. When new growth emerges between February and April the pots are placed on a shelf on the northern side of the house which receives several hours of full sun each day. Minimum temperatures at this time of year are typically about 15-20°C, with maximum temperatures around 25-35°C. Plastic saucers are placed under the pots that contain up to 1 cm of water so that the mix is damp rather than wet.

After emergence the rosettes grow quickly and develop full-sized rosettes within about 6 weeks. Growth slows during winter when temperatures range from 2-15°C and 13-25°C. The plants are voracious feeders and appear to benefit from regular feeding of either live insects, such as flies or mosquitoes, or monthly spraying with an organic orchid fertilizer, such as fish emulsion at about half the recommended strength. Between July and September the larger rosettes start to form scapes which grow to flowering in about 4 weeks. Fruit-set from is a relatively slow process, with dehiscence of ripe seed taking about 4 weeks from pollination. Plants enter dormancy between October and December when the pots are once again stored away.

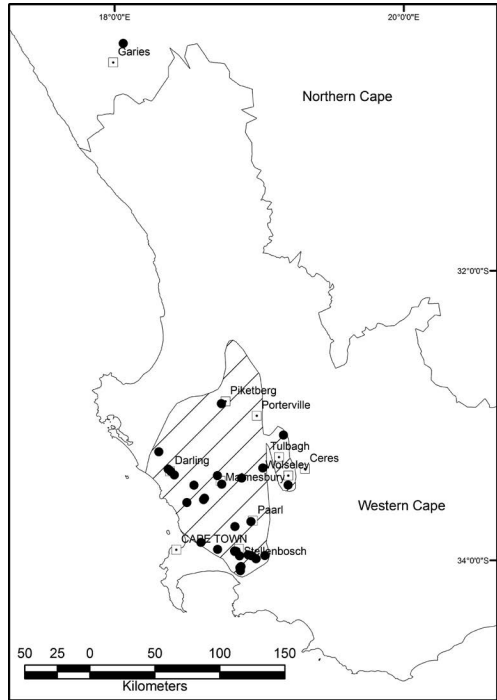


Figure 2: Distribution map based on published descriptions, herbarium study and field study. Black circles denote collections or observations. The approximate range of *D. pauciflora* is shown by diagonal hatching. Note the disjunct population near Garies in the Northern Cape.

Propagation

Drosera pauciflora may be propagated by seed, natural division or leaf cuttings. Seed is periodically available from commercial sources. It is best sown in autumn when soil temperatures are cooling, but I have found germination rates to often be low. Seedlings grow slowly and must have formed a sufficiently large root by the end of their first spring in order to survive their first summer. During the summer dormancy the soil mix around seedlings must not completely dry out, and thus desiccate the root, and also must not be too moist, when the root may rot. Thus seeds and seedlings present several challenges. Seedling survival may be increased by germinating seeds indoors under artificial lights, applying a regular dose of dilute fertilizer to increase growth rates, and careful repotting into fresh media (R. Maharajh, pers. comm., March 2016).

Mature plants naturally produce secondary plants from the root systems, especially from plants near the town of Darling. These daughter plants grow quickly and can reach flowering size in their second year when they have developed independent root systems. Clonal groups of plants can be split every few years.

Leaf cuttings work very well, and are best taken in autumn or winter when the resulting plantlets have a better chance of surviving their first summer dormancy. One or two leaves may be removed at a time from a mature rosette. I place detached leaves on a ca. 1 cm deep layer of moist mix of peat and sand in a clear rectangular plastic container, the sort used for take-away food. The lid is loosely attached and the container is set at the base of an east-facing window that receives bright light but very little direct sunlight in the winter months. Leaves are set on the mix, glandular-hairy side up with their base shallowly buried in the mix. Over the next 6 weeks most leaves remain green and a small swelling forms near the apex of the leaf (Fig. 3) – some leaves also produce a small swelling near their base. These swellings develop into new rosettes. A single root usually develops from the base of the developing rosette, and as the parent leaf dies away the new plant can be potted up. In some cases root development is triggered only after transferring plantlets onto a mix of moist sphagnum moss. Once they have developed a root system, they can be potted up the same way as parent plants.

Leaf cuttings taken in spring commonly die, even those with forming plantlets, seemingly due to increasing ambient air temperatures. Leaf cuttings can be taken two or three times a season from mature rosettes and thus offer a way of rapidly multiplying.

From my experience with this species it is best to start with established plants. They are readily propagated by leaf cuttings and division of clonal clumps.



Figure 3: Detached leaf producing a lump near its apex which will develop into a new plant.

Conclusions

Drosera pauciflora is a beautiful species in leaf and unforgettable when seen in flower. This sundew requires basic conditions of summer dormancy to be met. If you successfully grow a number of different tuberous *Drosera* taxa then this species is definitely worth trying. For best success start with an established plant.

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