

RIGHT: After an absence of thirty-three years, *Lachenalia sargeantii* appears between lichen-covered sandstone boulders near Bredasdorp in October 2004, after a burn the previous summer.
Photo: Cameron McMaster.

Out of the ashes



The exciting appearance of the exquisite bulb, *Lachenalia sargeantii*, thirty-three years after it was last seen near Bredasdorp in the Western Cape

by **Graham Duncan, Cameron McMaster and Rhoda McMaster**

While innumerable fynbos geophytes like *Watsonia borbonica* flower especially well in the wake of wildfires, there is a smaller, more specialized group of fynbos species that are wholly dependent on the effects of fire for flowering to take place at all. One of these is the remarkable fire lily, *Cyrtanthus ventricosus*. The smoke stimulus generated by these fires is so strong that inflorescences of this species often reach full flowering stage in as little as seven to nine days following a burn. Glowing in an ashen landscape, their orangy-red trumpets easily attract the attention of their sunbird pollinators. Flowering frequency in this specialized group is a highly erratic affair, generally most prolific in the season immediately following the fire and declining rapidly in the succeeding season, and finally ceasing completely in the third, or at most, the fourth season, as the surrounding veld matures.

Consider then an even smaller group of fire-stimulated geophytes, which by virtue of their highly restricted distribution or extremely sporadic occurrence across their distribution range, are so seldom seen in flower that they have attained an aura of almost mythical proportions. One such plant is the bizarre and exceptionally rare black orchid *Acrolophia ustulata*, a low-growing fynbos plant occurring from the Cape Peninsula to George. Another is the beautiful and much more rarely seen *Lachenalia sargeantii*.

The intriguing story of the chance discovery of *L. sargeantii* in November 1970 began when Robert Scott, a young visitor from New Zealand on a tour of the

Western Cape, decided to hike up a mountain near Bredasdorp after an intense fire had swept over the area the previous summer. Having gathered a few scraps of various flowers he'd seen, he showed them to Percy Sargeant, an ardent naturalist and photographer of high altitude flora, who in turn brought them to the attention of Miss W.F Barker, the authority on the genus *Lachenalia*. She noticed amongst the offerings a most striking *Lachenalia* with ivory-coloured, tubular flowers marked with bright green or brown, borne on bright pinkish-magenta flower stalks, that was completely new to science. Percy Sargeant arranged for Miss Barker to visit the site with Robert as their guide, in order to study the plants in habitat, collect type material and a few specimens for cultivation in the Kirstenbosch nursery. The plants were found in full bloom in white sand on north-facing slopes, in crevices of sandstone boulders as well as in open sunny aspects. During visits to the

locality in the two succeeding seasons, only a handful of flowering individuals were seen on the first occasion, and none at all on the second. The plant was described as *Lachenalia sargeantii* by Miss Barker in *The Journal of South African Botany* in 1978, in honour of Mr and Mrs Percy Sargeant, in recognition of their services to conservation in the Western Cape.

New discovery

Since 1971, the flowers of *L. sargeantii* have not been seen by anyone for a period of thirty-three years. Percy Sargeant kindly provided an excellent close-up slide of *L. sargeantii* for inclusion in *The Lachenalia Handbook* published in 1988, but hopes of ever seeing the plant in flower were beginning to fade as there were no subsequent fires in the single known locality.

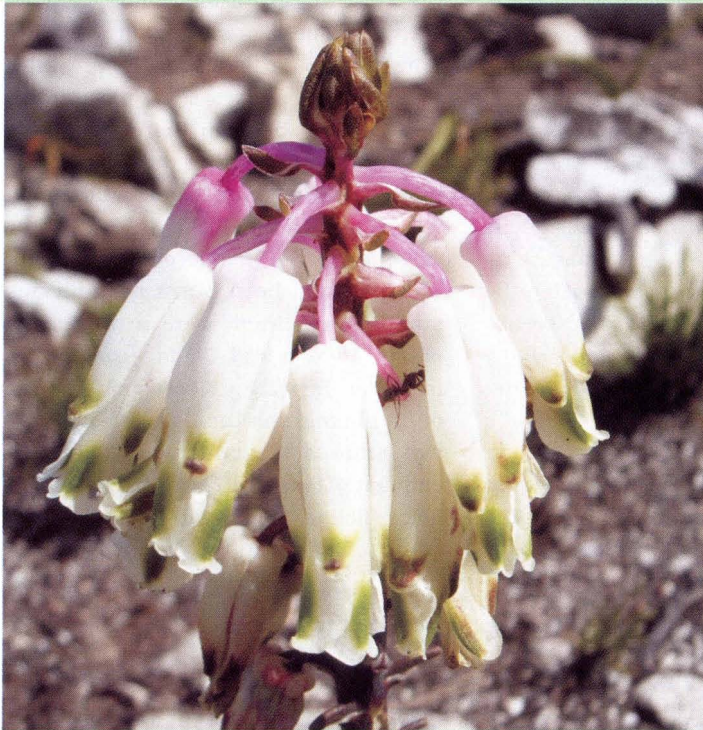
Then in October 2004, a miracle occurred - *L. sargeantii* was discovered in full bloom in a completely new location, once again by pure chance! It

happened when Cameron and Rhoda McMaster decided to investigate a recently burnt mountainside some distance to the west of Bredasdorp. It is interesting to note that for Cameron many of the most important discoveries and observations made over a period of thirty years of exploring the veld for butterflies and wildflowers, have been as a result of being drawn to a particular ridge or valley - like having a sixth sense that something was to be seen there. So it was that they were driving up a mountain road when a small track leading off to a rocky Table Mountain Sandstone ridge attracted Cameron's attention. The area had been burnt the previous summer and there were a number of showy *Moraea* and *Tritoniopsis* species in flower, inviting a closer look. Setting off to photograph the flowers, Cameron was amazed to suddenly find a most exquisite *Lachenalia* at his feet - a fairly large flower head with a wonderful blend of ivory and pink, with promi-

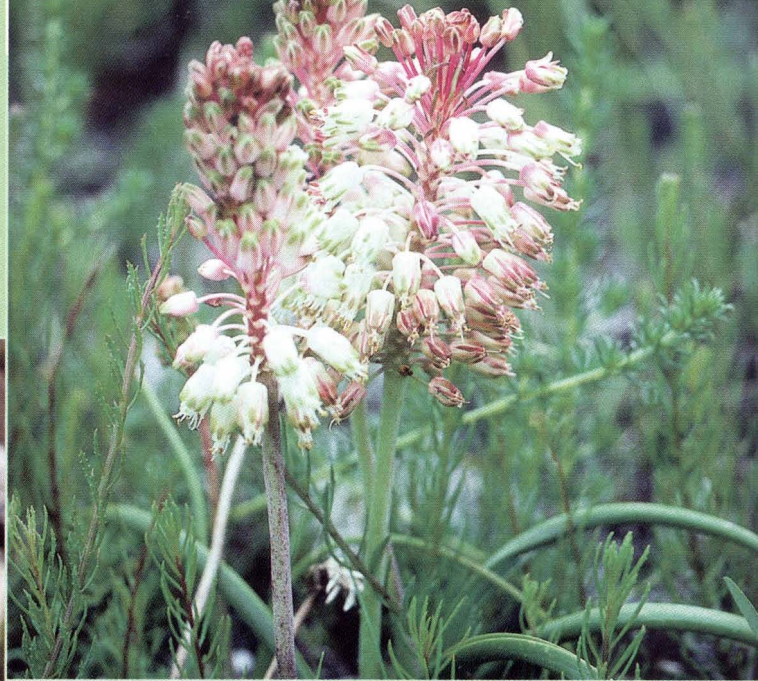
BELOW: The inflorescences of *L. sargeantii* (left) and *L. montana* (right) are unusual in that their pedicels usually increase markedly in length from the base of the inflorescence to the top. In *L. sargeantii* the flowers are pendulous and are either closely grouped together in a bunch at the top, or spirally arranged over a longer portion, forming an elongated inflorescence. In *L. montana* the flowers are nodding and more numerous, forming a dense head that can be short or long. Photos: Cameron McMaster (left) and Graham Duncan (right).



They could hardly believe their eyes - this was the elusive Cape bulb not previously seen in flower since 1971, the year after it was first discovered.



ABOVE: The exquisite *Lachenalia sargeantii* makes a rare appearance thirty-three years after it was last seen. Photo: Cameron McMaster.
 RIGHT ABOVE: A close relative of *Lachenalia sargeantii* is *Lachenalia montana*. With its wider distribution, *L. montana* is seen more frequently. Here it is seen flowering near Hermanus in October 1985, in the wake of a wildfire that swept through the area the previous summer. Photo: Graham Duncan.
 RIGHT: *Lachenalia sargeantii* flowering on a rocky sandstone slope near Bredasdorp. Photo: Cameron McMaster.



ment green markings on the tips of the petals. Within seconds of Rhoda setting eyes on the flowers a distinctive photo in *The Lachenalia Handbook* sprang to mind, and the name *Lachenalia sargeantii* was exclaimed with great jubilation. They could hardly believe their eyes – this was the elusive Cape bulb not previously seen in flower since 1971, the year after it was first discovered.

Cameron immediately took photographs and a GPS reading for the record, and prepared a report for the Custodians of Rare and Endangered Wildflowers programme (CREW, see page 64). Of great concern was that the greater part of the rocky ridge had been destroyed by bulldozers quarrying for gravel for a road, and that part of the population of this rare species had possibly already been destroyed. There was a high probability that the quarry

would be extended. The first task was to determine the extent of the population and once again, intuition led Cameron to a high ridge 400 m above. Near the top of the ridge numerous flowering specimens of *L. sargeantii* were seen and extensive exploration of the ridge eventually revealed the habitat preferences of this rarely seen species. Growing in virtually identical habitat as in the first known locality, the plants were concentrated on the northern aspect of the ridge just below the summit, and were most numerous in protected cracks and fissures between large rocks. No plants whatsoever were found on the southern aspect, which is buffeted by strong winds. Most mature specimens had many offsets and it was clear that propagation was not only by seed after the rare flowering occurrence stimulated by fire, but also by vegetative reproduction.

Graham Duncan of Kirstenbosch was informed of the beautiful *Lachenalia* and his response, though cautiously optimistic, was tempered with some scepticism. Was it really *L. sargeantii*? Was it not perhaps a new distribution record for the relatively widespread and superficially similar-looking *Lachenalia montana*, first collected at Houwhoek by Carl Zeyher in the early Nineteenth Century, and finally described by Miss Barker in 1978 in the same volume of *The Journal of South African Botany* in which *L. sargeantii* first appeared? Occurring further west, from Cape Hangklip to Gansbaai, *L. montana* is well known in the Hermanus district, having ivory-coloured, bell-shaped flowers with prominent green or brown markings, and flowering at the same time of year as *L. sargeantii* - also only following summer fires. A couple of e-mail exchanges later, and its identity

was confirmed. Yes it was *L. sargeantii*, at once distinguished by its pendulous, tubular flowers with included stamens, borne on long, bright pinkish-magenta pedicels (flower stalks).

The greater part of the following day was spent observing the plants and surveying the extent of the population, until rain finally drove Graham and the McMasters down the mountain. The plants occurred in small to large groups, or occasionally as single individuals, but curiously, fewer than half the number of mature individuals seen had actually produced flowers. For Graham, the breathtaking sight of *L. sargeantii* in full flower in its harsh, windswept environment was without doubt the highlight of a lifelong relationship with this most beguiling group, rivalled only by the sight of waves of bright yellow *Lachenalia mathewsii* on the Cape west coast in the spring of 1985, having been rediscovered in September 1982 by Queenie Paine and Hertha Bokelmann, after being feared extinct for almost forty years.

The most obvious similarities linking *L. sargeantii* with its closest relative *L. montana* include the rounded bulb covered with leathery dark brown outer tunics and the formation of large numbers of bulbils around the base, the two long, narrowly lance-shaped, deeply channelled leaves, the pedicels that usually elongate towards the top of the inflorescence, and are curved downwards during flowering but bent upwards during the fruiting stage, the similar ivory and green or brown colouring of the flowers and the rigid, dark purplish-maroon peduncle (flower stem). The rounded, matt black seeds are also noteworthy in being the only members of the genus having their seed coats distinctively sculptured in a 'cobblestone' pattern.

With its wider distribution, *L. montana* is much more frequently seen in flower, usually on south-facing, rocky sandstone slopes. In the Hermanus district it flowers side by side with large numbers of that deliciously carnation-scented lachenalia, *L. peersii*. The inflorescences of *L. sargeantii* and *L. montana* are unusual in that their pedicels usually increase markedly in length from the base of the inflorescence to the top. In *L. sargeantii* the flowers are pendulous and there is considerable variation in the area of attachment of the pedicels to the peduncle, the flowers either being closely grouped together in a bunch at the top, or spi-

rally arranged over a longer portion, forming an elongated inflorescence. In *L. montana* the flowers are nodding and more numerous, forming a short to long, dense head.

Pollination strategy is not yet documented in both species. While the unscented tubular, pendulous flowers, bright pinkish-magenta pedicels and extremely rigid peduncle strongly suggest sunbird pollination for *L. sargeantii*, its flowers are anomalous in having rather short perianth tubes compared with the long perianth tubes found in all other lachenalias known to be sunbird-pollinated. The bell-shaped flowers of *L. montana* suggest bee pollination yet curiously, its flowers are also borne on a similarly rigid peduncle.

Although *L. sargeantii* is currently known from only two sites, it occurs in fairly large numbers there and the relatively high altitude at which they are found places the species well out of range of immediate danger. It may well be found in similar locations elsewhere along the southern Cape.

Cultivation and propagation

Both *L. sargeantii* and *L. montana* are

easily kept in cultivation but due to the smoke stimulus required, they are rarely, if ever, brought into flower. Response to smoke treatment in the Kirstenbosch bulb nursery has not induced flowering in *L. sargeantii* or *L. montana*. The bulbs of both species are best grown in deep containers in an acid, sandy medium in a sunny location, under cover in areas experiencing heavy winter or summer rainfall. They thrive on heavy drenching at weekly or ten-day intervals during the winter growing period, allowing the medium to desiccate substantially between drenches, and entirely during the dormant period from late November to mid-autumn. Although adult and sub-adult bulbs of both species produce large numbers of bulbils around the base of the bulb, these bulbils as well as mature bulbs sometimes undergo extended periods of dormancy, often failing to sprout for one or more growing seasons, a phenomenon seen in mature bulbs of several other *Lachenalia* species and other winter-growing geophytes. Fresh seeds of *L. montana* have been found to germinate easily without the need for smoke treatment.



BotSoc link

PERCY SARGEANT, in honour of whom *Lachenalia sargeantii* (left) was named, was well known for his wildflower photography. After he died, his wife presented all his photographic slides to what is now the South African Biodiversity Institute. In honour of his photographic work the Botanical Society inaugurated the Percy Sargeant Medal as one of its awards (see p. 50). This award has been won by members of the Society such as Dr Colin Paterson-Jones and most recently (2003) by Dr Anton Pauw and Prof Steven Johnson for the outstanding photography in their book, *Table Mountain: A Natural History* that was endorsed by the Botanical Society.

Further reading

- Barker, W.F. 1978. Ten new species of *Lachenalia* (Liliaceae). *The Journal of South African Botany* 44(4), 412-418.
- Duncan, G.D. 1986. The re-discovery of *Lachenalia mathewsii* W.Barker. *Veld & Flora* 72(2), 40-41.
- Duncan, G.D. 1988. The *Lachenalia* Handbook. *Annals of Kirstenbosch Botanic Gardens* 17. National Botanic Gardens, Cape Town.
- Duncan, G.D. 1998. Notes on the genus *Lachenalia*. *Herbertia* 53, 40-48.
- Duncan, G.D. 2003. *Lachenalia peersii*. *Curtis's Botanical Magazine* 20(4), 203.