

GLADIOLUS

— the winter rainfall species

Gladioli occur naturally in South Africa in most soil types and on most topographies. Of the 165 local species 110 occur in the winter rainfall region, writes **Cameron McMaster**.

IN SOUTH AFRICA WE HAVE TWO distinct climatic zones. In the central and eastern regions which form the largest part of the country, rainfall occurs mostly in the summer months, while in the south western parts rainfall is primarily in the winter.

The winter rainfall region consists of the southern and south-western Cape, extending north into Namaqualand and the Bokkeveld and Roggeveld escarpments of the western Karoo.

'No less than 110 species occur in the winter rainfall region.'

In these two opposed growing seasons, the growth cycle of the flora occurs at different times of the year and consequently each region has its own distinct flora, with some overlapping of species where the rainfall zones meet. The *Gladiolus*, which we introduced last week, is no exception.

Winter rainfall species generally commence their growth cycles after the first rains in late autumn and flower in spring. After seed dispersal they go dormant to survive the long dry summers. The winter-

growing *Gladioli*, with few exceptions, adhere to this regime. Because of the variable rainfall patterns, topography and soil types, of the roughly 165 species that occur in South Africa, no less 110 species, a full two thirds, occur in the winter rainfall region, contributing significantly to the high biodiversity of the region.

For instance, the Cape Peninsula has 33 species of *Gladiolus*, six being endemic. The Worcester area has no less than 42 species with seven endemics and the Caledon area has 38 species with six endemics.

Specialist limitations

Different *Gladiolus* species are largely confined to specific soil types. For example, where I live in Napier we have two distinct types of flora. On the north of the village we

have the Renosterveld with shale-derived fertile clay soils, and on the mountains south of the village the nutrient-poor soils derived from quartzite and sandstone. Each soil type supports different species.

The Renosterveld has a larger number of species such as *Gladiolus liliaceus* (brown Afrikaner) and *Gladiolus alatus* (*kalkoentjie*) to name just two. On one patch of relict Renosterveld on the Napier commonage we have recorded nine different species in an area of less than a hectare. *Gladiolus hirsutus* and *Gladiolus bullatus* (Caledon bluebell) would be two species typically found on the mountains in sandstone soil.

Variable plant species and habitats

A little further south, on the Agulhas Plain, we find limestone-derived soils weathered from ancient marine deposits and here again we find *Gladiolus* and many other species that occur only on these soils, for instance *Gladiolus canonioides* (*Lepelblom*) and *Gladiolus miniatus* near Arniston.

These variable habitats are typical of most of the Western Cape, which is characterised by successive mountain ranges, wide valleys and plains and occasional granite outcrops which can accommodate species from both



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- Winter rainfall species usually go dormant during the hot, dry summer months.
- Many endemics are confined to small localised populations, making them very vulnerable.
- Mass displays of rare species at flower shows is unacceptable.

Gladiolus aureus: extinction looms

Gladiolus aureus (left) is regrettably doomed to extinction. Occurring in a very limited area near Kommetjie in the Cape Peninsula, the population has been virtually destroyed by township development and alien vegetation. The many efforts made to save this plant or establish new populations in protected areas have failed. Some plants exist in private collections and at Kirstenbosch, and seed has been preserved in the Millennium Seed Bank Project at Kew in the UK, so it might survive in cultivation, but the demise of wild populations of species as special as this is tragic. (See a report by Graham Duncan in *Veld and Flora* magazine, March 2005, for further details.)

PHOTO: GRAHAM DUNCAN



sandstone and shale soils. Up the West Coast there is extensive sand-plain vegetation, again with its unique flora and its own range of *Gladiolus* species. The highly scented *Gladiolus caryophyllaceus* (*Sandveldlelie*) is the flagship species in this region.

Further inland in the Ceres Karoo – the Hantam and the Roggeveld – the geology is dominated by the Karoo system and includes more recently deposited sandstones interspersed with dolerite outcrops. The lower rainfall and more fertile soils have given rise to a range of special local species, for instance *Gladiolus venustus* (*Perdelelie*) and *Gladiolus uysiae* (*perskalkoentjie*).

A reflection of the status of the species

The spring wildflower shows held at various centres in the Western Cape all exhibit named specimens of the individual species flowering in their respective districts. These shows afford an excellent opportunity to get to know and admire the exquisite beauty and intricate flowers of the wild *Gladiolus* of the region. Of concern, however is the tendency of the show assistants to plunder the wild populations to create mass displays of some species. Most are becoming increasingly rare in the wild and depend on seed production to sustain the population. Every bloom plucked means a loss of seed.

To exacerbate the situation, picking species such as the Caledon bluebell, *Gladiolus bullatus*, a very popular exhibit at the local Wild Flower Show in September, actually results in the degeneration and ultimate death of the plant. The leaves of this species sheath the stem and picking the flowers also removes the leaves that sustain the plant. It's then unable to produce a new corm for next year's bloom, and will probably die. Exhibiting single,



named specimens to stimulate interest in our wildflowers is justified, but mass displays of rare species mean that wild populations are being destroyed, a practice that cannot be justified on any grounds.

Many *Gladiolus* species in this region, especially the endemics that are confined to small localised populations, are very vulnerable and threatened. The severe habitat destruction and degradation as a result of agriculture, forestry, urban sprawl and alien vegetation that occur all over the Western Cape is having a severe impact on many of the rarer species. *Gladiolus aureus* is on the point of extinction (See box).

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a. *Gladiolus bullatus*, the Caledon bluebell, is threatened by picking for wildflower show exhibits.

b. *Gladiolus miniatus* occurs on limestone-derived soils on the Agulhas plain.

c. *Gladiolus hirsutus* is a fynbos species from the southern Cape mountains.

d. *Gladiolus carneus* flowers in early summer on rocky outcrops in fynbos.

e. *Gladiolus carmineus* flowers in March on the sea cliffs at Hermanus.

f. *Gladiolus meridionalis*, rarely seen on sandstone slopes in the southern Cape.

g. *Gladiolus caryophyllaceus* occurs in the Sandveld up the West Coast.

h. *Gladiolus virescens*, of the kalkoentjie group.