

# Spectacular, rewarding tritonia

by **Graham Duncan**, Kirstenbosch

From coastal roadsides of the southern Cape to high altitude slopes of the KwaZulu-Natal Drakensberg, the mainly spring and summer-flowering iridaceous genus *Tritonia* contains about twenty-seven species of deciduous, cormous plants. They are encountered in all provinces of South Africa as well as in Lesotho and Swaziland, and their distribution extends northwards almost to the equator in Tanzania in Central East Africa. *Tritonia* was studied in detail by Dr Miriam P. de Vos in the early 1980s and her excellent final account of the genus appeared in the *Flora of southern Africa*, in 1999. The genus is concentrated in the southern Cape and most of the species are adapted to winter rainfall conditions, flowering taking place mainly in spring and early summer. The summer-growers flower mainly from midsummer to autumn. They occur in greatly differing habitats, from arid rocky slopes of the southern Richtersveld to high rainfall parts of the northern Drakensberg. Flower shape varies from regular to strongly zygomorphic (see glossary on p. 134), with flower colour predominating in shades of orange.

Two species (*Tritonia crocata* and *T. squalida*) are particularly showy in having curious translucent zones or 'windows' along the margins of their tepals. In a number of others, prominent yellow, erect, peg-like protuberances emerge from the lower tepals and are thought to function in reducing the space in the throat of the perianth, thus ensuring that the back of a visiting insect will brush against the anthers and stigma and ensure pollination, as in *T. watermeyerii*. The attractive fan-like foliage varies from bright green with flat margins to grey and spirally twisted with heavily wavy margins. The genus *Tritonia* was brought into being by the English botanist J. B. Ker-Gawler in 1802, who named it for the Latin word *triton*, a weathervane, for the variable orientation of the stamens in some species.

Tritonias or 'kalkoentjies' as some species are locally known, have been



*Tritonia crocata*. Photo: Graham Duncan.



grown in Europe and England since the latter part of the eighteenth century and the colourful spring and early summer-flowering hybrids commonly grown today in gardens and window-boxes in temperate regions, and in greenhouses in colder parts, are derived from mainly two species: the orange-flowered *T. crocata* and the pink-flowered *T. squalida*, both of which emanate from the southern Cape. Although easily cultivated, the hybrids seldom outshine the true species in beauty, and with a sound knowledge of their cultivation requirements, a number of *Tritonia* species can be grown very successfully.

### Cultivation

Ideal conditions for the successful cultivation of *Tritonia* species include a sunny, well-ventilated aspect, a sharply-drained growing medium, heavy drenching at regular intervals during the growing season, and maintenance of a dry period during dormancy. Although considerable variation exists in the depth at which the corms of *Tritonia* species occur in the wild, ranging from shallow to relatively deep-seated, under cultivation the corms of all species need only be planted at roughly twice the height of the corm, or with about 2 cm of growing medium above the corm for the smaller species like *T. crocata* and *T. watermeyeri*, or about 4 cm above for larger species like *T. disticha* and *T. lineata*. The corms of the winter-growers are planted in autumn (March to April) and for the summer-growers in spring (August to September) in the Southern Hemisphere. Once planted they should be watered heavily and then not again until the leaf shoots appear, after which a heavy drench roughly once per week is suggested for most species. Watering of arid habitat species like *T. karooica* and *T. watermeyeri* requires a measure of restraint and the frequency of watering for these should be delayed to perhaps once every ten days to two weeks, when the soil moisture has reached a much lower level. An ideal growing medium for most tritonias is one part river sand, one part loam and one part finely sifted compost or finely milled bark. For arid habitat species the river sand component should be increased to two parts, and the loam component dispensed with entirely. The arid habitat tritonias require higher light intensity than most others for successful flowering, but generally an aspect receiving morning sun and afternoon shade, or bright light for as much of the day as

possible, is necessary. Applications of organic fertilizer such as Kelpak 66 are beneficial to all tritonias at three-weekly intervals during the growing period, or alternatively Neutrog Bounce Back pellets can be applied to the soil surface as a slow-release fertilizer. After flowering, watering should be withheld as the leaves die back and seed formation takes place, and the corms should be allowed a completely dry summer or winter dormant rest, depending on the species.

As tritonias have pronounced winter- or summer-growing cycles, it is essential to ascertain their correct growth cycle if they are to be cultivated successfully. The winter-growing species require a dry summer rest while the summer-growers must be kept completely dry in winter. Some species are able to tolerate a certain level of moisture during their dormant period (such as *T. crocata* and *T. deusta*) provided that the soil medium is sufficiently well drained, while others from arid habitats such as *T. karooica*, and *T. watermeyeri* are completely intolerant of moisture received at the wrong time of year and rot easily. All tritonias lend themselves to cultivation in containers while only certain species are suited to general garden cultivation. The corms of arid habitat members such as *T. karooica* and *T. watermeyeri* cannot survive excessively moist conditions during their winter growth period such as is experienced in the southern suburbs of Cape Town, and have to be grown under cover in these areas.

The flowers of the strongly zygomor-

phic species (such as *T. watermeyeri*) remain fully open irrespective of weather conditions, whereas those species with regular or almost regular flowers (such as *T. crocata*) close slightly during inclement weather. Owing to the ease with which some *Tritonia* species hybridize when grown in close proximity (especially *T. crocata*, *T. deusta* and *T. squalida*), it is essential to isolate and hand-pollinate specimens just prior to, and during flowering, if pure seed is required. Tritonias are hardy in mild parts of the Northern Hemisphere and in areas where winter temperatures do not remain below zero for prolonged periods, but in cold climates they require the protection of the cool greenhouse. In the wild, most winter-growing tritonias flower in late spring and early summer at a time when their leaves are in an advanced state of desiccation, as temperatures rise and soil moisture rapidly diminishes. In order to ensure that the foliage of these species remains attractive and green throughout the flowering period in cultivation, it is essential that the plants be kept well watered by drenching them thoroughly from late winter onwards, until flowering has taken place.

### Propagation

All *Tritonia* species are easily propagated by seed, and most can also be increased by the separation of corm offsets and cormlets. In addition, cormels are produced at the tips of horizontal, subterranean stolons in a few species. Large corm offsets are formed when two or more shoots develop from the upper-

RIGHT: One of the most spectacular species, *Tritonia squalida* multiplies rapidly by corm offsets and has long-lasting flowers. Note the distinctive translucent zones or 'windows' along the tepal margins. Photo: Graham Duncan.

The winter-growing species require a dry summer rest while the summer-growers must be kept completely dry in winter.







ABOVE LEFT: *Tritonia deusta* subsp. *deusta* occurs in colonies in the southern Cape coastal districts from Caledon to Riversdale, and inland to Robertson and Montagu. It flowers in late spring and early summer.

ABOVE RIGHT: A late-flowering species, the easily grown *Tritonia bakeri* subsp. *bakeri* blooms from early to midsummer and has distinctive purple anthers.

RIGHT: *Tritonia crocata* is one of the most obliging species in cultivation, highly recommended for massed display in rock garden pockets, spring borders and deep containers. Photos: Graham Duncan.



### What does that mean?

**axillary bud** bud arising from a corm at the juncture formed by a leaf or bract and corm

**corm** compressed, swollen subterranean stem which is vertically orientated, renewed annually and covered by dry leaf bases

**cormel** small corm that develops at the tip of a stolon

**cormlets** small corms that develop in a ring around the base of a mother corm

**offset** a short shoot that arises from an axillary bud near the base of a stem and gives rise to a daughter plant at its apex.

**perianth** the sepals and petals together, particularly when they are similar

**rhizome** specialized underground stem that grows horizontally, producing roots and foliage at right angles to the rhizome

**stolon** thin, elongated stem trailing over or just under the soil surface, producing a cormel at its tip

**tepals** sepal or petal, when no distinction is made between them

**zygomorphic** irregular, and able to be bisected into identical halves in one plane only

most axillary buds on the mother corm, while smaller cormlets develop from lower axillary buds around the base of mother corms. They develop during the growing period and mature towards the end of the flowering season. They can be separated at any time during the corresponding dormant period and should preferably be re-planted immediately into dry soil, as the corms are frequently subject to mealy bug infestation if stored loose in packets or trays for long periods. Corm offsets often flower during their second year while corm-

lets and cormels usually take a further year. For the winter-growers, seeds are sown in autumn once temperatures have cooled down markedly after the hot summer, and for the summer-growers, in spring, as temperatures rise. Fresh seeds germinate readily within 2-4 weeks and care should be taken to sow thinly and ensure that a well-ventilated environment is maintained in order to reduce the incidence of damping-off fungi. Seeds can be sown in deep seed trays or seedbeds in the same medium recommended for mature corms. The deeper the seed trays or beds, the faster the young corms will develop and reach flowering stage. The seeds are covered with 3-4 mm of sowing medium and should be sown in an area receiving high light intensity, or full morning sun and afternoon shade. They should be kept moist by watering thoroughly with a fine rose about twice or three times per week, depending on weather conditions. Seedlings of easily cultivated species like *T. crocata* and *T. squalida* will usually flower for the first time during their second season, while larger species like *T. lineata* and those from arid habitats such as *T. karooica* and *T. watermeyerii* will usually flower in their third year, under ideal conditions.

### Pests and diseases

Compared with other southern African irids, tritonias are moderately susceptible to pests and diseases. The corms and leaf bases are subject to the universal mealy bug scourge, against which a preventative treatment of a mineral



oil drench (e.g. Oleum) can be applied in early autumn for the winter-growers, and in early spring for the summer-growers. Developing flower buds may at times become heavily infested with thrips, especially in the summer-growing species, resulting in deformed flowers. In highly susceptible areas the flower buds should be sprayed preventatively with Bio Kill garden spray as soon as they emerge, well before the thrips have had a chance to invade. Flower buds and leaves are sometimes subject to attack by aphids, and red spider mites are prevalent on the foliage of the broader-leafed species as temperatures rise in spring and throughout summer, resulting in leaf desiccation and a silvery-bronze sheen, for which a full cover spray with Oleum is recommended. The corms of *Tritonia* species are taken by porcupines and mole rats. Jelly-like scatter crystals known in the trade as 'Get Off My Garden' may be effective in deterring porcupines, while mole rats can be temporarily beaten by planting corms in sunken wire baskets protected on all sides.

The leaves of certain winter-growing species especially *T. crocata*, *T. deusta* and *T. squalida* are susceptible to attack by unsightly rust fungi in winter, and it is essential that they be grown in well ventilated positions receiving as much direct sun or bright light as possible. In severe infestations rust fungi can be controlled with mancozeb (e.g. Dithane M45). All *Tritonia* species are subject to fungal infection by *Botrytis* which causes reddish-brown lesions on the corms, and can be controlled by dusting corms with captab (e.g. Kaptan) prior to planting. *Tritonia* seedlings are susceptible to damping-off by *Pythium* fungi which is prevalent in poorly ventilated conditions and when seeds have been sown too thickly. The seeds can be dusted with Kaptan prior to sowing.

### Ten of the best

***Tritonia bakeri*** is an elegant, large-flowered species growing up to 800 mm high with pure white, creamy-yellow or mauvish-pink blooms with striking violet anthers and a very long perianth tube. The subspecies *bakeri* (see illustration) has white or creamy-yellow flowers while those of the subspecies *lilacina* are smaller and pale mauvish-pink. *T. bakeri* is a winter-grower from the Little Karoo and Langkloof, and also occurs in the southern Cape from George to Riversdale. It flowers late in

the season, from early to midsummer and has distinctive narrow, erect cylindrical leaves. It performs well in deep containers and although the corms are long-lived, they are rather slow to multiply. It is easily raised from seeds sown in autumn, the seedlings usually reaching flowering stage at the end of their third year, under ideal conditions.

***Tritonia crocata*** (kalkoentjie) is probably the best-known member in cultivation and together with *T. squalida* was one of the species used in the creation of the brightly coloured hybrids widely grown in temperate gardens throughout the world today. It is a variable, win-

ter-growing plant and occurs in large colonies in coastal parts of the southern Cape stretching from Swellendam to George and Humansdorp. It produces an attractive fan of lance-shaped leaves and flower colour varies from shades of bright fiery orange to deep orange-red or pinkish-orange. The three lower tepals have a narrow yellow or dark red central stripe in the throat, and all the tepals have attractive narrow translucent zones or 'windows' on the margins. It is one of the most easily cultivated tritonias, reaching up to 450 mm high, providing a brilliant, reliable display from mid-spring to early summer. It is suited to rock garden pockets and



ABOVE: *Tritonia disticha* subsp. *rubrolucens*, flowering on Mt. Thomas in the Eastern Cape, is a summer-growing, high altitude tritonia. Photo: Cameron McMaster.

RIGHT: *Tritonia karooica* has attractive bluish-grey leaves and requires high light intensity and a sharply drained growing medium for successful flowering. Photo: Graham Duncan.







ABOVE: The curious wavy-margined grey leaves and long-lasting blooms of *Tritonia watermeyeri* make it one of the most rewarding tritonias to grow in containers. Note the three prominent yellow protrusions on the lower tepals, whose function is thought to reduce the space in the throat of the perianth, thus ensuring that the back of a visiting insect will brush against the anthers and stigmas, facilitating pollination.  
Photo: Graham Duncan.

deep containers, and multiplies rapidly by corm offsets. It readily hybridizes with *T. deusta* and *T. squalida* and the flowers must be isolated and hand-pollinated in order to obtain pure seed.

***Tritonia deusta*** (kalkoentjie) is a variable, winter-growing species with large orange-salmon to bright reddish-orange flowers, with or without a prominent dark reddish-black marking or central stripe in the throat of the outer

tepals. It occurs in the southern Cape from Caledon to Riversdale and inland to Robertson and Montagu. It is easily confused with *T. crocata*, differing mainly in the absence of translucent zones or 'windows' on the margins of the tepals, and in having a prominent yellow, star-shaped base within the perianth tube. The subspecies *deusta* has reddish-black markings on the outer tepals, while in the subspecies *miniata* there are no markings. It pro-

duces an attractive fan of lance-shaped leaves, grows to 450 mm high in cultivation and multiplies rapidly by corm offsets. Flowering takes place from late spring to early summer and it is well suited to rock garden pockets and deep containers. It readily hybridizes with *T. crocata* and *T. squalida* and flowers must be isolated and hand-pollinated in order to obtain pure seed.

***Tritonia disticha*** is a summer-grower and has a fairly wide distribution extending from the south-eastern parts of the Eastern Cape to KwaZulu-Natal, the north-eastern Free State, Mpumalanga and Swaziland. It has long, narrowly lance-shaped leaves and a many-flowered spike up to 1 m high consisting of widely funnel-shaped pink, red or orangy-red flowers with a small yellow marking outlined in red on the lower tepals. The subspecies *disticha* occurs at lower altitude and has longer bracts than those of subsp. *rubrolucens* which occurs at higher altitude (and is illustrated on p. 135). This species has a long flowering period from early summer to early autumn and is easily maintained in cultivation provided the corms are kept completely dry over the winter dormant period, and that mealy bugs are judiciously controlled.

***Tritonia karooica*** is widely distributed throughout the western and northern parts of the Great Karoo and is a winter-growing plant up to 200 mm high that flowers early in the season, from early to mid-spring. Its dark bluish-grey leaves are borne in an attractive fan, and the funnel-shaped flowers occur in shades of brownish-yellow, cream, burnt orange or salmon, with prominent darker veins and bright yellow markings on the lower three tepals. The tepal tips become strongly re-curved with age and the flowers emit a pleasant sweet fragrance in the evening. The plants are very sensitive to over-watering and must have very bright light and sharply drained soil in order to flower successfully. Corm offsets are slow to develop and it is best propagated from seeds, that flower in their third season.

***Tritonia laxifolia*** is a summer-grower with a wide distribution extending from the eastern parts of the Eastern Cape to the north-eastern parts of the Great Karoo, up to the Central African countries of Malawi, Zambia and Tanzania. It grows to 600 mm high and has a long flowering period extending from



early to late autumn in southern Africa, to midwinter in Central Africa. The plants have narrow linear leaves and bear graceful lax spikes of six to fifteen bright salmon-pink to pale brick-red flowers, each of the three lower tepals having a bright yellow peg-like protrusion that extends upwards. This species prefers a lightly shaded position and is most suitably grown as a container subject. The corms must be kept dry over the winter dormant season and a close watch should be kept for mealy bug infestation, to which it is particularly susceptible.

***Tritonia lineata*** (bergkatjietee) is a summer-grower and is a very common species in the eastern and south-eastern parts of the Eastern Cape, and is also widely distributed in the eastern summer rainfall regions of South Africa in KwaZulu-Natal, eastern Free State, Mpumalanga and Lesotho. It flowers from early spring to midsummer, and is dormant during the winter months. It has cream or yellow, funnel-shaped flowers distinctly marked with brownish lines, narrowly lance-shaped leaves, and grows up to 850 mm high. The variety *lineata* grows to well above 300 mm high whereas the variety *parvifolia* has shorter, narrower leaves up to 300 mm high. This species performs very well in cultivation, multiplying rapidly by corm offsets and by seed, and is most suitably grown in rock garden pockets, herbaceous borders or deep containers.

***Tritonia securigera*** (tritonias, kalkoentjie) is a very variable, winter-growing species and occurs in the Little Karoo, the eastern parts of the Great Karoo and in the southern Cape from Mossel Bay to Humansdorp. It has lance-shaped, somewhat rigid foliage and attractive sprays of reddish-orange blooms with yellow throats, each of the three lower tepals with a prominent peg-like protrusion arising from the base. It flowers from late spring to early summer and the plants can grow up to 350 mm high under ideal conditions. The corms multiply rapidly by offset formation and an abundance of seed is set in cultivation following hand pollination. It is well suited to rock garden pockets and deep containers.

***Tritonia squalida*** (Mosselbaai-kalkoentjie, kalkoentjie) has been saddled with a grossly inappropriate specific name as it ranks as one of the most beautiful of all the tritonias. In

herbarium specimens, the flower colour fades to a dirty brownish-mauve colour, hence the species name given by an unsuspecting botanist in the late eighteenth century, who evidently had never seen it in the living state. Endemic to a small area of the southern Cape from Albertinia to Stilbaai, it is a winter-grower and closely resembles *T. crocata* in flower and leaf shape, differing mainly in the distinctive deep mauvish-pink to pale pink colouring of the flowers, with prominent deeper pink veins in the tepals, and in the absence of a narrow, yellow central stripe in the throat in the three lower tepals. An especially attractive feature of the flowers is the wide translucent zones or 'windows' on the margins of the tepals. Growing up to 450 mm high, it is one of the most desirable and easily cultivated tritonias and multiplies rapidly by corm offsets. It flowers in late spring and is suited to cultivation in deep containers and rock garden pockets in temperate climates. It readily hybridizes with *T. crocata* and *T. deusta* and the flowers need to be isolated and hand-pollinated in order to obtain pure seed.

***Tritonia watermeyeri*** is a winter-growing dwarf species with a very limited distribution in the Little Karoo east of Montagu. Its distinctive grey leaves are as interesting as the flowers and have strongly wavy margins that are sometimes spirally twisted. The showy spike is borne on a wiry dark brown peduncle and bears 3-7 burnt orange, slightly fragrant flowers with a red-edged yellow zone in the throat. Three

prominent bright yellow, narrow peg-like protrusions extend upwards from the lower tepals. It performs extremely well in cultivation provided the corms are kept completely dry over the summer dormant period, and it is most conveniently grown as a container subject in a sharply drained mix of coarse river sand and silica sand, with the addition of a little finely sifted compost. Plant height varies from 100-300 mm and it flowers from early to mid-spring.

#### Sources of supply

Seeds of several *Tritonia* species are listed from time to time in the annual Kirstenbosch seed catalogue, issued free to South African members of the Botanical Society of South Africa, or for sale when stocks are large enough. Seeds of certain species, including *T. bakeri*, *T. watermeyeri* and *T. karooica* are not yet easily obtainable. *Tritonia* corms are seldom available from specialist bulb nurseries but can be purchased periodically at the Botanical Society's annual Garden Fair and at the Centre for Home Gardening at Kirstenbosch. 🌱

#### Further reading

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#### The author

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