Botanizing in South Africa

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Introduction
A trip to the western Cape of South Africa in September 2002 opened my eyes to a whole new world of botany. The region was resplendent with annuals, perennials, bulbs, and succulents. Among the succulents there were a number of Aloe species. As with many other types of plants, some Aloes were just beginning to flower, others were in peak flower, while still others were finishing their flowering season. According to Goldblatt and Manning, the Cape Floristic Region lies between latitude 31° and 34°30’ S, and covers about 90,000 square kilometers of land area. With an estimated 9,000 species of vascular plants, the Cape Floristic Region is one of the most botanically rich and diverse areas in the world. By contrast, the state of Arizona covers roughly 295,000 square kilometers, yet only has about 3,400 species of vascular plants. In other words, Arizona has about 3 times the land area, yet slightly more than one third the plant species. While driving around the Cape Floristic Region, I marveled at several facets of the landscape and plant composition. First, in many areas the landscape resembled the basin and range topography found in many parts of southern Arizona and northern Mexico. Although the mountain ranges are only 1,000-2,000 meters in elevation, that is tall enough for winter freezing to affect vegetation. These mountain ranges are fractured with cliffs and valleys providing many habitats for species diversity. Second, there was a noticeable lack of tree species. The vast majority of plants were 1 meter high or lower. Third the wealth of bulbs and succulents was incredible. In fact, there were so many and our group spent so much time on our bellies that our drivers referred to us as “bottomists” (botanists with their faces down and rear ends up). Finally, there was a litany of family, genus, and species names to be learned, from the five families endemic to the Cape Floral Region (Penaeaceae, Stilbaceae, Grubbiaceae, Roridulaceae, and Geissolomataceae) to unfamiliar species in more familiar genera (Salvia dentata, Gazania krebsiana).

The Group and Itinerary
In February of 2002, I was offered a spot in what became known as the Lauren Springer Invitational. This was to be a trip to the western Cape Region of South Africa, and would include twelve plant fanatics from across the United States and England. Rod and Rachel Saunders, the proprietors of Silverhill Seeds in Capetown, would lead the group. We would also have two capable tour guides as drivers. This appeared to me as a once in a lifetime opportunity, so I scraped together enough money to venture out into unknown (to me) parts of the world. The first order of business is getting to Cape Town in order to start the trip. I figured the details were best left to the tour coordinator, so I had him make the flight arrangements. The first leg was from Tucson to Atlanta where I met up with 7 of the other tour participants. We then took the 15 hour South African Airways flight from Atlanta to Cape Town. The 15-hour flight combined with the 9-hour time difference made for a very long day. However, the excitement of being in a totally new part of the world gave everybody enough energy to visit Kirstenbosch Botanical Garden. We whet our appetite for new plants with an afternoon stroll through the gardens, snapping off pictures of Aloes, Cycads, Euphorbias, and Table Mountain. We left Cape Town and headed north toward our first night’s destination of Clanwilliam. There were to be several stops along the way. We eventually got on to the N7 Highway.

Although Aloes are succulent plants and we were in an arid area, we only saw ten different species. This is only 8 percent of the roughly 125 species found within the borders of South Africa. Other species occur in the western part of the Cape Floral Region, but they either were not near our route, or were missed because they were not in flower in September. Many of the South African Aloe species are found in the eastern and northern parts of the country. Aloe taxonomy is not immune to the debate that continues to plague the botanical world, however, the species we saw seem well defined.

*Aloe comptonii*
Compton’s Aloe
*Aloe comptonii* is a low growing plant that is usually stemless, but with age may develop a creeping stem to 1 meter long. The leaves are blue-green, with a long triangular shape, and measure about 30 cm long. Leaf margins have few, short, white to light brown teeth. The leaf sap is deep yellow to orange. The inflorescence has three to eight branches, each terminated by a dense, capitate cluster of bright scarlet-red flowers at the tip.

*Aloe dichotoma*
Kokerboom, Quiver Tree
A distinctive species, *Aloe dichotoma* develops into a tree with a single trunk or occasionally 2-3 trunks. Many smooth branches form a dense, hemispherical crown. A mature specimen can eventually reach 4½ meters tall with a crown 3 meters across. Bark on the trunk splits and develops sheets with sharp edges. Long, narrow, succulent, blue-green leaves are about 30 cm long by 5 cm wide. In young plants, leaves are typically stacked in vertical rows, but with age the leaves become spirally arranged. Bright yellow flowers usually appear in winter, although there were a few plants with some flower spikes still blooming in spring.
We saw two very extensive populations with many old plants as well as plenty of young ones to keep those populations healthy. Our first photo stop was on the road from Kamieskroon toward the town of Gamoep. Our second stop was southwest of the first. We were traveling from Nieuwoudtville to Loeriesfontein when we stopped for a second, very extensive forest of *Aloe dichotoma*. The species name *dichotoma* refers to the dichotomous branching habit. The common name Quiver Tree comes from the use of hollow stems as quivers.

*Aloe ferox*

**Fierce Aloe**

*Aloe ferox* is a single stemmed plant that reaches two meters or more tall. Thick, succulent leaves are broad at the base, gradually and evenly tapering to the tip. Leaves measure about 10 cm wide at the base and 40-50 cm long. They are a dull green to gray green with dark reddish brown spines along the edges and frequently both surfaces, especially the underside. Dry leaves remain on the trunk. The inflorescence consists of 5-12 upright branches with numerous red, reddish orange, or sometimes yellow flowers. In the warmer parts of its range, flowering generally occurs in winter and early spring. In the colder parts, flowering is delayed until summer and fall.

*Aloe ferox* has a wide distribution, ranging from Western Cape Province through Eastern Cape Province, and into Lesotho and the Free State. We saw extensive populations in the Groot Swartberg, one of a series of east-west mountain ranges dividing the Little Karoo to the south from the Great Karoo to the north. The species name *ferox* is derived from the Latin *fero* meaning fierce or wild. This is in reference to the fierce spines found on the leaves.

*Aloe glauca*

**Blue Aloe, Blouaalwyn**

Plants of *Aloe glauca* are usually stemless or occasionally with short stems. Blue gray leaves are up to 40 cm long, with reddish brown teeth along the margins. Upper leaf surfaces are smooth while the lower surfaces frequently have small spines near the tip. The inflorescence is an unbranched raceme. Large leafy bracts cover the peduncle and flower buds. The buds are erect while open flowers are pendulous. Flower color is variable, ranging from pink to pale orange. Flowers appear in late winter and early spring.

*Aloe glauca* is found on rocky hills and mountain slopes in the dry parts of the southwestern Cape. It can be found in Namaqualand in the northwestern part of the Cape Region and the Laingsberg (Long Mountains), one of a series of east-west mountain ranges that separate the Little Karoo from the Great Karoo. We saw just one plant in the landscape outside the Kamieskroon Hotel. Apparently *Aloe glauca* does not grow well in cultivation in areas with summer rainfall. The Afrikaans common name of Blouaalwyn translates to Blue Aloe in English, and the species name *glauca* refers to the blue gray leaf color.

*Aloe khamiesensis*

**Khamies Aloe, Tweederly, Aloeboom**

An erect and usually single stemmed plant, this *Aloe* will reach three meters tall. Leaves are long lanceolate, about 8 cm wide at the base, and taper to the tip. Reddish brown, triangular teeth adorn the margins while small white spots appear on both surfaces. The inflorescence branches into 4-8 racemes, each measuring about 30 cm long and crowded with orange-red flowers with greenish yellow tips. Flowers usually appear in early winter.

From the road we spotted mature, single trunked plants on rocky hillsides in and around the town of Kamieskroon and the Khamiesberg mountains. The species name *khamiesensis* is derived from its occurrence in the Khamiesberg where the type collection came from. It was an overcast, drizzly day when we drove out from Kamieskroon to Leliefontein, and we were unable to get decent photos of these plants. Apparently *Aloe khamiesensis* is somewhat difficult to cultivate, and South African horticulturists recommend enjoying them in their natural habitat. Recorded common names include Tweederly, Aloeboom, and Wilde-aalwyn.

*Aloe lineata var. muirii*

*Aloe lineata* develops a trunk to about 2 meters tall, which is covered with the old, dried leaves. Rosettes are compact with bluish green leaves having distinct reddish longitudinal lines on both surfaces, and firm reddish brown teeth along the margins. One to four, simple racemes develop consecutively on a single rosette. Large, leafy bracts cover the flower buds. Light pink to bright red flowers are spreading, then pendulous upon maturity. *Aloe lineata* flowers in summer and early fall, while variety *muirii* flowers in winter and spring. Plants are found in thick, brushy vegetation on flats and rocky slopes along the southern part of South Africa. The yellow-green leaves with distinct red striations, larger marginal teeth, and winter-spring flower time separate *Aloe lineata var. muirii*. The species name *lineata* refers to the leaves being marked with fine, parallel lines.

*Aloe longistyla*

This small, stemless plant is usually solitary, but occasionally has two to three rosettes, or rarely as many as ten. Small, gray-green leaves have a noticeable waxy layer, measure about 15 cm long by 3 cm wide at the base, and are covered with rigid, white spines on both surfaces. Simple racemes occur singly or in pairs, measure about 20 cm long, and have up to 50 flowers. Salmon pink to coral red flowers are relatively large, up to 5.5 cm long and 1.0 cm in diameter. The upper half curves up, and the exerted stamens and style protrude nearly 2 cm beyond the tube. Flowering time is generally in late winter. The fruit capsules are exceptionally large for such a small plant.
This diminutive species occurs in the dry parts of the Little Karoo and Great Karoo. Plants never occur in dense groups, and are difficult to find as they are small and usually tucked in among shrubs. We saw few plants on one hillside outside the town of Calitzdorp in the Groot Swartberg, which lies in the south-central part of the Western Cape. This mountain range is part of several east-west ranges that separate the Great Karoo (north of the mountains) from the Little Karoo (south of the mountains). Plants of Aloe longistyla should be placed in soil with good drainage. Local common name is Ramenas and the species name longistyla is derived from the long exserted style.

**Aloe melanacantha**  
**Black Thorn Aloe**  
Plants are either single or occasionally occurring in groups of as many as ten or more rosettes. They have short stems that are usually hidden by the leaves. Thick, succulent leaves are long and narrow, measuring about 20 cm long by 4 cm wide at the base, gradually tapering to the tip. They curve slightly up and in, giving a dense, rounded form to the plant. The leaves are green to brownish green and covered with large, black thorns along the margin and keel. The inflorescence is a simple raceme with tubular, bright red flowers that turn yellow at maturity. Flowering occurs in early winter.

Plants are found in dry, sandy, or rocky areas at altitudes between 300 and 900 meters (1000-3000 feet). They grow on slopes and hills at the northern tip of the Western Cape and the western part of the Northern Cape. They can be found in the Bokkeveld Mountains around Nieuwoudtville (the Bulb Capital of the World), north to southern Namibia. Average annual rainfall is 125-250 mm (5-10 inches) and falls in the winter. Summer temperatures can reach over 38 degrees Celsius (100 degrees F), while winter lows seldom reach below freezing.

*Aloe melanacantha* is strictly a winter grower and should be treated as such. Grow in soil with good drainage, water regularly in the winter, and sparingly in summer. Do not keep the soil soggy any time of the year. The species name melanacantha translates to black thorn, and refers to the black thorns along the leaf margins and keel.

**Aloe microstigma**  
**Tiny Spot Aloe**  
Usually found as single rosettes or occasionally forming small groups. They have short stems, sometimes approaching 50 cm tall. Long-triangular leaves measure up to 30 cm long by 6 cm wide at the base, tapering evenly to the tip. They are blue-green to reddish green and covered with numerous, very small white spots from which the species name is derived. Leaves have sharp, reddish brown teeth only along the margins. The simple raceme can reach about 1 meter tall with 2 or 3 racemes occurring on each plant. Tubular flowers are red when in bud and open yellow. Flowering time is in winter.

*Aloe microstigma* has an east-west distribution in the dry interior of the Western and Eastern Cape Provinces. We encountered plants at about 650 meters elevation south of the town of Laingsburg in the Witteberg Mountains of the Western Cape. They were growing on dry slopes with a variety of succulents and shrubs. The species name, microstigma, refers to the small spots that dot the leaves. There are no African common names for *Aloe microstigma* however; in cultivation it has been called Tiny Spot Aloe.

**Aloe mitriformis**  
**Bishop's Cap Aloe, Miter Aloe, Gold Tooth Aloe**  
*Aloe mitriformis* has sprawling, ground-hugging stems that can reach two meters long with only the leaf-bearing tip being upright. Thick, succulent leaves are bluish green, with small white teeth along the margins. The inflorescence develops up to five branches. Each terminated by a compact, rounded cluster of bright red flowers. Flowering occurs in the summer.

Distribution of *Aloe mitriformis* runs north-south in the Western Cape Province. Plants are found near Genadendal in the Riviersonderendberge Mountains (roughly 200 kilometers east of Cape Town) north to the Bokkeveld Mountains near Nieuwoudtville. We encountered *Aloe mitriformis* on the road to the Goibergh outside Vanrhynsdorp. *Aloe mitriformis* is named for the miter-like form of the rosettes. The common name of Bishop's Cap Aloe refers to the shape of the inflorescence, and Gold Tooth Aloe comes from the yellow-gold color of the teeth on the leaves. Locally in South Africa, the plant is called Kransaalwyn.

**Aloe striata**  
**Coral Aloe**  
Coral Aloe plants are generally stemless, although very old plants can develop creeping stems about 1 meter long that are covered by the old, dry leaves. Rosettes grow to 40-50 cm tall by 60-70 cm wide. Blue-green leaves are wide and flat with distinct vertical lines, and reddish margins without any spines. Mature leaves measure up to 45 cm long by 10-12 cm wide. The inflorescence forms a multiple branched, corymbose panicle. There are 1-3 inflorescences per plant during the flowering season. Flowers are pinkish red to bright orange, while a yellow form has been reported from the Eastern Cape Province.

Currently, *Aloe striata* is considered to have three distinct subspecies. *Aloe striata* ssp. striata has pale blue-green leaves with distinctive reddish or pinkish margins. It has a very dense and compact inflorescence that appears in late winter and spring. The subspecies striata occurs on rocky slopes and hillsides in the dry parts of the Western and Eastern Cape Provinces. Rainfall averages 375-500 mm and occurs either periodically throughout the year or only in...
South Africa

summer in some areas. The summer temperatures reach over 38 degrees C (100 degrees F) and in the northern parts of its range, winter temperatures can fall below freezing. Leaves of *Aloe striata* ssp. *karasbergensis* are more brownish with distinct longitudinal lines and conspicuous white margins. The inflorescence is more open and appears in summer. Plants are found on rocky outcrops and flats in red, sandy soil in the central and northwestern part of the Northern Cape Province. Summer temperatures can reach over 38 degrees C (100 degrees F) and winters are cold. Rainfall is in winter and averages 125-250 mm per year.

*Aloe striata* ssp. *komaggasensis* has faint lines and white edges on the leaves. Flowering for subspecies *komaggasensis* is in the summer. The distribution is restricted with plants occurring only in the mountains around Komaggas in Namaqualand of the far western part of the Northern Cape Province. The species name *striata* is derived from the longitudinal lines (striations) on the leaves. The common name of Coral Aloe refers to the coral orange flower color that is most prevalent for this species. Some South African common names are Blouaalwyn, Gladdeblaaraalwyn, and Streepaalwyn.

*Aloe striata* is an attractive ornamental found periodically in the nursery trade. A hybrid of *Aloe striata* and *Aloe saponaria* is found in the nursery trade also. This plant tends to be harder to the frost, and offsets readily, ultimately forming large clusters to 2 meters across. The faint spots and indistinct teeth on the leaves readily distinguish the hybrid from the pure species.

**Aloe variegata**

**Partridge Breast Aloe**

A stemless plant reaching about 25 cm tall and offsetting to form clumps about 30-45 cm across. The deep green, thick, succulent leaves are deeply folded have many white spots on both surfaces. Minute teeth are regularly spaced along the white edged margin. The inflorescence is either simple or with as many as 3 branches, with as many as 6 inflorescences occurring in one rosette. Flowers are dull red to pinkish and appear in late winter.

*Aloe variegata* is found growing tucked in among small shrubs in dry regions of the Karoo, Namaqualand, and southern Namibia. Rainfall occurs in either winter or summer depending on the area, and ranges from 125-500 mm annually. Typically summers are hot, reaching 38 degrees C or more, and winters can experience hard frost. Because plants grow tucked among shrubs, they were not easily spotted unless in flower. We saw several populations, none with an abundance of plants. Some of our stops for *Aloe variegata* were on the R354 from Middlepos to Sutherland.

The species name *variegata* refers to the variegated leaf appearance. Some South African common names include Kanniedood, Bontaalwyn, and Luckhoffaalwyn. It is commonly called Partridge Breast Aloe in the nursery trade. *Aloe variegata* is easily cultivated, and can be propagated by seed or offsets. Place in filtered light and a soil with good drainage.

**Conclusion**

Although our trip was not geared specifically for succulent plants, we saw a wide variety of *Aloe* species in several habitat types. We traveled from the winter wet, summer dry Namaqualand where *Aloe dichotoma*, *A. glauca*, *A. khameisensis*, *A. melanacantha*, and *A. mitriformis* grow; across the dry flat terrain of the Little Karoo come *Aloe humilis*, *A. lineata*, *A. longistyla*, *A. microstigma*, *A. striata*, and *A. variegata*; and through the rocky, canyon habitat of the Groot Swartberge where *Aloe comptonii*, and *A. ferox* prevail. With such diverse habitat in a relatively small area, a traveler to South Africa whose primarily interested in plants is bound to have his or her interest piqued by the incredible array of plants regardless of the time of year. If your interest is spring wildflowers, visit the Western Cape Province anytime in September. (All photographs by G. Starr)
The Color Encyclopedia of Cape Bulbs
reviewed by Greg Starr

By John Manning, Peter Goldblatt, and Dee Snijman, 2002, Timber Press
The Haseltine Building, 133 S.W. Second Ave, Suite 450
Portland, OR 97204 USA
ISBN 0-88192-547-0, hardbound, 486 pp., 611 color photos, 2 color maps, 2 tables, 8½” x 11”, $59.95.

After a visit to the Cape Region in September 2002, I was smitten by the geophytes. When given the opportunity to review this book, I jumped at the chance and was not disappointed.

The Color Encyclopedia of Cape Bulbs is more than the title alludes to. It is a comprehensive look at the geophytes ("plants that have their renewal buds buried underground") of the Cape Floristic Region of South Africa. There are some exclusions such as the whole family Anthericaceae, and the genera Bulbine and Trachyandra which are not covered. In spite of these omissions, this is an exceptional book, and nearly 1200 species of Cape geophytes are treated with over half the species represented by photographs, all taken in the wild.

The Cape Floral Region is extremely rich vegetatively. For example, California is more than three times the size of the Cape Floral Region, yet has about 5,000 species of plants, compared to about 9,000 species in the Cape Floral Region. The area is particularly rich in geophytes. Of the 9,000 species, about 1,500 (17%) are geophytes.

The book opens with general information about the Cape Region, moves through the history of Cape Flora exploration, and includes sections covering the climate, geology and soils, and the biogeography. The section on biogeography covers seven phytogeographic centers, six of which are within the Cape Floral Region. The seventh, the Roggeveld Center lies just outside the Cape Floral Region, but the geophytic plants are so closely allied that the authors included this region. The other six regions include the Northwest Center, Southwest Center, Agulhas Plain, Karoo Mountain Center, Langeberg Center, and the Southeast Center. The next chapter is called Bulbs in the Garden, and covers bulb structure and cultivation. The cultivation section provides information on temperature and light, soil, planting, watering, fertilizing, pests, and seeds.

The heart of the book is the encyclopedic section, which is arranged alphabetically by genus rather than by family then genus. I find this to be the best arrangement as there had been so much recent work on the families that it is easiest to work with genus and species. Each species ID accompanied by a detailed description, flowering period, and distribution information.

I especially like the inclusion of the two sets of dichotomous keys, one to genus, and one to species within each genus. This is particularly helpful when trying to determine an unknown geophyte.

The book closes with a list of bulb and seed suppliers, an extensive glossary of terms, a comprehensive bibliography, and a complete index of synonyms.

The Color Encyclopedia of Cape Bulbs will be a useful tool for gardeners, botanists, and bulb enthusiasts in general. This book should be within arms reach for anyone interested in geophytes from the Cape Floral Region.

Arizona Gardener's Guide
reviewed by Margaret Norem

By Mary Irish, 2003, Cool Springs Press
P.O. Box 141000
Nashville, Tennessee 37214
ISBN 16888608, softcover, 271 pages, 221 color photographs, 1 table and 1 cold hardiness zone map for Arizona. $24.99

Everything you have seen in the local nursery and considered planting in your Arizona landscape is discussed in this book. Emphasis is on everything. Grasses, roses, palms, agaves, tulips, and more are detailed. The format for each plant includes when and where to plant, growing tips, companion planting, and a did you know section. A very good quality color photograph accompanies each plant discussion. A detailed cold hardiness zone map of Arizona helps the gardener identify the best plants for his area. The book is divided into eleven plant sections (annuals, bulbs, roses, etc) and alphabetized according to common name within each section. Each section is also color coded along the top of the page. A very well organized, well written and enjoyable book, it is fast becoming the Arizona Master Gardener's bible.