



Secretary: Joy Woodward

P O Box 53219, Kenilworth 7745, South Africa.
Telephone +27 21 799 8768. Fax +27 21 797 0002.

E-mail capeclivia@iafrica.com

Editorial Team: Mick Dower with Coen Calitz and Johan Schoombee

Editorial:

This edition has been delayed by commitments to the Show and to the displays at Kirstenbosch, and then by illness. It is again produced without the assistance of a graphic designer to avoid further delays. Because of its size it will be followed by a special Show Edition.

AUGUST CLUB MEETING

Close to 100 members attended the Club Meeting at Durbanville on 13 August. Johan Schoombee continued to inspire all with his ongoing presentation of photos of top quality clivia and John Winter repeated, for the benefit of our members, his presentation at the Clivia Symposium at Huntington, California on Variation of Clivia Miniata in the Wild . This is reproduced in full for the benefit of those who were unable to attend the meeting and for record purposes.

VARIATION OF CLIVIA MINIATA IN THE WILD

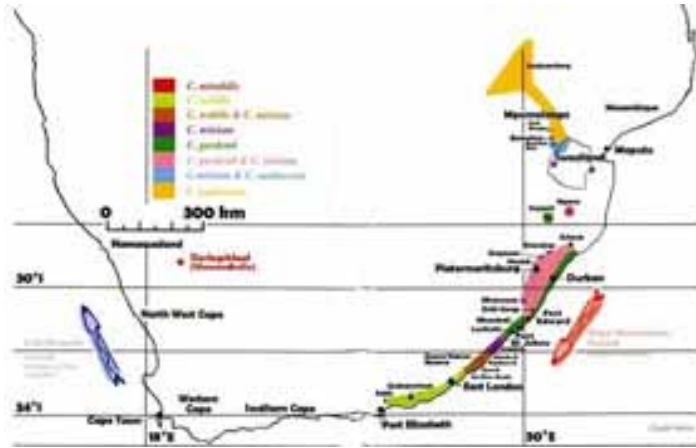
John Winter

Most of my working life has been spent at Kirstenbosch Botanic Garden which specialises in growing the native flora of Southern Africa. Kirstenbosch is the flagship of the eight botanic gardens that are administered by SANBI (South African National Biodiversity Institute). The garden is situated on the eastern slopes of Table Mountain which provides a magnificent backdrop to the city of Cape Town. The living collection of Clivia was not well represented in any of the gardens so in 1996 I embarked upon a project to collect Clivia from their natural habitats for Kirstenbosch and the other regional gardens.

Distribution

The distribution of Clivia miniata is

- inland just west of the Kei River mouth
- north as far as the northern border of Swaziland
- and are reported to grow in Mozambique



Map of Southern Africa indicating the distribution of Clivia

Clivia miniata occurs in isolated populations throughout its distribution area in a habitat which provides shade, cool, moist conditions and a well drained growing medium Clivia miniata is the most widespread of all the Clivia species

Habitat variations

Throughout the natural distribution of Clivia miniata, variation in habitat does occur. Although all Clivia are shade-loving the degree of shade can vary from heavy to very light shade. In some cases the habitat is so light that the leaves of plants burn and the population becomes stressed.



Clivia miniata require sufficient light and populations that grow in heavy shade do not flower well.



Variation in growing media does occur but sharp drainage, moisture retention and a well aerated medium is common to all habitats. Suitable forest leaf mould on steep rocky screes, decaying tree logs, forks of trees, heavy loam soils on steep slopes are all very suitable. The species can tolerate wide climatic variations. Inland populations tend to grow in a drier environment compared with the coast where plants benefit from moisture and cool sea breezes.

Altitudes at which Clivia miniata grow vary from sea level to 1445 metres and temperatures in mountain areas can be extremely low due to cloud and mist cover.

Although Clivia miniata is able to withstand a great deal of stress, the populations that are obviously thriving are those which enjoy a cool moist environment throughout the year with adequate light. Some populations I visited are under great stress as they probably exist on the edge of their distribution range where there will be extended dry periods, higher temperatures and increased light.



The influence an ideal habitat has on *Clivia miniata* populations would be that they

- thrive with fully developed leaves
- flower regularly
- pollinators are attracted as a result of regular flowering
- produce good seed crops
- produce seedlings that mature in approximately 5-10 years

As these seedlings develop and flower, variations can appear in leaf and flower form depending upon the inherited genes of each population.

Populations under stress show:

- they are not free flowering
- pollination is poor
- little or no seed is produced
- result in little or no variation

Clivia miniata plants in these populations are merely surviving but once plants from these growing conditions are introduced into cultivation they reach full potential and develop broader leaves and larger flowers.

To sum up, in order to thrive, *Clivia miniata* growing in ideal conditions will evolve faster than populations which are under stress.

All populations of *Clivia miniata* differ genetically with the result that they vary morphologically. In other words, one can visually distinguish the physical differences of *Clivia miniata* from population to population. Some populations will display virtually no variation at all and appear to be very stable morphologically. For example, I note that the flowers of the most westerly population of *Clivia miniata* are very uniform in shape, size and colour, whereas a population in the Transkei shows a wide variation in flower size and in colour ranging from light orange to yellow tinged with pink. In another population the plants are fairly short with broad leaves as opposed to the usual *Clivia miniata* which is fairly upright with strap-like leaves.

Leaf Variation

Leaves can vary from broad to fairly narrow and strap-like, while their colour can vary from dark green as in "Giddy Yellow" to a pale green. Leaves can be either thin or thick in texture. My experience is that within each population the leaf characteristics such as width and length of leaf are fairly uniform but an occasional plant may vary from the norm. Some leaves may show variegation but it is not common and these variegations are rarely very strong. The arrangement of the leaves on the stem of *Clivia* tend to be in a spiral but in some populations the occasional *Clivia* has leaves arranged opposite to one another on the stem.- ie distichus.

The following tables illustrate the variation of the length and width of leaves of *Clivia miniata* in the wild

Different populations

Width	Height	Length
50 mm	700 mm	600 mm
30 mm	750 mm	700 mm
60 mm	800 mm	650 mm

Single populations

Width	Height	Length
90 mm	620 mm	500 mm
60 mm	480 mm	480 mm

Apple Blossom Complex

	Width	Height	Length
Q1	45 mm	670 mm	580 mm
Q2	45 mm	600 mm	550 mm
Q3	60 mm	600 mm	700 mm
Q4	50 mm	900 mm	600 mm
Q5	40 mm	750 mm	650 mm
Q6	50 mm	670 mm	580 mm

Pedicels and peduncles

Pedicels can vary in length from 25mm to 80mm. The short pedicels usually produce a compact inflorescence but the longer pedicels support a rather large loose flower head.



Peduncles vary from flimsy weak stems that display the inflorescence amongst the leaves to a tall strong peduncle holding the inflorescence well above the leaves.

The first two illustrations show the variation in pedicel length. The third displays a strong, tall peduncle as opposed to the shorter, slim peduncle which requires staking.

The vigour of plants is another form of variation which occurs in wild populations. Some plants tend to multiply prolifically while others remain solitary.

Seed

A most interesting variation is the size of *Clivia miniata* seed that come from the Transkei.



These seeds are twice the size of the usual *Clivia miniata* seed and are round in shape. All *Clivia miniata* produce a wide range of coloured berries which last for months on the plant and are a very attractive feature.

An assortment of Clivia miniata berries illustrating the range in colour of the berries.

Flower Variation

The greatest range in variation in *Clivia miniata* occurs in the flowers. The size and fullness of the inflorescence is influenced by the length of the pedicels and the robustness of the peduncle. The number of flowers produced in each inflorescence varies with some producing 10 flowers on long pedicels giving a very loose inflorescence while others produce 25 or more flowers resulting in a very full and spectacular flower-head. The shape, size and colour of the petals contribute greatly to the wide range of variation in flowers.

In this article I have discussed the variation range of *Clivia miniata* in the wild. These variations are dependant upon the gene pool from which the pollinating agents function. The pollinators are limited to the area in which they are able to cover. As the world gets smaller, *Clivia* breeders and enthusiasts are able to access an ever-increasing *Clivia* gene pool. This is far greater than the natural pollinators are able to utilise and has resulted in a larger range of variations appearing in cultivated plants.

Clivia miniata is a long-lived, slow growing plant that grows in the wild much more slowly than in cultivation. However, with time, these populations will evolve and providing that they survive the activities of man variations will continue to be produced.

The following illustrations of Clivia miniata flowers show the wide range of variation which exists in the wild.





Holl's Yellow



Cynthia's Best



Mbashe River Spider



Entumeni Orange Miniata



Umtamvuna giant pink



Umtamveni Light Apricot



Nqabara



Leguan Rock



Umtamvuna Orange

The following six photographs are of miniata found by Brian Tarr in the habitat in the midlands of KwaZulu Natal



The Appleblossom Complex



OVERBERG CLIVIA INTEREST GROUP

Felicity Weedon has led the formation of a new Interest Group for enthusiasts living in the Hermanus-Grabouw area. Its first meeting, held in July, was small, but interest was provided by whatever interspecifics we had in bloom. Andre van Rijn's broad leaf Chinese plants, miniatures and variegateds were of enormous interest, especially for the newcomers.

The second meeting, held on the 8th September, was attended by 14 enthusiasts, including old hands and newcomers.

This time there were plenty of good plants in bloom and, once again, Andre provided us with interesting Chinese plants and a Chubb Peach in full bloom.

The subject discussed was "The Preparation and Germination of Seed", which caused an animated discussion, especially between the more experienced growers.

The newcomers were fascinated by all this expertise and I think I can fairly say that an interesting and entertaining time was had by all.

Christo and Suzette Lotter brought some umbels of berries for display and demonstration, which they then kindly donated to anyone interested.

FELICITY WEEDEN

Forthcoming Events

The last Club Meeting of the year will take place at the Goldfields Centre at Kirstenbosch on Saturday, 3rd December, 2005 where John van der Linde will tell us about his month long visit to clivia growers and events in New Zealand with Beth at the invitation of the New Zealand Clivia Society.

This will be followed by the traditional year end braai at the Stone Cottages.