CLIVIA

TWENTY-FOUR

The Clivia Society www.cliviasociety.org

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The Clivia Society caters for Clivia enthusiasts throughout the world. It is the umbrella body for a number of constituent Clivia Clubs and interest Groups which meet regularly in South Africa and elsewhere around the world. In addition, the Society has individual members in many countries, some of which also have their own Clivia Clubs. An annual Yearbook and quarterly Newsletters are published by the Society. For information on becoming a member and / or for details of Clivia Clubs and Interest Groups contact the Clivia Society secretary or where appropriate, the International Contacts, at the addresses listed in the inside back cover.

The objectives of the Clivia Society

1. To coordinate the interests, activities and objectives of constituent Clivia Clubs and associate members;
2. To participate in activities for the protection and conservation of the genus Clivia in its natural habitat, thereby advance the protection of the natural habitats and naturally occurring populations of the genus Clivia in accordance with the laws and practices of conservation;
3. To promote the cultivation, conservation and improvement of the genus Clivia by:
   3.1 The exchange and mutual dissemination of information amongst Constituent Clivia Clubs and associate members;
   3.2 Where possible, the mutual exchange of plants, seed and pollen amongst Constituent Clivia Clubs and associate members; and
   3.3 The mutual distribution of specialised knowledge and expertise amongst Constituent Clivia Clubs and associate members;
4. To promote the progress of and increase in knowledge of the genus Clivia and to advance it by enabling research to be done and by the accumulation of data and dissemination thereof amongst constituent Clivia Clubs and associate members;
5. To promote interest in and knowledge of the genus Clivia amongst the general public; and
6. To do all such things as may be necessary and appropriate for the promotion of the above-mentioned objectives.

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Editor
Glynn Middlewick

EDITORIAL

By Glynn Middlewick

This Yearbook is number 24. The first Yearbook of the Clivia Society was published in 1998. We now produce three digital copies of the Clivia News edition per year and a Yearbook in hard copy format. Many members would prefer to have all the editions in a printed format. The inefficient postal system and the cost of courier services, make this possibility impractical.

The provision of articles for the Yearbook continues to be a problem. This trend follows on the lack of supply of any interesting articles or comments for our Clivia News Editions. The publications released by the Clivia Society play an important part in the organisation and is perhaps the main reason why an affiliation fee is paid by the Clubs to the Society. My task of pestering the same authors for articles is unfair to them and not pleasant for me. The publications have regular contributors in the form of photographs and articles and a big thank is owed to them by all Society members. The publications produced for the members, are intended to include anything of interest relating to *Clivia*, including breeding results, show results - with photographs, club activities and promotions.

The decrease in membership numbers in all organizations, is not an uncommon problem. There are numerous reasons for this and none of them are easily reversible. The BBC spent six months interviewing their staff – all twenty-one thousand of them over a six month period, to find out why there was a decline in standards, increased resignations and unhappiness with the organization. They did manage to reverse their problem using the principle of 'Appreciative Enquiry' – which uses positive benefits the company has and promoting them as opposed to negative qualities found facing the company. The Clivia Society – made up of its strong core of members – has a lot of positive values which we should appreciate and promote. There are challenges facing us and by promoting our successes, avoiding the politics in the clubs and applying ourselves to the positive enjoyable aspects of the *Clivia* hobby that we all enjoy, will ensure our success!

The Clivia Society Conference was held at the beginning of October in Cape Town, over a period of five days. Andre Swart, the Convener, gives us an overview of the Conference. Dave Garriock was one of the tour- group, that visited Oologskloof, relates the privilege he enjoyed visiting this area. Felix Middleton, with his passion for all things '*mirabilis*', informs us about some of his observations with regards to the breeding of *Clivia mirabilis*.

The drought in the Western Cape a few years ago, prompted Dave Garriock to consider ways in which to conserve water by growing his *Clivia* plants in plastic bags with great success!

Included in this edition are some photos from the successful NACS 'Virtual' and Sherman Garden Shows.

The Society 'Virtual Show' in South Africa, will not take place this year owing to a lack of interest. This lack of interest may relate to the normalising of the usual shows at the club level, post pandemic and thus no need for a 'Virtual Show' in South Africa. The 'Virtual Show' competition proved popular in the United States and the entries were impressive.

The Photographic competition was well supported this year. Congratulations to all the entrants. A big thank you to all for taking the time and making the effort to submit your images into the competition. The entries appearing in this publication will hopefully inspire the members to take photographs of their blooms next year! Thank you very much to the judges for the help in deciding which of the images are the most impressive.

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COVER: Chris Smit
TITLE PAGE: Carrie Kruger

LOOKING BACK ON THE 2023 INTERNATIONAL CLIVIA CONFERENCE

Andre Swart

Between Friday 29 September and Friday 6 October 2023 the Cape Clivia Club hosted the Clivia Society's 2023 International Clivia Conference in Cape Town, held the Cape Clivia Show and organised a Habitat Tour to see *C. mirabilis*.

It is a matter of trite wisdom that if you aim at nothing you are bound to hit it. The objectives included:

- Consolidating the support for Clivias as a genus;
- Reviving and extending interest in Clivias by introducing new information and new perspectives;
- Creating a rallying point to celebrate the pleasure of breeding, growing and displaying our beloved genus after the doldrums of the pandemic;
- Expanding the local footprint of *Clivia* appreciation through exposure in a new area by using all the means at our disposal.

The elements of the plan comprised: interesting and accessible presentations; plenty of opportunity for delegates to interact; a great venue; a high-profile opening; strategic publicity; elements of novelty and innovation; value for money; diversity among the delegates and (we hoped) a 'bucket list' experience.

In due course an edited audio-visual record of the Conference will be publicised. For now, this framework report, should suffice. (www.cliviasociety.com)

On Friday evening, 29 March, the International Clivia Conference, held in the conference facility of Milnerton High School (Cape Town), was opened by the Western Cape Minister of

Minister Anton Bredell of the Western Cape Department of Environmental Affairs opened the Conference.

Conference delegates with Table Mountain in the background.

Local Government, Environmental Affairs and Development Administration, Minister Anton Bredell. The opening had been preceded by a cheese and wine function to the accompaniment of the Milnerton High Marimba Band and was followed by an excellent finger supper. Going by the Minister's extended presence, engaging with us socially amid his busy schedule of official duties, the event could not have been too monotonous. Perhaps this was due at least in part to the illustrated, 'virtual' keynote address by Dr. John Rourke on "The Discovery of *C. mirabilis*". A specially commissioned painted backdrop by Belinda du Rand highlighted the *C. mirabilis* plants.

There were just over 60 guests in attendance, including visitors from the UK, the USA and from all over South Africa and the opening was featured in a widely distributed newspaper in its Saturday morning edition.

Saturday and Sunday were devoted to the Cape Clivia Show and garden visits. A little over 200 plants were on show. The' Best on Show' being a beautiful yellow owned by Frans Mouski. Plant sales were brisk and the attendance of the general public was good. There is a separate, brief overview of the Show as an integral part of Conference.

Backdrop painting on canvas, painted by Belinda du Rand.

On Monday, 2 October 2023, the Conference theme of 'Mythbusters' was introduced. There were four presentations, separated by leisurely teas and a catered lunch, which offered the opportunity to digest the cornucopia of information and sustenance and to exchange *Clivia* stories and opinions. In Session #1

The Milnerton High School students entertained the guests with their marimba music.

Felix Middleton presented a highly informative, illustrated presentation of his interspecific breeding results using *C. mirabilis*. He made a convincing case for the greater merit of using *C. mirabilis* as the berry parent in the first - generation crosses, if one intended to breed to F2 and beyond.

In Session #2 André Swart, standing in for a speaker withdrawal, gave a pictorial presentation of a hike to *C. mirabilis* in Oorlogskloof. There was substantial reference to the effect of geology, hydrology, orientation and the interplay between shade and sunshine, all intended to inform delegates of the natural features of the habitat as a guide to cultivation requirements.

In Session #3 after lunch André Swart tackled the controversy of the legal and ethical considerations of provenance. He argued that poaching wild plants or buying poached wild plants was not only illegal (and punishable), but a selfish deprivation of the generations to come. He pleaded for cultivating both a conscience and an accountability system that took the long view.

Dave Garriock confronted the misunderstanding of 'wet feet' being lethal to Clivias in Session #4. While not renouncing traditional watering, he produced proof that he had achieved excellent plant health and vigour in a sodden coarse medium of bark. He made a compelling case for the efficiencies in time,

Stef Olivier conducting the Auction sale.

labour, water and nutrients by adopting his 'wet cultivation' system.

On Monday evening, after more cheese and wine and marimba band music (including an impromptu beginners' lesson and "first recital" by a few of the braver delegates), Stef Olivier conducted the Conference Clivia Auction. Stef Olivier provide us with memorable lesson in professionalism and entertainment. The highest price achieved was R 25 000 for a mature offset of Sean Chubb's 'Zol', the bid coming from Karel Stanz on behalf of an undisclosed buyer. This was followed by a sit-down supper of such excellence that few of the delegates showed sensible restraint.

Tuesday saw four more presentations interspersed with food, beverages and conversation. In Session #5 Claude Felbert introduced the new provisional 'colour chart' and invited feedback on any suggested refinement. He illustrated and explained the portrayal of colour in photography, which is variable because of equipment, the settings selected and the effects of the immediate light environment. Advances in artificial intelligence make it increasingly difficult to distinguish between the real and the 'virtual'.

Delegates enjoying the a tour of Cape Town on the way to the Kirstenbosch Botanical Gardens, in an open-topped bus.

Session #6 was a discussion group facilitated by Karel Stanz and included Cora de Kock and Chris Smit. They investigated the boundaries between photographic embellishment as permissible art and deceptive practice. The consensus was that techniques, lighting and background could be used to best advantage, but not to the point of misrepresenting reality. Images for 'virtual' shows or selling seeds and plants should be truthfully realistic.

In Session #7 Dave Garriock debunked the narrow view that the usefulness of Clivias is limited to aesthetic appreciation. He introduced the delegates to a distilled liquor made from fermented, ripe *Clivia* berries, and an artisanal soap incorporating *Clivia* berry pulp and skin. All delegates received a samples of the two products. This is not to

say that Clivias are devoid of alkaloid poisons (and lycorine in particular, which is dangerous if ingested). Research is currently under way to ascertain where the poison is concentrated and particularly whether the ripe berry pulp may be safer than the seeds or other parts of the plant.

In Session #8 Glynn Middlewick engaged the delegates in sober consideration of the rise and fall of membership of *Clivi*a clubs. His hypothesis was that this is not so much a consequence of the growing trend towards the 'virtual' domain, but rather consistent with the natural, dynamic life-cycle of clubs and interest groups generally. If the core of committed enthusiasts wanted to grow the *Clivia* following, they would offer something more than what was available online.

Supper on Tuesday evening was a sumptuous affair at the spacious Durbanville home of Mario Fernandes. Delegates were treated to great food and drink, attentive service, an atmospheric setting and the convivial conversation of fellow cliviaphiles. *Clivia* anecdotes abounded and there was much bragging about special flowers shared on cell phone picture galleries. No ethics police checked the realistic authenticity of the trophy pictures and the gathering disbanded late and happy.

Wednesday morning saw delegates board a chartered, 'topless' red bus to Kirstenbosch Botanical Gardens. SANBI had graciously provided the Richard Crowie Lecture Hall and admitted delegates without charge. Session #9, the final session of Conference, was a group discussion facilitated by Sean Chubb, supported by Liz Boyd, Graham Duncan (of SANBI) and Paul Kloeck. Their brief was to attempt to unravel the genetic mysteries of breeding with yellows. Graham recounted the breeding of the orange Kirstenbosch Supreme by crossing two yellows in the expectation of getting a yellow. This result revealed the first two distinct yellow groups, later called Group 1 and Group 2. Subsequently at least two further yellow groups have emerged. Breeding between two different yellow groups generally produces flowers with anthocyanin, but this is not an absolute rule and exceptions emerge. The discussion did not prove definitive, except on the point that further investigation and analysis of results were called for.

On the return of the topless red bus to Milnerton via the scenic western seaboard, delegates, except those proceeding on the C. mirabilis Habitat Tour, departed for home. These Habitat Tour delegates spent the night at Vanrhynsdorp, 300km north of Cape Town. and spent Thursday (5 October) in the habitat on a private farm. A good number of well-developed umbels were seen and photographed. There is a separate report on the Habitat Tour, whose participants returned to Cape Town on Friday. Perhaps this extract from the required 'indemnity form' signed by the' Habitat Tour' delegates, best captures the spirit of the adventure: 'I understand that there are inherent risks associated with excursions to wild places and I voluntarily assume this risk ... in the anticipation that the reasonable preparation and care taken over the CLIVIA MIRABILIS HABITAT TOUR and the prospect of a unique and memorable experience fully justifies the risk I hereby assume'.

Clivia mirabilis habitat tour

Dave Garriock

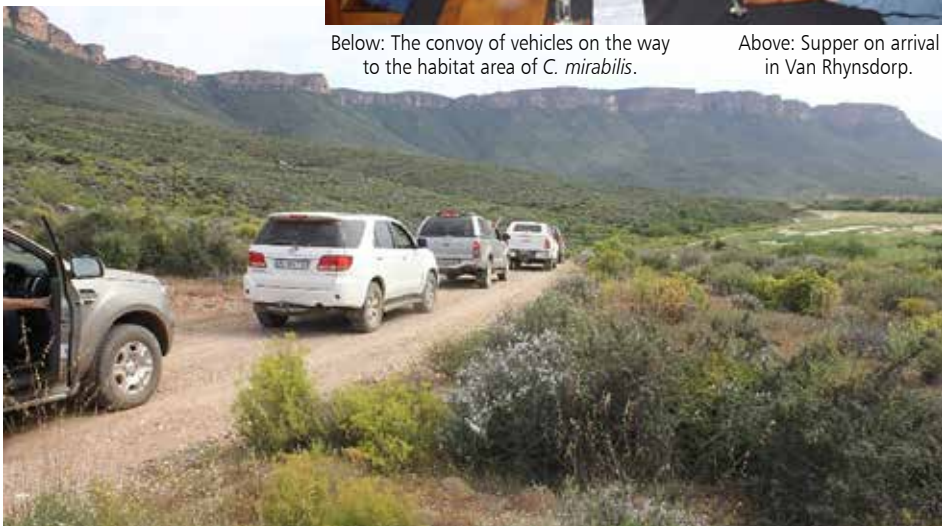
On Wednesday after our morning talk at Kirstenbosch, we travelled in a convoy of seven vehicles, with nineteen delegates on board, excited and looking forward to the viewing of *C. mirabilis* in their natural habitat. We all stayed overnight in Van Rhynsdorp at the Namaqua Lodge. On arrival we were served supper and we all retired early to get a good rest for the hike the following day.

After an early breakfast on Thursday, we left in convoy, once again, and made our way to Willem van Zyl's farm loaded with our lunch packs, water and salads for our meal, later that day.

On our journey to the farm, we made several stops along the way to appreciate the stunning views and abundant fauna and flora. We were fortunate that the area had experienced a good rainfall, which allowed the wildflowers to bloom and there was water in the rivers. We arrived at the farm around 10:00 to be met by Willem, his lovely wife Helga, Felix and Oom Appel. Willem took us to a site where a large part of the sandstone cliff had collapsed and fallen into the valley below. This incident together with the fact that the area is prone to drought and fires makes one aware of the harsh terrain in which the *C. mirabilis* must survive.

The severe recent drought had resulted in the death of the protective vegetation and shade in

Above: Supper on arrival in Van Rhynsdorp.



Below: The convoy of vehicles on the way to the habitat area of *C. mirabilis*.

Dave Garriock and Cora de Kock stopping to enjoy the view.

the area. With the rainfall this year, the 'fynbos' has recovered, forming a thick undergrowth.

We started our climb to the '*C mirabilis*' sites and after about 40 minutes, we spotted our first plants in their natural habitat!

The *C. mirabilis* in this location were grouped together with mother plants having several offsets. Seedlings were growing some distance away from the original plants. What surprised us was the great variation in the form and shape of the leaves. Most of the plants had buds which would probably flower two weeks later. A remarkable feature of the plants was the number of leaves present on the plants. Some had as many as 28 leaves on the plants. A second area of habitat plants we visited, presented a bigger challenge for the hikers and some members returned to the farmhouse. There was again evidence of seedlings growing in the area. A third colony of plants we found higher up the mountain, near the cliff face. It was a strenuous walk to get to them but proved to be worthwhile. Not many plants were seen. There were some seedlings growing in the area.

The Habitat Tour group.

The start of the hike to the *C. mirabilis* sites.

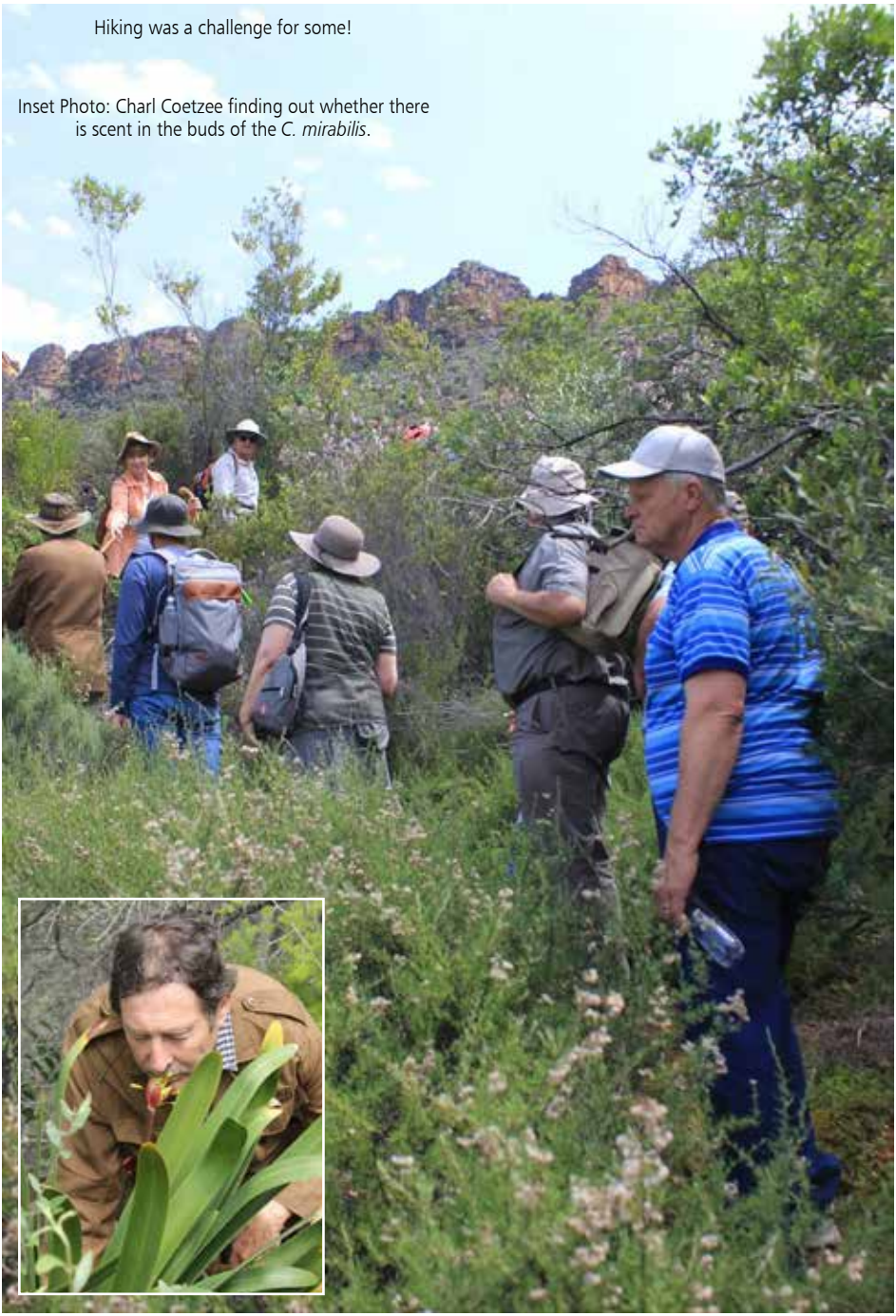
Photo below: Steve Hickman admiring plants that were not *Clivia*!

After lunch we slowly made our way down to the farmhouse. Willem was busy with the 'braai' for our lunch. Willem's nursery provided an interesting variety of plants with some in flower.

The isolation we felt in this hostile environment, made us appreciate the uniqueness and privilege we had in visiting one of the natural habitats of this *Clivia mirabilis* species.

Hiking was a challenge for some!

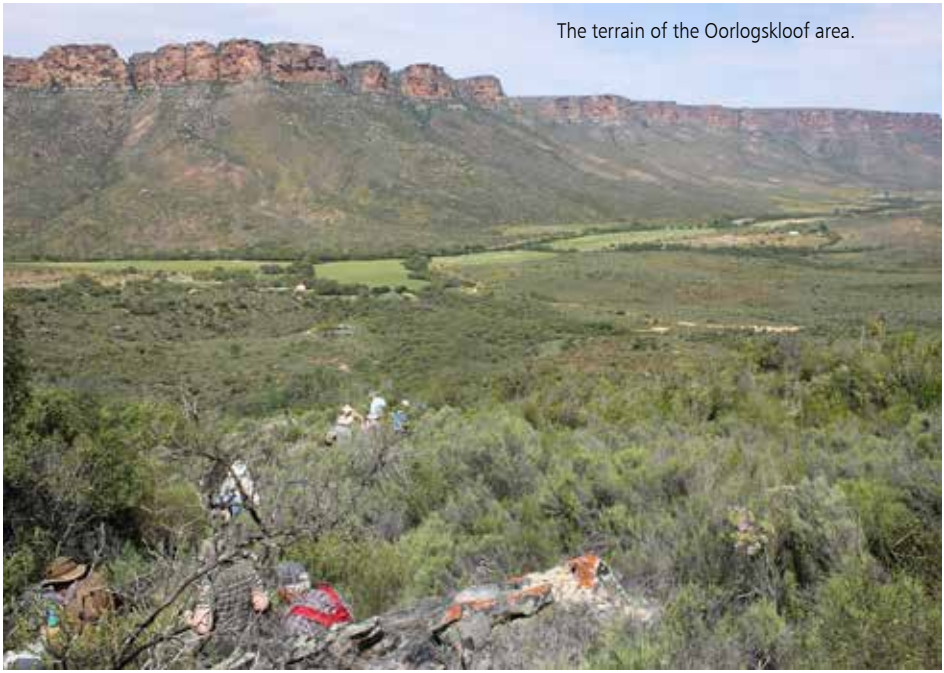
Inset Photo: Charl Coetzee finding out whether there is scent in the buds of the *C. mirabilis*.



Charl Coetzee taking a well-deserved break.

Andre Swart and Belinda du Rand resting next to some *C. mirabilis* plants.

We returned to Van Rhynsdorp after a two-hour journey. The dry conditions and remoteness of the habitat areas, makes one realise how vulnerable these plants are to the elements and potential poachers.



The terrain of the Oorlogskloof area.

The nursery of Willem van Zyl.

Our sincere thanks go to Andre Swart and Felix Middleton for organizing the tour and guiding the party to the habitat sites.

(Photos published with permission from Andre Swart.)

Steve Hickman on the left with Felix Middleton, the tour guide, on the right.

Willem van Zyl had prepared an outdoor barbecue for the lunch.

Observations with regards to *Clivia mirabilis* breeding

Felix Middleton

(Summary of the talk presented at the Clivia Society Conference 2023)

All *Clivia mirabilis* are spectacular, however not all *Clivia mirabilis* are genetically equal!

In nature the chance for a seed to survive and produce a flowering plant is less than 1 percent. This is often attributed to the adverse environmental conditions faced in their natural habitat. The survival rate may also be attributed to the genetic make-up of the individual seedlings. For example, less than 20% of *C. mirabilis* seedlings reach adulthood when cultivated in a greenhouse where more favourable conditions are provided. In a greenhouse many seedlings will grow to a 6-leaf stage, stop developing and then deteriorate over time. Variation in genetics among plants is also evident when comparing plants in nature. *C. mirabilis* is variable as a species, thus there is a great potential to create exceptional hybrids.

Legislation

The habitat of *Clivia mirabilis* is protected within nature reserves and by the farmers where the plants grow naturally. There is a large demand for *C. mirabilis* seed, seedlings and plants, especially in the oriental markets. The appeal of providing these plants to buyers, is the high prices received. The laws of the country are good on paper, however the effective enforcement is lacking. Creating hybrids with *C. mirabilis* is one way to provide adequate numbers of plants to be used for breeding programs. This will hopefully limit the threat to the *C. mirabilis* plants in nature.

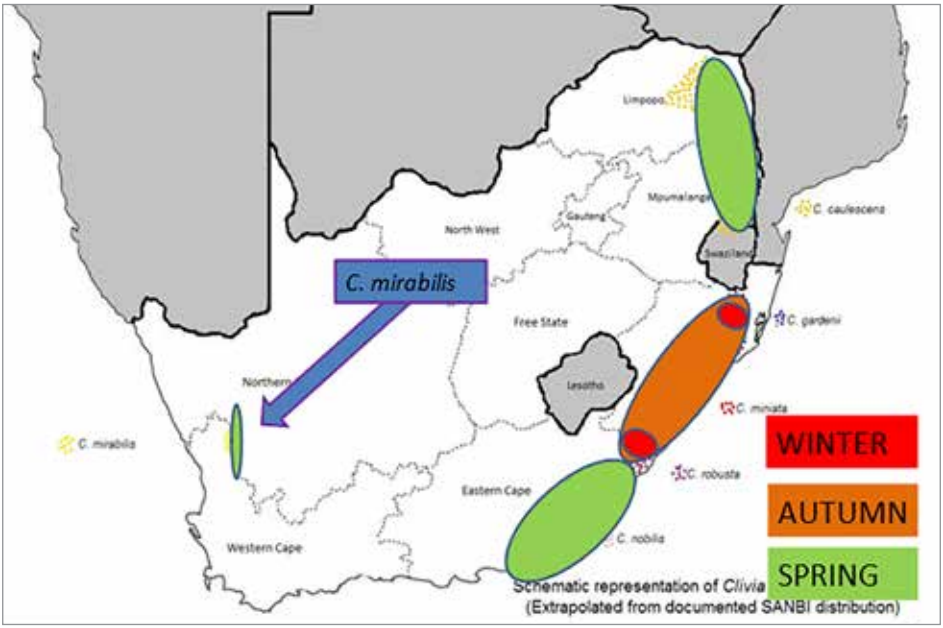
As the laws and legislation is not enforced,

Variation in *C. mirabilis* flowers.

and the penalties are not severe, plant poachers are currently removing plants of *C. nobilis* in large numbers and selling them for high prices abroad. The concern is that *C. mirabilis*, which may not legally be traded or bred, will prove a profitable target in the near future. The 'Green Scorpions' of the South African National Biodiversity Institute is aware of *the illegal trade in Clivia* plants and has certain people under observation. The problem with our legal system is that the fine imposed on the guilty parties, does not serve as a deterrent.

Examples of *C. mirabilis* flowers.

The legal standing at present is that if you wish to own a *C. mirabilis* plant, a permit is necessary. Hybrids carrying the *C. mirabilis* genes are considered to be part of the mirabilis genetic pool and a permit is needed to own them. Transportation of seed, seedlings, plants and pollen is illegal without permits. It is important to note that the permit that allows for the possession of a *C. mirabilis* plant, does not allow for transportation, further breeding, selling, gifting or destruction of the plant. There is no permit



Distribution and the flowering times of the pendulous *Clivia* species in South Africa.

Benefits of using *C. mirabilis* in breeding:

- Flower count
- Flower colour
- Long pedicels
- Roots = Adaptation?
- Plant form
- Leaf structure

Above are some of the reasons why you may wish to include C. mirabilis genes in your breeding program.

available at present for the breeding with *C. mirabilis* plants.

Breeding results when using *C. mirabilis* in the crosses:

The pollen of *C. mirabilis* does not keep well and should be used when it is as fresh as possible.

The use of *C. mirabilis* pollen on various species has had mixed results. Using the pollen of *C. mirabilis* on *C. caulescens* and C. nobilis has worked well. This success may be attributed to the timing of the crosses. *C. mirabilis* flowers from the end of October to mid-November. At this time some of the *C. nobilis* and *C. caulescens* are still in flower. Pollination may then take place with fresh pollen. The *C. miniata* flowering season ends before the *C. mirabilis* flowering time and thus *C. mirabilis* pollen will only be used during the next flowering season, some 9 months later. The original hybrids that were created after the discovery of *C. mirabilis* were *C. caulescens* crosses but there were also some crosses with the 'Florid White Lips' strain. Many of the 'Florid White Lips' plants flower out of season and often in December, when the *C. mirabilis* pollen is still fresh.

Pollen of the *C. mirabilis* plants on a *C. miniata* did not set well. Pollination of *C. gardenii* and *C. robusta* had mixed results. Furthermore, compatibility results varied, with successful seed-set on some and not on others. These variable results point to the fact that not all *C. mirabilis* are genetically equal.

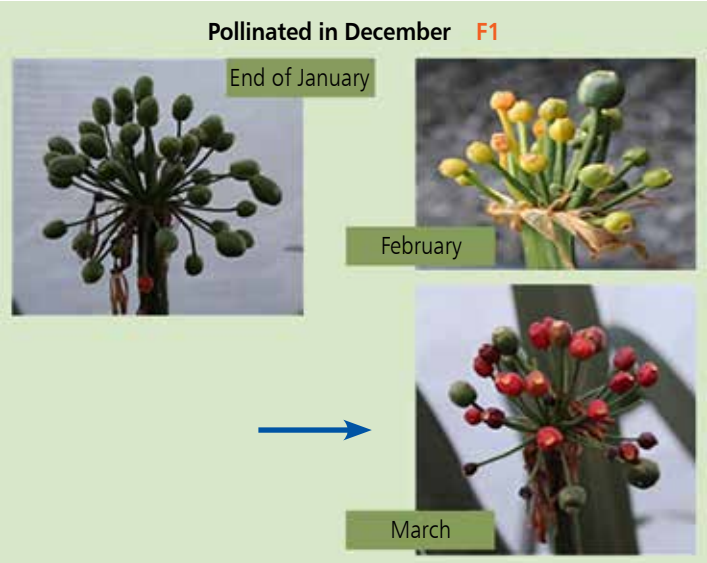
Incompatibility in crosses with *C. mirabilis*:

The pollination of *C. mirabilis* plants is not as successful or as predictable as the other *Clivia* species. After pollination, some of the following observations have been made:

1 The flowers and ovules often drop off the umbels after pollination.
2 Only one or two ovules start swelling, then

the peduncle dies.

3 The ovules abort after three weeks
4 Berries may ripen rapidly with spongy seeds in the berry.
5 Berry may ripen at the correct time, but the berries contain no seeds.
6 Seeds look healthy but fail to germinate
7 Abnormal roots or shoots may develop from a seed.

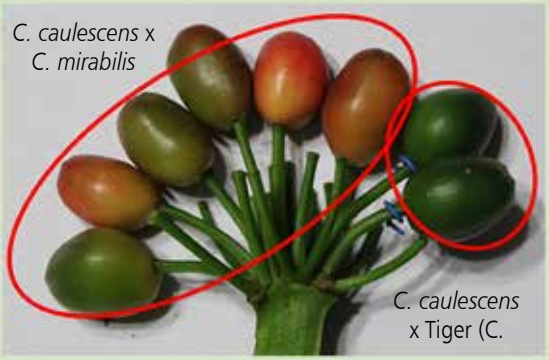


Progress of a possible successful pollination of *C. mirabilis*.

Typical hybrid seedlings

Seedlings grown from hybrid seed when *C. mirabilis* was used as the pollen parent differ from other *Clivia* hybrids. They are mostly dark stemmed with narrow/thin roots at first. The growth-point will develop about 10mm down the elongating root. This then gives the impression that the seed is attached to the seedling with a short stem. The seed shrivels as the seedling grows. The initial root that starts from the seed is thin and red in colour. However secondary roots growing from the base of the seedling are thick and spongy. The roots of the immature plants have more branches when compared to other *Clivia* hybrids.

May 2022: *C. mirabilis* crosses ripen first F1



Podparent = *C. caulescens*

Above is a successful seed set using a *C. caulescens* as the berry parent and *C mirabilis* as the pollen parent. On the right is the same *C. caulescens* berry parent crossed with a 'Tiger *miniata*' pollen. Notice how the pollination with the *C. mirabilis* pollen results in a more rapidly maturing berry on the left. The berries from crosses with *C. mirabilis*, although ripening faster than in other crosses, do not all ripen at the same time. This is also true for pure *C. mirabilis* in habitat.

Success: Typical F1 seedlings F1

- Left to right - changes with age
- Dark stemmed
- Thin root
- Leaf meristem develops 10mm down the elongating root
- Seed shrivels
- Thin brittle leaves at first
- Thick fleshy roots

Fi starts off with narrow leaves

Magoebas Giant *C. caulescens* x *C. mirabilis*

Crossed November 2015
Seed ripe May 2016
First flower September 2022

C. nobilis* x *C. mirabilis

Crosses with *C. miniata* types F1

FWL x *mirabilis*
(Pic courtesy G. Middlewick)

'Apoline' F1 x *mirabilis*
(Pic courtesy A. dWS)

Midlands *C. gardenii* x *C. mirabilis* F1

Ngome *C. gardenii* x *C. mirabilis* F1

'Hirao' x *C. mirabilis* (Pic FvR)

F1 result Broad leaf Orange *C. miniata* x *C. mirabilis*

Examples of an F1 cross from a *C. mirabilis* X *C. miniata*.

(*C. mirabilis* x *C. miniata*) x *C. miniata* BC

FWL x *C. mirabilis*
Pic courtesy G. Middlewick)
Ex J Winter Breeding

X "Good Yellow"

X Hirao

Pic courtesy S. Chubb)

(*C. mirabilis* x C. *miniata*) x C. *miniata* x C. *miniata* BC

Seedling Ex J Winter

Declared pedigree = (*C. mirabilis* x *C. miniata*) x *C. miniata*

Probably Incorrect and is a F2 cross: (*C. mirabilis* x *C. miniata*)

• Image of 'Mirrajohn'

Ex Brian Tarr
Seed Ex John Winter Breeding

Results of the first and second generation crosses between *C. mirabilis* and 'domesticated' *C. miniata*

The first generation interspecies cross, between a pendulous species – '*C. mirabilis*' and a 'open flower type' – *C. miniata*, produces semi-pendulous flowers with varying colour shades on the outside of the tepals. I prefer to use the term 'open flower type', as most of our 'domesticated' clivias have had a pendulous species as a parent somewhere in their past. This stage of a cross may be described as an F1 in breeding. The inside is either yellow or light orange. There are some flowers where the inside of the tube starts off with a light colour on the inside which then colours up as it matures. The colour is not predictable. The variation in the progeny of a single cross is surprisingly large. Other traits of a F1 where *C. mirabilis* has been crossed with a 'domesticated' clivia include long, thin pedicels and a high flower count. The above characteristics differ from the crosses of the other pendulous species and a 'domesticated' *C. miniata*', where the first generation has a typical intermediate flower form. The flower form may be described as tubular and semi-pendulous. This colour is usually monochromatic in colour.

A second generation cross may be made by the selfing of an F1 plant, a sibling crosses between different F1 plants or by backcrossing to a 'domesticated open flower' type – *C. miniata*. As a rule, a backcrossing to an 'open flower type' results in progeny showing very few, if any of the *C. mirabilis* traits. Many resemble an inferior *C. miniata*, as flower count is not as high in this generation and the colour can be described as monochrome. There are exceptions but they are few. The *C. mirabilis* traits seem to be eliminated during the process of back crossing. In some of the back cross results the *C. mirabilis* traits dominate and

remain apparent.

A selfing of a F1 produces better results. This selfing, named the F2 generation, still contains many of the *C. mirabilis* traits. They have an above average flower count, a spectrum of colours and a semi-pendulous flower shape as well as a thicker leaf. The shape is not only semi-pendulous but often has a flared opening.

Many of the superior looking plants, claimed to be the result of a back cross may in fact be a result of a selfing of the F1. I suspect that 'Mirrajohn' is such an example. The declared pedigree describes it as a backcross to a *C. miniata*. It should therefore possess more or less 3 parts *C. miniata* to one part *C. mirabilis.* The shape of the flower and surplus of *C. mirabilis* traits in the plant suggests that it is a result from a selfing of the F1 and not a true backcrossing to a *C. miniata*.

A sibling cross between different F1 inter-specific plants will have the same result as when selfing a single F1. The average contribution of the *C. mirabilis* will be 50%. The advantage of the sibling-crossing strategy is that more variation is created and different traits from the domesticated can be introduced into the mix.

Findings when using *C. mirabilis* as berry parent:

From of the 7 attempts of hybridisation where *C. mirabilis* was used as berry parent, only two formed seed. Seed abortion at an advanced stage of development was the main reason for the low success rate. In one of the early attempts, the flowers dropped off directly after pollination, an indication that emasculation may have an adverse effect. The best results were obtained when the plant was not emasculated. Seedset after selfing of a *C. mirabilis* plant is low. The chances of obtaining a selfed *C. mirabilis* where crosses were done without prior emasculation is negligible. Even if a seed develops from a selfing event, the seedling can be identified as it grows extremely slowly.

The first successful cross was performed in 2022. The seedlings from this cross have thick, dark blue leaves with many of the leaves displaying the clear median stripes. Unfortunately, these crosses grow slowly but not as slowly as a pure *C. mirabilis* seedlings. It will be interesting to see if the leaf characteristics are still there when the plants reach adulthood.

Objectives for future breeding with *C. mirabilis*:

1 Developing second generation crosses with good *C. miniata* plants.
2 Creating second generation hybrids with either sibling crosses or selfing hybrids.
3 Using *mirabilis* as the pod/berry parent. The idea is to transfer the leaf characteristics from *C. mirabilis* that are not carried by the nuclear genes. We may find that the cytoplasmic inherited traits from *C. mirabilis* can be used to better our domesticated *Clivia* gene pool.

Summary

1. The obstacles caused by legislation need to be addressed.
2. The outcome of crosses with *C. mirabilis* are unpredictable. This is attributed to the huge amount of genetic variation in the *C. mirabilis* parents.
3. The F1 flower generations seldom disappoint us.
4. When backcrossing to *C. miniata*, the flowers are often too open, flower count is lower and most of the flowers are monochrome and most of the preferred *C. mirabilis* characteristics are lost.
5. Selfing a *C. mirabilis* hybrid gives good results, but sibling-crosses will likely be better with more variation created.

The Resilience of *Clivia* plants

Dave Garriock

The thought of growing mature *Clivia* plants in water came about when Cape Town suffered one of the worst droughts in living memory in 2017. We do know that mature clivia seeds germinate when left in water. I was aware of the natural habitat of *C. robusta* growing in wet areas and some members had grown some plants in water previously.

With the water restrictions imposed by the Cape Town municipality, the thought of losing some or all of my plants was a possibility that I had to face.

In 2017, when the drought had no end in sight, we were limited to 50 litres per person, so virtually no water was available for my precious plants!

Previously I had considered a method of germinating seed that prevented drying out of the medium and avoided confusion when various crosses were planted in the same container.

I found that some of the seedlings grow into the rows of the adjacent seeds and regular checking is necessary to keep the seedlings separated.

My idea was isolate the seedlings in a community bag and to include a single cross of seeds in each bag. In each community bag, illulstrated below left, all seeds are of the same cross and a maximum of six seeds are planted in each bag. I allow them to grow in the bag in their sealed greenhouse environment until the leaves of the seedlings reach the top of the bag before transplanting the seedlings. The use of cellophane bags are ideal, they tear open easily and facilitate planting them in a 15cm community pot without damaging their roots. This method of planting saves a lot of time and effort. The substrate used here is the same as the substrate used in adult plants – 15cm composted bark material. Hydroponic nutrients are added to the substrate before adding the seeds. The seeds are spaced apart in the medium. The bags are then closed and stapled. No further watering is necessary.

Below is a bag of seedlings that has been sealed for 9 months. I inject a systemic insec-

Community Bag

Insecticide injected into a bag of seedlings.

ticide through the cellophane into the soil a month before the seedlings get planted into their community pot.

The Drought of 2017 in Cape Town

During this dry period, friends and generous neighbours would allow for my collection of water from their borehole supplies. I also noticed that if the bark-based substrate in the pots is dry, added water runs through it without wetting the substrate. In desperation, I decided to try something different to conserve water in the pots and that was when the idea formed of using plastic bags around the pots.

My routine is to use a potting medium of 15mm composted bark substrate. I use the same mix for germinating seeds and growing seedlings. Nutrition in the form of hydroponic mixes are fed to the plants and systemic insecticides are applied once a year. The temperatures in the Western Cape never fall to freezing point, so I have no idea what effect frozen water would have on the plants.

We are all fully aware of the requirements for germinating clivia seeds. Moisture is necessary and they need to be protected from the elements and kept separate from other germinating seedlings.

As the drought continued, many of my adult plants were looking unhealthy, Gideon van Zyl and myself, thinking about the success of the seedling germination in sealed bags, considered the option placing a plastic bag around the pots of the adult plants to conserve water. We are well aware of the usual successful method of growing clivias in a well- drained medium. We were concerned that root or crown rot may develop. I started an experiment with 50 of my adult plants. I used water saved from the bath, shower and the laundry. This water was passed through a brush filter and sieve to remove soap suds and other objects. This water was then poured into the pots that were covered in plastic bags. After an 18 month period the plants looked good, without any rotting being evident.

After this success, I was willing to take the chance with the rest of the plants. All the pot plants were placed in plastic bag. Each plant received 2 litres of water. The water initially ran through the dry substrate and accumulated in the plastic bags. The following day most of the water had been absorbed into the potting medium. After about a month, instead of having plants dying from dried out roots, they thrived. Gideon didn't like the bags on the outside of the pots, so he placed them between the pot and potting medium and drilled drainage holes halfway up the pot. This method worked for him and allowed him to sell the plant in the plastic bag and re-use the pot!

The use of a 70 micron width plastic bag proved to be the ideal thickness and did not tear or get damaged as easily as a thinner plastic bag. Several of my fellow growers also followed suit and placed their pots in plastic bag and none had any negative results.

Below is an example of a plant growing in water. Amazingly the roots are totally submerged, and a peduncle is pushed up through the water.

Bud of plant evident in a plastic bag filled with water.

A healthy clivia plant growing in a pot within a plastic bag.

Example of a plant roots that has been grown in a plastic bag for a year.

Above are photos of Leon Blom's plant that has been in a plastic bag for a year. The benefit of using the plastic bag is that the nutrients, water and insecticides are available for the plant and not lost to drainage. The plastic bags may be wrapped around the stem of the plant to limit water loss by evaporation.

Eventually the drought came to an end and the rain filled our dams. My method has provided me with suitable growing conditions for my plants. Less watering and insecticides are necessary, so I have kept my plants in plastic bags. The possibility of using solid pots with drainage holes made half-way up the pot, to ensure that there is a water source in each pot, is my next experiment.

PHOTOGRAPHIC COMPETITION 2023

INTRODUCTION

Glynn Middlewick

The Photographic competition this year provided photographs of a high standard. In the 'miniata' category the choice for the best entry was difficult to make. Many of the top awards were shared between Karel Stanz and Carrie Kruger – congratulations to them. Thank you to all the entrants for the time taken to photograph your prize plants. What the judges look for in a photograph, which helps them make the decision as to the points awarded, a trained photographer will know. Hopefully the subjectivity of judging is removed by using more than one judge! My hope is that all the entrants will again submit their photographs for the competition next year.

A Photographic entry into the '*miniata*' category – submitted by Gerhard Viljoen.

PHOTOGRAPHIC ENTRIES

ART CATEGORY

Art Category – First Place – Carrie Kruger

Art Category – Second Place – Karel Stanz

Art Category – Third Place – Charl Coetzee

Art Category – Fourth Place – Oosie Strydom

Art Category – Fifth Place – Carrie Kruger

Art Category – Sixth Place – Wanda Grunwald

Art Category – Seventh Place – Gerhard Viljoen

PHOTOGRAPHIC ENTRIES

INTERSPECIFIC CATEGORY

Interspecific Category – First Place – Carrie Kruger

Interspecific Category – Second Place – Carrie Kruger

Interspecific Category – Third Place – Carrie Kruger

Interspecific Category – Fourth Place – Chris Smit

Interspecific Category – Fifth Place – Carrie Kruger

Interspecific Category – Sixth Place – Chris Smit

PHOTOGRAPHIC ENTRIES

MINIATA CATEGORY

Miniata Category – First Place – Chris Smit

Miniata Category – Second Place – Carrie Kruger

Miniata Category – Third Place – Chris Smit

Miniata Category – Fourth Place – Chris Smit

Miniata Category – Fifth Place – Chris Smit

Miniata Category – Sixth Place – Chris Smit

Miniata Category – Seventh Place – Chris Smit

Miniata Category – Eighth Place – Chris Smit

PHOTOGRAPHIC ENTRIES

SPECIES CATEGORY

Species Category – First place – Chris Smit

Species Category – Second Place – Carrie Kruger

Species Category – Third Place – Carrie Kruger

Species Category – Fourth Place – Carrie Kruger

SINGLE FLOWER CATEGORY

Single Flowers Category – First Place – Carrie Kruger

Single Flowers Category – Second Place – Karel Stanz

Single Flowers Category – Third Place – Carrie Kruger

Single Flowers Category – Fourth Place – Carrie Kruger

Single Flowers Category – Fifth Place – Karel Stanz

Single Flowers – Sixth Place – Karel Stanz

Single Flowers – Seventh Place – Liz Boyd

RESULTS FROM NACS' THIRD ANNUAL VIRTUAL CLIVIA SHOW

By Malcolm R. Shrimplin, NACS Clivia Quarterly Publisher

Following the NACS Annual Members' Meeting on Sunday, April 30th, the Third Annual Virtual Clivia Show was held. It was prepared and hosted by NACS Director, Arnol Rios. A big thanks to Arnol, a first-time chair, for spending a considerable amount of time preparing to host this event! And, thanks to the many NACS members who submitted entries.

Unlike last year, because there were over 90 blooming entries in the show, the blooming finalists were chosen by a vote of the NACS membership and finalist blooming entry.

The entry with the most votes in the foliage category was a longitudinally variegated *C. miniata* entered by Marilyn Paskert. The pendulous entry with the most votes was a dark red interspecific entered by William McClelland. The winner in the blooming category was a multitepal entered by Michael Riska.

NACS – 'Virtual Show' – Blooming Category – First place – Mike Riska

NACS – 'Virtual Show' 2023 – Blooming category – Second place – Michael Riska

NACS – 'Virtual Show' – Blooming Category – Third place – Marilyn Paskert

NACS – 'Virtual Show' – Finalist in the Blooming Category – Michael Riska

NACS – 'Virtual Show' – Finalist in the Blooming Category – Norman Nakanishi

NACS – 'Virtual Show' – Pendulous Category – Winner – William McClelland

NACS 'Virtual Show' – Pendulous Category – Second Best – Wanda Grunwald

NACS –'Virtual Show' – Third place Pendulous Category – William McClelland

NACS 'Virtual Show' – Finalist in Pendulous Category – Mike Rummerfield

NACS 'Virtual Show' – Foliage Plants – Winner – Marilyn Paskert

NACS 'Virtual Show' – Foliage Category – Second Place – William McClelland

NACS 'Virtual Show' – Foliage Category – Third place – Marilyn Paskert

THE NORTH AMERICAN CLIVIA SOCIETY'S TWENTIETH ANNUAL SHOW AND SALE IN SOUTHERN CALIFORNIA

By Malcolm R. Shrimplin, 2023 Sherman Show Secretary

As part of a year-long celebration of NACS' Twentieth Anniversary, The Twentieth Annual Southern California Clivia Show and Sale returned to The Sherman Library & Gardens in Cornoa del Mar, California the weekend of March 18th and 19th after being held there in 2021. The event was co-sponsored by The Sherman and NACS' Southern California Clivia Club.

As has become customary, judging occurred on Saturday afternoon while the public was viewing entries at the show. There were 234 judged entries in the show this year. People's Choice voting continued at the show this year.

Sherman Garden Show – Best on Show and number 1 People's Choice Award – Marilyn Paskert

Sherman Garden Show – Second Best – People's Choice Award – Manuel Morales

Sherman Garden Show – Foliage plants – First place – Marilyn Paskert

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