CREW newsletter
Volume 14 • April 2018

National CREW overview

The pages of this newsletter highlight the work of the Custodians of Rare and Endangered Wildflowers (CREW) programme's citizen scientists during 2017. The depth of experience of our volunteers, many whom have been with the programme for over 10 years, and the long term commitment of the staff that manage this programme shows clearly in the excellent information being gathered and the ever increasing spin-off benefits that this programme is generating for South African plant conservation.

CREW continues to grow and we are very pleased to welcome the two new groups that have been initiated in the summer rainfall region (more about this in Suvarna's update Page 16).

Since its inception, CREW has been determined not only to monitor threatened plants' populations, but also to support the conservation of critical habitats for plant conservation. This is achieved in two ways; firstly by supporting the expansion of protected areas via provincial stewardship programmes and secondly by contributing highly accurate fine-scale data on the occurrence of threatened plants into land-use decision making

CREW, the Custodians of Rare and Endangered Wildflowers, is a programme that involves volunteers from the public in the monitoring and conservation of South Africa's threatened plants. CREW aims to capacitate a network of volunteers from a range of socio-economic backgrounds to monitor and conserve South Africa's threatened plant species. The programme links volunteers with their local conservation agencies and particularly with local land stewardship initiatives to ensure the conservation of key sites for threatened plant species. Funded jointly by the Botanical Society of South Africa and the South African National Biodiversity Institute, CREW is an integral part of the work on monitoring threatened species for South Africa.

Photograph: N.A. Helme

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processes. Throughout this newsletter you will find references to our citizen scientists' working on supporting protected area expansion with their work at stewardship sites. We are pleased with KwaZulu-Natal's involvement in stewardship work. Despite experiencing a lull for a few years, these collaborations are once again actively taking place and CREW is centrally involved in this new burst of activity.

With regards to providing support to land-use decision making, SANBI's Threatened Species Unit has been hard at work feeding data on the localities of threatened plants collected by CREW volunteers into a new online EIA Screening Tool that is being developed by the Department of Environmental Affairs (DEA). Distributions of 560 highly range restricted plant species, which have a global range of less than 10 km^2, have been mapped. The critical habitats where these species occur are submitted into the EIA screening tool as highly sensitive areas where no development should be permitted. We are working with DEA on how to establish/design the development protocols to ensure the highest levels of protection for these taxa. Also included as highly sensitive areas are all sites where populations of threatened plants occur. To ensure that these sites do actually house threatened species we are only identifying sites where they have been recorded post 2002. Were it not for the ongoing and consistent efforts to monitor threatened plants by CREW's citizen scientists we would have very little recent confirmed presence data for threatened plants to use in this tool. CREW has thus provided invaluable information to support decision making in the country.

Given that the programme is now in its 15th year of implementation we feel that it is time to stop and reflect on what we have achieved and identify new ways in which we can expand and grow our CREW network and expand our impact on plant conservation. SANBI and BotSoc are currently in the process of contracting an independent consultant to undertake a review of the CREW programme. Our criteria in searching for an appropriate consultant include sound botanical knowledge and skills; a comprehensive understanding of social process; and ability to evaluate our work in developing capacity for plant conservation. Many of you will be contacted by the consultant over the next three months to share your experiences with CREW.

Suvarna, the manager of our CREW summer rainfall region, is taking steps to help us learn from other citizen projects through her recent attendance of the Citizen Science Conference in Australia and through her joining the Citizen Science Global Partnership. We are also sharing our lessons directly with other countries undertaking threatened plant conservation. Work is underway to support a handful of African countries to conduct Red List assessments and in-field monitoring of threatened plants. I was fortunate to conduct a work sabbatical in Colombia last year where I trained up a group of botanists and helped them start a Colombian Plant Conservation Specialist Group. This coming year I will visit Indonesia to help initiate their work on red listing and plant monitoring. Wherever I go, I speak of the CREW programme and promote our model. Let us hope that one day programmes similar to this will be implemented in other countries, and possess the magic ingredient that we have, of citizens who are passionate about their plants! I would therefore like to thank you all for your passion and on-going commitment that makes this CREW programme possible. As we move into a year of reflection and growth we look forward to taking you all along with us on this journey.

DOMITILLA RAIMONDO

SANBI's Threatened Species Unit Manager

Photograph: N.A. Helme

CREW CFR Node update 2018

ISMAIL EBRAHIM

I ended off my 2017 report by saying that we have to get fit to hit the mountains. Well I really enjoyed getting back to the mountain areas and my absolute favourite trip of the year was to climb Matroosberg, which is the highest peak in the SW Cape. I will expand more on this field trip later in the article.

Our year started off with lots of fieldwork in the Karoo. Our first trip of the year was to the eastern part of the Karoo where we sampled eight pentads from Graaff-Reinet across to Queenstown and down to the Fish River. The eastern part of the Karoo is definitely my favourite as it has a range of habitats and interesting ecotones between vegetation types. Not typically Karoo-like, there is elements of Grassland and Succulent Thicket that makes things a bit more interesting. The BioGaps fieldwork is quite different to the usual CREW data we collect and one of the main components of the fieldwork is to record all the species that occur in a 1 × 1 km^2 area. This means collecting an enormous amount of specimens, which kept us busy till quite late at night. Luckily we had our trusted CREW volunteers helping with the collecting and sampling and this meant that there was continuity, and after a few trips we had worked out the perfect system to get the specimens organised and pressed in the quickest time possible. The greatest challenge of this project was the relentless drought experienced in the Central and Western Karoo. The extreme dry conditions made it difficult to sample the sites, but it also doesn't allow us to properly determine the diversity present at the sites. We hoped to receive rain in these areas in February and March so we could revisit some of the sites after it had received some rain. One of our highlights is that we have found a new *Bulbine* species in the Bedford area.

One of the most exciting projects we worked on last year was refining the Critical Habitat Species list and doing the detailed mapping for each species. At the end of 2016 I extracted all the potential species that fit the criteria of being in one locality or occurring in an area of less than 10 km^2. We identified 930 potential species that fit the criteria. Our Red List Plant Scientist, Lize von Staden, then developed a project for us to refine the species data and map their distributions a. The 930 species were divided amongst the whole team and we went through the data for each species and mapped where they occur. Lize then amalgamated all our information and developed a map of the Critical Habitat Species. This forms part of our implementation of Target 5 of the National Plant Conservation Strategy, the conservation of important areas for plant conservation. In addition to doing the mapping we have also been engaging with our conservation partners to ensure that these species are adequately conserved.

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We are working with SANBI gardens to implement Target 8 of the strategy, which deals with ex situ con-

The team after sampling pentads in the Karoo.

The breath-taking *Ixia pumilio*.

servation of threatened plants. For more information on work with the SANBI's botanical gardens refer to Fezile's article on page 12.

We are gaining amazing traction on interacting with students at universities. Last year we introduced the National Strategy for Plant Conservation into our lecture series and this was a great opportunity to create awareness about the strategy and also sparked some interesting discussions on plant conservation. We did lectures at the Stellenbosch University, University of the Western Cape and Cape Peninsula University of Technology. In 2018 we will be introducing a new series of lectures on restoration and indigenous plant propagation in collaboration with our colleagues from the SANBI gardens.

Our main focus for field trips last year was targeting the Critical Habitat Species. We managed to visit 11 critical habitat sites last year. On the one hand we are in awe of the number of highly restricted species we have in the fynbos region, but we are also concerned that so many species are hanging on in these tiny distribution ranges – a large proportion of which face many threats. Below are some of the most exciting finds for the year.

Our first major discovery for the year was in Malmesbury where we rediscovered *Hesperantha sufflava* (CR), a species thought to have gone extinct during the development at the Malmesbury Showgrounds.

In August we set off to Worcester in search of the illusive *Ixia pumilio* (CR). This species was seen a few years ago by botanist Bruce Bayers, and since then the Worcester CREW volunteers have been going back to the site to look for it without success. In 2016 we also had a failed attempt to relocate the species, but last year we struck it lucky. We were fortunate to see the population in full bloom and saw over 200 plants.

Aspalathus compacta, new record found.

CREW volunteers preparing to summit Matroosberg.

We had great success with the genus *Ixia* in 2017. In September we went to the Barrydale area to search for two Critical Habitat Species, namely *Ixia leipoldtii* (CR) and *Ixia gloriosa* (CR). This was one my favourite days for the year because we found both our target species.

We always take advantage of Prof. Charlie Stirton's annual migration to South Africa and this year he came bearing good news. In 2011 we collected a *Psoralea* in Elands Bay and after recollecting material this year, Charlie confirmed that it is a new species and he will describe and publish it. We have also inherited Brian du Preez ('The Boy') from the Outramps and with his absolute infatuation with the Fabaceae family we had conducted a number of Fabaceae-focused field trips. Brian helped with identifications and we benefitted from his sharp eyes for detecting yellow flowering bushes in the field. One of most successful trips was to the Koue Bokkeveld where we are supporting the Stewardship Programme to sample farms that will be included as protected areas. Our major find was *Aspalathus compacta* (CR), which was thought to be extinct, but was rediscovered at Gydo Pass. At this stage we thought our population was now the second population and a nice range extension for the species. On closer inspection of the specimens we found that the specimen marked as *A. compacta* from Gydo Pass was actually a different species and this meant that our collection is now the only confirmed record of this species.

By far my favourite field trip for the year was our mission to the Matroosberg. This is the highest peak in the SW Cape and there are many special endemic species occurring on that mountain. I was nervous about making it to the top, but many thanks to all the volunteers that made the walk very interesting and easy, because we were enjoying botanising along the way so much we did not even notice the distance covered. We found a number of our target species and my favourite was seeing *Esterhuysenia alpina* (Rare) because it is named in honour of one of the icons of South African botany, the champion of high mountains and rare species, Elsie Esterhuysen.

We had a great year of sampling and botanising, but we must also recognise some of the challenges we faced last year. In particular I want to mention that a few of our volunteers have been experiencing quite serious health conditions. We want to extend our best wishes and prayers to those members of our CREW family who are going through difficult times and we wishing you a speedy recovery.

Opening a new chapter: Animal Redlisting

DEWIDINE VAN DER COLFF

The State of the World's Plants report of 2017 (https://stateoftheworldsplants.com/) has shown that while we are making progress in conserving our plant species, there is still much to be discovered, identified, assessed and protected. In my new role as animal redlist scientist my time working on plants are limited, hence I try to grab any possible opportunity to contribute to the botanical work of the Threatened Species Programme (TSP).

In 2017, I visited Kew Royal Botanical Gardens during the State of the World's Plants Conference, where I attended a meeting hosted by Spatial Planning for Protected Areas in Response to Climate Change (SPARC) (https://www.conservation.org/gef/projects/Pages/SPARC.aspx). This project aims to provide targeted regions with assessments and data needed to improve planning, design and management of terrestrial protected areas for climate change resilience. I took part by presenting on South African data that can contribute to the assessments and planning exercise. The data included CREW collected data, from our volunteers, which are recent, accurate records that can assist in their analysis. Further we discussed plant traits that can be used to best predict responses to climate change (See Chapter 7 in the State of the World Plants 2017). This was a wonderful exchange of knowledge and an opportunity to network with the lead scientists in plant traits and their use in climate change research. SANBI is currently collaborating with the SPARC project under the leadership of Dr Wendy Foden and Prof. Guy Midgley and I'm very happy to be able to work with these two leaders in the field.

In tune with staying connected to my love for botany, I joined Maria Fernanda Gonzalez Giraldo (Mafe) in Colombia. Some of our the CREW volunteers met her

While Colombia is the second most diverse country in the world, there is still much to be done in the environmental sector, especially support from government and cooperation between the different institutions.

in 2015 when she visited South Africa in a bid to learn more about the CREW project, with the aim of implementing it in Colombia. During my time there, I attended and presented at the International Congress for Conservation Biology (ICCB). My talk was focussed on the CREW project and how valuable citizen scientists are in a megadiverse country. I also assisted in a Red List training workshop for the Colombian botanists, as they are very eager to assess all of their flora, which is a mammoth task as currently they have at least 40 000 plant species described, and are still discovering new species. Even though they are still learning how to assess their flora using the IUCN method, Colombia makes use of the latest technologies to make biodiversity data presentation a work of art. The entire visit to Colombia was aimed at a knowledge exchange between SANBI scientists and the Humboldt Institute. Apart from the Redlist training that Domitilla Raimondo conducted, we also had further workshops on how our relationship can be taken forward.

Columbian scientist looking at orchids.

During my time in Colombia, I had the privilege to explore a habitat called Páramo (alpine tundra ecosystem) – high altitude tropical montane vegetation above the continuous treeline. The veld can become misty any time of the day and most areas are higher than 3 000 m.a.s.l. The most charismatic Asteraceae I have ever seen is *Espeletia* species, these are com-

The high altitude tundra systems.

The standing monks, *Espeletia* species.

monly known as 'frailejones' meaning the standing monks, and are diagnostic of the Páramo. Ericaceae abounded, in different shape and sizes, and the bromeliads were extraordinary; Colombia being one of the hotspots for this group. We also entered forest patches, where orchid researchers were locating new populations of species. Here I was exposed to the difficulty in collecting data in these very diverse areas, if you think Renosterveld in spring is overwhelming, try looking up a tree and seeing more than 10 different orchid species staring right back at you (that's if you can even spot them), and that is not even including the bromeliads and other epiphytes struggling for a spot in the sun. While Colombia is the second most diverse country in the world, there is still much to be done in the environmental sector, especially support from government and cooperation between the different institutions. These are the difficulties that Colombia needs to overcome to protect and conserve its biodiversity, and SANBI and the South African government may serve as an example.

Fascinating orchids.

Peninsula CREW

GIGI LAIDLER

For me 2017 proved to be another year of juggling CREW and Karoo BioGaps balls and of finding enough time for tracking the Peninsula targets versus dealing with Karoo BioGaps challenges. Apart from making contact with farmers and supporting BioGaps researchers, an additional aspect of BioGaps support was introduced for speeding up data gathering for the plants taxon group, when we undertook to do BioGaps Bioblitzes in the 20 non-essential pentads. In essence these Bioblitzes involved a team of three people doing two transects in each pentad to photograph all species that could be identified from images. We managed to get to 12 of the non-essential pentads and uploaded in the region of 6 000 observations between all of us who went on these excursions. All our observations were posted to iSpot, which proved to be a very challenging process because of the issues that iSpot was having at the time.

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For Peninsula CREW, the quest continued in search of some of our 'lost plants', so in February a couple of us went to Cape Point to explore the Gifkommetjie area which was recently burnt, in search of *Erepsia promontorii* (CRPE), but which sadly remains an elusive rarity.

In April we did have success with finding the fire cape bell – *Wahlenbergia pyrophila* (CR), which is another modest little plant that had last been recorded in the 1950s and was found close to the Kleinplaas Dam in the Red Hill area.

A return field trip to the slopes of Lion's Head in August also yielded success and we were a little surprised, but delighted to find that the sticky little scroph, *Polycarena silenoides* (CR) had once again put in an appearance after we had failed to find it during several visits to the same area in 2016. A survey indicated that the population seemed to cover most of the same area and in similar numbers as we had found them in 2015, despite the very dry conditions being experienced.

Another exciting find during this trip was *Tetraria graminifolia* (VU), which was last recorded from the Lion's Head area in the 1940s. A healthy population of this showy Peninsula Mountain Sedge was found and later revisited with a UCT PostDoc student, Tammy Elliott, to collect DNA samples, as the genus *Tetraria* is

undergoing a much needed taxonomic revision.

In September, after some intensive Karoo BioGaps work, I once again focussed on a 'lost plant' closer to home, when we searched for *Microdon nitidus* (Rare), also last recorded in the 1950s with rather vague locality descriptions of 'near a waterfall on Devil's Mountain' and simply 'Skeleton Gorge'. We were unsuccessful, but after finding a specimen in the herbarium collected by Elsie Esterhuysen with a reasonable locality description, I look forward to another trip up Skeleton Gorge later this year, with a much better idea of where to hunt.

Close-up *Wahlenbergia pyrophila* hairy ovary.

We ended 2017 with an iNaturalist workshop, and another Cape Point field trip with Randall and Fezile to search for *E. promontorii*.

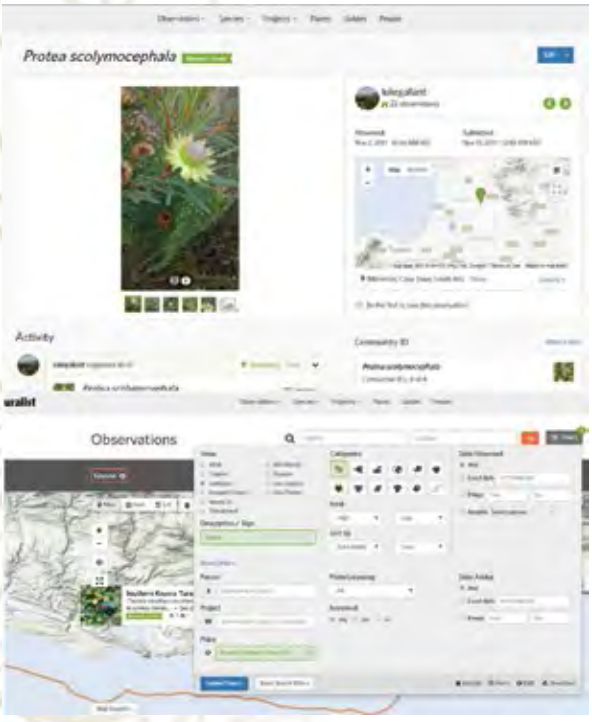
In search of *Tetraria graminifolia.*

iNaturalist the new choice of virtual museum

LUKE GALLANT

iNaturalist home page and basic instructions.

Adding observations and using the filters.



One of the great features of iNat is that you can bulk-upload your observations, where you can either drag and drop the observations or upload them from a folder; you can also do batch edits with great ease.

iNaturalist (iNat) was originally conceptualised by a group of students as their final Masters' project at the UC Berkeley's School of Information in 2008. The site then continued to expand with the contribution of various collaborators and by 2014; the California Academy of Sciences began to serve as the host of iNaturalist, resulting in the world-renowned virtual museum that it is at present.

iNat is ultimately a social platform where regular people are encouraged to step outside and engage with the natural world and record all the variety of life that they come across, ranging from floral, faunal, fungal species and even signs of activity like spoors and nests. These organisms are then recorded using photographic data, which is then synced with its location and the time of day it was observed, and is then posted onto the site. The observation is then made available to the rest of the iNaturalist community around the world to help identify and discuss the species using the recorded data. To aid with narrowing down the identification, additional information can be added to the observation to create a clearer picture about the organism's ecology, such as the habitat type, flowering time, descriptive tags and interactions with other organisms (like pollinators and parasites).

One of the great features of iNat is that you can bulk-upload your observations, where you can either drag and drop the observations or upload them from a folder; you can also do batch edits with great ease. When loading your observations, you have the option of providing your species identification; iNat then suggests similar species that can be selected according to your pictures. Also when exploring through the ample observations posted on iNat, you can filter your search in a number of ways by narrow-

ing it down to a taxonomic level, a specific locality or date, or the research grade of the species.

iNaturalist also features some great functionality to develop projects, ID guides and to create checklists for places regularly visited. The site has strong social aspects too with functions to add journal posts, follow and interact with fellow observers. iNaturalist also has a mobile app available so you can easily add observations anywhere, anytime.

iNatualist's sole mission is to rebuild the connection humans have to the natural world and to create a functional community of people that share the same appreciation for the other inhabitants on this planet. All you need to do is join in on this exciting venture by signing up with the iNaturalist community (www.inaturalist.org/home) by creating a profile that summarises who you are and what your interests are, and then you're ready to get posting those observations you spotted on your leisurely or not so leisurely walk in nature.

Demographic Monitoring project

RANDALL JOSEPHS

The monitoring of threatened species is outlined by the second outcome of Target 3 of the South African Strategy for Plant Conservation. In addition, the Custodians of Rare and Endangered Wildflowers (CREW) initiated demographic monitoring projects where detailed data (height, diameter etc.) of the threatened species is recorded.

The monitoring initiative aims to achieve an in-depth understanding of the population dynamics of the species and to inform effective conservation efforts through the following four objectives: (i) increasing the information on a large number of indigenous and threatened species; (ii) understanding the impact of both biotic and abiotic threats; (iii) predicting the future population viability of the species; and (iv) to capacitate the citizen scientists to engage with the environment.

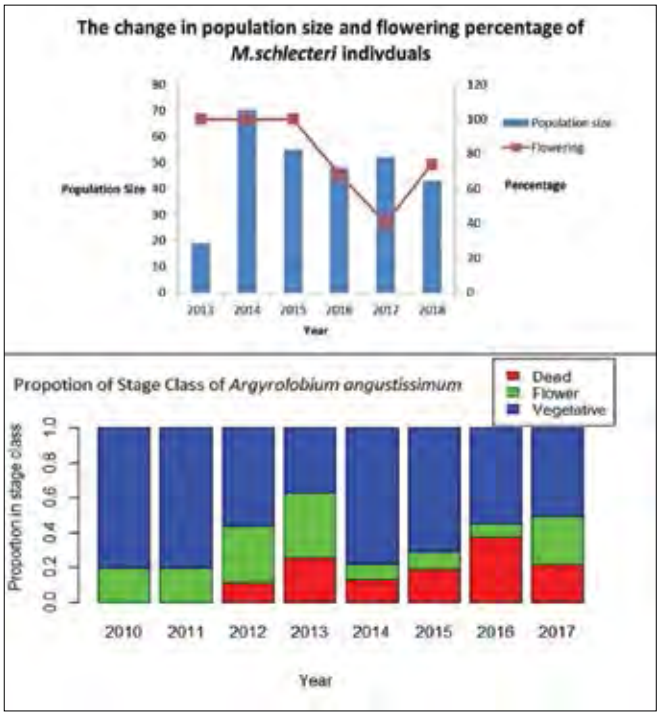
Of the many threatened species monitoring projects that CREW has initiated, my focus was to access and analyse the data that was previously collected for the Critically Endangered *Metalasia schlechteri* (Asteraceae), known only from a single subpopulation and the Endangered *Argyrolobium angustissimum* (Fabaceae), which was previously thought to be extinct before being relocated by the CREW volunteers. These two species will serve as case studies that will be used to assess the monitoring protocol for current and future monitoring projects.

The monitoring methods were designed for the conservation of the species, as well as to engage the enthusiastic citizen scientists.

The preliminary results (Figure 1 & 2) indicate that the population sizes of *M. schlechteri* and *A. angustissimum* have remained relatively stable throughout the monitoring period. The flowering percentage of both species experiences expected fluctuations, which are thought to be as a result of prevailing environmental conditions.

Although this is not demographic monitoring in the true sense because we have not monitored the different life stages of the plant, the data we have collected has been great to provide insight into the life history, phenology and ecology of the species. The data will

Graphs showing population trends for *Metalasia schlecteri* and *Argyrolobium angustissimum* (Please note the graphs are presented differently because the datasets are different).



be used to guide conservation officials managing the sites to provide input into fire management, restoration plans and general reserve management.

The demographic monitoring of rare and threatened species is a very challenging initiative that has numerous pitfalls at every turn. However, working with the volunteers and learning from the issues that arise, the monitoring process has the potential to be a valuable tool in the continued fight for the conservation of our biodiversity.

It has been an amazing experience working on the demographic monitoring project. I've learned so much and met the most passionate people along the way. I am grateful to the greater CREW team for providing me with the opportunity to be a part of the monitoring team. In the future I hope to stay involved in the monitoring of the threatened species as well as the analysis of the data.

Argyrolobium angustissimum in flower at the Paarl Mountain Nature Reserve.

Thinking ahead:

making sure that we have an insurance policy for our threatened plant species

FEZILE MATHENJWA

In the face of rapid loss of natural habitats, the conservation of indigenous threatened plant species have been a dominant subject in policy forums, including the Convention on Biological Diversity (CBD).

The discourse on the need for intensified efforts to conserve threatened plant species led to the development of the Global Strategy for Plant Conservation and subsequently South Africa as signatories to the CBD-developed South Africa's Strategy for Plant Conservation (SASPC). The SASPC is a target-orientated policy document which objective is to guide conservation work in South Africa. In the past year one of my key roles was to facilitate the implementation of Target 8 of the SASPC. This target seeks to ensure the conservation of 'at least 60% of threatened plants in ex situ collections, preferably in the country of origin, and available for recovery (restoration) programmes, with 2% in active reintroduction programmes' by 2020.

At the onset of this project, the South African National Biodiversity Institute (SANBI)'s ten National Botanical Gardens (NBGs) were identified as key institutions at SANBI that will enable effective conservation of our threatened flora. This was due to the NBGs' long history of keeping resources, including records relating to their horticultural and systematic research. In the past the NBGs have, however, focused their collections research on issues relating to plant-based medicines, nutrition, ornamental value and trade. This meant that there was a need for the NBGs to collaborate with the Threatened Species Programme (TSP) and the Custodians of Rare and Endangered Wildflowers Programme (CREW) to address information gaps on threatened species and to ensure that accurate and up-to-date data is used for ex situ conservation. It was also apparent that concerted action to collate species data from the NBGs, TSP and CREW as well as the Millennium Seed Bank (MSB) project was required, and I was therefore tasked with the duty of collating all this information. My first task was to map the locations of all the NBGs, all threat-

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ened species and critical habitat species using the TSP spatial layer. This task was aimed at ensuring that each NBG is allocated with a list of species that are in its closest proximity, accessible and within the capacity of each garden.

Once I had completed collating a list for each of the gardens my next task was to conduct workshops with each of the NBGs together with the Millennium Seed Bank programme to prioritise species and ultimately select a list of threatened species that each garden needs to collect to ensure that 60% of our flora is in ex situ conservation by 2020. Furthermore, the idea behind these prioritisation workshops is for each garden to then adopt one or two threatened species for reintroduction programmes. Our work in engaging with gardens indicated potential opportunities and challenges for the gardens to implement this target. These challenges include insufficient financial and human capacity and the lack information on propagation techniques of the most of threatened plants.

Working with the Kwelera National Botanical Garden staff to prioritise species.

Reintroductions in particular are resource intensive and require careful consideration of impacts on the area in which plants are reintroduced. Given this, we approached some experts in the field to collaborate with us to form a steering committee that will assist us in facilitating these reintroduction programmes to ensure that negative impacts on natural habitats are reduced and chances of success in reintroduction projects are improved. Working on this project has afforded me with a rare opportunity of working and learning from a wide range of experts in SANBI, Government agencies and Non-Governmental Organisation across the country. I will be forever grateful for their contribution to my development at SANBI.

Two years of implementing CREW in the Eastern Cape: what the year 2017 had in store for our node

VATHISWA ZIKISHE

I believe that collectives of people can be inspired to achieve more than they could individually, no person is an island after all! Building a great network of people to promote plant conservation has been our focus in 2017. Lesson-sharing combined with dedicated coaching has helped a great deal in achieving the goals I have set for our node.

The official change of leadership in the CREW summer-rainfall region has yielded significant results for the Eastern Cape node such that 2017 has been a successful year filled with productive collaborations and capacity development.

Partnering with provincial conservation agencies

Partnership with the Eastern Cape Parks and Tourism Agency (ECPTA) is growing from strength to strength and through the contacts made via ECPTA, we are now focusing on collaborating with other conservation agencies. Last year we piloted a project that aims at training rangers to collect and press plant specimens, followed by us facilitating practical field techniques. They showed much enthusiasm and welcomed the new challenges with open arms. We are excited to share that the project is progressing well and we have arranged for the specimens collected to

Rangers pressing specimens.

Rangers learning the use of hand-lenses.

Our node is the smallest nationally, but has made significant contributions to SANBI's Human Capital Development objectives by introducing students into the conservation sector and by securing short contracts to develop their skills.

be added to the Compton Herbarium's collection; ensuring it will be contributing towards filling the specimen collection gap in areas of the Eastern Cape

Capacity building

Our node is the smallest nationally, but has made significant contributions to SANBI's Human Capital Development objectives by introducing students into the conservation sector and by securing short contracts to develop their skills.

Project assistant Someleze Mgcuwa's employment with SANBI began with the Karoo Biogaps project; thereafter we employed Adriaan Grobler as a Research Assistant during the 2016/2017 field season. Having little funding available we were able to offer a 1-year internship position. Given the small skillset in the Eastern Cape, both employees served a short time with us before taking up jobs within the sector. Although this was a short period, I feel that this was a nice introduction to their newly fledged careers and their experience with us has played a role in exposing them to the working environment.

Lachenalia convallarioides in bud.

Lachenalia convallarioides in flower.

Highlights of the field season

Planning for the 2017/2018 field season took a different stance from previous years' planning – instead of targeting sites we targeted highly threatened species occurring in critical habitats as well as species which were last collected some years ago. Our first find of the year, *Lachenalia convallarioides* (CR) is an example of a priority species occurring in a critical habitat. This species is confined in a small geographic area near Grahamstown and was last recorded in 1995 with a smaller population than in 2017. This increase is good news for the conservation of this highly threatened species and we shall continue to regularly monitor the population and suggest interventions should it be necessary. Another exciting find was that of *Tulbaghia cominsii,* listed as Critically Endangered, Possibly Extinct**,** near King William's Town. This species was featured in CREW's *Plants in Peril* book, published in celebration of the Botanical Society's centenary in 2013, to showcase CREW's efforts to conserve special species. The interventions implemented to protect the *T. cominsii* population from being destroyed by the 2010 N2 expansion project paid off. We managed to find a rehabilitated section where a few plants remained. Having decided to search for more plants on the dolerite outcrops, we were amazed to see masses of *Tulbaghia* in flower. Although the N2 expansion project has been finalised and more plants have been located, the threats to this species remain high, particularly because of grazing and human activities.

In closing…

I would like to urge each one of you to continue showing appreciation for our rich floral heritage and supporting the CREW Eastern Cape Node's endeavours, either by joining one of our trips; making suggestions on areas to explore in our friendly province or even ways in which we can improve and grow our CREW node. Remember, biodiversity is for all!

Tulbaghia cominsii, lilac form.

Tulbaghia cominsii flowers and fruit.

An update from the **CREW summer-rainfall node**

SUVARNA PARBHOO

2017 has been marvellous for the CREW summer-rainfall node – intensified fieldtrips, fascinating species and successful new groups and collaborations. I also had the opportunity of presenting the CREW programme at the recently held Australian Citizen Science Conference in Adelaide, which I have highlighted further down.

The summer-rainfall region planned 74 fieldtrips across KZN, Mpumalanga, Gauteng and Limpopo provinces for the period Aug 2017 to February 2018, of which 62% has been successfully completed. Many of the gap areas identified in the province were covered by the CREW KZN node during these field trips. Renira, WWF/CREW KZN intern, has discussed us breaking new ground at Ithala Game Reserve (Page 20) while Hlengiwe, CREW Coordinator, provides an update to the Maputaland project (Page 19).

In response to botanical interest in the Griqualand East region, part of the Pondoland Centre of Endemism, we decided to host a bioblitz at the Mount Currie Nature Reserve in Kokstad. We were delighted to have received interest from the Eastern Cape provincial department as well as NGOs working in this region. The enthusiastic participants are passionate about their under-sampled watershed area and have taken the initiative of establishing the Umzimvubu group. We are pleased to welcome this group to the CREW family.

Radio interview with South Australia's 'The Wire' (photo: Michelle Neil).

The global community is recognising that, as Anne Bowser (2017) aptly mentions, 'Professional science alone cannot provide information at the scales and resolutions necessary to understand environmental change.

The KZN Biodiversity Stewardship Programme has breathed fresh inspiration over the past year with productive working group meetings. Several non-government organisations have partnered with the provincial authority, Ezemvelo KZN Wildlife, to ensure the progress of biodiversity stewardship in the province. Regular meetings have led to the CREW programme forming new partnerships and being introduced to new stewardship sites. We have collaborated with the Endangered Wildlife Trust (EWT) and conducted botanical surveys for two sites; one of which has sparked interest for a new CREW group to be formed in the Newcastle area. The town is surrounded with several biodiversity rich sites, which we hope to systematically sample in the upcoming years and form part of the greater Battlefields region of the KZN province. The Durban, Wakkerstroom and Plant Specialist CREW groups have also been involved in surveying Biodiversity Stewardship sites as discussed in their articles on pages 29, 31, 35 respectively.

In response to plant conservation being a scarce skill, the CREW programme has formulated the CREW Human Capital Development (HCD) project. Over the years, this project has been moulded into an information session for 2nd or 3rd year Botany, Environmental Science, Horticulture and Nature Conservation students at higher education institutions. The summer-rainfall node has since expanded this project from KZN to Gauteng and Limpopo institutions.

The CitSciOz18 fieldtrip to Mounty Lofty (photo: Michelle Neil)'

Over the past year, the summer-rainfall node has facilitated courses ranging from grass and sedge species identification, identifying genera within the Asteraceae family, iSpot, plant pressing, as well as knowledge on edible plants. We are grateful to the universities that provided the venue and resources for some of these courses at no cost.

Presenting a paper and participating in an international conference was surreal. This memorable experience has several highlights of which I share a few:

The over 250 delegates and 125 talks and posters around the conference themes of social research, engaging citizens, education, communication, empowering with data, field projects, partnerships, and showcasing outcomes were awe-inspiring, despite being a severe info-overload!

One of the three pre-conference workshops was based on engaging with and involving millennials ('young people') with citizen science. We concluded that millennials view themselves as global citizens, feel strongly about some issues, are confident with technology, and are politically and environmentally concerned. It is important to understanding what millennials think and what they want the world to look like to be able to engage and use their skills to fast forward citizen science initiatives.

The Australian DigiVol project, a similar concept to our Transcribe project (Page 56), has the same challenges as we do in that for every batch of volunteers recruited; only a handful enjoy contributing to the project. It certainly does take a certain personality to do this time-consuming, yet much necessary, work.

The field trip to the Mount Lofty Summit was an opportunity to engage with the South Australian–based citizen science projects – monitoring an ecosystem over time, orchid watch, bats, lichens and fungi.

The State Herbarium of South Australia, housing plants, algae, fungi and lichens, is located in the historic Tram Barn within the Adelaide Botanic Gardens.

The Three Sisters rock formations and lush rainforest at the Blue Mountains World Heritage Area, New South Wales.

Preparations underway at Sydney's Royal Botanical Garden's Southern African display. A range of cycad species on display – *Stangeria eriopus*, *Encephalartos ferox*, *E. eugene-maraisii* – as well as *Boophone disticha* and *Clivia miniata* in the forefront.

Almost all of the citizen science projects presented has its own App (or linked to the Atlas of Living Australia) with interactive taxonomic key/field guides, guided photography, a collection of habitat and location. Postgraduate research makes use of this collected data to explore biodiversity and environmental change. Moreover, gamification is becoming more popular to engage existing citizen scientists as well as attracting new contributors. The successful EyeWire project whereby gamers are assisting in mapping the brain was demonstrated.

Whilst in Australia, I had the opportunity of visiting the State Herbarium of South Australia in Adelaide, South Australia Millennium Seedbank team, Kuranda tropical rainforest, New South Wales' Blue Mountains, National Herbarium of New South Wales, and the Royal Botanical Gardens in Sydney.

Upon my return, I had joined a webinar (an online seminar), with representatives from 95 countries, discussing the Citizen Science Global Partnership that was announced at the 3rd United Nations Environment Assembly. The Partnership's goal is to understand and track the contributions of citizen science to the Sustainable Development Goals. Being at a global level, they aim to coordinate, network, engage with and support the global citizen science community by working with established citizen science associations (American, European and Australian) as well as emerging networks (Asian and African associations). The commitment adopted by the Global Citizen Science Delegation is to have 1 billion people participating in citizen science globally by 2020.

The global community is recognising that, as Anne Bowser (2017) aptly mentions, 'Professional science alone cannot provide information at the scales and resolutions necessary to understand environmental change. The dominant culture of science rarely accounts for different ways of knowing, and often fails to engage the public. Citizen science emphasizes collaborative intelligence and co-creation to facilitate scientific and community-based solutions. But fully realizing the transformative potential of citizen science requires coordination, partnership, and mobilization across geographies, sectors, and scientific research domains.' Increasingly, projects are looking toward Citizen Scientists and we are proud of all our CREW citizen scientists for their efforts in conserving South Africa's plant species, dedicatedly since 2003.

The Maputaland endemics mission continues

HLENGIWE MTSHALI

Despite not finding many of the Maputaland target species, I have had yet another incredible year searching for and collecting specimens of local endemics in other gap areas.

Maputaland field visits are my favourite by far as searching for plant species that haven't been seen for several years certainly ignites my passion for plants.

This year we had targeted uMkhuze Game Reserve and Hlatikulu Forest Reserve as both have not been botanically surveyed in recent years. We undertook an energising week-long trip in November with the team consisting of representatives from three universities (University of the Witwatersrand, University of Johannesburg and University of KwaZulu-Natal), members from CREW Pondoland group and the Ezemvelo KZN Wildlife authorities. The first half of the trip we concentrated on botanising the eastern slopes of the Lebombo Mountain, which lie along the uMkhuze reserve's western boundary. Our team surveyed the biodiverse grasslands inside the reserve, the sand forest and the Fig Forest Trail. Disappointingly, only a few of our targeted plant species of conservation concern were observed, including the Endangered *Mondia whitei*, and Near Threatened *Combretum mkuzense* and *Elaeodendron transvaalense*.

The second half of the week was focussed on the under-explored Hlatikulu Forest Reserve, which we have declared as our new Maputaland playground. This reserve, situated on the ridge of the Lebombo mountain range, provided a diversity of forest trees and shrubs. Our determination to record as many species as we could produced a plant list of more than 100 of mostly Maputaland endemic species, including the Data Deficient *Streptocarpus confusus* subsp. *lebomboensis*.

Streptocarpus confusus subsp. *lebomboensis.*

Mondia whitei, not in flower.

Mozambican Red List delegation (photo: B. Simeon).

To my delight, my work with Maputaland endemic species led to me receiving an invitation from the Chair of the Southern African Plant Specialist Group (SAPSG), to participate in the Red Listing workshop in Mozambique. This worthy collaboration between South Africa and Mozambique has been ongoing for over three years, with the initial partnership blossoming in 2015. The workshop participants (including members of the Kew Royal Botanic Gardens, International Union for Conservation of Nature (IUCN), South African National Biodiversity Institute (SANBI) and the National Herbarium of Mozambique) were tasked with assessing the conservation status of species from different regions of Mozambique, of which Maputaland is included. The dedicated team accomplished about one hundred species assessments and are anticipating to increase this number at the next workshop. I am grateful to have been part of the network and I extend a special thank you to Kew Gardens for partially funding this trip.

Despite not finding many of the Maputaland target species, I have had yet another incredible year searching for and collecting specimens of local endemics in other gap areas. I look forward to exciting explorations and new collaborations in the upcoming year.

Living a **conservationist's dream**

RENIRA BOODHRAJ

As a child, I spent a lot of my time reading about the natural wonders of the world, watching nature conservation documentaries and going on outdoor explorations; through this I was taught the significance of biodiversity and why we have a responsibility to the conservation of our wildlife. Working for the World Wide Fund for Nature (WWF) and the South African National Biodiversity Institute (SANBI) was always a huge dream, but for me this dream materialised when SANBI's CREW-KZN team awarded me the opportunity to be a part of the WWF Environmental Leaders Programme. Having the opportunity to work in this sector, as a Conservation Scientist intern, and contributing to the protection of South Africa's incredible biodiversity is an absolute honour.

Surveying grasslands in Ixopo with the Pondoland CREW team.

My internship began in July 2017 where my team and I began hastily planning and preparing for the forthcoming field season. Since then we have journeyed through several of KZN's biodiversity-rich regions; finding interesting and special plant species, encountering many magnificent animals and ending off the days watching the most picturesque sunsets. Our fieldtrips thus far for me can be very simply described as a conservation version of The Amazing Race – fast paced, action packed, thrilling surprises, 'U-turns', 'roadblocks', but *always* a reward at the end of the day.

One of my most memorable trips was to the Ithala Game Reserve and the Ngotshe Mountains in January 2018. Ithala Game Reserve was nothing less than extraordinary – the scenic views, the magnificent diversity of plants and the majestic fauna were unforgettable. This expedition began at the Ngotshe Mountains where we trekked through the grassland making many interesting finds; thereafter we hiked our way further up to the mountain peak. This spectacular view overlooked the game reserve, and it was during these moments that my team (Hlengiwe Mtshali & Kaveesha Naicker) and I noticed a very small, peculiar-looking, pink flower peeking through a clump of grass. Upon further investigation we identified this plant to be the *Schizochilus gerrardii*, one of the threatened orchid species on our target list. This marvellous find spiked our energy levels and we con-

Mountain climbing in Mangangeni, KZN (photos: S. Parbhoo & J. Lagesse).

tinued our day surveying the rest of the site. We spent our other days within the reserve with the assistance of the reserve ecologist Mr Rickert van der Westhuizen, who guided us to many of the recently burnt grasslands. Another one of our exciting finds was the giant crassula (*Crassula acinaciformis*) towering to about one metre tall. This marvel was outstandingly secluded on a steep bank along the southern regions of the reserve.

Our surveys within the reserve were quite enjoyable, but at times did become a bit stressful – being supervised by herds of elegant wildebeest, curious buck and roaming zebra can be quite a pressurised environment to work in, however, their presence was absolutely energising.

The last few months have been eventful. Championing and attending field trips, planning CREW-KZN group meetings, data capturing, processing specimens, attending conferences, workshops, trainings and implementing our WWF Outreach assignment was quite a handful at times, but knowing that collectively, these tasks contributed to something bigger… to the conservation of our biodiversity, has been absolutely gratifying.

The endangered *Schizochilus gerrardii* found at Ithala Game Reserve (photo: H.Mtshali).

Trek through the 'Place of Water'

MAHLATSE MOGALE

It's been two exhilarating years since I have been seconded to the Department of Limpopo Economic Development, Environment and Tourism (LEDET). I am grateful for this opportunity provided by the Botanical Society.

The CREW Limpopo Branch aspire to expand our network across the province by building bonds with environmental agencies and members of the various communities who share our botanical interest. Over the past year, we have made much headway in this regard:

Though iSpot has been replaced by iNaturalist, we were grateful for the programme custodian, Tony Rebelo, to have travelled up north to kindle new interest in documenting our biodiversity. Through this course we managed to attract a few new volunteers.

Together with my mentor, I had presented the CREW HCD project to University of Limpopo and University of Venda students. This was very well received with the University of Venda students requesting to start their own group.

Like on any other field trip, plants were not the only natural entities to be enjoyed – there were also a few sightings of animals, birds and reptiles.

In trying to play-catch-up on the national Biodiversity Stewardship Programme, LEDET is partnering with environmental agencies to secure the 'low-hanging fruit' into conservation. This provided an opportunity for the CREW Limpopo Branch to engage with the Endangered Wildlife (EWT) and the Kruger to Canyon (K2C) and survey new sites within the Soutpansberg and Mopani District.

Also, we are in the midst of organising an exciting culinary exploration of Limpopo Province's edible plant smorgasbord, which is to be facilitated by Ernst van Jaarsveld.

2017 has attracted new collaborations for fieldwork and this article shall focus on just one of several

Lekgalameetse Nature Reserve delegation. Back row, left to right: Marula Rasethe, Delia Oosthuizen, Kevin Balkwill, Renee Reddy, Anton Cillier, Marianne McKenzie, and Donald Mccallum. Front row, left to right: Mahlatse Mogale, Barbra Turpin and Sylvi Fulla.

trips. The delegation from the University of the Witwatersrand hosted a six day expedition to the Lekgalameetse Nature Reserve, in celebration of their C.E. Moss Herbarium's 100th anniversary. The area chosen is known to have been visited by Prof. C.E. Moss and Reverend F.A. Rogers in November 1917. The two plant enthusiasts explored a variety of terrains, which included 'The Downs' that currently falls within the boundaries of the reserve.

The Vulnerable *Brachystelma minor* (photo: Barbara Turpin).

The last trek of our six-day expedition at Lekgalameetse Nature Reserve.

We were fortunate for this expedition to be at the Lekgalameetse Nature Reserve as it is one of the 27 priority nature reserves managed by LEDET. The 1 800 ha reserve is roughly 140 km east of Polokwane and about 80 km north of Tzaneen The reserve's name, *Lekgalameetse*, is a *Sepedi* vernacular name which translates to 'the place of water'. As the name suggests, the Lekgalameetse serves as a source of water for the majority of the rivers in the Lowveld and flows all year round. The reserve's beautiful waterfalls and pools produces crystal clear water regularly used by the surrounding community besides being believed to have spiritual affinity.

The expedition focussed on surveying plant species of conservation concern in addition to collecting fresh plant material of the Critically Rare *Thorncroftia media* which was once in cultivation. Although *T. media* yield a null record we found several interesting species, including *Brachystelma minor* (VU), which is known only from three locations, *Rapanea melanophloeos*, which is a well-known medicinal tree, *Syncolostemon rugosifolius* (Rare), *Clivia caulescens* (NT) and *Dioscorea sylvatica* (VU). Like on any other field trip, plants were not the only natural entities to be enjoyed – there were also a few sightings of animals, birds and reptiles.

The CREW Limpopo Branch are thankful to the delegation of plant experts under the leadership of Prof. Kevin Balkwill and to the Plant Specialist Group (PSG) representatives who joined us.

Group leader, Prof. Kevin Balkwill studying *Clivia caulescens* (NT).

The Limpopo CREW Branch is looking forward to the exciting projects and fieldtrips planned for the upcoming year, as well as further botanical infiltration across the province.

CREW Limpopo Branch Feedback

BRONWYN EGAN

An iSpot workshop enjoyably presented by Tony Rebelo at the Polokwane Nature Reserve injected some lively interest in CREW Limpopo in July 2017. Although SANBI has moved away from iSpot, the course was a powerful magnet for Limpopo plant enthusiasts.

We have therefore been able to expand our network and have generated promises to visit various members' remote farms in the Waterberg and the Soutpansberg. This experience prompted us to organise another workshop for 2018. The Edible Plant Workshop held in March 2018, has already enabled us to make links with several new plant experts in Phalaborwa, Louis Trichardt and Hoedspruit.

The Wolkberg continues to draw our attention with its unexplored horizons and potential for finding specials that haven't been seen in decades.

Willem van der Merwe led a fascinating trip to Polo-kwane's Ster Park in September, targeting the *Euphorbia clivicola* (CR) population on this urban *koppie*. After some years of motivation to the Polokwane Municipality and the Limpopo provincial conservation agency, LEDET, this area is in the process of being proclaimed as a nature reserve. With a sigh of relief, the CREW Limpopo Branch can now turn our energies to

CREW Limpopo and LEDET surveying Orabeni Nature Reserve application for de-proclamation

surveying other vulnerable areas for plant species of conservation concern that will be useful in motivating for further protected areas.

CREW Team assisting Limpopo student search for *Euphorbia clivicola.*

On this note it was with trepidation that we heard that a protected area outside Burgersfort, Sekhukhune is in danger of de-proclamation. This private farm has a beautifully preserved section of Sekhukune Plains Bushveld, and is under review in preparation for being turned over to citrus farming. Visiting the area in February 2018 revealed the Vulnerable *Ceropegia distincta* subsp *distincta,* and interesting although listed as Least Concern species, *Ceropegia nilotica, Eulophia leachii* and *E. petersii* These species were on adjacent government land in the vicinity of a school, but there is a chance that they also occur on the area designated for farming. Further searches are necessary to ascertain that they definitely do not occur on the farmland. Various un-identified bulbs as well as a good population of probable *Dioscorea sylvatica* (VU) (these were not flowering), were found on the vulnerable protected area. It is thanks to a citizen scientist that the *Ceropegia* and *Eulophia* species were spotted and this highlights the vital importance of spreading the CREW word.

This has also shifted our perception of which areas to concentrate on. In previous years we targeted remote under-sampled areas of Limpopo, however, we realise that there are a number of places that are susceptible to development and we would like to target these areas first. The Makgeng area is a case in point – located between Polokwane and Haenertsburg, this area of previously pristine Mamabolo Mountain Bushveld with its iconic *Aloe marlothii* and *Euphorbia ingens* keystone species is being cleared for informal housing and subsistence farming. Furthermore, in this area a number of years ago, a small unidentified *Euphorbia* species resembling something between *Euphorbia clivicola* and *E. schinzii* was noted during an EIA process to widen the R71. Preliminary genetic studies highlighted some differences between these three species. There is thus potential that this *Euphorbia* is something new, however, it could disappear with the encroaching homesteads before it is even certain what it is. An unknown species deserves no special protection until it has a name and information on its population and distribution and hence the habitat in which it is found is being slowly eroded before our eyes. With this in mind, a University of Limpopo Botany honours student will be looking at morphometric data of the plant in

collaboration with LEDET staff to determine whether more in-depth taxonomic studies would be useful.

The CREW Limpopo Branch had two exceptional trips to the Makgabeng and Blouberg. The Makgabeng highlight was climbing to the remote *Streptocarpus makabengensis* Hilliard (VU) population located high on a sandstone rock formation. A number of people with expertise in identifying trees joined the Blouberg expedition and we collected specimens of *Warburgia salutaris* (EN), *Dioscorea sylvatica* (VU), *Rapanea melanophloeos*, *Curtisia dentata* (NT) and *Adenia gummifera* amongst others.

The Wolkberg continues to draw our attention with its unexplored horizons and potential for finding specials that haven't been seen in decades. This remote area requires backpacking into the wilderness area and therefore our CREW group are getting to know the area fairly slowly. In December 2017 Lutendo Mudzielwana and Mahlatse Mogale hiked into the Serala area from the LEDET campsite. A storm that had been brewing the week chose this field trip to erupt, but at least some specials had been located before the two were forced to retreat.

With Mahlatse Mogale well-established as the CREW Limpopo Co-ordinator, he plans to enlist the help of previous interns from the University of Limpopo's Larry Leach Herbarium. This will allow for exponential growth in the mapping of species of conservation concern within our province.

From dream to reality: Edible Plant Workshop

GIFT MUTILENI, UNIVERSITY OF LIMPOPO

On the 9th of March 2018 a group of plant enthusiasts gathered at the JDM Keet Plantation, Tzaneen, for two days of hands-on learning about edible plants with Ernst Van Jaarsveld and Anton Cilliers.

This workshop was once Anton Cilliers' dream: to share his edible plant knowledge with fellow nature enthusiasts through talks, walks and wonderful recipes and tastes. It was due to this long-held passion, much practical and theoretical learning and then his eventual collaboration with organisations such as the CREW Limpopo branch, BotSoc Limpopo branch, SAFCOL and the University of Limpopo that his dream came true. Participants had an opportunity not just to familiarise themselves with various edible plants species (which is a typical plant workshop theme), but to pick those edible plants from the veld, cook and eat them while discussing other matters of interest with new and old friends. Interaction with nature on this level makes one truly appreciate nature for the gift it gives us daily. In the words of Anthon Cilliers: 'Preparing edible plants is tiresome, but there is something beautiful about working very hard for your food…'.

Participants had an opportunity not just to familiarise themselves with various edible plants species (which is a typical plant workshop theme), but to pick those edible plants from he veld, cook and eat them

Attendees familiarising themselves with the various South African edible wild fruits.

Personally, it is difficult for me to choose which part of the workshop was the highlight. I enjoyed every activity, thinking about it now, it sounds a bit of a cliché, but I definitely enjoyed the snack table, which consisted of various wild nuts, fruits, indigenous teas and seeds. Snacking on wild food made me reflect back to when my family was staying at ka-Homu village

Preparing edible spinach (marog). From left: Francois van der Merwe, Sarel Spies, Lorna Hamman and Jane Ferreira (photo: B. Egan).

Sclerocarya birrea (marula): dried fruit ready for cracking to release the nuts inside (photo: B. Egan).

(Giyani). As kids we use to go to the veld and sample various edible fruits, which was a practical way of learning but fun as well. Now I am older and no longer staying at the village, which means I no longer have that privilege of interacting with nature on such an intimate level. So, this workshop was a walk in a memory lane for me and made me realise the importance of preserving and sharing indigenous knowledge. Of course, we are no longer in that era where we are obliged to know how to survive in the wild, but this knowledge is part of our origin and culture, which is part of our identity. Indigenous knowledge subconsciously pushes us to respect and appreciate the environment.

News from the **Gauteng CREW group**

MICHELLE PRETORIUS

Two of our group's highlights for our 2017 programme were the respective outings searching for *Argyrolobium megarrhizum* (NT) near Zusterstroom in April and exploring the plant life of the species-rich Schurveberg Mountains near Pretoria in September. The group enjoyed both these outings so much, that we plan to return to nearby sites in 2018.

Prior to our outing to Zusterstroom, very little information about *A. megarrhizum* was found in popular literature and we mostly referred to herbarium records, as well as historical localities and habitat descriptions to target potential assessment sites. We were very excited, after much searching, to find the species growing next to one of the dirt roads. We then treated ourselves to lunch at a nearby tea garden next to the Wilge River upon completing the plant counts. Members of the group returned to the area during the peak flowering season in October and discovered several additional localities, and were also happy to record *Searsia gracillima,* a species mostly confined to Gauteng, from this area.

Andrew Hankey briefing the group at Walter Sisulu National Botanical Garden.

At the Schurveberg assessment site we counted and mapped all three of our target species; namely *Drimia sanguinea* (NT), *Melolobium subspicatum* (VU) and the diminutive tassel orchid *Holothrix randii* (NT), just in time to observe the last flowers before the start of the rainy season. This site also delivered a wealth of other grassland species, which were identified and discussed at length amongst our group members.

Another outing to be remembered, was our August field trip to survey *Aloe peglerae* Schönland (CR), *Adromischus umbraticola* subsp. *umbraticola* (NT) and *Anacampseros decapitata* (VU) in the Magaliesberg near the town of Hekpoort. Here we surveyed a reasonably sized *A. peglerae* population. This range-restricted species is confined to the Magaliesberg and Witwatersberg in the Gauteng and North West provinces and is under severe threat from collection through horticultural trade. As always, the magnificent Magaliesberg never disappoints and we were privileged to view Cape Vultures circling overhead while undertaking the population counts.

As always, the magnificent Magaliesberg never disappoints and we were privileged to view Cape Vultures circling overhead while undertaking the population counts.

During May we visited the ridges around Walter Sisulu National Botanical Garden in search of *Cineraria austrotransvaalensis* (NT). We unfortunately could not locate the species, but enjoyed the beautiful surroundings (and coffee at Eagle's Fare restaurant) nonetheless.

In October we visited the Suikerbosrand Nature Reserve, where we successfully recorded a suspected locality of *Dioscorea sylvatica* (VU), and as always, kept an eye out for the ever-evasive *Holothrix micrantha*, which is currently considered to be extinct. We re-

Melolobium subspicatum (VU).

Aloe peglerae (CR) in the Magaliesberg.

turned to the Heidelberg area in December to search for *Cineraria longipes* (VU). During both these outings we also discovered several healthy *Bowiea volubilis* (VU) populations within areas where they are expected to remain relatively protected.

The Gauteng CREW group is currently entering its fourth year and it is safe to say that we have found our feet, we have an established group of regular attendees and we enjoy outings on a regular basis, exploring what the province has to offer within its various green open spaces and protected natural areas. We are also proud to have so many respected professional and amateur botanists and other knowledgeable, nature-loving people in our group. One of the great privileges of being part of CREW is to be able to share knowledge and learn from one another, the opportunity to connect with like-minded individuals and to make exciting plant discoveries together.

Exploring the Magaliesberg.

Venturing into unexplored territories with the **Mpumalanga Plant Specialist Group**

DELIA OOSTHUIZEN

The Plant Specialist Group's current strategy is to focus more on areas of botanical interest that may harbour several threatened species than to target specific taxa. This approach has proved to be successful and has resulted in the discovery of new species and range extensions for threatened and data deficient ones. We also record the flora for landowners on our botanical excursions to create awareness about the plant species in their areas.

In March we spent an overnight camping trip at the Blyde River Nature Reserve to try and find *Scabiosa transvaalensis* and other narrow endemics occurring on the reserve. We were treated to a wonderful walk through Op-de-Berg Forest, along an old logging trail, and exciting botanising among the quartzite boulders near the summit. Some of the specials included *Crocosmia mathewsiana* (VU), *Watsonia strubeniae, Streptocarpus wilmsii, Helichrysum mariepscopicum, Eumorphia davyi* and *Plectranthus rubropunctatus*.

The higher and somewhat drier dolomites on the Abel Erasmus Pass area were visited in April where we were hoping to catch *Gladiolus macneilii* (CR) in flower. We were a bit late and found only a few specimens in fruit. Some of the highlights included *Aloe fouriei* (DDT), *Berkheya pauciflora, Ozoroa* sp. nov., *Dicliptera fruticosa* (NT) and an undescribed *Cyrtanthus* species.

Exploration commenced again in October and a proposed new dam site as well as the newly declared Mount Morgan Nature Reserve bordering the Cythna Letty Nature Reserve were surveyed.

Exploration commenced again in October and a proposed new dam site as well as the newly declared Mount Morgan Nature Reserve bordering the Cythna Letty Nature Reserve were surveyed. Cythna Letty is a floristic reserve located on, among others, serpentine soils, which has given rise to several endemic and rare species. PSG assisted SAPPI, the landowner of Mount Morgan Nature Reserve, with the expansion of their plant species list and also noted the localities of species such as the local endemics *Eulophia chlorantha* (VU) and *Brachystelma dyeri* (VU).

Callilepis normae (Rare).

November took us to the quartzite grasslands around Kaapsehoop as well as a nearby sinkhole forest, which comprises mature forest tree species. The latter grow within the sinkhole, which has a diameter of ± 50 m. We found *Ledebouria galpinii* (EN), *Plectranthus rubropunctatus* and *Syncolostemon incanus* (EN) in the grasslands, while the forest yielded a large *Ocotea kenyensis* (VU).

To end of the year we visited the greater Woodbush area close to Tzaneen. The aim of the weekend was to start building a species list for an area that falls inside the boundaries of a new proposed biodiversity stewardship reserve. The area comprises a wide range of ecotones from high lying grasslands to bushveld. We came across local endemics such as *Aloe lettyae* (EN) and *Khadia media* (VU).

We visited the highest point in the old Transvaal, which is the summit of the Steenkampsberg. This was our first trip of the year and was well attended. Some of the highlights include a new *Wurmbea* species, *Graderia linearifolia* (VU), *Watsonia bella, Khadia alticola* (Rare), *Brachystelma stellatum* (Rare), *Disa alticola* (VU), *Disa maculomarronina* (NT), *Cyphia* cf. *belfastica* (DDT), *Anagallis huttonii* (unusual aquatic), *Eucomis vandermerwei* (VU) and *Syncolostemon albiflorus*.

Our latest outing, in February, was to Finsbury on the high-lying grasslands and kloofs of Long Tom Pass. The few who came enjoyed the botanising and the scenery was spectacular. This is a water-rich area with gin-clear perennial streams and waterfalls. Some of the highlights include *Callilepis normae* (Rare), *Eucomis montana, Pelargonium acraeum, Lobelia vanreenensis* and *Nemesia albiflora*.

Leucospermum gerrardii (NT).

News from **Wakkerstroom**

JENNY MAXTED

Wakkerstroom CREW was very fortunate to be invited by the CREW KZN node, in August last year, to help search for the Critically Endangered *Aloe reitzii* var. *vernalis* in the Vryheid/Louwsberg Mountains. It was very exciting to see the aloes growing on a very steep cliff above the river. We had a very informative day, and Livhuwani Nkuna, a representative from the Millennium Seed Bank Project, was a mine of information! We are hoping that he will visit soon and collect seed in our area – an excuse mainly to teach us more!

Like most of the country, Wakkerstroom's rains held off, and off! There were no flowers out and some of the farmers burnt areas twice. In November we were hit with late frosts, and the grasslands really suffered, but finally our rainy season started late in December. The flash floods of over 200 mm in a day, brought us some fantastic flowers along the roadsides. There were masses of *Cyrtanthus breviflorus*, and different *Dierama* species everywhere. Our field trip up the Amajuba Mountain, in search of the *Holothrix majubensis* (only known from this locality) was unfortunately washed out and the mountain closed. Despite the appalling weather, the determined Durban ladies undertook the scary drive before having to turn back.

Newcastle was a new destination for us, where we were joined by the CREW KZN team at the Normandien Farms, home of Thirsti bottled water. Portions of this site is undergoing the Biodiversity Stewardship process, under the leadership of the Endangered Wildlife Trust, hence their representative Bradley Gibbons had joined the trip. The forested area was beautiful with large overhanging sandstone rocks. On this trip we found *Lotononis amajubica* and *Disa stachiodes*. This fieldtrip led to discussions around starting up a CREW group in the Newcastle and surrounds. We are really hoping to rope in other folk interested in botany in the KZN Battlefields so that this group can assist in surveying this region.

2018 began with another invite from the CREW KZN node as they set off to the breathtaking Ithala Game Reserve. It is always such a pleasure to catch up with them, and they teach us about so many of the flowers that we have never seen. Here we found *Schizochilus gerrardii* (Endangered)...well I wouldn't have guessed it was an orchid at first glance! So yet another unforgettable experience for us. And of course Mike enjoyed the birding...Red-billed Oxpeckers on black rhino!!!

Our revisiting of all the vlei areas where the Vulnerable Nerine platypetala *have been seen before, gave us assurance that the populations are making a comeback.*

Returning from Ithala we were equipped to set out in search of orchids and now that we can recognise them, it seems that we are noticing fields-full of them next to the roads, such as disas, harbenarias, satyri-

Ronelle with the handsome *Aloe reitzii* var. *vernalis* (CR).

ums and my old favourite *Pterygodium magnum*. Our revisiting of all the vlei areas where the Vulnerable *Nerine platypetala* have been seen before, gave us assurance that the populations are making a comeback.

We also sent off our pressed specimens to Buffelskloof Herbarium, and it was very rewarding when we got results back from Barbara in a short space of time! They are very patient with us and always full of encouragement! We shall persevere to continue collecting specimens from the mostly under-sampled areas that we visit.

Outside of our CREW work, after hearing about the Walter Sisulu National Botanical Gardens at previous CREW workshops, we made our first visit and was surprised to find such a gem in the middle of the city's bustle and noise. It is certainly worth more visits when we are travelling through the province!

We look forward to more adventures in discovering wildflowers around the birding town of Wakkerstroom and by saying this, would like to encourage everyone to visit and share knowledge with our amateur, yet passionate group.

CREW at Normandien farm.

Schizochilus gerrardii seen at Ithala Game Reserve.

A few lucky finds for the **Underberg CREW**

JULIE BRABY

We have had a very quiet field season in Underberg as having surveyed most of our lower altitude species of concern we are focusing on the high altitude species. However, our high altitude hiker, Ansell Matcher has been recovering from surgery and now that he is back on his feet, our very short field season is over!

Spring was great with some lovely rains and we found two colonies of the range-restricted, high-altitude habitat specialist, *Cyrtanthus falcatus*. Listed as Rare on the Red List, the plants are found securely anchored between rock slabs on erect cliffs, overhanging downwards or lying in a horizontal position. The first find was on private land and unfortunately is under threat by silver wattle. Our second find was extremely lucky as a CREW member was on holiday at Loteni Nature Reserve and came across a colony of at least 500 plants. We are so fortunate that these are in a protected area.

Another accidental find this season was *Schizoglossum bidens* subsp. *hirtum* (EN) – only known from a few records and was last collected in 1980 before the Midlands CREW recorded a previously unknown subpopulation in Boston. Thus far, this site was the only known locality until our find, which was really a lucky sighting as the plants are obscure, despite us surveying a recently burnt grassland in good condition on the private property we were visiting to photograph orchids.

We continue to monitor a grassland on The Bushmans new road on a monthly basis and are always rewarded with grassland jewels.

Although our data submissions were low this field season, we will be picking up on the trips we planned but didn't get to, as well as look at new sites we can survey in the next field season.

Admiring *Cyrtanthus falcatus* growing on the cliffs.

The beautiful *Cyrtanthus falcatus* (Rare).

Midlands CREW report

ALISON YOUNG

2017 has been a very busy year for our CREW group. Our team has grown from strength to strength with record attendance. This is thanks mainly to an enthusiastic team from Durban who now regularly join us. However, we also enjoy attendance by several new people from the 'Ambers' in Howick.

We started the year with a visit to the Mistbelt grasslands around the source of the Umgeni River system. We were too late for the target species, *Stachys rivularis* (DDD), which was last seen in 1969 and planned a return trip next season. However, we did, inadvertently, find *Helichrysum oligopappum* (VU), and thankfully we had collected a specimen.

The Wildlands Trust requested a CREW visit to their wetlands in the Karkloof. We were delighted to find several *Nerine pancratioides* (VU) in flower. We revisited grassland sites around Eston to check an uncertain record of *Cineraria atriplicifolia* (VU) we had noted in 2009. This late-flowering annual was in abundance at conservation stalwart, Malcolm Stainbank's, untransformed grasslands.

This year, apart from finding another population of the Kranskop endemic Macrotyloma coddii *(VU), we found new localities for* Turraea pulchella *and* Gymnosporia woodii, *both Vulnerable.*

In September we visited a new site near Mooi River and found a healthy population of *Merwilla plumbea* (NT) on steep hillsides where cattle cannot access. Further visits are necessary at other times of the year for other target species.

We planned to search for the Data Deficient *Kniphofia ichopensis* var. *aciformis* (known to occur in wetlands in the foothills of the Drakensberg) at Creighton. Although we were disappointed to realise that this population was the variety *ichopensis* form with the broad leaf, it was a good find as it helps us in making comparisons with our target species.

The field of *Nerine pancratioides* (VU) in the Karkloof.

Our next mission was to check out an old population of *Dierama pallidum* (VU) described by Olive Hilliard in 1991. It is said to occur from Drummond to Pietermaritzburg and up north to Greytown. The World's View population is a rare pink form as opposed to the pale green form in other areas.

We conducted our annual visit to Noodsberg in November. This year, apart from finding another population of the Kranskop endemic *Macrotyloma coddii* (VU), we found new localities for *Turraea pulchella* and *Gymnosporia woodii*, both Vulnerable.

Lastly, we targeted a recent site record of *Satyrium rhodanthum* near Highflats. We were elated to have stumbled upon the only other known site for *Satyrium neglectum* subsp. *woodii* in KZN and also found a range extension for the Vulnerable *Moraea unibracteata*.

Midlands CREW (photo: Peter Warren).

2017 was a year hard to beat in terms of target finds, but we look forward to seeing more of the beautiful KZN countryside.

Durban CREW highlights

JOCELYN SUTHERLAND & BERTHA PITOUT

High Meadow eThekwini site.

Last year, our successful fieldtrip to Roosfontein Biodiversity Stewardship Reserve in search of the Endangered Tephrosia inandensis *yielded just six plants in a degraded patch that eThekwini Municipality reserve management agreed to clean up.*

Whilst there were good rains in October and early November, our team did not find many of the target species on our list. Once again we concentrated on the eThekwini Municipality–owned conservation sites that have been burnt during the course of the year.

We revisited the site at Summerveld in May to monitor the *Disperis woodii*. The plant population numbers were not nearly as numerous as the preceding year. We visited this site again at the end of December to view *Disa chrysostachya* of which there are many plants growing along the road verge. This is a site that Lance Rasmussen of eThekwini Municipality has earmarked for verge conservation and minimal cutting. Together with his colleagues present, they were of the opinion that the Municipality should in fact purchase this site to ensure that it's conserved. Three vacant sites in this road were giving a magnificent

The spectacular views at the Tugela Mouth Biodiversity Stewardship site (photo: S. Parbhoo).

showing of flowers: *Satyrium longicauda*, *Orchochilus foliosus*, *Dianthus zeyheri* and *Alepidea amatymbica* to name a few.

Once again, despite a couple of visits to the Bayhead site, we failed to find *Zeuxine africana*. We did however find *Cyphostemma flaviflorum* in three new localities. We were fortunate to have visited a portion of Paradise Valley Nature Reserve that is not open to the public and were treated to a high abundance of *Watsonia pillansii* and *Scilla nervosa*. This site definitely requires additional frequent surveys.

We were further indulged with a fieldtrip to High Meadow, which is adjacent to the N3 west below Alverstone cliffs. This geologically interesting site with its sandstone cliffs that have eroded to granite was one of the research sites for Bracken fern control. The research findings revealed that this invasive species can best be controlled by hand-pulling at eight-week intervals. Our site survey yielded 66 plant species, though none were of conservation concern.

Last year, our successful fieldtrip to Roosfontein Biodiversity Stewardship Reserve in search of the Endangered *Tephrosia inandensis* yielded just six plants in a degraded patch that eThekwini Municipality reserve management agreed to clean up. We are excited to report that our return trip, in collaboration with the Midlands CREW, saw much improvement in the site, such that we found other localities of this species. Reserve management have also re-introduced plants that have propagated from seeds collected from Roosfontein a few years back at their Silverglen Nature Reserve Nursery. This project is still in its experimental stage, but we shall keep an eye out for progress in the next few years.

Members of the CREW Durban group are privileged to tag along to other trips planned by the CREW KZN node. This field season we had outings to two exceptionally remarkable Biodiversity Stewardship sites. The first was a site at Adams Mission on the south

Watsonia pillansii at Paradise Valley Nature Reserve.

coast that is undergoing the stewardship process with the Endangered Wildlife Trust. The trip was organised too early for the flowers, but the other groups made interesting observations. The second site was a property of secondary grasslands in Tugela Mouth purchased as a biodiversity offset by the new owners of the Clairwood Racecourse. The offset is in place as the racecourse's wetland was home to the Critically Endangered *Kniphofia pauciflora* (race course lily). This site is being championed by Conservation Outcomes, a non-profit organisation providing support to land that is being developed and managed for biodiversity conservation outside of traditional state protected areas. The morning spent at this site generated a list of just under 100 species.

Our close interaction with eThekwini Municipality's environmental department gives us an advantage in the CREW work that we undertake as much of our focus is on their sites. The species lists that we generate feed both into the CREW node as well as the municipal management plans. The improved management of sites over the years is proof that citizen scientists have a big role to play within the local conservation agency, especially with the management of threatened species sites.

News from the **Pondoland CREW**

KATE & GRAHAM GRIEVE

The Pondoland Centre of Plant Endemism continues to provide opportunities for exciting finds. On a warm winter's morning in June 2017, the Pondoland CREW group came across an unfamiliar *Hesperantha* growing on a moist grassland slope in the Umtamvuna Nature Reserve. This is an unusual time for *Hesperantha* to flower so a specimen was collected. Application of the *Hesperantha* key pointed to a species that does not occur in the area, so confirmation was sought from Compton Herbarium. After some deliberation it was decided that this is indeed a new species, much to the excitement of the group.

Sometimes it takes an outsider to raise our awareness of things we take for granted. Visiting the Umtamvuna on a quest for *Thesium* species, a botanist from the United States, Dr Dan Nickrent, who is also interested in parasitic plants, led us to look closer at a *Cuscuta* species that turned out to be *C. gerrardii*, a Data Deficient (Insufficient Data) species. This species is known only from three collections made before 1915 in KwaZulu-Natal, in areas that are either transformed for agriculture or are currently communal areas that have been severely degraded by cattle grazing.

The Pondoland CREW group made several trips to the wild coast areas of Pondoland this year. A favourite destination is the Mkhambathi Nature Reserve, where we had the pleasurable task of updating the plant list. In September the previously burnt grasslands at Mkhambathi were ablaze with flowers, including swathes of *Kniphofia drepanophylla,* a Vulnerable species with a very restricted distribution.

In September the previously burnt grasslands at Mkhambathi were ablaze with flowers, including swathes of Kniphofia drepanophylla*, a Vulnerable species with a very restricted distribution.*

After years of searching for *Tephrosia pondoensis* (an Endangered protected tree), it was the highlight of a subsequent trip to Mkhambathi in October, where a few of these rare trees were found on the banks of a stream.

The reserve also hosts a healthy population of *Erica abbottii* (Vulnerable), a tiny, fragile *Erica* with thread-like stems that are easily missed in the long grass. This species is known from only a few places in the Umtamvuna Nature Reserve. However, several additional plants were found in rocky grassland on the proposed N2 route to the bridge site over the Msikaba river during a search and rescue operation for plants of conservation concern.

Another special find was made on a re-visit to the Mzamba gorge in the Ingonyama trust area, where we came across *Disperis woodii*, the first recent record of a previously abundant species on the lower south coast that has not been seen in the area for decades. In danger of trampling and grazing by cattle, its future is uncertain.

There are several special *Eriosema* species in our area and finding these showy plants is always rewarding.

A new *Hesperantha* species from Umtamvuna.

Cuscuta gerrardii, re-discovered after 100 years.

After the grassland at Mkahambathi was burnt this year, there was an amazing display of a large population of *E. latifolium* (Vulnerable) in flower. This species is threatened by ongoing habitat loss and degradation across its range in Pondoland. Although listed as Least Concern, *E. luteopetalum* is another species that is seldom seen on the lower south coast because its habitat has been transformed. A little further afield, the spectacular sight of flowering *E. populifolium* subsp. *populifolium* (Endangered) greeted us on a trip to the grasslands near Jolivet. This species used to be quite common in the Highflats area, but as its habitat is prime agricultural land, it is now endangered.

Good progress was made with collecting target species (and on occasion this involved quick trips to rural Pondoland), the outstanding species presenting challenges such as distance, accessibility (for example hanging off cliffs or being 8 m tall) and flowering times. These special projects involve support for local conservation bodies as well as participation in the process of describing new species.

Kniphofia drepanophylla at Mkhambathi.

The twining *Erica abbottii*.

Showy *Eriosema* species; A, *E. latifolium,* B, *E. luteopetalum* and C, *E. populifolium* subsp. *populifolium*.

Tephrosia pondoensis, at long last.

Disperis woodii fighting for survival.

Nieuwoudtville CREW

ALBERT KOOPMAN

Indigo Development and Change (Indigo) implements a range of conservation and educational activities the small town of Nieuwoudtville in the Northern Cape. Our main CREW activities are the winter and summer school activities with the learners from the local school, demographic monitoring of *Euryops virgatus* and mapping populations of threatened plants.

The five day Winter School started on 3 July and ended on 7 July. This week was filled with learning about nature and renewable energy activities. It started with an introduction session to horse riding and ended with an amazing site visit to the Loeriesfontein Wind Farm. Partners from CREW came to offer some activities to the participants and we did some collaboration with the Hantam National Botanical Garden (HNBG) and with the Environmental Monitoring Group (EMG) in Nieuwoudtville.

The CREW team; Ismail, Randall and Fezile kicked off with a lovely introductory energizer to get everyone relaxed. They showed episodes of the famous BBC documentary, Planet Earth. After the learners watched the movie there was a quiz based on the information seen in the movie as well as some plays to depict some scenes from the movie. The Winter School ended with an excursion to the Loeriesfontein Windfarm. It was an amazing experience for everyone present. The windfarm is situated 60 km north of Loeriesfontein in the Northern Cape. The Loeriesfontein Wind Farm will have sixty-one 99 m-high wind turbines in total. Pieter de Villiers, the electrical engineer who spent the day with us, also said that they are planning to switch some of the turbines on by August this year, which will be amazing. The participants had lots of questions to ask about the wind turbines and Pieter could set their hungry minds at ease. We had a lovely lunch and headed back home to Nieuwoudtville.

In one of the movies someone said that nature works with what it has to create something, it doesn't look for easier ways to destroy mankind.

Learners from Nieuwoudtville attending Winter School.

Albert has taken over the monitoring responsibilities for Indigo so it took a bit of preparation work to get ready for monitoring threatened plants in Nieuwoudtville. After several meetings and discussions with the CREW office, Albert, together with the participants of the Eco-club did some plant monitoring during the months of April, May and June. The drought had a significant impact on the plants and for the first time in many of the local's memories there were hardly any flowers out during spring.

As with the Winter School, the Summer School is facilitated with the same purpose, which is to raise awareness around our local biodiversity, but also to inform young people about other environmental related activities. The themes for this Summer School was on Biodi-

Showing off their artistic talents.

Collecting biodiversity data with CREW.

versity and Water and we invited local partners from SANBI (Hantam National Botanical Garden), the Environmental Monitoring Group, Conservation South Africa, Stefano Beukes and Danzel Januarie.

The first morning session started with a round of introductions at the Indigo offices with Stefano Beukes as facilitator, a graduate from the University of Stellenbosch. Stefano developed a love for Biomimicry during his student years and did some research regarding this very-new-to-science field. He introduced this topic and gave some background about the meaning of biomimicry. He also showed the participants a movie just to give them a better perspective about this topic. After the first movie he took the participants for a short walk in town where he explained some practical theory around biomimicry. For example how trees get water from its roots to the top or the last leave on it without using a water pump or a pipe to transport water, and these are methods that science should get into to find alternatives that work with the environment and not against it. In one of the movies someone said that nature works with what it has to create something, it doesn't look for easier ways to destroy mankind.

The CREW team from Kirstenbosch had activities planned for the whole day. The session started with a round of introductions and energizers to get the participants comfortable and energetic. Ismail introduced the first activity and took them out for a walk in the field where they were divided into groups. Each group had to measure their own plots and find specific plants, animals and insects and they had to write all of this down on a data sheet. After this lovely walk they came back to the Indigo Gallery for a short feedback session and also to analyse the data that was collected

To end off the summer school we planned a day in remembrance of the belated Kariena Voster. Kariena was one of the first nurses in the local community clinic, some people also referred to her as Nieuwoudtville's own Florence Nightingale. Kariena had been involved in the lives of almost each and every child from Nieuwoudtville since birth, and one of her wishes before she passed on was to give an opportunity to children from this town to go to Strandfontein. The aim of this day was to remember Kariena for the person that she was, but also to enjoy and learn about the ocean. We asked children to take a walk along the beach and think of something that reminded them of her, a moment shared with her and something that they would like to say to her. This was also a very quiet and private moment and for those who really knew her, it really meant a lot to have this experience.

Darling CREW

HELEEN PRESTON

After a wonderful inspiring CREW workshop we were looking forward to an interesting season and hoping that we would have some relief from the drought.

The season started with a joint fieldtrip between Darling CREW and the Blaauwberg CREW groups at the Silwerstroom side of the R27 on Ganzekraal Farm. This was a wonderful start to the season and we really enjoyed doing these joint fieldtrips with other CREW groups.

Our first major find for the year was *Erica trichostigma* (VU) near Langebaan in July. We found a small population of less than 10 plants near the dumpsite, and fortunately, thanks to Nick Helme, the site has been

Collecting *Wurmbea capensis* scent with Sachin Doarsamy.

fenced from the surrounding construction and will be protected.

Previously we had found *Oxalis stictocheila* (EN) in October, but a visit to Tienie Versfeld Reserve mid-July rewarded us with a lovely surprise of a few hundred plants in flower. This was the first time we have recorded this species from Tienie Versveld at this time of the year.

Sachin Doarsamy, a Masters student from KZN asked us to help him find *Wurmbea capensis* (VU) for his studies. At the end of August we crawled around on all fours at the known site on Rondeberg Farm and found 10 plants. A week later we returned to the site and they were going to seed, but we did find another patch of plants a few meters away.

A Sunday stroll around the public open spaces of Langebaan revealed a very large group of *Ferraria densepunctulata* (EN), *Gladiolus priorii* and *Empodium veratrifolium* (EN). Even though these are small isolated fragments they house many special plants. It is amazing to see what species survive in these little pockets of vegetation between the urban developments.

We continue to monitor the special plants every year like the *Babiana pygmaea* (CR) at Oude Post at the end of August, *Geissorhiza darlingensis* (CR) at Tienie

Geissorhiza platystigma with *Romulea eximia.*

Versfeld in October, *Pterygodium cruciferum* (EN) at Contreberg Farm in October where we also found a very large stand of *Geissorhiza eurystigma* (CR)

Our greatest find of the season was finally locating *Geissorhiza platystigma* (CR) in the Renosterveld Reserve in Darling. This species has eluded me (and Ismail) for many years and after numerous searches we finally found the plants. They flowered over a three-week period and had a couple of botanists treading very carefully not to damage these 2–5 cm high plants. The Millenium Seedbank came out a week later to mark the plants and collect some seeds.

After following directions to previous localities we found a small population of *Steirodiscus speciosus* (EN) along the Atlantis bypass. These have also eluded us for a long time and we were ecstatic to finally see this species. Due to unforeseen factors we couldn't follow up on the other localities, but we are looking forward to finding more populations in 2018.

Despite the dry year we had a grand celebration at the 100th Darling Wildflower Show. We had an amazing restio identification workshop by Prof. Peter Linder, lots of biodiversity information stands including CREW and several arts and crafts stands as well.

Steirodiscus speciosus (CR).

Blaauwberg Conservation Area CREW Group (BCA CREW)

PETRA BRODDLE

Finally after much labour pains, the 2nd revised edition of our *Flower Guide to the Plants of the Cape Flats Dune Strandveld* was published in December 2017. We see this guide as a way to generate an interest in and an appreciation of the vegetation around us. The book has been well received by the general public and people have really appreciated the interesting new facts and information that we have added to the book.

In 2018, we will be data collecting for the second book in the series, this time looking at some of the vegetation on and to the east of Blaauwberg Hill, namely Swartland Shale Renosterveld and Cape Flats Sand Fynbos.

The core BCA CREW members are Jan Wicht, Kay Loubser, Petra Broddle and Richard Adcock. Hedi Stummer continues to help us with her expertise. The following individuals have regularly joined us on outings: Lucia Hickman (botanical illustrator), Ena de Villiers, Lilo Bahn, Pete Lundon and Dena Chan.

Several of the species occur in damp areas and we have had a distinct lack of rain on the West Coast near Cape Town for at least three years now.

We have had a mixed year when it comes to the meeting of our priority species target list. Several of the species occur in damp areas and we have had a distinct lack of rain on the West Coast near Cape Town for at least three years now. Many potential sites also seem to have been invaded by alien grasses.

Our main success story this year has been the number of new sites visited for the first time. All these new sites have threatened vegetation types like Cape

Flats Dune Strandveld, Cape Flats Sand Fynbos and Atlantis Sand Fynbos. We are planning to visit these sites regularly looking forward to seeing them in different seasons. One of the most exciting sites we have been to is the new Melkbos Conservation Area where we have recorded 147 plants, 16 of which are listed as threatened.

We would like to extend special thanks to Jacques van der Merwe (Biodiversity Officer with the City) and Pat Titmuss (Conservation Implementation Officer with the City) for suggesting these sites and helping us with gain access.

The Blaauwberg field guide cover.

A sneak peek into the field guide showing the useful information.

A number of new localities were found for threatened plants occurring in our area. These include new populations of *Steirodiscus tagetes* (VU), *Caesia sabulosa* (VU), *Adenogramma rigida* (EN) and *Gladiolus jonquilliodorus* (EN)

Kay Loubser and I continued our guided monthly walks this year at the Blaauwberg Nature Reserve, with additional walks in the spring here and at Sunset Beach, Milnerton. We use these walks to try and recruit new members and to showcase the wonderful flora of the Blaauwberg Conservation Area.

We have had the opportunity of working with three young conservation employees who have shown

Caesia sabulosa recorded from a new locality.

more than a passing interest. We will continue working with two of them and hopefully they will join the CREW effort.

I was asked to speak at two meetings. The first was at the Protected Area Advisory Committee of the Table Bay Nature Reserve meeting, the second the Environmental Liaison Committee: Blaauwberg Development Area. I used these two opportunities to highlight threatened plant species and vegetation types in our area focussing on the reasons why these species and areas are been threatened.

The BCA CREW with students from the BCA.

Unfortunately in late 2016 a very inappropriate development was given approval at the local Frankendale Industrial Complex south of Morningstar. This was the most pristine patch of Cape Flats Sand Fynbos remaining in the entire area near Blaauwberg, with large populations of some of the most threatened endemic species within the vegetation type. Experts suggested that this land had probably the highest restoration potential and this was a vital consideration in terms of the long-term sustainability of the Cape Flats Sand Fynbos as an entire vegetation type, as well as being able to add to the conservation viability of Blaauwberg Conservation Area in developing ecological corridors. In late June 2017, this issue reappeared on the agenda, only for us to hear that much of the vegetation had been illegally burnt and destroyed by a resident to create a firebreak. It is challenging to make comments due to a lack of context and information, tight deadlines and lack of process expertise in these matters. We will continue to support the City of Cape Town conservation staff where we can.

The BCA CREW continues to join Hedi Stummer and the FOTH CREW on their weekly Friday trips. We have also been out to join the Swartland CREW a few times, the visit to Die Eiland near Porterville, being the most memorable.

Visiting CREW members and botany students are always welcome to join us. Looking forward to a productive 2018.

The beautiful and rare *Gladiolus jonquilliodorus*.

FOTH CREW Report for 2017

HEDI STUMMER

FOTH CREW is an active group of seven dedicated members, three of which (headed by Petra Broddle) are also part of the BCA CREW. One of our group members, Jan Wicht, keeps an eye on various sites in the Durbanville area so there is more time for FOTH to venture forth looking at areas unsupported by CREW or to assist other CREW groups starting up.

Our way of operating is to look at the total vegetation of a site and to list all the plants we recognise. Every visit is recorded, newly seen plants added to the list to give an overall picture of diversity over time. We additionally note the phenology of species, so it is possible to track flowering trends.

Our main concern in 2017 was the decline of *Metalasia schlechteri* (CR), a plant we had first discovered in February 2012 at Briers Louw Stewardship Nature Reserve. We had been conducting detailed monitoring of this species since 2013. It seems like the drought is having a negative impact on the species because we recorded many plants were dying or dead. Those surviving are not producing sufficient viable seed. Although we have conducted thorough sampling in the area we have not found this species anywhere else yet.

It seems like the drought is having a negative impact on the species because we recorded many plants were dying or dead. Those surviving are not producing sufficient viable seed.

A site close by is Langerug Private NR, belonging to the Boland Agricultural High School in Agter Paarl. We did not find the endangered *Metalasia* here, but discovered a flourishing population of *Leucadendron stellare* (CR) and were encouraged by the site's diversity to do further visits through the year. This resulted in a plant list recording 290 species of which 36

Metalasia schlecteri with a hungry pollinator.

species are threatened. Special species found include *Pelargonium viccifolium* (EN), *Moraea versicolor* (VU) and *Lachenalia contaminata* (NT). The main threat on site is the large amount of game and very evident overgrazing.

Wemmershoekvlei was visited in April to check the part of the site that burnt two years ago. We saw new growth of *Erica alexandrii* subsp. *alexandrii* (CR) and surprisingly lots of flowering plants. This was reassuring as everything else was very dry including the wetland, which was almost crusty. In November we returned to site only to be horrified by the exploration drilling taking place for water augmentation to avoid Day Zero. We are seriously concerned that drilling in the most sensitive part of the wetland will have catastrophic results for *Erica alexandrii* subsp. *alexandrii* (CR), *Diastella buekii* (CR) and *Erica bakeri* (CR), which is endemic to this particular wetland. *Lampranthus schlechteri* (CR) was also found flowering in the white sands slightly higher up. In total 470 species have been recorded, which includes 26 threatened plants of which 5 are Critically Endangered and 6 are Endangered.

Leucadendron stellare at Langerug.

Lampranthus schlecteri found at Wemmershoekvlei.

The botanical survey on Tygerberg Hill is ongoing. The objective was, and still is, to assess the effect of the drought on the vegetation: We were happy to see *Geissorhiza erosa* (EN) in a mass display with *Lachenalia mediana* subsp. *mediana* (VU) and *Babiana fragrans* (NT) close by.

We joined the Swartland CREW for two visits to Heuningberg, an isolated mountain ridge between Riebeek West and Porterville. Although our visit at the end of September was already too late for spring flowers, we managed to find remnants of *Babiana secunda* (EN), *Pelargonium chelidonium* (EN) and *Moraea tulbaghensis* (EN).

The next joint outing was to Die Eiland at 24-Rivieren near Porterville to assess and record the spring flowers there. This Swartland Shale Renosterveld site was absolutely pristine and a joy to visit. This is definitely a site we would like to visit more regularly to make a full species list.

We were fortunate to visit some new sites this year:

Klapmuts Water Works Treatment Plant proved to be rewarding as we discovered *Geissorhiza purpurascens* (EN), *Protea burchellii* (VU) and *Leucadendron lanigerum* (EN) despite the site being seriously invaded by Port Jacksons. This is a site that needs more of our input and will be revisited in 2018.

Van Schoorsdrift is about halfway to Malmesbury off the N7. This site falls under the Greater Tygerberg Area and huge efforts are being made to restore it by clearing the alien invasive vegetation and fencing the site. Some of the special species seen were *Lampranthus tenuifolius* (CR) in various shades, *Gethyllis ciliaris* subsp. *ciliaris* (NT) and *Heterorhachis aculeata* (VU), which was the first time we have recorded this species.

Another exciting site was the Banhoek Conservancy in Stellenbosch. There is no official CREW group in

the Stellenbosch area so we try to include these sites and especially sites that require post-fire monitoring. One of the species seen was *Skiatophytum skiatophytoides* (VU)

Our year ended with the Annual Demographic Monitoring on Paarl Mountain Nature Reserve of *Argyrolobium angustissimum* (EN) with Ismail Ebrahim and Randall Josephs. These are tiny plants and as the veld has become denser it is becoming very challenging to the find the plants and the metal tags.

We had a very productive year, in total we conducted 40 visits to 25 sites.

Drilling sites being pointed out by Environmental consultant.

Swartland CREW 2018

STEPHEN COUSINS

The Swartland CREW group started in 2016 with a handful of participants from the Riebeek Valley. We held a number of CREW outings in 2016 and 2017, many of which were attended by members of the Tygerberg and Blouberg CREW groups, who provided valuable assistance to help get us on our feet.

Swartland CREW and Anthony Magee looking at *Cynorhiza meifolia*

....we were absolutely thrilled to find Hesperantha sufflava *(Critically Endangered), which was previously known only from around the Malmesbury showgrounds – an area undergoing urban expansion.*

Most of the vegetation in our region is renosterveld, which is very seasonal, with most species flowering in a narrow window between August and October. After a few trips in autumn to see some of our area's autumn-flowering geophytes, we packed as many field trips into the spring of 2017 as possible. And what an exciting season it proved to be!

Our first outing was to Driehoekpad, a relatively large patch of Critically Endangered Swartland Granite Renosterveld owned by Swartland Municipality on the outskirts of Malmesbury. This site is being proclaimed as a Contract Stewardship Nature Reserve and is truly a 'botanical chocolate box', with many surprises popping up in different parts of the veld each week from late winter to early summer. The species list we have compiled for this 64 hectare site is currently at over 180 species, and we are sure it will

eventually be over 200. Ismail Ebrahim joined us on our CREW outing to Driehoekpad in the third week of August 2017 and we were absolutely thrilled to find *Hesperantha sufflava* (Critically Endangered), which was previously known only from around the Malmesbury showgrounds – an area undergoing urban expansion. It is good to know this local endemic is safe within the Driehoekpad Reserve. We also found a surprise population of the stunning *Watsonia dubia*, which represents a significant westward range extension for this Endangered species. Another nice surprise was *Lachenalia polyphylla* (Endangered), which was previously only known from the area between Tulbagh and Piketberg. There were many other red listed species to be seen at this site, and we are hoping to find *Aspalathus rycroftii* (Critically Endangered) there this year; it is supposedly endemic to Driehoekpad.

We had five other spring outings, to very under-botanised renosterveld remnants on private farms. At Koringberg we were treated to wonderful mass displays of geophytes after a fire, which swept across part of the mountain in the preceding summer. The veld had not burned in approximately 80 years and it was wonderful to see how well it responded. There were spectacular carpets of *Codonorhiza fastigiata* (Vulnerable), *Lapeirousia anceps* and pockets of *Monsonia speciosa* (Endangered) and *Ixia abbreviata* (Vulnerable). We will definitely go back next spring as there is still so much to see and document.

One of the major highlights of 2017 was the Bioblitz we held on the farm Swartdam just south of Riebeek-Kasteel. A large prescribed burn was conducted in 60-year-old fynbos and renosterveld on the farm in April 2017, and the post-fire flower displays were simply amazing. We found a new population of the magnificent *Aristea lugens* (a large, robust plain black-and-white form), a lovely population of the white form of *Geissorhiza erosa* (Endangered) and a number of other red listed species. The mass displays of less-threatened *Moraea papilionacea* and *Codonorhiza elandsmontana* were absolutely breath-taking. A really exciting find that was made at this site after the Bioblitz was that of a small population of *Cynorhiza meifolia* (Apiaceae), a very unusual plant that was previously only known from the type specimen collected near Porterville in 1837. The population we found in Riebeek-Kasteel was therefore not only a significant range extension, but the first sighting of the species in 180 years! All in all we had a fabulous spring season, and we are looking forward to doing more outings in 2018.

Aristea lugens, an Endangered species seen at the Swartdam Bioblitz.

Mass displays of *Codonorhiza fastigiata* at Koringberg.

Outramps CREW

DI TURNER

The Outramps had an amazing year filled with a plethora of special discoveries many of which were new records for the Outramps.

We kicked off the year by launching a new Lowlands focussed group. We now have three teams operating in the George area. It is very challenging for us to report back as we do a massive amount of fieldtrips during the year, so here are a few highlights from our incredibly productive year

On the 11th of February, Sally tagged along on a Mountain Club hike in the Ruitersberg/Moordkuil area. It was a large group and some of the hikers were struggling and slowing the party, so with other members clamouring about their rumbling tummies it was decided to take the lunch break a good two kilometres early. This proved to be most serendipitous.

We sat on a rocky outcrop overlooking a stream with a lovely view of the mountains to the north of us. While the others were tucking into their lunch boxes and complaining about all the ant activity on the rocks, I busied myself taking a few pictures of the flowers around us. I also took photos of a pair of ants on a *Crassula* flower, careful not to disturb them. I soon realised they were they were not only dead, but their jaws were firmly clamped to the flower.

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I was reminded of a nature documentary I had seen about ants, infected by a fungus, are compelled to climb to the very ends of branches or blades of grass, embed their jaws in the vegetation and die. The fungal fruiting bodies then grow out of the small corpse and the spores can be spread more widely due to the elevated position. I posted my observations on iSpot and a well-known entomologist confirmed that the ants were attacked by a fungus and this phenomenon is rarely recorded. It's amazing what you can find in nature when you looking through a lens of a camera.

One of the major events in our area was the huge Knysna fire. This has given us an opportunity to do post fire monitoring at some sites. In May we ventured to Windmeulnek, where one of new members, Mike Cameron, a former lecturer at NNMU Saasveld Campus joined us on his inaugural trip. The fynbos was not at its best at this time of the year and the very dry conditions of the last couple of months saw very little in flower. However, the views and mature veld made a wonderful change from the blackened veld that we've been visiting recently. The damp conditions were very welcome and wet clothes and boots were a small price to pay. We didn't come away empty-handed; we found *Leucadendron conicum* (NT), *Mimetes pauciflorus* (VU), *Erica inconstans* (VU) and *Cyclopia subternata* (Declining) even though there is a very real threat of encroaching escapee pines. The most interesting plant of the day was a *Phylica* found by Dave Underwood. We did not recognise it at all and it we were sure it was something really interesting. Dave had a closer look at the plant and confirmed that it was *Phylica keetii* (Rare), which was known from the type locality collected by Keet in 1922 and later rediscovered by Jan Vlok in 1985. Our population was likely to be a new locality for the species.

The Outramps has also been supporting the Mossel Bay municipality to look after the Diosma Reserve. This site is the only place where *Diosma aristata* (CR) occurs and the management of the site has been a problem in the past. In October we met with representatives of the municipality, Cape Nature and other conservation partners to discuss the management

Phylica keetii from Windmeulnek.

of the site. The municipality confirmed that there are plans to clear all the aliens and fence the site. The Outramps will be supporting by establishing a Friends group for the site, helping with alien clearing and creating awareness about the conservation importance of the site.

In October we planned an ambitious trip to Fouriesberg. We met one of the farmers, Cornel Fourie, who gave us access to the mountain through his farm. He drove ahead of us through rocky riverbeds filled with huge boulders and through thick sand that had the Buchu Bus slewing sideways. He assured me that the vehicle would make it. Well it did, but I must have aged about 10 years in the process. Finally, I said, 'So far and no further' and we set up our camp some 300 m downstream of the water hole. Leaving the cars mostly unpacked, we headed up the jeep track that leads to the base of Elandsberg. The slopes were gloriously yellow with a mixture of *Aspalathus acanthes* and *A. sceptrum-aureum*. Vygies provided vibrant patches of magenta along the way, but a worrying feature was a huge upsurge of post-fire *Hakea sericea*. We must institute biological control and we must do it soon otherwise the veld is going to be lost to this predatory invader in the foreseeable future.

Dead ant firmly clipped in place.

It was at the crack of dawn start the next morning when Evie and Brian set off to climb Fouriesberg and I walked up a branch of the jeep track heading up the water course. This only continued for about 300 m, so I went back to the Elandsberg jeep track and followed it right up to the end. Threatened species found on the day were *Acmadenia tetragona* (NT), *Rafnia vlokii* (VU) and *Argyrolobium rarum* (Rare). Evie and Brian had a long day, but didn't encounter any huge difficulties in their 800 m ascent of Fouriesberg. After a very pleasant evening and a windy night, we drove back into the real world first thing on Thursday morning.

Outramps in the field doing post-fire monitoring.

If you want to read about our trips you can find regular updates on iNaturalist. Follow the link: https://www.inaturalist.org/journal/outramps

During the course of 2018, I will be handing over the reins to some of the younger members of the Outramps. This will free me to go off and do lots of rough camping and overnighters to new places and to continue hunting for rarities. It is also more than time that fresh ideas were introduced into the group. Sally Adam and Pam Eloff have agreed to take over the co-ordination of the Outramps.

Fourcade Botanical Group in 2017

CARYL LOGIE

Trail blazer Michael Juries.

One of the most exciting projects for the Fourcade Botanical Group Juniors has been the developing of a trail within the grounds of their new school. The information boards, which include interesting facts about plants and archaeology, have been planned and will be put up early in 2018.

Seventeen years ago 12 year old Michael Juries was a very active member of the FBG Juniors. When he left school he was kept busy with archaeological monitoring while St Francis Links was being built. He now has a child at Sea Vista Primary and he saw to the cutting of the trail. With his knowledge of plants and archaeological sites we couldn't have had a better qualified person to do the job.

As a result of the severe drought in our part of the Eastern Cape our demographic monitoring of *Brunsvigia litoralis* was very disappointing. Only eight out of a possible 48 bulbs produced flowers and they were eaten by animals or insects, all of which are very hungry in this dry veld.

FBG Juniors very pleased with their community service efforts.

Freylinia crispa.

Vathiswa is now based in Grahamstown and although it's not all that close to us and her area is vast, at least she's in the Eastern Cape! It was good to see her and Ismail and we could show off our very special coastal vegetation. In any spare moment that we have we are working together with Richard Cowling on his project to have all the plants in the nature reserves at Cape St Francis and St Francis Bay recorded together with photos.

On several occasions we've drawn up plant lists for landowners, particularly for those interested in eco-tourism, but also for architects, developers and for Wentzel Coetzer of the NGO Conservation Outcomes who has been working on the Greater Kromme Stewardship Project. Wentzel has all but succeeded in having a section of the Sand River, which belongs to St Francis Links, declared a Private Nature Reserve as well as sensitive areas within The Links Estate being declared Protected or Conservation Areas.

Since April 2008 we have worked on a farm near Humansdorp recording plants throughout all seasons. In November 2017 the farm was at last declared as Honeyville Nature Reserve. It's good to know that our records helped the authorities to reach their decision.

During 2017 we found 13 of our threatened species in new areas and we located the following plants for the first time:

- *Bulbine cremnophila* listed as Rare.
- *Freylinia crispa* and *Haworthiopsis attenuata* both Vulnerable.
- *Argyrolobium crassifolium* and *Argyrolobium trifoliatum* both Endangered.
- *Aspalathus recurvispina* listed as Critically Endangered.

And we have more waiting in our presses to be checked!

Our year ended with a very happy few days together in the Kouga Mountains and we were able to add many species to the already long list we originally drew up for the landowners in 2001.

FBG busy with a little dendrology.

Port Elizabeth CREW

ADRIAAN GROBLER

Twenty-seventeen (2017) was a year of fire for much of the Cape Floristic Region, including those areas frequented by the Port Elizabeth CREW group at the far eastern end of the region. Most of our excursions were therefore to parcels of land that had recently burned, in the hopes of stumbling across interesting plants we may not have previously noticed.

Early in the year, we visited a very fascinating valley near Bethelsdorp towards the northwest of Port Elizabeth. The vegetation here is a patchwork of succulent thicket, grassland and fynbos, some of which had burned in a fire some weeks before our visit. Here we found *Haworthiopsis fasciata* (NT), some very large specimens of *olifantspoot* (*Dioscorea elephantipes*), as well as an unknown *boegoe* (*Agathosma* sp.) and Cape gorse (*Aspalathus* sp.) — new species perhaps?!

Merika with the *olifantspoot*.

Aspalathus lanceicarpa *(Rare): this species can be a dominant component in the mountain fynbos here for a little while after fire, but disappears from sight as the vegetation ages, only to reappear after the next fire.*

We visited the Van Stadens Mountains twice during the year. Our first visit was to a patch of two-year old veld where we found sprawling carpets of the local endemic *Aspalathus lanceicarpa* (Rare). This species can be a dominant component in the mountain fynbos here for a little while after fire, but disappears from sight as the vegetation ages, only to reappear after the next fire. We also came across the local fire-lily, *Cyrtanthus staadensis* (NT) and *Disa ferruginea* was putting on a fantastic display of fire-red blooms. Our second visit to the Van Stadens Mountains was during early spring when we went searching for another local endemic fire ephemeral, *Afroaster laevigatus* (EN), along the back of the Lady Slipper Peak. To our delight, we found entire slopes that were covered by this sprawling daisy. Interestingly, this species shares its habitat here with the widespread *Afroaster hispida*.

One of our newest members, Luc Strydom, works as an environmental consultant and has been keeping an eye out for special plants while he is out in the field.

Aspalathus lanceicarpa in the post-fire veld.

Luc has noticed some hotspots of succulent plants in the Nelson Mandela Bay area that we would like to keep an eye on. These hotspots are mostly situated between Port Elizabeth and Uitenhage where thicket vegetation becomes more prominent. However, many of these succulent plants occur in openings between the thicket rather than in the dense thicket clumps. Locally, this vegetation type is known as Motherwell Karroid Thicket, and is full of uncommon succulents like the threatened vygies *Bergeranthus addoensis* (VU) and *Corpuscularia lehmannii* (CR), as well as the melon spurge, *Euphorbia meloformis* (NT). Unfortunately, many of these areas are targeted for future housing developments, so it will be important to monitor populations of these species. We hope to include this as one of our goals for 2018!

A blast of fiery red *Cyrtanthus staadensis*.

Bergeranthus addoensis, a pleasant thicket surprise.

CREW Hottentots Holland

CARINA LOCHNER & HELEN PICKERING

At the time of our planning meeting with Ismail in early January, wildfires had swept through many of the sites we usually visit. Fires that spread from the Grabouw area burnt down the Bezweni Lodge in Sir Lowry's Pass and also spread to Knorhoek, Vergelegen, Morgenster and Lourensford.

While farm owners were assessing their damage we were looking forward to a bumper year in the veld. In some areas the fire followed too soon after the previous fire. However fire had been long overdue for the very old renosterveld on Schapenberg.

During 2017 we concentrated mostly on these sites. Within a month of the fire we found *Otholobium rotundifolium* (VU) already re-sprouted and flowering profusely on Vergelegen. Later on, at the request of

Babiana angustifolia from Schapenberg hills

Charles Stirton, we were able to return to the site to collect seed from this species.

The Schapenberg hills on Vergelegen Estate is of particular importance as it is one of the last remaining remnants of critically endangered Swarland Shale Renosterveld in our area. On our four consecutive visits it was awesome to see the hillside change from barren rocky slopes to carpets of spring flowers. *Gladiolus recurvus* (VU, a new record for this site), *Babiana angustifolia* (NT), *Monsonia speciosa* (EN), *Lotononis prostrata* (NT), *Tritonia undulata* and *Gladiolus carneus* were among the many species we recorded here.

On visits to post-burn sites at Lourensford Estate we were relieved to see that many *Protea grandiceps* (NT) had survived the fast moving fire. Frequent fire is the major ongoing threat to this slow maturing species. In the spring we were able to identify a large population of *Aristea cantharophila* (VU) on Lourensford. Just one open flower was seen despite ideal conditions. A warm sunny day is thus no guarantee that flowers will open.

A visit to Harmony Flats coincided with the usual date for Marasmodes Day (27 April). We were requested to check on a known population of *Marasmodes polycephala* (CR). Apart from about 100 plants here we also found a few plants on an adjoining Lourensford Alluvium Fynbos remnant. This site has an application for development pending. The timing was also perfect to find a large patch of *Lachenalia corymbosa* (VU) in flower at a site nearby.

Burnt veld at Lourensford

In October, to make a change from burnt veld, we visited the Steenbras Nature Reserve with Ismail and his team. The search for *Aspalathus acanthiloba* (VU) in rather old veld proved unsuccessful, but we enjoyed being in the beautiful mountain fynbos and recorded six threatened Proteaceae species. The area has since been swept by wildfire so chances of finding the *Aspalathus* this year will greatly increase.

Lachenalia corymbosa from the Harmony Flats area

Protea scorzonerifolia

On Knorhoek we visited an area, which has been cleared of burnt pines and has yielded a number of threatened species. In November Bezweni was awash with amazing flowers in blue, purple, white, yellow and pink as well as many tiny seedlings of *Serruria kraussii* (VU).

At Onse Jan Park a group of enthusiastic parents from a nearby school has become involved with our effort to preserve wildflowers here. We trust that they will take this further while we can help with identification and education. On two occasions CREW volunteers joined groups of school children to tell them more about threatened species. To date ten threatened species have been recorded at this small urban park, which includes a population of *Ixia versicolor* (CR)

CREWHH is grateful for support from CREW head office as well as assistance from the City of Cape Town, Cape Nature, landowners on local farms and conservation officers in the area. We look forward to an exciting year of botanising in and around the Hottentots Holland Basin.

CREW team sampling at Lourensford

Botanical Society of South Africa (BotSoc) and the CREW programme

ZAITOON RABANEY

The BotSoc continues to be a proud supporter and sponsor of the CREW programme! We are happy to share that BotSoc has now consolidated this support for the period 2017 until 2020. This support includes the ongoing donation funds, cash support to the SANBI-CREW programme as well as ongoing staff support within BotSoc. We are proud of the contributions to the CREW Programme made by Hlengiwe Mtshali and Mahlatse Mogale based in KZN and Limpopo respectively.

It was a pleasant opportunity to be part of the SANBI external review of the mandates and the delivery thereof during October 2017. It was a rewarding moment to provide input into this special programme focussing on the threatened plants as well as SANBI's flagship citizen science programme. We would like to thank all the BotSoc and CREW volunteers in the programme. You give meaning to the concept of citizen science, thank you.

Showing off the BotSoc Woolworths Cycad shopping bag – a fundraiser for Cycad Conservation Strategy outputs.

I would like to encourage the active members participating in the CREW programme to also provide submissions on their activities and contributions directly to the BotSoc and CREW Facebook pages to encourage greater participation by others. A special mention of thanks is given to Suvarna Parbhoo for her support and oversight to the BotSoc staff seconded to the CREW programme.

Another exciting venture for BotSoc was the launch of the new environmental education resource, ***Learning about Cycads***, on Monday 12 March 2018 at the Kirstenbosch National Botanical Gardens. The Keynote address at the launch was delivered by the Western Cape's Minister of Education.

This educational resource is informed by and feeds into the National Strategy and Action Plan for the Management of Cycads in South Africa as well as South Africa's Strategy for Plant Conservation (NSPC). Learning About Cycads, a guide to environmental activities, is a collaboration between BotSoc and the Primary Schools Programme with expert inputs by Dr John Donaldson and scientists at the South African National Biodiversity Institute.

Target 14 of the NSPC speaks to the importance of plant diversity and the need for its conservation to be incorporated into communication, education and public awareness programmes. Aspects of plant diversity and conservation (possibly extracted from the strategy) should be included in the Life/Natural Sciences curriculum and be used to strengthen the integration and teaching of biodiversity content in relevant school curricula

During January 2018, BotSoc signed an agreement with the Cape Peninsula University of Technology, one of our partners in terms of the National Strategy for Plant Conservation, to take the programme into the second 3-year phase in supporting the Nature Conservation students with outdoor classroom lessons relevant to the nature conservation curriculum. The CREW teams supports these outreach programmes at tertiary institutions at a national level.

Presenting a token of appreciation to Prof. John Donaldson for his contribution to cycad conservation.

Last but not least, BotSoc is in the process of appointing two interns (one based in the Summer Rainfall Region and one based in the Cape Floristic Region), hopefully starting during April 2018, to support the sterling work of the CREW teams. This is a vote of confidence in the full team of the CREW programme and thus worthwhile investments in the human capital to take the CREW programme to greater heights.

Karoo BioGaps Project needs your help

to transcribe data from museum and herbaria collections

CAROL POOLE

Log on to http://transcribe.sanbi.org/ and help us transcribe the labels of thousands of historical museum and herbaria specimens collected before the time of computers! The label information is critical for understanding historical distribution patterns of species, but the information is inaccessible if it remains in hard copy only. We need to digitise all museum and herbaria records so that scientists can analyse the data and compare it to current fieldwork findings in the Karoo. This information will help guide future conservation and development activities (e.g. shale gas exploration) in the Karoo.

Photographs of the specimen labels have been uploaded onto the **Transcribe** website, but we need your help to type the data from the specimen labels

into the database. By doing this transcribing, you are helping to make species information as old as 1830 available!

Be part of this very valuable aspect of the Karoo BioGaps Project by helping us fill in the gaps in biodiversity knowledge for our precious Karoo region.

The Karoo BioGaps Project is led by the South African National Biodiversity Institute (SANBI) in partnership with a consortium of research institutions. For more information: www.sanbi.org/biogaps or keep an eye on our Blog (http://karoobiogapsproject.blogspot.co.za/) and Facebook page (www.facebook.com/groups/karoobiogapsproject/).

The e-Flora of South Africa: supporting plant conservation

MARIAAN LE ROUX* & JANINE VICTOR (SANBI)

For the past four years, SANBI plant taxonomists have been assiduously compiling an electronic Flora to all of South Africa's 21 000 plant species. Taxonomic information is often difficult to access and is scattered across a wide range of books and journals, creating an impediment to management and conservation of our flora. Therefore the first Target for the Global Strategy for Plant Conservation (GSPC) is to provide an electronic Flora to all the plant species of the world by 2020. South Africa is on track to meeting this obligation, as information for about 85% of our species has been collected from taxonomic treatments, monographs and conspectuses.

Considering the limited time available to complete such an immense task, it was decided to aggregate existing information to populate the e-Flora for South Africa. During 2012, representatives of four institutions (the Missouri Botanical Garden, the New York Botanical Garden, the Royal Botanic Garden, Edinburgh, and the Royal Botanic Garden, Kew) gathered and initiated the World Flora Online, a consortium addressing Target 1. Partner institutions and individual projects from around the globe have joined the consortium to participate in this large venture, including South Africa (since March 2013). There are currently 40 members in the WFO Consortium. A series of meetings have been held to work collaboratively on the development of the online portal and data aggregation. The first version of the WFO portal was launched at the International Botanical Congress held in Shenzhen in July 2017 and is accessible at http://www.worldfloraonline.org/. South Africa will contribute its first set of data during 2018, which will be made available through this website. By the 2020 deadline, South Africa's contribution will comprise 6% of the world's flora.

Through the e-Flora of South Africa project, we are aiming at making taxonomic information for all indigenous species within the country available, in open access, in a single place. This will provide easy access to data that will enable effective plant conservation. The project will continue to maintain its floristic data online beyond 2020 in accordance to the South African National Plant Checklist.

Highlights from the KZN unit of SANBI's Biological Invasions Directorate

RESHNEE LALLA (SANBI)

The former Invasive Species Programme is now fully encompassed within a new Biological Invasions Directorate (BID) and is funded as a core SANBI activity rather than a project. While this has positive implications for our work going forward, it has also impacted our immediate activities as budgets for clearing invasive species have been drastically reduced with an emphasis on eradication-target species (i.e. NEM:BA Category 1a species). We are no longer implementing clearing programmes on category 1b species such as pompom weed, formosa lily and *Parthenium*/famine weed.

There remains a strong focus on early detection, assessments and research. Engagements with stakeholders remain one of our key priorities in the surveillance, detection, assessment and ultimately the management of emerging invasive alien plants (IAPs); the support of CREW staff and volunteers over the years has been invaluable. This year's contribu-

tion to the CREW newsletter focusses on annual highlights from the KZN BID unit.

Surveillance: New species detection

Not a highlight at all, but an important discovery nonetheless. A new IAP has been detected for the first time in South Africa in northern KZN (near Eshowe). *Elephantopus mollis* (Asteraceae), commonly called elephant's foot or tobacco weed is an herbaceous perennial, < 2 m in height, native to the tropical Americas.

Figure 1. Elephantopus mollis growth form and life cycle.

Serrated oval to oblong leaves are arranged as a basal rosette in seedlings, and alternately on a main stem as plants mature (figure 1). Diagnostic orange/rust coloured branched infructescences (figure 1 inset) are likely to be seen during March to July. The current population is being managed, but the origin of this species in SA remains a mystery and we would appreciate any insight in this regard.

For existing target species (*e.g. Triplaris americana*, *Sagittaria platyphylla, Iris pseudacorus)*, reports from avid spotters coupled with our fieldwork have resulted in the detection of more populations of all species. Of particular concern was the alarming increase in the number of confirmed *Iris pseudacorus* populations in the province, mostly from private gardens around Hillcrest highlighting the role of the horticultural industry in biological invasions.

Awareness-raising and stakeholder engagements

We co-hosted the KZN Invasive Alien Species (IAS) Forum with the Department of Environmental Affairs (DEA); a crucial regional platform that brings together the different sectors involved in work on biological invasions, and we are very fortunate to have an active KZN IAS community (e.g. government, NGOs, private) who attend these meetings on a regular basis (figure 2). The KZN BID unit has lead representation in championing three other working groups, and staff participated in workshops throughout the year namely the national Alien Grass Working Group, the Aquatic

Figure 2. Participants of the KZN Invasive Alien Species Forum held on 30 August 2017.

Figure 3. Former KZN BID Research Assistant, Thabiso Cele participates in boat-washing activities during the annual tiger fishing competition at the Jozini Dam in Pongola, to control the spread of hydrilla.

Figure 4. KZN BID staff member Menzi Nxumalo with some of the young learners at eNgonyameni Primary School, commemorating National Weedbuster Week.

Figure 5. KZN BID staff member Menzi Nxumalo stands next to his poster on *Hydrocleys nymphoides* management at the International Conference on Ecology and Management of Alien Plant Invasions (EMAPI) in Portugal.

Weed Working Group and the isiZulu-IAP Renaming Working Group. On a lighter note, we commemorated National Weedbuster Week by hosting a fun awareness event for young learners at the eNgonyameni Primary School in Umlazi (figure 4). We also gave presentations at several municipal and community workshops, and hosted a plant ID training workshop for clearing teams in an effort to reach more people on the ground. Articles were published in two local newspapers in northern KZN. Staff attended the annual tiger fishing competition in Pongola (Jozini Dam) to raise awareness about hydrilla, and contributed to an initiative to contain the species to Jozini by washing down boats before they left the dam (figure 3).

Research, plans, strategies, and assessments

Menzi Nxumalo had the wonderful opportunity to present our work on *Hydrocleys nymphoides* at the 14th International Conference on Ecology and Management of Alien Plant Invasions (EMAPI) in Portugal last September (figure 5). Two scientific papers were published from the unit, both focussing on assessments of emerging IAPs, one of these currently unlisted (*Clusia rosea*). Staff participated in the annual Research Symposium on the Management of Biological Invasions held in Pretoria, and the Symposium of Contemporary Conservation Practice in KZN.

We assisted several KZN municipalities and SANRAL to compile their Invasive Species Control Plans (as required by NEM:BA) as we believe this is an important step in the right direction regarding the manage-

ment of IAPs in South Africa. Taxonomic staff assisted Ezemvelo KZN Wildlife in conducting IAP surveys in two Drakensberg reserves, to inform management plans. We are also excited to be a collaborator on a new project on the development of a Natural Resource Management Strategy for KZN, and are delighted to welcome Madonna Vezi to our KZN family as a post-doc based at UKZN (PMB) studying invasions in estuaries.

Clearing

Eight emerging IAPs will be cleared in KZN, one of these for the first time: *Rubus ellipticus*. We have appointed four clearing teams (each comprising 12 people) to implement these clearing programmes, which is possible due to the Expanded Public Works Programme (EPWP) from which we receive funding via DEA. We have also outsourced an amphibious dredging machine (figure 6) to aid manual clearing efforts of some aquatic species, which was the highlight of our poster presentation in Portugal.

Figure 6. Use of an amphibious dredging machine to enhance the management of selected aquatic alien plant species in KZN.

My CREW journey

FEZILE MATHENJWA

My love for science, especially nature, developed as early as primary school. I was fascinated by plants, birds, insects and planets. Doing school projects covering any of these topics was a thrill for me; however, it was only in high school that it became apparent to me that the natural science field would be the best fit for me. I pursued a B.Sc. Botany degree with majors in Zoology and Geography at the University of the Free State and that was a great place to kick-start my career.

I continued my studies by doing an Honours degree in Botany at the University of the Free State. During my Honours I developed a particular interest in sustainable management of ecosystems and this lead me into pursuing a Master's degree in Environmental, Society and Sustainability at University of Cape Town. This is where I fell in love with the Cape flora and the associated seascapes and mountains, and I wanted to know more about the renowned Cape Floristic Region. In April 2017, as I was finalising my Master's thesis, I received the rare opportunity of being an intern with the Custodians of Rare and Endangered Wildflowers (CREW) programme at the South African Biodiversity Institute (SANBI).

My internship journey has been a truly amazing one and no one day in the SANBI internship programme had been the same. I have had the opportunity to learn, build and diversify my skills from a variety of projects and intern development programmes at SANBI. Although I enjoyed working in both the field and office environments, field work has to be the highlight of my internship. In the field my breath has been taken away so many times by some of the landscapes I have had the opportunity to travel to, from the arid Karoo to the Cape fynbos. The possibility of finding a plant species, which has not been seen for decades, has been a thrill and a successful find is absolutely exhilarating. The field trip to Tradouws Pass/Barrydale area in search for *Ixia gloriosa* and *Ixia leipoldtii* was one to write home about. Less than an hour into the search Ismail spotted the first two *I. gloriosa* plants and as we explored the site further I discovered and counted 20 more individuals.

The team then took the search mission to the road verges west of Barrydale where we stopped at a burnt patch along the road where we found a new population of approximately 100 *Ixia leipoldtii* plants. This was really exciting and goes down as one of the highlights of my internship. We ended the day walking in the mountains above Tradouws Pass with Jill Blignaut who had the most fascinating stories about plants of the area.

Walking with Jill Blignaut and CREW colleagues.

My role in implementing the South Africa's Strategy for Plant Conservation is to engage with SANBI's National Botanical Gardens to facilitate effective implementation Target 8 (page 12).

My time in the CREW programme is one I will cherish for a life time and I am truly grateful for being afforded an opportunity to closely with very knowledgeable individuals such as my mentor Ismail Ebrahim, Gigi Laidler, Tony Rebelo, Dewidine van der Colff, Anri Marais, Randall Josephs and Luke Gallant.

Internship profile

LUKE GALLANT

My admiration for biodiversity has persisted throughout my life and initially began with a strong interest in and bond I had with animals, and as I grew older I knew I wanted to pursue a career involved in nature conservation. I later enrolled at the University of the Western Cape to study towards a BSc and later Hons degrees in Biodiversity and Conservation Biology. My Hons research focused on monitoring the plant dynamics on top of and in between *heuweltjies* (termataria) in the communal rangelands of Ebenhaeser, situated along the West Coast. I am currently completing my MSc research in forage nutrition, where I am focusing on characterising the nutritional value of selected native plant species in the Overberg Renosterveld rangelands to assist with improving the livestock grazing practices in natural pastures.

Although all the theory I learnt through my studies was beneficial, I felt an urgency to gain some practical experience and therefore I applied for the Environmental Leaders Internship with the World Wide Fund (WWF) and was lucky enough to be one of selected few to join the programme. For the duration of my internship I was hosted at the South African National Biodiversity Institute (SANBI), at the Kirs-

tenbosch Research Centre, under the mentorship of Dr Anthony Rebelo. My experience as a biodiversity research intern has been to gather and identify biodiversity data in various regions across the Cape Floristic Region, with special focus on the Karoo region for the Karoo BioGaps Project. For BioGaps I joined in a Bioblitz with Tony and Gigi Laider, where we collected biodiversity data (faunal, floral and fungal) in 1 × 1 km plots within six different pentads (larger plots) across Karoo.

The purpose of BioGaps is to assist with filling in the gaps of the missing ecological data in the Karoo, so that informed decision making processes can be implemented. The data was then managed and loaded onto the citizen scientific virtual museums, iSpot and iNaturalist, which was then identified promptly by experts in the related fields on the websites. My experience in the Karoo was one of my biggest learning curves as this was my first fieldtrip when starting the internship, and I had to collect and manage large datasets in a short period of time, hence the name BioBlitz. I also had to quickly learn how to identify Karoo species and to be quick on my feet because time was of the essence to get as much data as we could collect.

A large portion of my time was spent working with CREW and learning so much about threatened plant species, under the supervision of Ismail Ebrahim, where I assisted with the search and monitoring of threatened plant species across the CFR, visiting a multitude of locations like the Cape Peninsula, Overberg, Karoo and the Southern Cape. One of my most memorable field trips was the post-fire monitoring trip in the Garden Route with the Outramps group, where we mountaineered up the burnt slopes in Robberg and the Goukamma Nature Reserve in search for the any post fire rarities. One of the specials that we came across was *Satyrium princeps* (VU), glowing bright red in between the charred remnants of the Southern Cape Dune Fynbos, reminding us how important fire regimes are to the diversity of these ecosystems despite its destructive nature.

Through all of these collective experiences and more, I have obtained an immense amount of skills ranging from georeferencing threatened plant species to 4 × 4 driving in harsh terrain to get to field sites, as well knowledge about our vegetation types and the related species in the region. I am extremely appreciative that I was given this platform to network with so many people in the environmental sector as well all the new destinations that I've been introduced to and I am positive that this experience has enriched my career path to becoming an ecological researcher.

Luke Galant in his favourite place in the world, Knysna.

Red hot *Satyrium princeps.*

CREW Conservation Scientist Intern

RANDALL JOSEPHS

I have always had a passion for the natural environment, which later blossomed into an interest in conservation. This led me to study Biodiversity and Conservation Biology. Throughout my undergraduate degree I volunteered at the Kirstenbosch Research Centre where I first heard about the Custodians of Rare and Endangered Wildflowers (CREW) and the exciting work they were doing. Therefore, when an opportunity arose to apply for an internship with CREW I jumped at the chance.

One of the primary reasons I wanted to be an intern with CREW was to use all the theoretical knowledge gained at university in a practical setting within the conservation sector. Through this I have seen the great array of avenues that is available within the conservation field and with that the different career paths.

One of the many performance areas of my internship has been active learning on field trips. One of the most memorable fieldtrips I was on was a drought monitoring trip to Jonaskop with researchers from SAEON and UCT. The drought has been one of the biggest talking points and this was an attempt to put some science behind the claims that plants were suffering because of the drought. We got to experience some high tech sampling where a drone was used to take high resolution images of different research sites to identify areas where plants where stressed. That was backed up by ground truthing by the CREW staff and volunteers.

An integral part of the CREW machine is the volunteers. I've had the pleasure of meeting a most passionate and driven group of volunteers that give up their time to carry out what CREW has asked of them. From the West Coast of the Western Cape to the surfers' paradise of St Francis Bay, the amount of enthusiasm amongst them was unbelievable. I would like to thank you all for the advice, amazing hospitality and the encouragement to reach for my goals.

My time spent as a CREW intern has been one of the most rewarding experiences. I have learned a great deal from not just those who I shared an office with, but from everyone that gave of their time to offer advice on a subject. The weekly training workshops facilitated by professionals working at SANBI have provided an array of different skills that will help me pursue a career in biodiversity conservation.

After experiencing CREW for the past year I would suggest to anyone who is passionate about the unique vegetation to get involved in this programme. It encompasses so much more than just monitoring plants and has taught me life lessons that are applicable within the realm of biodiversity conservation as well as those that are of a more personal nature. Those lessons will stay with me along my life's journey.

A special mention has to be given to my mentor Ismail Ebrahim who has been everything you would want a mentor to be and more. Not forgetting the rest of the CREW CFR team (Gigi Laider, Anri Marais and Dewidine van der Colff) as well as Rupert Koopman, who has been supportive and always willing to provide a helping hand.

Randall Josephs enjoy looking at some aloes at Kirstenbosch.

Moraea aristata: A new home on Rondebosch Common

ALEX LANSDOWNE (Plant Conservation & Restoration Horticulture Consultant)

Herbarium specimens indicate *Moraea aristata* is a northern Cape Peninsula endemic. It was recorded adjacent to Table Mountain between the present day Cape Town CBD and the suburb of Rondebosch. Like sister species in the peacock moraea group, it prefers heavier soils and would have been found within Peninsula Shale Renosterveld, and debatably nearby, similar vegetation types.

Today, a population of less than 100 individuals persist on the grounds of the South African Astronomical Observatory. The highly transformed habitat is more akin to lawn than an ecosystem and is managed for their persistence.

This is why *Moraea aristata* needed a new home. One last remnant habitat exists within the historical range of *Moraea aristata* – Rondebosch Common. This 40 ha conservation area harbours a unique community of lowland plants, many threatened taxa, and have a long history of degradation. However, a species introduction is not a simple gardening exercise. It is a scientific experiment, more likely to fail than succeed, and accompanied with many serious ecological risks. In considering a species introduction, it has to pass through a set of key risk criteria: Is the receptor site a suitably matching habitat? Is there degraded habitat to support a plausible local extinction? Is there a community of potential predator and pollinators? Would this species naturalisation displace biodiversity within the existing community?

At the instruction of the Friends of Rondebosch Common (FRC), I proposed the introduction plan to relevant authorities and experts. We made a habitat assessment of the donor population and two receptor sites, and decided potentially establishing *Moraea aristata* on the Common outweighed the risks.

Members of the Kirstenbosch team setting up the planting transects

In May 2017 we planted out 150 dormant corms (Accession: KB 1205/82) in two plots and a test transect. The corms were donated through the Kirstenbosch Garden Conservation Programme, from stock grown by Kirstenbosch bulb master Graham Duncan.

In August and September 2017 a third of the plants flowered. Pollination was observed by an unidentified monkey beetle and validated in October when seed pods were observed – a sign of successful sexual reproduction!

This May (2018), a third plot was created and a further 50 corms were planted of a different collection (KB 205/84). This will allow for a higher rate of cross pollination and broaden genetic diversity.

Moraea aristata needs to reproduce for three generations before considered naturalised on the common. However, it has already inspired further conservation planning.

The FRC have since sponsored a Habitat Restoration Plan. This new vision seeks to restore the common to a more natural species composition and habitat structure and function. The restoration plan guides all habitat management including fire, alien clearing and active re-vegetation strategies. The long term goal is to increase the quality of threatened habitat on Rondebosch Common, and reintroduce taxa that have become locally extinct due to anthropogenic activity. Watch this space – things are happening on Rondebosch Common!

Moraea aristata in flower

Special acknowledgement to Joanne Eastman (Friends of Rondebosch Common), Graham Duncan (Kirstenbosch National Botanical Garden) and Clifford Dorse (City of Cape Town).

A corm of *Moraea aristata* being planted

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