

# Peacocks, ploughs and porcupines

## The plight of the peacock moraeas

by **Ismail Ebrahim** and **Caitlin von Witt**, Custodians of Rare and Endangered Wildflowers (CREW) and **Callan Cohen**, Percy FitzPatrick Institute of African Ornithology, University of Cape Town

ABOVE: *Moraea tulbaghensis*. Photo: Ismail Ebrahim.

The moraeas of the 'peacock' alliance are so-called for the striking iridescent nectar guides that resemble the 'eyes' of a peacock's tail. These occur on the outer tepals of four of the six species. These must surely be the most spectacular of the moraeas, and deserving of their common name. Despite this, all six species are threatened with extinction and only fragmented populations remain. This loss can be attributed to the destruction of renosterveld, the vegetation type to which they are restricted, from agricultural and urban development.

The future of the peacock moraeas is decidedly bleak. Many of them are pollinated by hopliine (Scarabaeidae) beetles, commonly known as monkey beetles of the 'non-embedding' guild. Monkey beetles are a diverse group, but University of Cape Town researcher Jonathan Colville has found that each group of species appears to be geographically distinct. Moreover, their larvae develop underground where they probably feed on organic matter or plant roots, so ploughing and other agricultural activity is dramatically deleterious to these populations. Reduction in pollinator numbers of fragmented plant populations such as those of the peacock moraeas only further precipitates their genetic decline.

Fortunately, most of the peacock moraeas respond well to cultivation, so it is their situation in the wild that requires immediate attention. The 'Custodians of Rare and Endangered Wildflowers' (CREW) has recently surveyed most of the areas where they occur. (CvW)

### *Moraea gigandra*

Only about 20-40 cm across, this stunning little moraea is confined to the area between Piketberg and Porterville. The flowers are usually deep purple but white and pink forms have been recorded. The diagnostic character of this species is the unusually long anthers that extend beyond the style crests. *Moraea gigandra* used to be fairly common in its distribution range but most of the rich clay soils on which it occurred have been cultivated with wheat, confining it to small fragments that are unsuitable for farming. Between 1981 and 1989, Chris Burgers and Ruida Pool, botanists working for Cape Nature Conservation, monitored this species on four farms in the Porterville area and three in the Piketberg area including Septemberskraal. At most of these localities less than 100 plants were recorded. The major threat identified at the time was loss and degradation of the

habitat by overgrazing, alien plant invasions and poisoning by crop spraying. Also, they all occurred on privately owned farms and their long-term survival was questionable. The last count was conducted in 1993 in the Porterville area where an estimated 1000 plants were recorded.

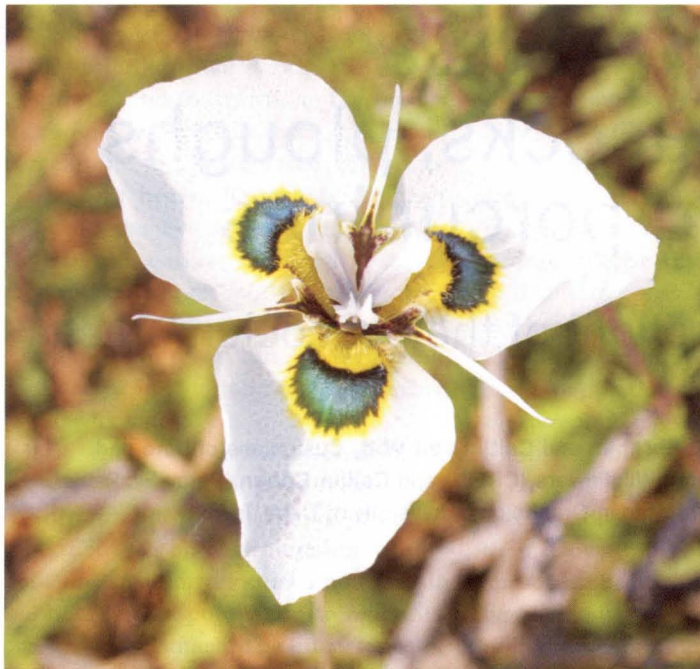
In 2003 CREW went in search of this species. We visited the farm Septemberskraal and only managed to find about twenty plants. According to the farmer and SANBI botanists, numbers had been steadily dropping over the previous five years. The decline was attributed to the small size of the site, infestation of alien grasses and too-frequent burning from the adjacent wheat fields that are burned annually.

At the next site, we stopped off at the farmhouse to ask for permission to survey the veld to try and find *M. gigandra*. The farmer's wife responded, 'Ja, ons hoor hulle elke oggend in die veld' and I thought, 'What! Talking moraeas!' Well, after driving through the wheat fields to get to the patches of natural veld we realised that they have a few flocks of blue cranes and she probably thought we were there to monitor the birds. The only natural veld left on the farm was on the steep, stony, south-facing slopes where we finally found a population of about 200 plants.

This year, two Cape Nature conservation officers based at the Porterville office, Riaan van de Walt and Jaco van der Venter, organised an intense *M. gigandra* hunt for CREW and managed to record eight populations on six farms with one of the populations consisting of more than 1000 plants. This was a huge relief as we thought the plants only remained at the two farms we surveyed in 2003. The plants all occur on private land, so the future of this species lies in the hands of the land-owners. Constant contact with the land-owners to encourage appropriate management is the only way to conserve this charismatic species in the wild. (IE)

### *Moraea tulbaghensis*

The flowers of this species, which is restricted to the Tulbagh/Porterville area, are the most incredible orange colour with iridescent green or blue nectar guides. *Moraea tulbaghensis* now includes the former *M. neopavonia*, which has slightly larger flowers and different coloured nectar guides. (*M. neopavonia* was only known from four localities in the De Brug area and when it was sunk into *M. tulbaghensis*, only two populations were left.)



ABOVE LEFT: *Moraea villosa* subsp. *villosa*. Photo: Ismail Ebrahim. RIGHT: *Moraea villosa* subsp. *elandsmontana*. Photo: Domitilla Raimondo.

The original *M. tulbaghensis* is historically known from three areas: Halfmanshof, Elandsberg Private Nature Reserve and Gouda commonage. Alien grasses, run-off from agricultural lands and development threaten all the populations except for the ones at Elandsberg Private Nature reserve. In 1982 Chris Burgers visited all these populations and collected seeds for *ex situ* conservation and storage. He recorded a total of approximately 2000 plants but they are extremely localised with the biggest population occurring in an area of about 6 ha.

This year CREW visited the Gouda commonage where Gerhard Hansford, a volunteer working with us in the Tulbagh Valley, showed us where the species occurred. I was horrified to see the condition of this site. It was covered in alien grasses and I could not believe that this was the locality of a plant as beautiful as *M. tulbaghensis*. With disbelief we followed Gerhard and found a patch of fifty plants in flower. We then drove to another site behind a housing development and the horror continued. This site was not only covered in alien grasses but also Port Jackson trees and loads of garbage. The only redeeming factor was that *M. tulbaghensis* is still hanging in there. We estimated that there are more than 1000 individuals left. About two weeks later, Neil Cox and Gerhard Hansford found a new population of *M. tulbaghensis* on the farm Groenvlei. The Gouda commonage belongs to the Drakenstein Municipality

and they have been made aware of the populations of *M. tulbaghensis* and are looking at adapting their spatial development framework to conserve these remaining populations. (IE)

#### ***Moraea villosa***

*Moraea villosa* is the most widespread species of the peacock moraeas, with two subspecies. The distribution range of *Moraea villosa* subsp. *villosa* is from Piketberg to Gordon's Bay whereas *M. villosa* subsp. *elandsmontana* is only found in the Elandsberg Private Nature Reserve. Subspecies *villosa* usually occurs on deep rich clay soils and the flower colour ranges from purple to white whereas subspecies *elandsmontana* occurs on stony sandstone soils and has bright orange flowers.

Although this species is fairly widespread, its habitat is under serious threat. The only protected areas where these species occur are at the Harmony Flats Nature Reserve in Strand and at Elandsberg Private Nature Reserve. Thanks to the great conservation contributions of the Parker family both subspecies are quite safe within the boundaries of the Elandsberg Private Nature Reserve. (IE)

#### ***Moraea aristata***

*Moraea aristata* is one of the world's rarest plants. While this could be viewed as something of a cliché in Cape Town, which has one of the earth's highest concentrations of threatened plant species, *M. aristata* is an extreme

case. It is limited to perhaps less than 50 m<sup>2</sup> on the grounds of the South African Astronomical Observatory in Cape Town. Fewer than forty plants flowered in 2005, and these plants are apparently all derived from five original parent plants or clones.

The striking yet fragile white flowers, with the conspicuous bluish-purple nectar guides characteristic of the peacock moraeas, last for just three days during the flowering season at the end of August and beginning of September. This beauty has been the species' saving grace. It was noticed by eighteenth century horticulturalists visiting the young city of Cape Town, and the bulbs found their way back to Europe where they are still propagated widely. Fortunately it is relatively easy to grow in cultivation (where it is often known as *Moraea glaucopsis*). *M. aristata* has even appeared on a huge poster in the London Underground, advertising Kew Gardens!

Few people probably appreciate the critical state of the last remaining natural population. *M. aristata* was once more widely distributed on shale from the lower slopes of Devil's Peak to Rondebosch, but the urban expansion of Cape Town has all but wiped it out. Surveys of the Observatory grounds in the early 1980s revealed as few as twenty plants. Seeds were taken from the wild population, grown in external government nurseries and subsequently re-planted at the site, and this has led to some speculation that the purple

spotting present on some of the flowers at the site might be due to hybridization with *M. atropunctata* while the plants were in cultivation. However, most plants do not seem to show the spots.

Given the tiny size of the population, major threats include smothering by Kikuyu grass and other invasive plants, development of the site and careless removal of the plants by garden staff. For the past twenty-five years, the management of the Observatory population fell on the shoulders of two previous residents, Mrs Feast and Mary Stobie who took an interest in the plants and ensured that they were not disturbed, that the area was only mowed in summer when the plants are dormant and even hand-pollinated them. Its beauty, extreme rarity, the relatively protected nature of the site and the willingness of volunteers to assist, make *M. aristata* an ideal candidate for attention. Recent building activities, which affected some of the plants, drew attention to the fragile situation and the lack of a management plan for this species. It seems that an opportunity to rehabilitate part of the Observatory grounds and repopulate the area with *M. aristata* and other indigenous species may exist, but first the genetic integrity of the species needs to be assessed. A sampling process to investigate the genetic purity of specimens growing in natural conditions and compare them to plants that have been in cultivation for many years has already begun.(CC)

this year, I was dismayed to find that most of the remaining areas of the site had been walled-off for development. My search proved fruitless, however, as while standing alone on top of the hill a mere 300 m from the GPS point, I looked around at the masses of broken bottles lying on the ground surrounding me and decided to move on to the next site further south. Nevertheless, a couple of weeks later, Tilla Raimondo, CREW Programme Manager, armed with a group of researchers, returned to find approximately 200 plants flowering magnificently over a large area. They occur outside the area earmarked for development but on land owned by a mining company and are thus by no means safe. For this reason as well as the exceptionally rich diversity of limestone endemics found here, the site is of considerable conservation interest.

The fate of *Moraea loubseri* is not as promising. It is only known from a single locality - a small granite hill near Langebaan, which has been partially removed by extensive quarrying. Degradation by overgrazing has been a problem and a few horses graze there still. Furthermore, proposed township developments in the area of the remaining population have been approved. For these reasons, as well as its erratic flowering and extreme localisation to a few square metres that make it difficult to find, its Red Data Book status has vacillated between Critically Endangered and Extinct in the Wild.

The last sighting of three flower-

ing plants was in 2002, and prior to this four plants were found in 1995. According to Dee Snijman, of the Compton Herbarium, who found the plants in 2002, evidence of extensive digging by porcupines was present at the site. Since the species does not produce bulbils, the animals are purely destructive and not aiding dispersal as in some other species of *Moraea*.

My search in September this year did not turn up any plants and nor did that of one of the plant's discoverers, Mr Johan Loubser, a couple of weeks before. I spoke to the owner of the lodge at the base of the hill who, incidentally, informed me of numerous muggings at the site near Saldanha that I'd fortunately decided to leave whilst searching for *M. calcicola*! She also informed me that Mr Loubser had suggested that she move the plants on to her property should development take place. Discussion of these proposed efforts may be in vain, however, should no plants be found.

Despite the degradation of the site, it deserves conservation status not only for *M. loubseri*, but also for the breeding pair of Verreaux's (black) eagles, African wildcat and other flora and fauna. Attempts could be made to restore the population of *M. loubseri* by sowing seeds from one of the many nurseries where it is cultivated, back into the wild. (CvW) 🌱

A list of further reading and references is available on request from the editor at [voget@kingsley.co.za](mailto:voget@kingsley.co.za). For more about the activities of CREW see p. 167.

### *Moraea calcicola* and *M. loubseri*

*Moraea calcicola* possesses a small dark spot at the base of the outer tepals, but as this spot is not iridescent, the species cannot be included as part of the core group in the peacock alliance. The dark beard on the outer tepal claws resembles that of *M. loubseri*, to which it is thought to be closely related. The beard of *M. loubseri* is a lot heavier, however, and usually obscures the iridescent spot at the base of the outer tepals. It is for this reason that *M. loubseri* joins *M. calcicola* in exclusion from the core group of peacock *moraes*. Both species occur on fragmented habitats with restricted geographical ranges in the region of Saldanha Bay.

*M. calcicola* grows only on exposed limestone rocks overlying decomposed granite at two localities near Saldanha Bay. This dainty species is thus extremely rare and is seldom seen flowering. While searching for it in spring



ABOVE LEFT: *Moraea aristata*. Photo: Callan Cohen. RIGHT: *Moraea calcicola*. Photo: Donovan Kirkwood.

