

Bowiea gariepensis (Lopertjie) — 'n interessante nuwe sukkulent van Noordwes-Kaapland

deur Ernst van Jaarsveld, Kirstenbosch

DIE WINTERREËNSTREEK van Suid-Afrika beskik oor die rykste verskeidenheid sukkulente in die wêreld. Jaarliks word nuwe spesies ontdek, beskryf en aan die wetenskap

bekend gestel. Een van hierdie nuwe spesies wat onlangs beskryf is, is *Bowiea gariepensis*, of "lopertjie", soos dit in die volksmond van die Pella-omgewing heet. Hierdie plan-

tjie behoort aan die lirie-familie wat die vierde grootste vetplant-familie van Suid Afrika is, en ongeveer 9% van ons totale sukkulente flora verteenwoordig.

Die lirie-familie vertoon 'n verskeidenheid groeivorme. Aalwyne (*Aloe*), *Gasteria*, *Haworthia* en baie bolplant- en aspersiesoorte is almal verteenwoordigers van hierdie familie. Wat die lopertjie so merkwaardig maak, is die klouternatuur van sy bloeiwyse, wat tegelykertyd as 'n assimilasie- of fotosinteseorgaan dien.

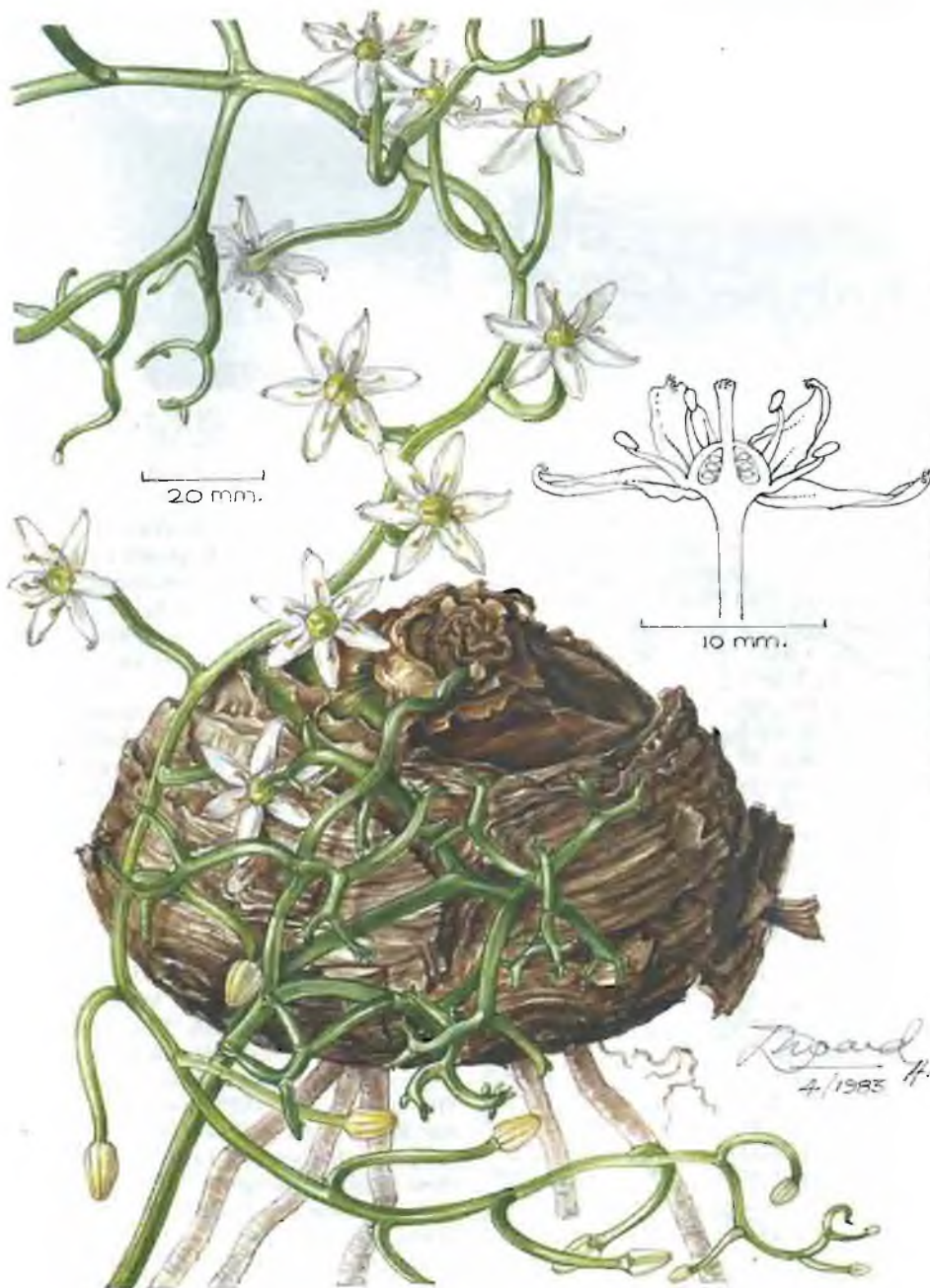
Nog 'n interessante eienskap is die een tot twee klein lansvormige blaartjies tot 28 mm lank, wat net voor die bloeiwyse verskyn. Hulle verwelk egter baie gou en die bloeiwyse neem dan die funksie van blare oor.

Die spesienaam *gariepensis* verwys na die Gariep, oorspronklike Nama-volksnaam vir die Oranjerivier.

Verspreiding, habitat en beskrywing

Die lopertjie kom voor in die warm, droë woestynagtige benede-Oranjerivervallei, vanaf Pella in die ooste tot by Helskloof in die weste. Die reënval is in die herfs en winter, en wissel van 50-200 mm p.j. Die geïllustreerde plant is deur die skrywer op die hoë suidelike hange van Groot Pellaberg reg onder die steil kwartsietkranse versamel. Die effens platgedrukte bolle, een tot drie in 'n groep, groei tussen mikalae en kwartsietrotse. Bolle word ongeveer 60-140 mm in deursnee, is meestal onder die grondoppervlak maar somtyds ook halfontbloot. Die bol is met grys membraanagtige, uitgedroogde bolskubbe omhul. Die vertakte, sagte bloeiwyse verskyn jaarliks in die herfs en klouter dan teen die rotse af. Dit word tot 1 200 mm lank.

Die welriekende, stervormige enkel blommetjies verskyn vanaf Maart tot Julie aan die punte van die vertakte stingels. Die vrugkap-sule is drie-hokkig, 8-12 mm lank en huisves van 4-9 blinkswart saadjies van 5 mm lengte elk. Die bloeiwyse verwelk in September. Plante wat in assosiasie met *B. gariepensis* voorkom, is *Whiteheadia bifolia*, *Ophthalmophyllum* spp (venstervingertjies), *Bulbine* sp., *Eriospermum* sp. en *Aloe dabenorisana*. Bome en groter stuie in die habitat is die natarra (*Ficus*



Bowiea gariepensis Van Jaarsveld, sp. nov., 'n waterverf skets deur Ellaphie Ward-Hilhorst

ilicina), K'touboom (*Pappea capensis*) en *Diospyros acocksii*.

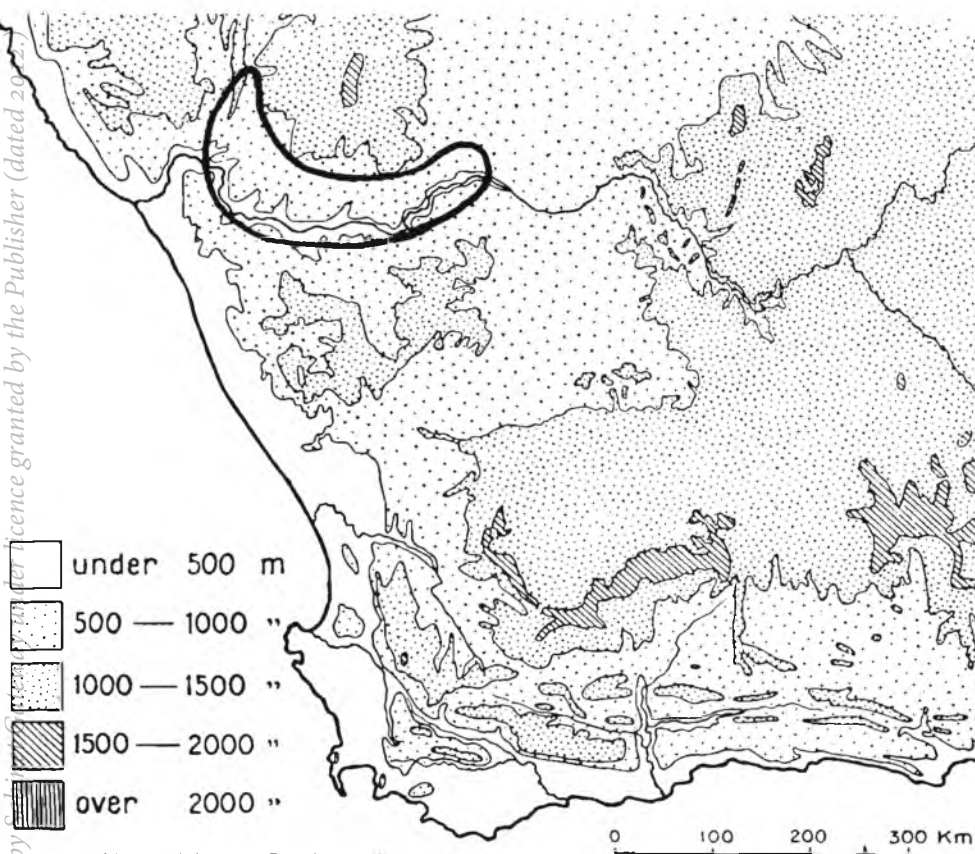
Volgens 'n plaaslike inwoner van Pella word die naam "geitjiepootjie" soms ook vir hierdie plant gebruik. Hierdie naam verwys na die klouternatuur van die bekende blinkogie-geitjie (*Pachydactylus bibronii*). Die blinkogie is 'n groot geitjiesoort wat wydverspreid in Suid-Afrika voorkom. Dit is 'n nagdiertjie wat in en om huise hou en van motte en ander insekte leef. Die suervoetjies van die blinkogie stel hom in staat om selfs teen gladde voorwerpe soos glasvensters op te klim.

Geskiedenis en verwante

Alhoewel die lopertjie reeds die eerste keer op 14.8.1909 deur dr Paul Range, 'n Duitse staatsgeoloog, by Pelladrif ontdek is, is dit eers onlangs as 'n nuwe spesie erken. Dit is nog altyd met die klim-ui (*Bowiea volubilis*) verwar, die enigste ander soort wat ook in Suid-Afrika voorkom. Dié foutiewe klassifikasie kan aan die oppervlakkige ooreenkomst van die plante toegeskryf word. *Bowiea volubilis* het 'n soortgelyke groeiwyse as die lopertjie, maar kan maklik onderskei word



Links: Pellaberg met *Acacia karoo* op die voorgrond. Die lopertjie word op die hoër suidelike hange aangetref. Regs: *Bowiea gariepensis* tussen die kwartsiet rotse in sy natuurlike omgewing.



Verspreiding van *Bowiea gariepensis*

deur sy grasgroen bloeiwyse en kleiner, teruggekromde groen blommetjies. *B. volubilis* is gewoonlik 'n slingerende klimplant in bosse. Dit kom in die sentrale, suidelike en oostelike somerreënvalstreke van Suid-Afrika voor.

Die bolle is baie giftig en word as medisyne deur verskeie inheemse volke gebruik. Die giftigheid van *B. gariepensis* moet nog ondersoek word.

Naas die twee spesies in Suid-Afrika kom daar slegs een ander spesie voor, nl. *Bowiea kilimandscharica* wat in 1937 van die Kilimanjaroberge in Oos-Afrika beskryf is, met geel blomme.

Die genus *Bowiea* is in 1867 deur Harvey ter ere van die Brit James Bowie (1789-1869), 'n tuinboukundige en plantversamelaar, beskryf. Hy het hom in 1827 permanent in die Kaap kom huisves. Vir 'n ruk lank het hy in die bekende historiese Ludwigsburgtuin van Baron Von Ludwig in Kaapstad gewerk, maar was later tot en met sy dood, in die diens van Ralph Arderne van Claremont. Hierdie tuin wat aan die munisipaliteit oorgedra is,

staan vandag as Arderne Gardens bekend en is sonder twyfel die mooiste tuin in Kaapstad.

Kweekvereistes

Bowiea gariepensis kweek baie maklik van bolskubbe wat in goed gedreineerde sanderige grond geplant word. Klein bolletjies verskyn gou aan die basis van die skubbe. Dit aard goed in potte, maar moet in die somer heeltemal droog gehou word. Die ou bloeiwyse kan in September afgesnoei word.

Summary

An interesting new species of *Bowiea* from the dry and mountainous regions of the north western Cape is described. Although *B. gariepensis* was originally

Bedankings

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discovered on 14 August 1909 at Pella-drift by Dr Paul Range, it was confused with *Bowiea volubilis*, a widespread species occurring in the south central and eastern parts of South Africa. A noteworthy feature of *B. gariepensis* is the pendulous and succulent inflorescence which acts as an assimilating organ.

The attractive star-shaped flowers are scented, 25 mm in diameter and consist of five white spreading segments which rise from the apex of the branches. Rainfall in its natural habitat ranges from 50-

200 mm p.a. and occurs mainly during autumn and winter. The glaucous inflorescence is procumbent and pendulous. The plants occur mainly on south-facing slopes of rocky hills and mountains, where they are in shade for most of the day.

B. gariepensis makes an attractive pot plant, and is easily cultivated, but should be kept completely dry during summer.

VERWYSINGS

1. Dyer, R. A. 1941. *Bowiea volubilis*, Flowering Plants of Africa. Plate 815 Vol. 21.
2. Gunn, M. and Codd, L. E. 1981. Botanical Exploration in Southern Africa. A. A. Balkema.

Mapping Cape fynbos vegetation with the aid of Landsat imagery

by Lucia Bossi

THE CAPE FYNBOS vegetation found in the south-western, southern and south-eastern Cape, has a rich floral diversity (8 550 species), containing almost 10% of the total number of plant species in the world. More than 70% of these plant species are endemic, growing nowhere else in the world. With these figures in mind, it is clear that the fynbos vegetation should be conserved.

The need for conservation becomes urgent when we are told that 1 621 plant species face imminent extinction. The threat to the fynbos vegetation has occurred mainly through clearing of land for agriculture, invasion of plants such as acacias, wattles and hakea, uncontrolled veld fires and vandalism.

Assessing extent and location

For conservation planning, a map of the fynbos vegetation is necessary in order to assess the extent and location of the various fynbos types. The only map available of the fynbos vegetation has been Acocks' "Veld Types of South Africa", published in 1953. The use of this map is not practical for conservation purposes as the map delineates areas as units of farming potential, irrespective of whether the natural vegetation has been cleared. An

attempt was therefore made to produce a more suitable map.

The fynbos vegetation covers an area of approximately 74 500 km². A suitable working scale to represent this large area was chosen to be 1:250 000 scale with the final mapping scale at 1:1 000 000. The procedure conventionally used to map vegetation has been the visual interpretation of aerial photographs, but with recent developments in space technology, satellite images have proved to be more suitable and cheaper, particularly for small scale mapping. Therefore Landsat satellite images were investigated for possible use in mapping the fynbos vegetation.

The Landsat satellite was launched into space by NASA and orbits the earth at an altitude of 917 km. It circles the globe 14 times a day and covers the entire land surface of the earth every 18 days. This means that Landsat images may potentially be recorded 20 times a year for any given location.

The satellite senses reflected and emitted electromagnetic radiation from the earth's surface. It records only specific portions of the electromagnetic spectrum, namely the green, red and near infrared wavelengths. This data is relayed to re-

ceiving stations on earth. South Africa has a ground receiving station, the Satellite Remote Sensing Centre, situated at Hartebeeshoek in the Transvaal. Landsat images are available either as photographic prints (as reproduced with this article) or as digital images recorded on computer tape.

Computer processing of images

The photographic images may be visually interpreted as with aerial photographs, while the digital images are analysed by means of computer processing. There are two approaches to computer processing of digital images. One is enhancing or suppressing certain features on the digital image and the other, the method used in this project, is the classifying of digital images into units of similar reflectance values.

It was hoped that with the development of computer processing, maps could be produced independent of the investigator's mapping ability or the requirement of extensive botanical field knowledge. However, the best map results were obtained if the processing was not completely automatic but included some input by the investigator to ensure correct representation of all vegetation types in the computer