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Riversdale

Fig. 1.

JOURNAL CONTENTS

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Fig. 2. Map of the area covered by this article.

Riversdale
Mecca for Magnificent Haworthias
Part 1

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Introduction

The Riversdale district lies at the heart of the Southern Cape coastal plain of South Africa. It is located about 300 km east of Cape Town and to the south of the Langeberg Mountains, which provide the natural boundary separating the coastal area from the Little Karroo. The Little Karroo is a semi-desert area with tremendous succulent plant variety.

The N2 motorway (the well-known Garden Route) passes through Riversdale, connecting it to the towns of Heidelberg to the west and Albertinia to the east. The beautiful beach resort of Still Bay lies about 40 kilometres south of Riversdale at the mouth of the Goukou River, as can be seen from fig. 2. The Goukou flows southward to the east of Riversdale, with the Vet joining it from the west, immediately north of the town.

The Coastal Plain is under the influence of cyclonic weather and although regarded as a winter rainfall area there are rainfall peaks in autumn and spring. The average rainfall is about 700 mm per annum, with the highest precipitation just south of the Langeberg Mountains, dropping dramatically as one enters the Little Karroo to the north. The vegetation of the coastal plain is influenced by both the rainfall patterns and the broken geology of the area and varies from forests and 'fynbos' to Karroid scrubland with a high percentage of succulents. Haworthias are common in the dryer habitats, yet very inconspicuous.

This article aims to give the reader a perspective of the variability of *Haworthia* in a virtual tour of the area immediately surrounding the town of Riversdale. We will also look into the association of plant variation to factors like geology, habitat differences and the genetic interaction of isolated Haworthia populations. A follow-up article that will be published in the Aloe magazine, will deal with the taxonomic conclusions that may be drawn from this study.

Acknowledgements

Pieter Bosch developed the geological legend, page 5, and the table, page 25, that explain the geological terms used. He also gave valuable inputs into the paragraph on the geology of the area and in general discussion on the relationship between the plant life forms and the geology of the rock and soil in which they grow.

Bruce Bayer was instrumental to my growing interest in this area and my knowledge of haworthias in general. He and his wife Daphne accompanied me on several trips to the area and they did several further trips themselves which benefited this study tremendously. Bruce made several valuable comments and suggestions for improvement to the draft of this document, for which I am very grateful. Figures 86 to 90 and figure 98 in Part 2 of this articles are scans from pictures taken by Bruce.

The idea to publish this summary of the original presentation at the 2003 Succulenta congress came from Harry Mays. He drafted a framework for the text and copied all the pictures from the presentation CD.

Geology

Fig. 3 page 4 gives a simplified perspective on the geology of the area, based on the 1:250 000 scale sheet 3420 Riversdale (Malan et al. 1990). The terminology is explained in Appendix 1 page 25. The area has a long and complex geological history that varies from the Ordovician period (495 Ma ago) to the Quaternary period (recent ages) during which sediments (sand, mud and silt) was deposited by water and wind and later cemented to form the current rocks. Movements in the earths crust folded and fractured these rocks during the process which led to the formation of the Cape Mountains. Large fissures (rifts) were formed in the crust during the break up of the ancient continent (namely Gondwanaland) in the Jurassic period (144 Ma to 203 Ma ago). These rifts were filled by conglomerate of the Enon and Kirkwood Formations. Various periods of erosion followed due to relative vertical continent movements. This history, in conjunction with the differential erosion of the various rock types of varying compositions resulted in the formation of a wide variety of habitats, of which some are suitable for specific species and varieties of *Haworthia.* The different rock formations in the area are generally orientated in east-west bands. When one moves from the south towards the north the following geological formations may be encountered: Firstly the calcarenite of the Wankoe Formation, which is for large portions covered by Quaternary period (1.8 Ma to present age), sandy soil, calcrete and ferricrete (See figure 3 and legend). Shale and siltstone of the Ceres Subgroup are present at the western extremity of the Wankoe

(Continued on page 5)

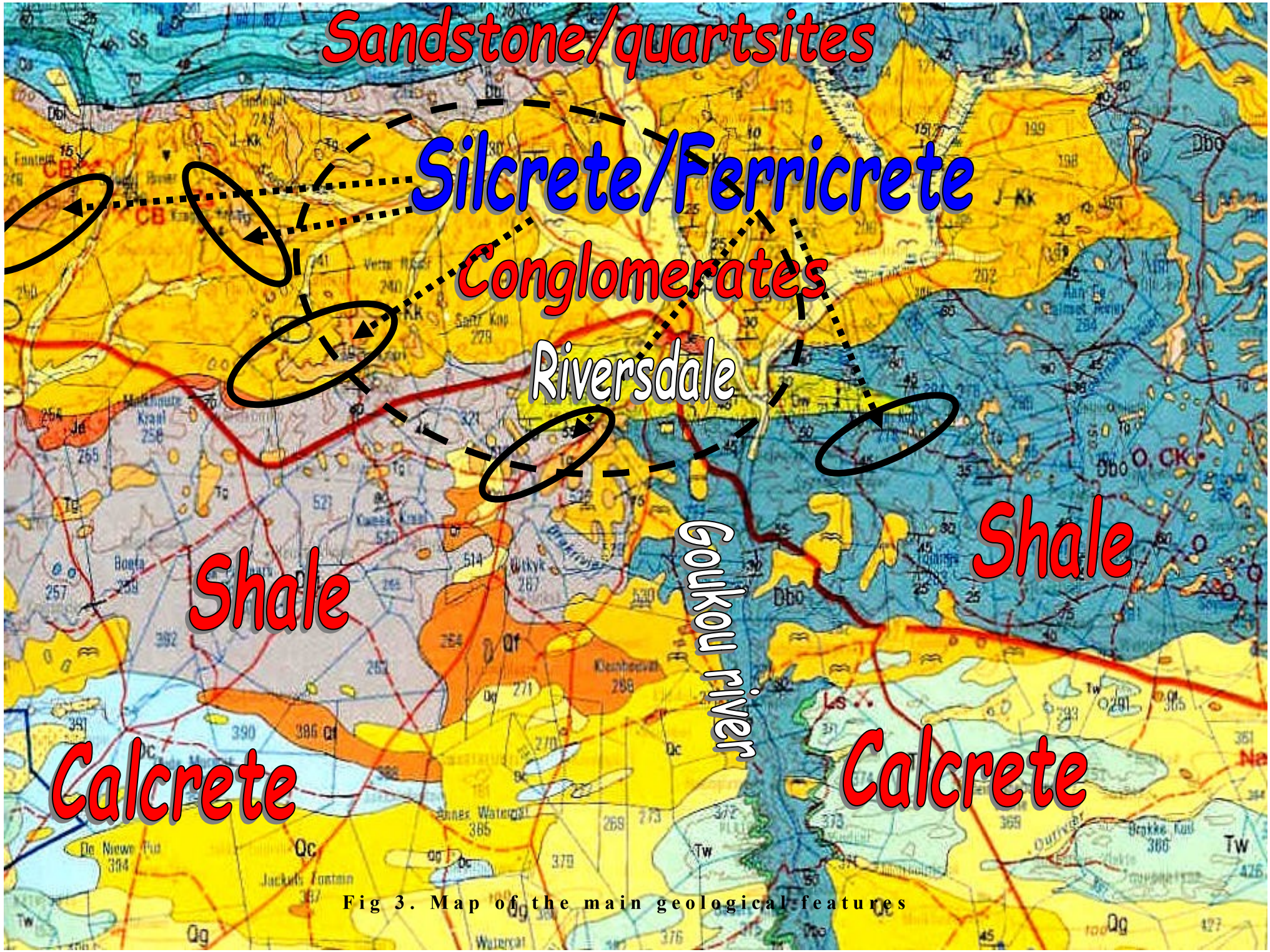


Fig 3. Map of the main geological features

(Continued from page 3)
Formation. Further northwards is a broad band of undifferentiated Bokkeveld Group and Bidow Formation sediments that consist of shale, siltstone and subordinate layers of sandstone. An east-west oriented area immediately south of Riversdale is underlain by siltstone and sandy shale of the Wagen Drift Formation. The area south of the mountains but north of Riversdale is predominantly underlain by mudstone, sandstone and conglomerate of the Kirkwood Formation. The mountains in the north predominantly comprise quartzite and shale of the Table Mountain and Bokkeveld Groups. Erosion of the relative younger calcarenite off the Wankoe Formation and calcrete along the Goukou River exposed sheared Bokkeveld Group shale along a north-south corridor that runs towards the coast.

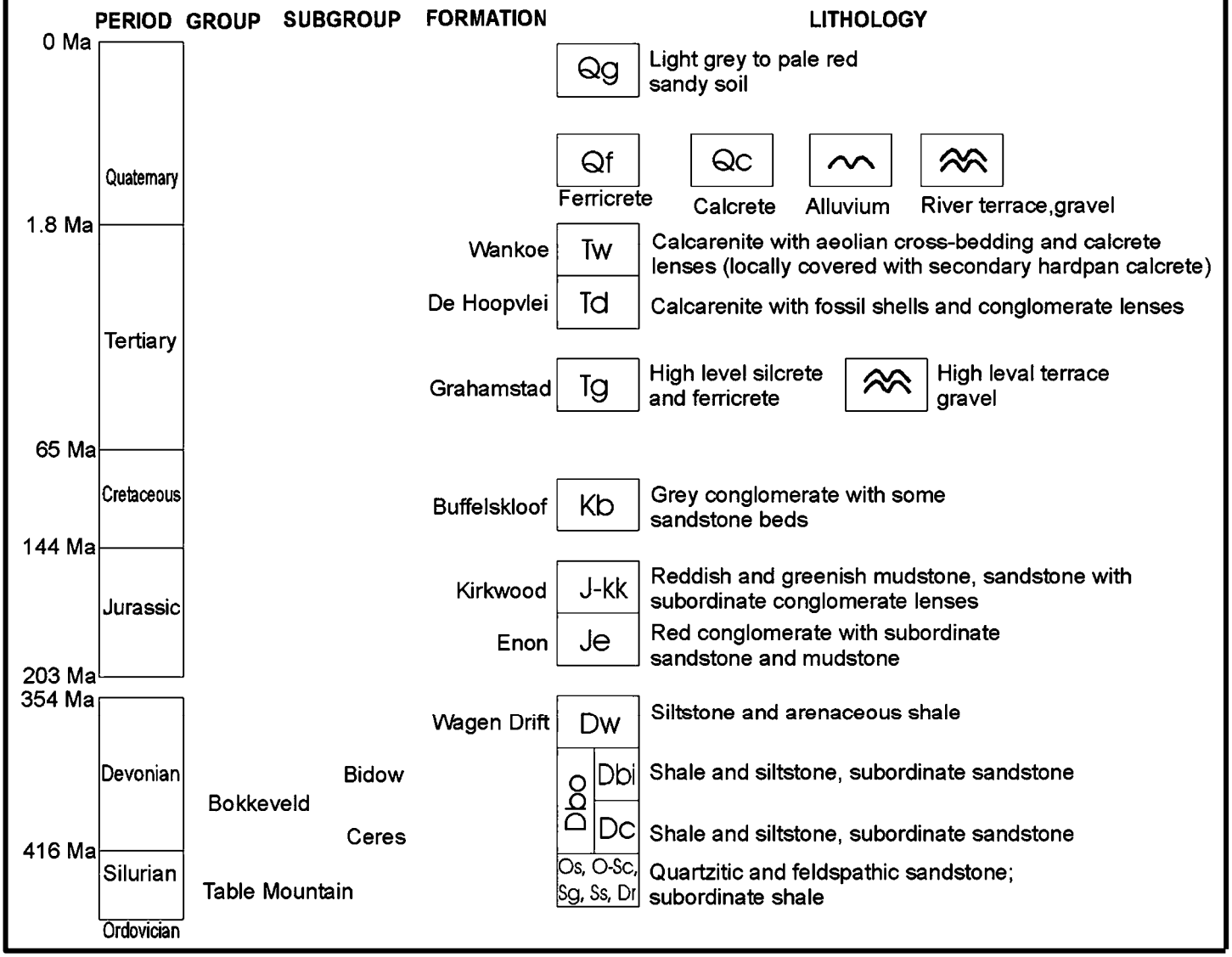
Of particular interest, are the silcrete/ferricrete "islands" encountered above the conglomerate, mudstone and sandstone of the Kirkwood Formation and on the shale of the Bokkeveld Group. These islands are the remnants of soil horizons formed during previous climates in the Tertiary (Grahamstad Formation) and/or Quaternary periods (65 Ma ago to present times). They often form flat -topped hills, with rocks or gravel covered sides, which provide ideal habitats for haworthias, especially *H. magnifica* and its variants, as you will see from the pictures presented.

The landscape is characterized by a slow rise from the coast northwards through rolling hills. In the north is a dramatic increase in topography at the foothills of the Langeberg Mountains with the high, majestic Langeberg Mountains beyond them.

Reference: Malan J.A., Hill, R.S., Viljoen, J.H.A. (1990) 1:250 000 scale Geological Series, 3420 Riversdale, Council for Geoscience (Geological Survey).

The beauty of the area, both natural and manmade, can be appreciated from figure 1, front cover, but to see haworthias in habitat, you will need to search and look very carefully. They are often very cryptic and well camouflaged in their localised natural habitats. One can easily pass within a metre of them without noticing them. Also, for some inexplicable reason, many apparently suitable habitats do not have any haworthias. All of these
(Continued on page 6)

Geological legend for the area around Riversdale



(Continued from page 5)
contribute to the laborious and often slow process of searching through the potential habitats to discover the little marvels. For some of the populations illustrated here I have literally walked the hills for years before my eyes sharpened to seeing them.

Taxonomic context to the haworthias of the area.
Two subgenera of *Haworthia* occur in the Riversdale area:
i) Of the subgenus *Robustipedunculares*, two species occur. *H. minima* is very common while *H. marginata* is presently known only from a small number of niche habitats.
ii) Several species of the subgenus *Haworthia* also grow in the area, sometimes co-occurring or intergrading as we will see evidenced in this presentation. The approximate distribution ranges have been indicated on figures 4 and 5, with pictures of the typical forms shown in figures 6 through 11, pages 8 - 10.

History of *Haworthia* collection and study in the area.
J. Dekenah was a photographer and naturalist at Riversdale during the first half of the 20th century (Alsterworthia International 3(2)19, July 2003). He extensively explored the area and made well recorded collections which contributed tremendously to our present knowledge.

M. B. Bayer was active over most of the Southern and Western Cape areas during the latter half of the 20th century from his base as curator of the Karroo Botanical Gardens at Worcester. His surveys and meticulous collection led to the revisions of Haworthia as published in his two Handbooks and the subsequent book Haworthia Revisited. During the last couple of years Bruce did detailed collecting in certain areas of interest, including Riversdale.

E. Esterhuizen grew up at Heidelberg and returned there as often as he could during the past two decades. He explored several of the areas around Heidelberg and Riversdale in a very detailed way. I benefited from several joint excursions.

The virtual tour
Fig. 12, page 11, shows the areas that we will focus on around the town of Riversdale. We start just south of the town at the type locality of *H. magnifica*, moving from

Fig. 4. Distribution areas for *H. magnifica* v. *magnifica*, *H. magnifica* v. *splendens*, *H. magnifica* v. *atrofusca*, *H. retusa*.

there to an area just east of the town, before visiting several sites to the west and finally to the north of Riversdale.

The sites are mostly in the conglomerate rock band where some silcrete/ferricrete is often present. The south and eastern localities are lying on the border between conglomerates and shale.

At each of the sites we will examine the variability within and between populations, as well as the interaction between the species present. We will also look at the habitats in order to understand the context for the haworthias present. The focus is however on the forms of *H. magnifica* that occur in the respective areas and the association of these with other species of the genus.

The first stop: *H. magnifica* type locality

From figure 13, page 12, you can see the typical ferricrete gravel covering the hillside which has a silcrete cap on the top. Fortunately, this locality lies within a municipal reserve and has a history of preservation. These small rocky hills are a feature of the landscape and, because of the rock and poor soil, they remain fairly intact in what would otherwise be an ecological desert of crop lands and pasture. Dotted around the hill are at least four populations of *H. magnifica*, showing significant variation in the size of the rosettes. The pictures (figures 14 to 17, page 17) were drawn from the population with the largest plants (up to 5 cm diameter), with many of the larger specimens occurring well shaded from tufts of grass. One of the other populations I observed grows more exposed in a rocky area with the average rosette diameter a mere 1.5 cm.

From the pictures you can clearly see variation in the surface rugosity and marginal denticulation of the leaves. Characteristic though of the whole *H. magnifica* complex is the shiny tubercles on the upper leaf surface and the dark green to brown colours of the leaves. The typical variety has sharp pointed leaves, often with a longish apical spine.

In close proximity to this locality are several shale sites where *H. retusa* occurs. These populations are often dense and the plants grow much more exposed than those of *H. magnifica*. The plants are much larger in size, often reaching 10 cm in diameter. Figures 19 to 21, page 18-19

(Continued on page 12)

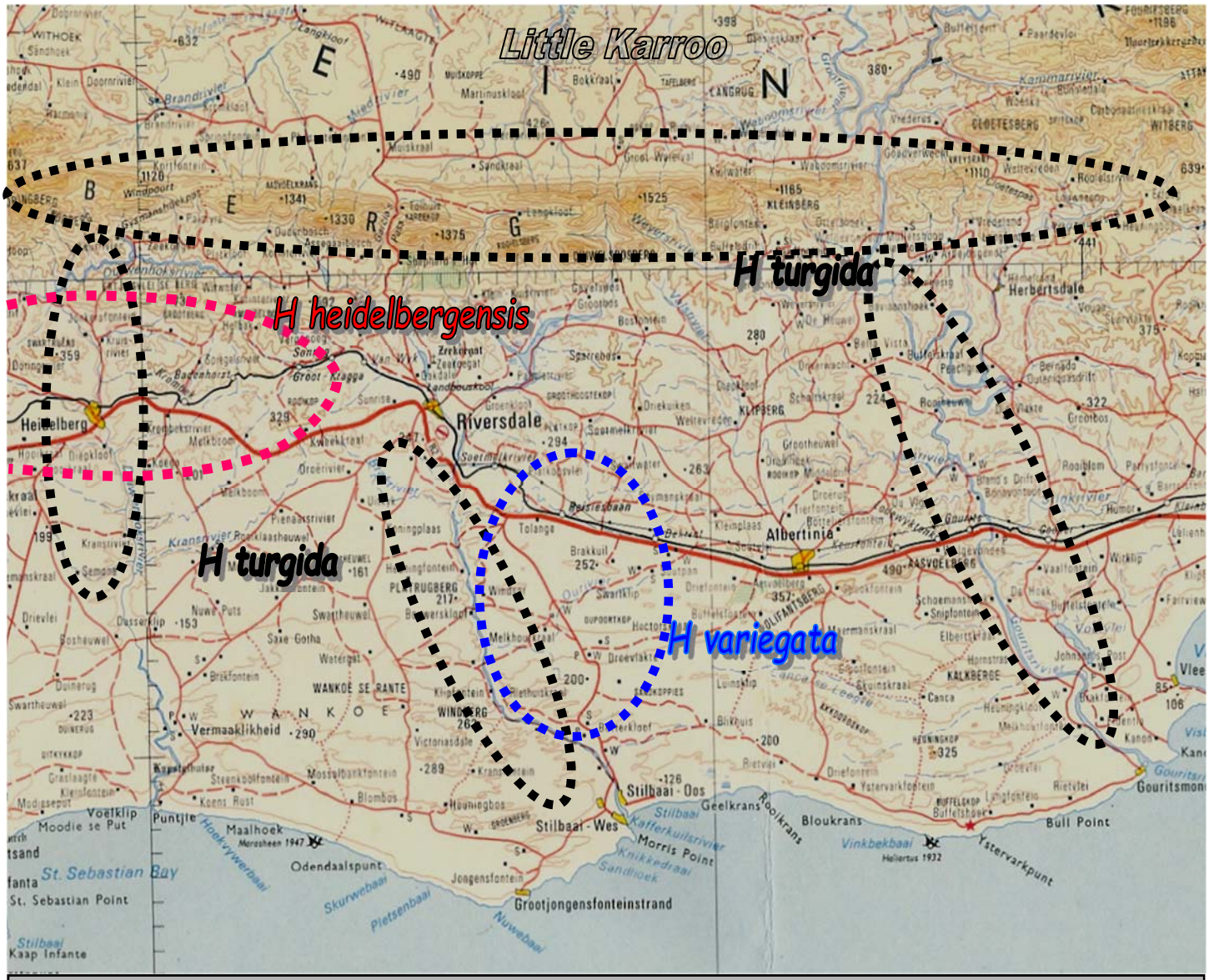


Fig. 5. Distribution areas for *Haworthia heidelbergensis*, *Haworthia turgida*, *Haworthia variegata*.

Fig. 6. *Haworthia magnifica* v. *magnifica*
Fig. 7. *Haworthia magnifica* v. *splendens*

Fig. 8. *Haworthia magnifica* v. *atrofusca*.
Fig. 9. *Haworthia variegata*.

Fig. 10 above.

Haworthia turgida.

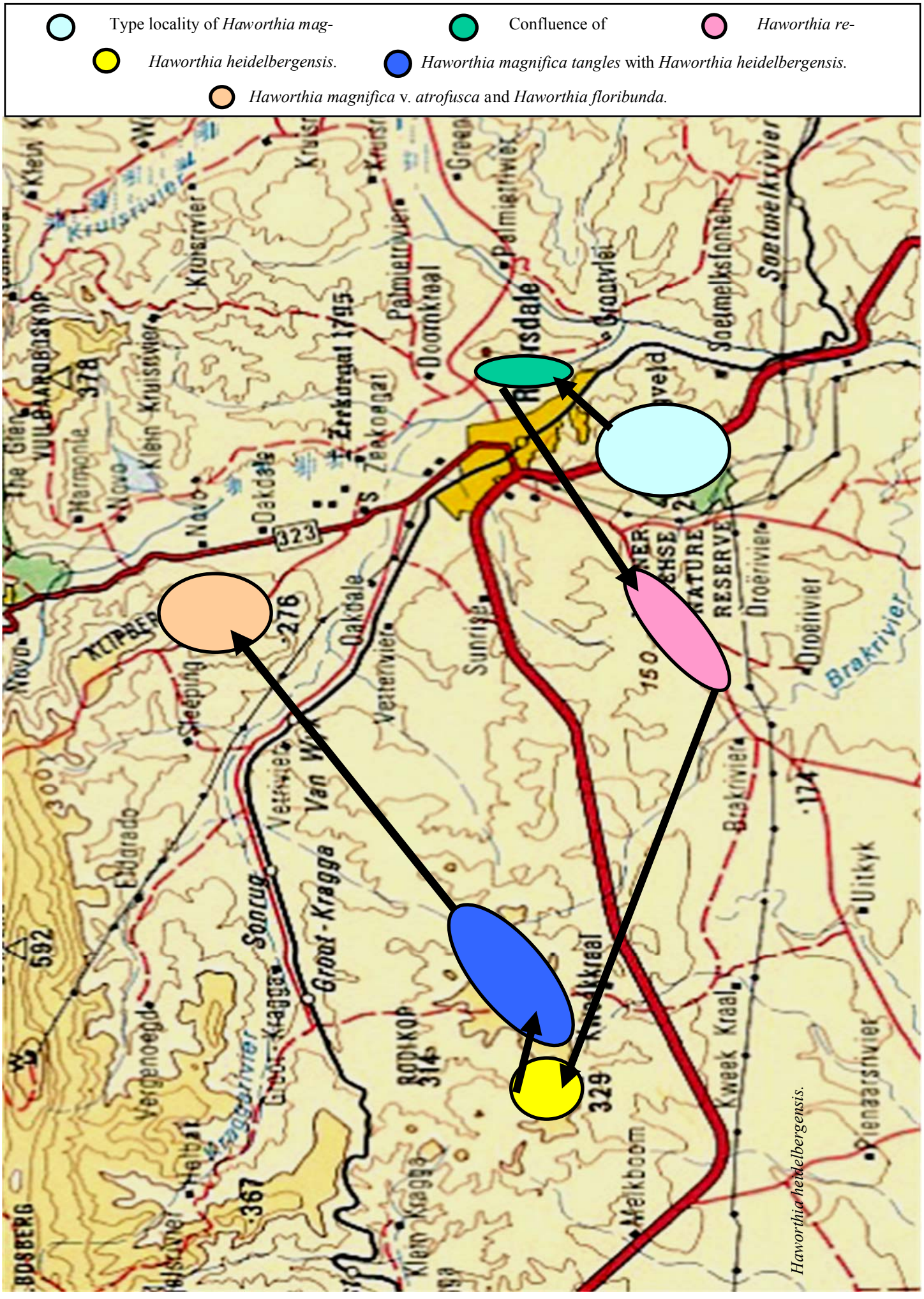
Fig. 11 left.

Haworthia heidelbergensis.

Fig. 12 right.

Map showing the areas to be focused upon during the tour detailed in this article.

Haworthia turgida and *Haworthia variegata* illustrated in figures 9 & 10 are not dealt with further in this paper. The relationship of these two to the species dealt with would be a major exercise and probably a topic for a further presentation.


Type locality of *Haworthia mag-*
Confluence of
Haworthia re-
Haworthia heidelbergensis.
Haworthia magnifica tangles with *Haworthia heidelbergensis.*
Haworthia magnifica v. *atrofusca* and *Haworthia floribunda.*
Haworthia heidelbergensis.

(Continued from page 7)
show some of the forms on the outskirts of the town, while figure 18 shows the habitat at this site.
Though the flowering times are well separated (September for *H. retusa* and January for *H. magnifica)* this is not an absolute, as evidenced in the occasional abnormal plants in *H. retusa* populations that could be the result of pollination from nearby *H. magnifica* populations, where odd plants flower out of season (see figures 19 & 20)

An amazing confluence of forms

The two species *H. magnifica* and *H. retusa* stayed fairly separate (or well-differentiated, depending on your point of departure) to the south of the town, but a few kilometres away to the east of the town they just go haywire. The arena is a low range of hills wedged into the confluence of the Goukou and Vet Rivers (see figures 22 and 23 page 20). The habitat is shale, with conglomerate patches. Most of the *Haworthia* populations are in these conglomerates.

The farm Grootvlei is situated south of these hills (figure 23). This was the locality for *H. foucheii*, which was later sunk under *H. retusa* by M B Bayer. It no longer exists due to farming activity. This very proliferous form was however later rediscovered on the southern end of our hill (figures 22 & 23, page 20). The leaves are relatively long and upright. Some of the rosettes have a diameter of 15 cm while many clumps exceed 30 cm in diameter. Figs 24, 26, 27 page 21. *H. minima* grow socially with *H. retusa* at this site (figure 25, page 21.)

Only about 100 meters north of the 'foucheii' form grows another bizarre form of *H. retusa* that was originally described as *H. geraldii* by Scott (see figures 28-31, pages 21, 22). In this form the rosettes are more typical of the species (compare to figures 19 - 21 pages 18 & 19), but they form enormous clumps of up to a metre or more in diameter. This population is so vigorous that, while originally constricted to the upper north and western aspects of the hill, it has during the 20 years of my personal observation now extended its distribution to huge clumps on the southern aspect.

Towards the northern end of this area, one encounters a well camouflaged population of plants related to *H. magnifica*. You will see from the pictures (figures 32 through 35, page 23) that the plants are greyish green with several lines running on the top surface of the leaves
(Continued on page 19)

Fig. 13. Type locality of *Haworthia magnifica* v. *magnifica*.

Index of plant names
italics = scientific names; normal type = common and cultivar; **bold type page nos.** = colour photograph

Index of other illustrations.

Maps & tables.

Index of subjects

Classification of plants

Cultivation and propagation

Habitat

Unclassified articles

Plants

Reviews and introductions.

Letter to the editor.

You published a paper from Taxon by Treutlein et al. together with my comments*. The same authors have published a second paper in which they say "In a recent study...we found evidence for the genus *Haworthia* not being monophyletic. This rather interesting result prompted a more detailed study to obtain additional evidence, the results of which are presented here".

In this second paper Uitewaal's observations that *Haworthia* is comprised of three distinct groups is again misunderstood and misrepresented. In their first paper, Treutlein et al stated that Uitewaal had "divided *Haworthia* into two main units (*Triangulares* and *Hexangulares*), the former including the subgenus *Haworthia* and subgenus *Robustipedunculares*". This is of course incorrect as Uitewaal in fact recognised sg *Haworthia* and sg *Hexangulares* as comprising *Robustipedunculatae* and *Gracilipedunculatae*. I simply recognised the latter as equal in status to sg *Haworthia.* The misunderstanding is carried into the second paper and three odd statements are made:-

1. "An exception in the current classification was found with the sister species *H. geraldii* and *H. gracilis* var. *tenera*: genetically they belong to group ll, whereas morphologically they show affinities to the subgenus *Haworthia* (represented by group 1)."
2. "*H. geraldii* and *H. gracilis* var. *tenera* are sister species according to rbcL (fig.1A) and matK (fig.1B). Contrary to their previous morphological classification (Bayer, 1999), they are clearly grouped in *Haworthia* subgenus *Hexangulares* by both molecular markers."
3. ". the taxonomy of the genus *Haworthia* must be revisited. More species of both groups need to be examined to determine their phylogenetic relationships before taxonomic consequences should be drawn.

It is quite evident to anyone who is remotely familiar with *Haworthia*, that the above observations are far from true.

I would like to repeat my comment that the Treutlein research did not include any member of the *Robustipedunculares*, and includes only one species of *Astroloba.*

It is disconcerting indeed that two reputable and peer-reviewed botanical journals cannot find reviewers competent to expose inaccuracies and omissions of this order in a paper authored by four qualified scientists working at the coal-face of technology.

Yours sincerely, Bruce Bayer

*Alsterworthia International Special Issue No. 4. 44 A4 pages. 8 colour photos.
Member's price £5.50.
Contents: 1. Alooideae-Asphodelaceae and the genera thereof. Bruce Bayer.
2. Molecular Phylogenetics. Treutlein et al.
3. What should we learn from history. Bruce Bayer
4. Haworthia limifolia v. arcane Smith & Crouch. Bruce Bayer.
The enclosed renewal form may be used to order this item.

Figures 14 - 17.
(top to bottom, left to right)

Forms of
Haworthia magnifica
at the type locality, illustrating the variation of leaf form and leaf surface rugosity.

Fig. 18. Habitat of *Haworthia retusa*.
Fig. 19 One form of *Haworthia retusa* south of Riversdale, close to the type locality of *H. magnifica.*.

(Continued from page 12)
towards the end bristle. The plants are much lighter coloured than at the type locality, but have the typical translucent shiny tubercles on the leaf surface, sometimes even ending in a bristle. Again, *H. minima* is present. A very small patch of the magnifica form was shown to Bruce Bayer by J. Dekenah, according to Bruce Bayer who visited the locality with him. When I visited the locality for the first time with Bruce we found that the plants were much more numerous and extending to lower on the ridge than Bruce remembered. On a recent visit I observed that the original patch was destroyed by farming activity and only the lower slopes still had plants.

On the visit with Bruce mentioned above, we found to our surprise a huge population only about 50 meters away that was apparently not there when Bruce visited the area with Dekenah. This population (see figures 36 through 39, page 23-24) seems to be intermediate between *H. magnifica* and *H. retusa*. The size of the rosettes are intermediate, some plants are proliferous. The leaf surfaces are smoother than those of the nearby *H. magnifica* form. The plants grow well shaded in moss and lichen. It is possible that this population developed from a few vigorous hybrids from the nearby *H. magnifica* and *H. retusa* forms. The big surprise is how fast this may have happened!

Part 2 of this article will be published in the March, 2005 issue of Alsterworthia International.

Fig. 20 & 21. Forms of *Haworthia retusa* south of Riversdale, close to the type locality of *H. magnifica*.

Fig. 22. Habitat of the second tour stop east of Riversdale, located on map 12, page 11 at

Fig. 23. The confluence of the Goukou and Vet Rivers east of Riversdale with the farm Grootvlei shown in the foreground

Fig. 24. Top left
Figs. 26 & 27. Middle row, left to right
Haworthia retusa (*fouchei* form) near Grootvlei to the east of Riversdale.

Fig. 25. Top right
Haworthia minima
east of Riversdale

Fig. 28. Bottom
Haworthia retusa
(geraldii form)
in habitat east of Riversdale

Fig. 29 - 31
(top to bottom)

Haworthia retusa
(*geraldii* form)

In habitat
east of
Riversdale





Fig. 32 - 35
Top two rows, clockwise starting top left.

Forms of
Haworthia magnifica
East of Riversdale.

Fig. 36
Bottom row.

Possible intermediates between
H. magnifica and *H. retusa* growing near to *Haworthia magnifica* to the east of Riversdale

Fig. 37 - 39
Top left clockwise.

Possible intermediates between
H. magnifica and *H. retusa* growing near to
Haworthia magnifica to the east of Riversdale

Appendix 1.
Explanation of some geological terms used in the text and legend.

Term	Explanation
1. Ferricrete	A conglomerate of sand, gravel and soil cemented together by iron oxide derived from percolating solutions of iron salts, it is often associated with specific soil forms and soil horizons. Also exposed as a result of erosion of the top soil horizons
2. Calcrete	A conglomerate consisting of surficial sand, gravel and soil particles cemented into a hard mass by precipitation of calcium carbonate. It might be dissolved by groundwater and redeposited. It often forms within a soil horizon.
3. Alluvium	Alluvium is a term for unconsolidated material deposited by water amongst rivers, streams and might include mud, silt, gravel and sand.
4. Gravel	An unconsolidated deposit of granule, pebble, cobble and boulder sized rocks with or without a finer grained matrix. It might be poorly cemented.
5. Calcarenite	Limestone consisting predominantly of sands size particles of mostly calcite. Conversely it is a consolidated calcareous sand.
6. Silcrete	Silcrete is normally a conglomerate consisting of soil, surficial sand and gravel cemented into a hard mass by silica.
7. Conglomerate	Conglomerate consists of particles larger than 2 mm in diameter (granules, pebbles, cobbles, boulders.) set in variable amounts of a fine matrix of small particles and cementing materials. Gravel turned to stone.
8. Sandstone	A sedimentary rock consisting of abundant sands sized grains with or without finer grained material cemented together to form a cohesive rock
9. Quartzite	Quartzite is a very hard rock consisting predominantly of sandstone sized grains which has been completely cemented so strong that it breaks through individual grains (sedimentary rock) or the sandstone has been completely recrystallized to quartz by metamorphism.
10. Mudstone	Mudstone is a rock consisting of clay and silt sized particles, but differs from shale that it does not show lamination or stratification.
11. Siltstone	A consolidated rock which predominantly consists of silt grain size particles (between mud and very fine sand).
12. Shale	A finely stratified or laminated rock containing shale, silt or mud size particles.
13. Quartzitic	A sandstone that is cemented with silica, suggesting some grade of metamorphoses.
14. Felspathic	Contains grains or particles of the mineral feldspar.
15. Arenaceous	Sandy , contains sand sized grains.

Aloe broomii var. *tarkaensis*? A new locality!!!

Daphne & Albert Prichard
11 Shaftesbuty Avenue, Penketh, Warrington, Cheshire WA5 2PD.

Aloe broomii, according to Reynolds, has a very wide distribution in South Africa. Some of the habitats are Burghersdorp, Lady Grey – Barcly East Road, Orange Free State: Fauresmith, Beestekraalnek between Rouxville and Aliwal North, Basutoland: slopes of the big Likhole Mountain, near Mafeteng, with the type locality being Pampoenpoort between Carnarvon and Victoria West. These are but a few of the locations listed by Reynolds [see page 164 of his book], but he could not and did not mention all of the places where it could be found. We have seen *Aloe broomii* growing in several places on trips made to Victoria West, Murraysburg and Middleburg and on the hills around the little village of Nieu Bethesda, but until this year, 2003, we had only ever seen the dead remains of flower spikes. Reynolds states that the flowering time for *Aloe broomii* is September. Our previous visits to South Africa have mainly been in September, October, November and December. This year in February we visited Nieu Bethesda to look again at *Euphorbia clavarioides* which grows there and found some superb large specimens [but that's another story]. We were quite happy to have found the Euphorbia, but on our drive up out of the village we started to see *A. broomii* along the hillsides and were surprised to see several specimens in flower, some with the flower stems with unopened flowers and others with flowers just beginning to open. Parking the car not too far from one specimen we climbed a small bank and photographed it.

Fig. 40. *Aloe broomii* North of Bethesda

Consulting Reynolds, it would at first appear that this was totally the wrong time for the flowering of this species, which should be in September, but he notes that *A. broomii* var. *tarkaensis* blooms in February until early March. This variety is noted from ten miles south of Tarkastad on the Bedford road and also 3.5 miles southwest of Tarkastad on rocky slopes. The little village of Nieu Bethesda is some 175 km west of Tarkastad. Reynolds notes that the main difference between the two is the type of inflorescence produced. There are other differences [See Page 165 of his book]. In the typical *A. broomii* the buds and flowers are totally hidden by their longer densely imbricate bracts, with only the exserted part of the genitals being visible. In the var. *tarkaensis* the bracts are dry and much shorter, the individual buds and open flowers all being clearly visible. So what do we appear to have found? *Aloe broomii* or *Aloe broomii* var. *tarkaensis*. It was unfortunate that we did not have the description with us when we were looking at the plants. If we had, then we would have examined the flowers more closely and checked for the other differences. From our photographs it is difficult to make a decision. But the plants were surely flowering at the wrong time for *Aloe broomii.* It does however make us think that perhaps species do not behave as books suggest and plants flower when conditions are suitable. As stated earlier we have only ever seen the dried up remains of flower stems during earlier visits, some of which were much nearer or during the reported flowering time of September. Has anyone seen the var. *tarkaensis*? And does it flower in February?

Fig. 41. *Aloe broomii*.
Flowers opening from the base upwards.

Three green cultivars

Russell Scott
39 Wellington Street, West Footscray, Victoria 3012, Australia.

x *Gasteria*? 'Green Spiral'

Parentage. Unknown.

Comments. I have had this plant since 1994 ex David Cummings. David had it available on his 1982 list and originally imported it from the US. About 30 distinctly tricoloured (pink-white-green), 2.5-3cm long flowers, which are almost tubular, appear on a single flower stem of about 100-120cm in length during mid-late summer. Leaves are uniform dark green 2.5-3cm wide, 10-12cm long and about 1cm thick. When grown in higher light conditions the leaves only grow to around 7cm long. They are smooth without tubercles, curve downwards and have a distinct central channel.

Fig. 42. x *Gasteria*? 'Green Spiral'

As the name suggests, the plant's shape is a green spiral. After nearly 10 years growth the plant has a diameter of around 20-23cm and about 15cm tall with a stem present. It is very slow growing and has not offset. It cannot be confused with *G. nitida* v. *nitida* as it forms a stem, nor can it be confused with *G. bicolour* due to its differing flowering characteristics. Bearing this in mind, in all probability this is a *Poellnitzia* (or *Astroloba*) x *G. nitida/ armstrongii* hybrid.

x *Gastroloba* 'Delbat'

Parentage: *Astroloba delatoidea* x *G* 'Little Warty' (*G. batesiana* x *G.* 'Old Man Silver')

Hybridist - David Cummings (DMC ascension No. SO-141/LAO - 1993 list)

Comments. Leaves are 4-5cm long, 1.5cm wide at the base and about 0.5cm thick and patterned with dark green variegation on a pale green background on upper and lower lead surfaces. Plants form rosettes 7-10cm diameter and grow to 15-20cm tall before lower leaf dieback occurs along the stem. Offsets occur, which can have differing patterns of variegation. Offsets can start off as variegated and revert to non-variegated or have no variegation at all. The non-variegated reversions are interesting in their own right having dark green leaves with pale green spots but fail to comply with David's original description of the plant as a "tall rosette of green/ silver leaves."

Figure 43, page 28.

x *Gastroloba* 'Grugwyn' (AKA - 'Gruewyn')

Parentage. *Astroloba delatoidea* x *G.* 'Old Man Silver'

Hybridist. David Cummings (DMC ascension No. SO -45/LAO - 1982 list)

Comments. This plant looks somewhat like a green variegated *H. marginata* on a stem. It is easy growing, but slow and can get largish, requiring a 130cm pot. As it remains solitary, propagation is by beheading or leaf offsets.

Leaves are 8-10cm long, 3cm wide at the base, 1-1.5cm thick, tapering, triangular, sharply pointed, smooth/shiny with slightly raised ridges running the length of the leaf. Leaves are a light green with one or more darker green stripes running down the leaf centres. Leaves become paler and a pink flush occurs when grown in the sun. Black spot mars the appearance of older leaves. Leaves remain viable on the stem for 5-7 years before dying and leaving the main body of the plant supported by a stem surrounded by dead leaves, at which time plant beheading becomes sensible. Plant remains solitary, form rosettes 12-15cm diameter and grow to 20-25cm tall before said beheading becomes necessary and in fact the only real way to propagate (apart from leaf offsets). Flower spikes are solitary 70-90cm long with 50-70 flowers distinctly intermediate between *Astroloba* and *Gasteria*.

Figure 44, page 28.

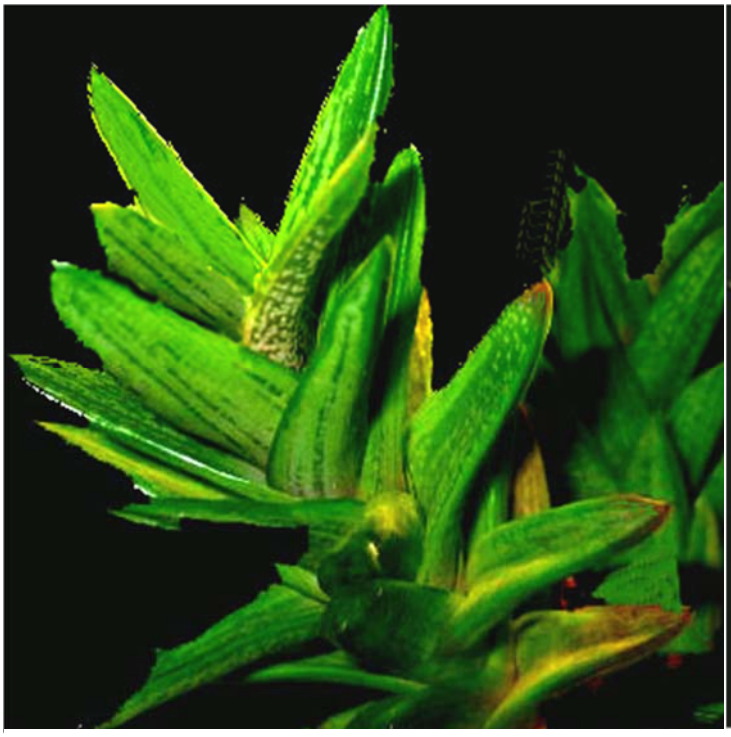


Fig. 43. x *Gastroloba* 'Delbat'

Fig. 44. x *Gastroloba* 'Grugwyn'

And to close this issue an important announcement.

The annual membership fees for 2005 are now due.

Notwithstanding that costs have gone up because of increases in postage and printing charges, the annual membership fees in British pounds remain the same as in previous years.

To ensure that overseas members receive their journals in the month of issue, each journal is finalised in the next but one month preceding the month of issue and it is printed at the latest at the beginning of the month preceding the month of issue. Most overseas members, who have their journal sent by surface mail, can reasonably expect to receive them by the end of the month of issue. Airmailed copies should be received in the early part of the month of issue.

As the March 2005 Alsterworthia International will be finalised in January and printed in early February you might wish to ensure that your subscription for 2005 is renewed right away, so that it reaches the UK by January.

If you renew later you will still receive your March journal as quickly as possible but, as you will miss the bulk posting for the March issue, the cost to Alsterworthia International will be higher. We are doing all we can to improve the journal and at the same time keep costs down. Do please help us to do this.

Please pay by whatever payment method is most convenient for you, but please note that payments to some of our twelve agents are generally sent to the UK in bulk periodically, not normally on a day to day basis, as this helps to keep down costs.

A membership renewal leaflet is enclosed with this issue.

And to close this closure item - an invitation.

Both members and non-members are invited to send articles to the editor, with or without photographs, short or long, on any subject relative to the genera of the Asphodelaceae Dahlgren et al, for publication in regular journals or in special issues. Special issues are usually the province of longer articles, articles requiring many photographs or more technical articles.

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