

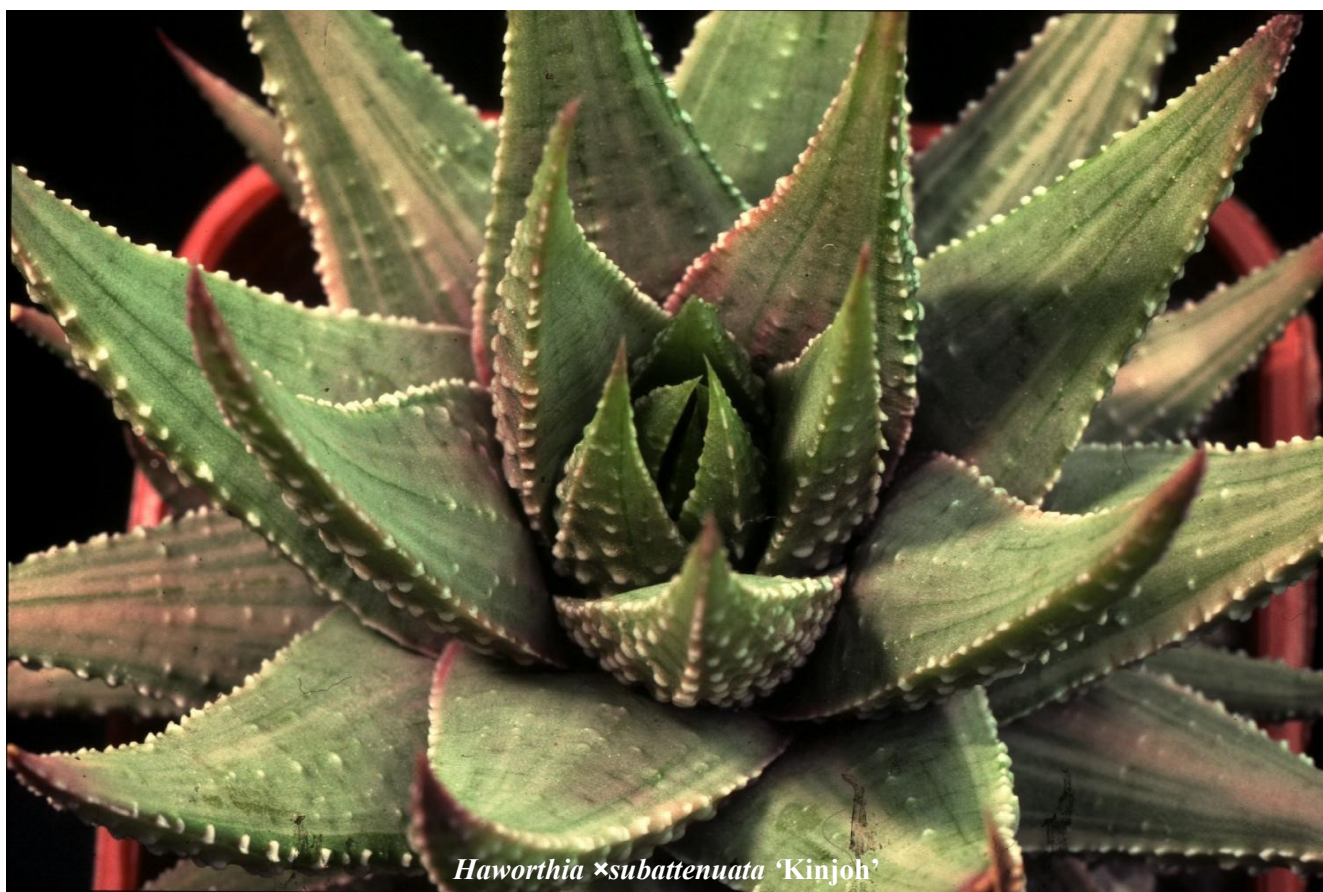
ALSTERWORTHIA

INTERNATIONAL

THE

SUCCULENT ASPHODELACEAE

JOURNAL



Haworthia ×*subattenuata* 'Kinjoh'

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Some Observations On Roots

Harry Mays.

It is by no means uncommon for collectors to complain about plants losing their roots, particularly haworthias, but also other genera. Complete loss certainly sets growth back, as the plant has to reroot. Provided rot has not entered the stem, rerooting is not normally a problem. The rotted roots cut back to sound tissues, probably to the stem. The cut surface(s) should then be dried off for several days so that a protective skin is formed. A stemless rosette (frequently haworthias) is then sat on a layer of grit with dry compost underneath or plants with stems are potted up in dry compost. Place in a worm position, but not in full sun, and spray occasionally, so that the plant is dry by the evening. After several weeks, roots should form and light watering can commence. Success cannot be guaranteed, but most should reroot without any problems.

If rot has entered the stem it should be completely eliminated by cutting back to sound tissue. As some species are practically stemless you may finish up with a number of individual leaves, but all may not be lost. The leaves, even portions, can be treated as cuttings. Those of *Gasteria* and those of *Haworthia* if they are not small, thin and soft will be capable of producing offsets. Alas leaves of *Aloe* have not produced offsets to date though some have produced roots.

The (complete) loss of roots is normally the result of over watering combined with a poor compost. The compost should drain well so that it is not soggy. Watering should be strictly controlled. In the UK, and countries with similar climates, this can be a problem, as the climate is variable. From spring to autumn, the normal growing season, a few sunny days can be followed by much colder, wet days when compost does not dry out. Thus, you have to apply just enough water to wet the compost, but not saturate it, so that absorption by the plants and evaporation by heat and flowing air through open windows will dry the compost in a reasonable time - a few days - before colder weather sets in! The problems are not the same when you have longer periods of sunny weather!! You just do not have problems???

Some loss of roots is quite natural. Plants grow at the tip of the rosette. In many, leaves then spread out and down with the lower leaves gradually dying back. The stem is (slowly) lengthening but this may not be noticed when contractile roots pull the stem back into the compost. New roots can be found growing at the base of the rosette and in some cases from between leaves, which then die back. Old roots at the base of the stem die back and so does the base of the stem, normally causing no problems, figs. 1-2,4.

In some haworthias the stem distinctly lengthens as growth takes place and new, strong roots are produced along the lower portion of the stem between leaves. The very lowest part dies back, as it becomes superfluous. Cuttings can be taken readily from the new rooting growth to form new plants, figs. 2 & 3.

Roots are quite variable, ranging from fine to thick and short to long. To avoid soggy compost pot size should be adjusted to root size. A plant with short fine roots will

normally be quite happy in a small pot with limited depth. A plant with thick, long roots can be a problem. At the outset of its life it will be quite happy in a small pot, but as it gets older *and flourishes* it may not be at all happy. The pot may become so full of roots, as a result of the plant's search for a bit of compost with moisture and nutrients, that it becomes manifestly pot bound, particularly if it does not find a means of escape from its confines figs 3,5-7. Escape allows a plant to find the essential of life in the debris and moisture which collects in trays and under adjacent pots and even to invade adjacent pots through their drainage holes. If it does not find a means of escape it will eventually suffer from lack of moisture and nutrients. If it does find a means of escape it may present a repotting problem.

Though escape over the side of a pot is possible, fig. 3, the most common means of escape is through drainage holes, figs 5-7. Even roots which are thicker than drainage holes can get their tips through them and then expand to normal size. How do you repot these plants? In a few cases it may be possible to gently pull the roots through the holes without damage, but thicker roots and roots which have multiple branches cannot be pulled through without damage. If the pot is thin (low cost) plastic it can be cut easily to release the plant. If it is in a thick, more expensive, pot you may not wish to destroy it. The solution then is root pruning. Simply cut the root with a sharp knife or secateurs at the point of exit from the pot. You should then be able to pull the plant from the pot. If this fails a long, sharp knife can be inserted between the compost and pot and moved up and down progressively round the pot to sever adherence between the root ball and the pot. There may be some (slight) damage to roots, but this is not a problem - see later.

The pruned thicker roots of *Haworthia*, *Gasteria* & *Nothogenera* produce valuable propagation material. They can be potted up in damp compost with the cut end just projecting above the compost. With TLC they should eventually produce offsets at their tips. You cannot do this with *Aloe* roots!

When repotting plants you have a choice between:
Method 1. simply inserting the (dense) ball of live (and dead) roots, still tightly grasping their old compost, into a larger pot and filling the (smallish?) surrounding gap with new compost or

Method 2. removing as much of the old compost as you can before repotting.

The former is quick and it does not disturb and damage roots. Of course, if you have used a knife between the ball of roots and the pot to release the plant there may be some damage to roots on the outside of the root ball. Unfortunately, this method does not allow you to examine the roots for rot and pests and it means you require more and more space with successive repottings.

The latter has much to commend it because you can:
a) get rid of old compost,
b) check the compost to ensure that it is suitable for the plant and, if it is not, adjust the new compost,
c) check which roots are dead and remove them,

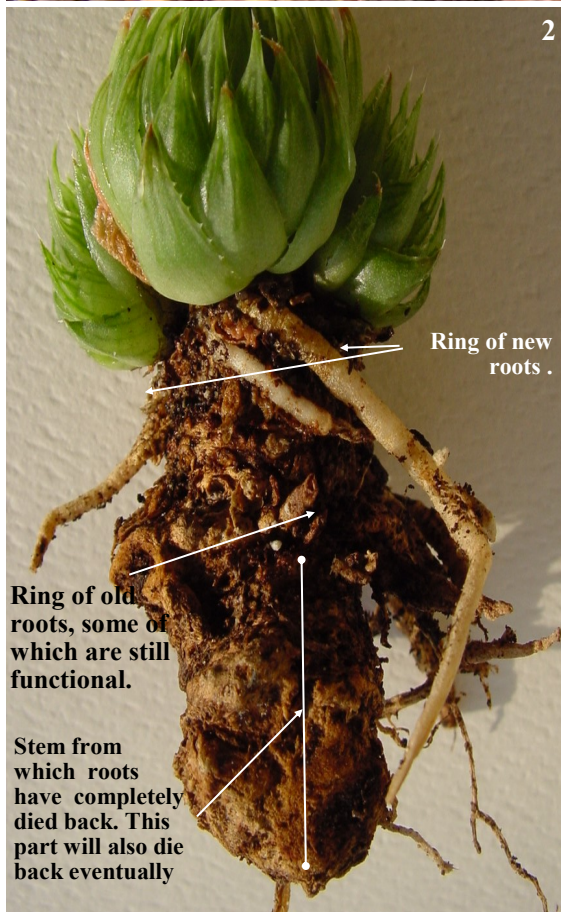


Fig. 1
Aloe suprafoliata
 ISI1998-34
 When unpotted this *Aloe* appeared to have a solid ball of roots. Vigorous shaking to loosen compost revealed dead roots at the lower part of the stem. These were removed leaving some dead, short, woody stubs attached to the lower stem. These can persist for a long time.

Fig. 2
Haworthia translucens
 (*gracilis*) ssp. *tenera*
 'Anemone'
 The lower, rootless part of the stem is still fleshy. In due course it should die back naturally.

Fig. 3
Haworthia
 Robust root escaping over the rim of the pot.





Commencement of dieback of stem. All traces of the original stem and roots have been eliminated.

Dead roots, the remains of roots which developed among leaves in an earlier year.

Areas of stem growth between reliance on old roots and the production of new roots.

Roots which developed among leaves in a recent year. Mostly dead but one live can be seen at the back.

New developing roots among live leaves. Both dead and live leaves have been removed for this photo.

These upward pointing strands are vascular bungles remaining after the live leaves were pulled away.



- d) determine if any roots and the stem are rotting and then cut out the rot,
- e) ensure that there are no root mealy bugs, grubs or other root damaging pest and take remedial action if there are,
- f) prune both damaged and sound roots so they take up less space - and provide root cuttings!
- g) spray the roots with a bug killer, replot in fresh compost and in many cases use the same size pot or even a smaller one.

The down side of this procedure it that a number of cut surfaces are produced which have to be left to dry so that a protective skin is formed, but it has many benefits to compensate. In method 1. If there is damage to roots on the outside of the root ball, the ball can be left exposed to the air so that the cut surfaces dry and form a skin prior to potting up. Most of the live roots will be within the root ball and not be set back by drying out. If necessary,

to ensure that they are not, water can be applied from the top of the centre of the ball so that it is kept moist.

In method 2. Because (most of) the soil will have been removed there will be many cut surfaces if rot has had to be cut out and even more if you have pruned roots to restrict root size. All of these cut surfaces will have to be dried thoroughly before the plant is potted up. Unfortunately live roots will also be exposed to drying. Depending on circumstances, it may be possible to protect (some) live roots by laying the plant on its side and heaping loose compost over them leaving the cut root ends exposed to the air. An alternative, which some seem to use successfully occasionally, is to repot immediately in dry compost, but there are obvious risks.

This article is based on the experiences of a number of members. No doubt other may have useful experiences to relate. Additional comment, with photographs if possible, would be welcome. Please send them to the editor:

Harry Mays
 Woodsleigh, Moss Lane,
 St Michaels on Wyre
 Preston
 PR3 0TY, UK
 E-mail: hmays@freenetname.co.uk



Fig. 4.
Astroloba foliolosa.

Fig. 5
Haworthia cymbiformis 'Frog Mouth'
 ISI 2000-59

Pot 63mm diameter. Thin roots grow through almost all the drainage holes in the base of the pot in all directions searching out water and nutrients. The main roots are up to 3mm in diameter, the longest 286mm.

Fig. 6
Haworthia cymbiformis
 Pot 70mm square, short.

Only one root has escaped. Diameter 4mm. In addition to being thicker than those in the pot, fewer main roots and side branches seem to be produced. All together it has a stronger external root system.

Fig. 7
Haworthia mirabilis
 Pot 76mm diameter
 Main root 9mm diameter. 312mm long.
 The strongest root system of these three.
 This root may be cut and used for propagation.

Aloe mossurilensis Ellert. sp. nov.

Anthon Ellert

When this species was described in *Alsterworthia International* Vol. 8(1).24-28 (March 2008) the type specimen was not clearly indicated and so the name was not validly published (ICBN Art. 8.2). The plant was studied in cultivation for several years and herbarium specimens prepared at different times, but only the following single specimen is designated as the type: Holotype: Moçambique Nampula Province, April 5, 2006, Ellert 43 (ARIZ) UA.

Cultivar Publication Dates

The publication date for all new cultivars published in *Alsterworthia International* Volume 9 Issue 3 is October 2nd 2009, the date on which the first distribution of journals took place. Proof of postage is held.

The publication date for all new cultivars published in *Alsterworthia International* Volume 10, Issue 1 will be announced in the July 2010 *Alsterworthia International*. It will be the date on which the first journals are posted

The descriptions for all new cultivars published by *Alsterworthia International* are sent to the Herbarium, RHS Garden Wisley, Woking, Surrey, GU23 6BQ, UK for recording as the *Standards* for these cultivars

Haworthia × *subattenuata* 'Kinjoh' Shinnosuke Matuszawa

In his book "Photographic Album of Succulents in Color Vol. 3" Harry Mak named a Japanese cultivar for which he had been unable to trace a name, notwithstanding that he had contacts in Japan. He gave it the name *Haworthia* 'Watercolor'.

In connection with the Cultivar Project I have also been trying to check the names of a number of Japanese (and other) cultivars. This is far from easy because cultivar names can be published in almost any dated publication including dealers' lists and in any language. Furthermore, there are no central records to consult as there are with species. Fortunately Dr Hayashi, who is one of the foremost breeders of Japanese cultivars, came to my assistance. He and his colleagues have made serious efforts to locate the original publications for a number of Japanese cultivars and in so doing located the Japanese original description for Harry Mak's *Haworthia* 'Watercolor'. It was named *Haworthia* × *subattenuata* 'Kinjoh' by Mr Shinnosuke Matsuzawa and published in the catalogue of Yokohama-Ueki 1925. It is a yellow variegated form of *Haworthia* × *subattenuata* 'Ryu-no-Tsume'. The name *Haworthia* 'Watercolor' is now, therefore, a duplicate and invalid.

'Kinjoh' has what may be described as blurred yellow variegation with a tinge of pink in good light - please see the front cover photograph. As with the species there are dot-like tubercles mainly on the underside of the leaves, few on the surface. Cultivation conditions can influence colour. The plant in fig. 8 is very red, the result of strong light and high temperatures, but not direct sun. It retains some red colour in winter.

Offsets are produced, but can be variable. That in figure 8 was one of a range of variable offsets produced by an unnamed variegated *Haworthia* × *subattenuata*.



Harry Mays. Cultivar Project

Haworthia Update

Essays on Haworthia
Volume 5, Part 1

Bruce Bayer



Haworthia Update Volume 5

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White Widows and their Common-Law Hubbies

Steven A. Hammer

Names which circulate without actually having been validly published remind me of common-law marriages: after seven years they acquire status in law, not merely in unembarrassed habit. A pre-emptive strike, therefore.

H. mutica 'White Widow'* M. B. Bayer ex S.A. Hammer cultivar nova.

This cultivar, derived from a single plant collected near Drew (JDV 92/64) develops a peculiarly beautiful and extensive whiteness when mature. Leaf-pros look perfectly normal - plain dull green, with a few thin and faint white lines - for two to four years, after which time the lines begin to thicken, spreading like rust. Eventually they cover virtually all of the upper leaf surfaces, apart from the dark green margins; finally the white patches acquire a central blush of ivory yellow.

These traits are best seen in the original Karoo Garden clone, which began to exhibit them most strongly after I repotted it in 1996. (I removed two leaves at the time, which is how they made their way into American horticulture) The clone's backcrossed spring-offs (White Widow ♀ x {White Widow x PVB *mutica*} ♂) are beginning to show a similar cloudiness, three years from seed. Some may end up looking virtually identical to their lamentably widowed grandmother, but since they evidently inherited her slowness along with her cloudiness it is too early to tell how far they will go.

Harry wondered if there were a precedent for a cultivar which only looks characteristic at a late stage - after all, one can grow the White Widow for ten years before she acquires her full perks. I think there is ample, if poorly documented, precedent in the form of leaf- and root-pros of the elaborately marked and expensively named Japanese *truncata* and *maughanii* cultivars. Those also look ordinary for 2-5 years and then, slowly but surely, they exhibit the labyrinthine starbursts and mazes which make them so desirable.

* The named was coined by Bruce Bayer, in reference to the clone's loneliness, all her mates having been ploughed or collected away. I had already suggested the name Mootica, an allusion to the milky white patches, but fortunately the name never caught on as it was never validly published.

A note from the editor.

Gerhard Marx has pointed out that the white *H. mutica* at the Karoo Gardens was named 'White Widow' by Bruce Bayer. Bruce just suddenly started using the name 'White Widow' in his articles in Update Vol. 2 Part 1 (pages 48-49), but without validly publishing the name under the ICNCP. Since then *Haworthia mutica* 'White Widow', referring to mature plants with white windows with green margins, has been used as a parent in a number of crosses. These have produced superior cultivars, a few of which were included in Gerhard Marx's excellent article in *Alsterworthia International* 9(3)2-12. Gerhard states "The old 'White Widow' plant at Karoo Botanic Gardens is quite large (I guess easily 10 or 11 cm wide) and has 'chunkier' more triangular leaves than 'Drew White'. *H.*

mutica 'Drew White' is a cross between *H. mutica* 'White Widow' originating from Sanddrift, North Drew and a *H. mutica* from Klippoort....'White Widow' has a single white milky cloud in the central upper leaf while 'Drew White' has many dusky dots all over the upper leaf area, but they are denser towards the centre and also becomes almost solid white there." This is the difference between the two cultivars.

Fig. 9 is Gerhard's 1994 photo of a *H. mutica* 'White Widow' at the Karro Gardens. Fig. 11 is the current photograph of a leaf cutting he obtained in 2002 which is just starting to form a milky white cloud. Fig. 10 is a photograph of a large clump of 'White Widow' at the Karoo Gardens which I took many years ago (date not yet traced). Fig. 12 is Gerhard's photo of *H. mutica* 'Drew White'.

As the clone with the white retuse ends surrounded by dark green leaf edges is firmly established as *H. mutica* 'White Widow' in the minds of most people who are familiar with it, it would be sensible to use this description for the cultivar.

Art. 18 of the ICNCP states that wild plants brought into cultivation should retain the species name, but 18.2 allows clones which do not demonstrate the range of variation associated with the species to be given a cultivar name when brought into cultivation. The clone of *H. mutica* which produced the white windows was normal for several years when brought into cultivation. At that stage it should, therefore, retain the species name. When it began to develop white centres in the windows in cultivation it could be considered to be a cultivar and could be given a cultivar name if thought appropriate.

Art. 2.2, ICNCP states "A cultivar is an assemblage of plants that has been selected for a particular attribute or combination of attributes and that is clearly distinct, uniform and stable in these characteristics and that when propagated by appropriate means retains those characteristics".

I suppose one could argue that a clone, which eventually produced some white in the centre of the windows, then eventually developed over many more years complete white windows surrounded by a green leaf edge, and could be propagated by offsets and leaf cutting through the same cycle of events, could be regarded as stable in the sense of Art. 2.2, but I doubt this was the intention of that article. Furthermore, how would the public react to a cultivar being composed of forms which demonstrated the normal characteristics of the species for several years then had variable amounts of white from small, through constantly expanding areas, to filling the retuse ends over many years? The cultivar name would not be associated with a "stable characteristic" in the normal sense of the word and a purchaser could not be sure what he would be getting. Furthermore, is there a possibility that a normal plant of the species could be offered under the cultivar name for commercial reasons in the hope that it too might produce white windows in time when there was no certainty that it would?

Steven cites Japanese variegated *Haworthia truncata* etc as examples of named cultivars with characteristics

developing after several year as justification for adopting a similar type of description for 'White Widow'. There is ample evidence that the Japanese have had their own system of naming cultivars which are eminently suitable for their domestic uses but are not compatible with the ICNCP. They continue to use their systems for domestic purposes as they are entitled to do, but they are making substantial progress in naming cultivars for the commercial market in accordance with the ICNCP - see for example the tables produced by Dr Hayashi (Alsterworthia International 9(3)17-23) in agreement with other creators of Japanese cultivars - and there is more to come.

I suggest that the appropriate course would be to define 'White Widow' as clones of *Haworthia mutica* which have retuse leaf ends each with a triangle of white with green leaf edges forming the framework. Thus:

Haworthia mutica 'White Widow'



H. mutica 'White Widow' Karoo Botanic Gardens 1994



Haworthia mutica 'White Widow' Karoo Botanic Gardens.



Haworthia mutica - grown from a leaf cutting obtained in 2002 by Gerhard Marx . The milky white centres are just beginning to emerge. It will not qualify as *Haworthia mutica* 'White Widow' until the white area occupies the whole of the retuse end except for the green margins.



Haworthia mutica 'Drew White'

Rick Nowakowski - Natures Curiosity Shop.

It was reported on Cacti etc that Rick Nowakowski died from a heart attack on January 4th, 2010. He was the proprietor of Natures Curiosity Shop. Amongst his many offerings he had a remarkable selection of *Gasteria* cultivars, which he had produced.

I met Rick quite casually some years ago whilst in the USA, but it was not until I had written to John Trager at the Huntington, about publishing a cultivar name for a *Gasteria* I had photographed there some years ago, that we got into a serious correspondence about cultivar names in connection with the Cultivar Project.

John had traced that the *Gasteria* had come to the Huntington from Rick via a third party. Rick confirmed that he had supplied it under the name *Gasteria gracilis monstrosa* from Japan though it might be *Gasteria* 'Aramatsu', which is a more Monstrose form. He could not tell from the photograph I had sent because it did not show a complete plant. "If the leaves are very deeply striated, and super wrinkled on both sides then it is Aramatsu, and yes I have sold quite a few to Europe in past few years. Aramatsu is just a Japanese hybrid, as there is no *Gasteria gracilis* listed in any of the books, and the variegated forms are all the same form as Aramatsu. I bought them all by the box loads in early 70's so they have been in Japan a long time!!"

In an e-mail dated 29/12/09 Rick mentioned that he was very busy with his present project which was "...to redo my web site pictures, prices and adding on another 100-150 new gasterias of mine, but I will hopefully finish by spring. It's complicated, and I have to make it as easy as possible for Tony Mace to figure out, as he did the web site for me! Tony Mace was supposed to change all the bad pictures out of the web site, but he had major problems last year with his servers!!" He also added "I

have not been too good most of this year. I have many more gasterias to list, and prices to change, pictures also. I have the pictures, just have to write descriptions and do instructions for all the changes!!"

Regrettably, Rick will not now complete his project. The hobby will be that worse off for his passing.

It seems that many of his cultivars have not been published in a form which established them in accordance with the International Code of Nomenclature for Cultivated Plants. This requires, inter alia, that a description should be published in a dated publication, which distinguishes it from all others. Rick has been published in electronic form, which is not acceptable under the ICNCP. Prior to web publication Rick published some names in (dated?) catalogues, which would be acceptable if they contained descriptions which distinguished each cultivar from all others. If they did not they would not be acceptable under the ICNCP.

As a memorial to Rick I will publish as many of his cultivars as possible in a form which will meet the requirements of the ICNCP using his cultivar names and quoting him as the authority for the names.

If you would like to help please send as much information about any of his cultivars as you can, including parentage and references to any dated, printed publications which contain descriptions. Copies of any of his printed catalogues would be greatly appreciated.

Harry Mays: hmays@freenetname.co.uk

Repertorium Plantarum Succulentarum (The Rep).

Having lists of species for the genera of interest is a major concern for many members. The popular references for species names for the genera we embrace is currently the Illustrated Handbook of Succulent Plants Monocotyledons, published 2001. Since then a number of new species/combinations have been published in a variety of journals. Tracing all of these can be time consuming, but quite unnecessary.

The Rep, published by the International Organisation for Succulent Plant Study (IOS) on an annual basis, lists new species and combinations by family published throughout the world, with references to the publications in which they were published. It also has a comprehensive bibliographia of serious literature. As it takes time to compile and check the annual additions for any one year, each Rep is published in the following year. The current issue is No. 59 (38 A5 pages + cover) for 2008. 2009 will be published later this year.

The Rep may be purchased by non-IOS members for a modest sum. No. 59 is available for £5.00 plus p & p, but David Hunt, the IOS Secretary has said that he will waive the p & p for payments up front. If you would like a copy please send a cheque/bank draft for £5.00 payable to the IOS and mention *Alsterworthia International* to :

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Two Japanese Cultivars Distributed

by

Rick Nowakowski.



Fig. 13 is a photograph of a complete plant which Rick calls *Gasteria gracilis monstrosa*. This name does not comply with the ICNCP, because Latin is not permitted in a cultivar epithet. Furthermore, *gracilis* is no longer accepted as a species because it is “of unresolved application”. It, therefore, requires a cultivar name linked to *Gasteria*.

Before one is given to it we must be certain that it has not



been given a Japanese cultivar name, as it was imported from Japan. If anyone can confirm that a Japanese name has been given to it do please let me know.

Fig. 14 is *Gasteria* ‘Aramtsu’ which Rick imported from Japan and propagated for distribution.

Fig. 15 is a cultivar with the same name currently found in Europe and also, I believe, in Australia - origin Japan.

Two dissimilar clones cannot have the same name, so which is correct?

Can anyone help please.

Harry Mays
hmays@freenetname.co.uk

×*Gasteraloe* ‘Green Ice’

It seems that there are a number of different plants in different parts of the world under this name. David Cumming, the originator of this cultivar, has kindly sent in the photograph on the back cover of the true ×*Gasteraloe* ‘Green Ice’.

The recorded parents are *Aloe variegata* Linné x *Gasteria* ‘Old Man Silver’ hort ex R. Scott.

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JL10-3. *Albuca* sp JAA (Brandberg, Namibia)#

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JL10-7. *Aloe albiflora* JL78 CITES1 (artificially propagated)

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JL10-9. *Aloe ankaborensis* JL79 Ethiopia (& 50/500 seeds)

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JL10-12. *Aloe bakeri* JL84

JL10-13. *Aloe barbadensis* (= see *A. vera*)

JL10-14. *Aloe bellatula* JL85 CITES1 (artif. propagated) (& 50 seeds)

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JL10-16. *Aloe brevifolia* *v. depressa* JL934

JL10-17. *Aloe broomii* COR (& 50 seeds)

JL10-18. *Aloe buhrii* COR (& 50 seeds)

JL10-19. *Aloe bulbifera* *v. pauliana* PR (Madagascar)#

JL10-20. *Aloe cameronii* *v. dedzana* AJ

JL10-21. *Aloe capitata* PR

JL10-22. *Aloe capitata* *v. gneissicola* COR (& 50 seeds)

JL10-23. *Aloe capitata* *v. quartzitcola* JL974 (& 50 seeds)

JL10-24. *Aloe chabaudii* JL962 et al. (& 50/500 seeds)

JL10-25.**NEW!** *Aloe chabaudii* aff. PG (& 50/500 seeds)

JL10-26. *Aloe claviflora* PR (South Africa)# (also by 50 seeds)

JL10-27.**NEW!** *Aloe claviflora* PG (& 50 seeds)

JL10-28. *Aloe compressa* *v. schistophila* JAA (Madagascar)#

JL10-29. *Aloe comptonii* JL91 (& 50 seeds)

JL10-30. *Aloe conifera* JL738

JL10-31. *Aloe cremnophila* JL93 (& 50 seeds)

JL10-32. *Aloe cryptopoda* JCD

JL10-33. *Aloe X delaetii* JL95 (& 50 seeds)

JL10-34. *Aloe deltoideodonta* JAA

JL10-35. *Aloe deltoideodonta* *v. candicans* JCD

JL10-36. *Aloe dichotoma* JL

JL10-37. *Aloe distans* JL767 (& 50 seeds)

JL10-38. *Aloe divaricata* JAA734 (N. Tulear, Madagascar)#

JL10-39. *Aloe dorotheae* JL624

JL10-40. *Aloe dumetorum* JL100 (Kenya)# (& 50/500 seeds)

JL10-41. *Aloe dyeri* JCD ex AJ98

JL10-42. *Aloe elegans* JCD

JL10-43. *Aloe ellenbeckii* Xgreatheadii JAA

JL10-44. *Aloe ferox* JL

JL10-45. *Aloe ferox* JAA269 (near Stormulei, RSA)#

JL10-46.**NEW!** *Aloe fleurentinorum* PR

JL10-47. † *Aloe fosteri* cf. JL106

JL10-48. *Aloe gariensis* PR (& 50 seeds)

- JL10-49. *Aloe gariensis* JAA249 (Beauvallon, Richtersveld)#
 JL10-50. *Aloe gariensis* JAA608 (Warmbad, Namibia)#
 JL10-51. *Aloe globuligemma* JCD
 JL10-52. *Aloe graminicola* ex Nakuru JL83/1 (cespitose, compact (Kenya)# introduction Joël Lodé
 JL10-53. *Aloe grandidentata* JCD
 JL10-54. *Aloe grandidentata* cf. JL110
 JL10-55. *Aloe greatheadii* JAA (& 50 seeds)
 JL10-56. *Aloe helenae* JCD CITES 1 (& 50 seeds)
 JL10-57. *Aloe hereroensis* AJ (Zarishoogte, Namibia)# (& 50 seeds)
 JL10-58. *Aloe humilis* JL113+COR (& 50 seeds)
 JL10-59. *Aloe imalotensis* COR (& 50 seeds)
 JL10-60. *Aloe immaculata* PR
 JL10-61. **NEW!** *Aloe inermis* PR
 JL10-62. *Aloe jucunda* JL114 (& 50 seeds)
 JL10-63. *Aloe karasbergensis* COR (also by 50 seeds)
 JL10-64. *Aloe kedongensis* JL5960 (Kenya)# (& 50 seeds)
 JL10-65. *Aloe khamiesensis* JL3114+JAA614 (Carolusberg, RSA)# (& 50/500 seeds)
 JL10-66. *Aloe khamiesensis* aff. JL3800 (Okiep, RSA)# (& 50 seeds)
 JL10-67. *Aloe kilifiensis* Lavr.12298 (Kilifi, Kenya)# (& 50 seeds)
 JL10-68. *Aloe krapohlana* JAA569 (E.Lloingras, RSA)#
 JL10-69. *Aloe laeta* COR (& 50/500 seeds)
 JL10-70. *Aloe littoralis* AJ (S. Etosha, Namibia)# (& 50/500 seeds)
 JL10-71. *Aloe longistyla* COR (& 50 seeds)
 JL10-72. *Aloe maculata* AJ (RSA)# (& 50 seeds)
 JL10-73. *Aloe marlothii* JL119 (& 50 seeds)
 JL10-74. **NEW!** *Aloe massawana* JL (& 50 seeds)
 JL10-75. *Aloe melanacantha* REY (South Africa)# (& 50 seeds)
 JL10-76. *Aloe melanacantha* JL3839 (N. Kommagas, RSA)# (& 50 seeds)
 JL10-77. *Aloe microstigma* JL121 et al. (& 50/500 seeds)
 JL10-78. *Aloe microstigma* JAA (Worcester, RSA)#
 JL10-79. *Aloe microstigma* JAA648 (Karooport, RSA)# (& 50/500 seeds)
 JL10-80. *Aloe millotii* JL122+JCD (& 50 seeds)
 JL10-81. *Aloe mudenensis* AJ (Muden, Natal, RSA)# (& 50/500 seeds)
 JL10-82. *Aloe mutabilis* PR
 JL10-83. *Aloe niehburiana* JL127 (Al Barh, Yemen)# (& 50 seeds)
 JL10-84. *Aloe ortholopha* COR (Zimbabwe) (& 50 seeds)
 JL10-85. *Aloe parvula* JL5900 et al. **CITES 1**
 JL10-86. **NEW!** *Aloe perrieri* JAA753 (N. Ithosy, Madagascar)# (& 50 seeds)
 JL10-87. **NEW!** *Aloe perryi* JL930 (Laskah, Socotra) (& 50 seeds)
 JL10-88. *Aloe pictifolia* PG
 JL10-89. *Aloe plicatilis* COR
 JL10-90. *Aloe pluridens* COR (& 50/500 seeds)
 JL10-91. *Aloe pratensis* J. Miller
 JL10-92. *Aloe pretoriensis* COR
 JL10-93. *Aloe rauhii* JL132 (Madagascar)# CITES1 (artificially propagated) (& 50 seeds)
 JL10-94. *Aloe reynoldsii* JL999 (also by 50 seeds)
 JL10-95. †*Aloe rubroviolacea* PR
 JL10-96. *Aloe sabaea* JL134 (Karia, Yemen)# (& 50/500 seeds)
 JL10-97. *Aloe saponaria* JL136 et al. (& 50 seeds)
 JL10-98. *Aloe secundiflora* JL125 (*Aloe gre*, superbes épines) (Namanga, Kenya)# (& 50/500 seeds) RARE Introduction in cultivation in 1983 by JL
 JL10-99. **NEW!** *Aloe sheilae* Miller (Saudi Arabia) (possible par 20 grains/seeds/semillas)
 JL10-100. *Aloe sinkatana* JL137
 JL10-101. *Aloe speciosa* COR (& 50/500 seeds)
 JL10-102. *Aloe spicata* PR (& 50 seeds)
 JL10-103. *Aloe striata* JL128 et al. (& 50 seeds)
 JL10-104. *Aloe suarezensis* JAA668 (Montagne des Français, Diego Suarez, Madagascar)#
 JL10-105. *Aloe succotrina* JL140 (& 50 seeds)
 JL10-106. †*Aloe suprafoliata* JCD
 JL10-107. *Aloe tenuior* JAA
 JL10-108. *Aloe thraskii* JL
 JL10-109. *Aloe umfoloziensis* JL143
 JL10-110. *Aloe vaombe* JCD (Madagascar)#
 JL10-111. *Aloe vaombe* JAA (W. Behara, Madagascar)#
 JL10-112. *Aloe vaombe* JAA (E. Tranoroa, Madagascar)#
 JL10-113. *Aloe vaombe* cf. JL66 (& 50 seeds)
 JL10-114. *Aloe variegata* JL144 (& 50 seeds)
 JL10-115. *Aloe vera* (= *A. barbadensis*) JL67
 JL10-116. *Aloe vogtsii* PR (& 50 seeds)
 JL10-117. *Aloe zebrina* JL139 (Kalahari 1978, Botswana)#
 JL10-118. *Aloe* sp Nakuru JL76/2 sp. nova discovery Joël Lodé still not described
 JL10-119. *Aloe descoingsii* x *rauhii* JL97 (superb) (& 50/500 seeds)
 JL10-120. *Aloe globuligemma* x *variegata* JAA (& 50/500 seeds)
 JL10-121. *Aloe xspinosissima* (= *humilis* x *arborescens*) JCD
 JL10-122. *Aloe striata* x *saponaria* JCD
ASTROLOBA (Liliaceae)
 JL10-123. *Astroloba pentagona* JL157 (& 50 seeds)
BOWIEA (Liliaceae)
 JL10-124. *Bowiea volubilis* ND
BULBINE (Liliaceae / Asphodelaceae)
 JL10-125. *Bulbine alooides* JAA (& 50 seeds)
 JL10-126. †*Bulbine frutescens* JCD
 JL10-127. *Bulbine lagopus* JAA
 JL10-128. *Bulbine sedifolia* JAA (Carolusberg, RSA)# (& 50 seeds)
 JL10-129. *Bulbine semibarbata* AH
 JL10-130. *Bulbine vitrea* JL2985 (Carolusberg, RSA)#
 JL10-131. *Bulbine* sp JAA640 (S. Calvinia, RSA)#
 JL10-132. *Bulbine* sp Koegab, (RSA)# BEY
CYRTANTHUS (Amaryllidaceae)
 JL10-133. *Cyrtanthus brachyscyphus* BUG
DIPCADI (Liliaceae/Hyacinthaceae)
 JL10-134. *Dipcadi viride* BEY (RSA)# (& 50 seeds)
 JL10-135. *Dipcadi* sp JE (also by 50 seeds)
GASTERALOE (Liliaceae)
 JL10-136. *Gasteraloe bicolor* Xviguieri JAA
GASTERIA (Liliaceae)
 JL10-137. *Gasteria acinacifolia* JL5937 (géante!)
 JL10-138. *Gasteria* (*nitida* v.) *armstrongii* JL366+JAA (& 50 seeds)
 JL10-139. *Gasteria baylissiana* JL+JAA (& 50 seeds)
 JL10-140. *Gasteria* (*bicolor* v.) *liliputana* JL373
 JL10-141. †*Gasteria candicans* v. *glabrata* JL370
 JL10-142. *Gasteria carinata* v. *verrucosa* JL379 (& 50 seeds)
 JL10-143. *Gasteria carinata* v. *verrucosa* f. *major* JL380 (& 50 seeds)
 JL10-144. *Gasteria conspicua* JL369 (& 50 seeds)
 JL10-145. *Gasteria ellaphiae* JAA+AS (Paul Sayer Dam, Type location)# (& 50 seeds) RARE
 JL10-146. *Gasteria excelsa* JAA (& 50 seeds)
 JL10-147. †*Gasteria glauca* JAA
 JL10-148. *Gasteria pillansii* JAA (Bullhouer, RSA)# (& 50 seeds)
 JL10-149. *Gasteria pulchra* JL+PR (& 50 seeds)
 JL10-150. *Gasteria pulchra* JAA (E. Hankey, RSA)#
 JL10-151. *Gasteria pulchra* JAA ex NBG1693/70 (Humansdorp, RSA)# (& 50 seeds)
 JL10-152. *Gasteria trigona* JL378 (& 50 seeds)
 JL10-153. †*Gasteria vlokii* JL
 JL10-154. *Gasteria* sp JL01/364 (presque glabre/ almost glabrous)
 JL10-155. *Gasteria bicolor* Xexcelsa JAA (& 50/500 seeds)
 JL10-156. *Gasteria excelsa* Xbicolor JAA (& 50 seeds)
HAWORTHIA (Liliaceae) (possible, involuntary hybridization, from hundred years old collection, Botanical Garden of Nantes, France from the plants with JL access codes. However pure clones of the plants – and more species not listed here- maybe obtained through KAKTITOS at <http://kaktitos.com>)
 JL10-157. *Haworthia asperula* JL411 (the real Haworth one!) (plant collected towards 1850)
 JL10-158. *Haworthia attenuata* v. *britteniae* JL414
 JL10-159. *Haworthia chloracantha* v. *denticulifera* JL418
 JL10-160. *Haworthia cymbiformis* v. *compacta* JL427
 JL10-161. *Haworthia emelyae* JAA
 JL10-162. *Haworthia fasciata* v. *browniana* JL435

JL10-163. *Haworthia fasciata* v. *concolor* JL5938
 JL10-164. **NEW!** *Haworthia herbacea* JAA (Worcester, RSA)#
 JL10-165. *Haworthia* X *kuentzii* JL442
 JL10-166. *Haworthia marumiana* v. *batesiana* JL416
 JL10-167. *Haworthia minima* (*margaretifera* f.) JL448
 JL10-168. *Haworthia mucronata* v. *habdomadis* RB23-2
 JL10-169. *Haworthia pumila* JAA (Bonniesvale, RSA)#
 JL10-170. *Haworthia pygmaea* JL569+HW (Great Brake Town, RSA)#
 JL10-171. *Haworthia reticulata* v. *hurlingii* JL469
 JL10-172. †*Haworthia retusa* v. *acuminata* JL470
 JL10-173. *Haworthia translucens* JL479
 JL10-174. †*Haworthia turgida* JL640
 JL10-175. *Haworthia venosa* (*tessellata*) JL
 JL10-176. *Haworthia venosa* (*tessellata*) v. *parva* JL477 (& 50 seeds)
 JL10-177. *Haworthia* cv 'Mili' JL401/03 (aff. *fasciata*, light green-yellowish leaves)
HOMERIA (Iridaceae)
 JL10-178. *Homeria* (*Moraea*) *ochroleuca* BEY (RSA)# (& 100 seeds)
LACHENALIA (Liliaceae/Hyacinthaceae)
 JL10-179. *Lachenalia alba* BEY (RSA)# (& 50 seeds)
 JL10-180. †*Lachenalia hirta* BEY
 JL10-181. **NEW!** †*Lachenalia laciosa* BEY
 JL10-182. *Lachenalia liliiflora* BEY
 JL10-183. *Lachenalia matthewsii* BEY (RSA)#
 JL10-184. *Lachenalia namaquensis* BEY (RSA)#
 JL10-185. *Lachenalia orchioides* v. *glaucina* JAA
 JL10-186. †*Lachenalia purpureo-coerulea* BEY (RSA)#
 JL10-187. *Lachenalia reflexa* BEY+JAA (& 50 seeds)
 JL10-188. †*Lachenalia rubida* JE
 JL10-189. *Lachenalia* cf. *mutabilis* JAA (Holgat Rivier, RSA)# (& 50 seeds)
 JL10-190. *Lachenalia* sp JAA639 (*O. Calvinia*, RSA)# (& 50 seeds)
LOMATOPHYLLUM (Liliaceae)
 JL10-191. *Lomatophyllum citreum* JL436
 JL10-192. *Lomatophyllum prostratum* GH (ex Uhlig)
 JL10-193. **NEW!** †*Lomatophyllum* sp aff. *megalocarpus* JL (Madagascar)#
MASSONIA (Liliaceae)
 JL10-194. *Massonia depressa* JL+BEY (*Nigramoep*, RSA)# (£ 100 seeds)
 JL10-195. *Massonia depressa* JAA907 (10km. N. Clanwilliam, RSA)# (£ 100 seeds)
 JL10-196. *Massonia depressa* JAA942 (*Nieuwoudwille*, RSA)#
 JL10-197. **NEW!** *Massonia depressa* JAA1289 (*Kalgat Nroud*, RSA)#
ORNITHOGALUM (Liliaceae)
 JL10-198. *Ornithogalum caudatum* JL586 (& 50 seeds)
 JL10-199. *Ornithogalum graminifolium* DMC9802 (*S.E. Stutterheim*, RSA)# (& 50 seeds)
 JL10-200. **NEW!** *Ornithogalum hispidulum* RM337 (*Citrusdal*, RSA)#
 JL10-201. *Ornithogalum longibracteatum* PFO (& 50 seeds)
 JL10-202. *Ornithogalum maculatum* KV
 JL10-203. **NEW!** *Ornithogalum pruinatum* JAA ex ISI2008-25 (*Namaqualand*, RSA)#
 JL10-204. *Ornithogalum thyrsoides* KV
 JL10-205. †*Ornithogalum xanthochlorum* JAA (RSA)#
VELTHEIMIA (Liliaceae)
 JL10-206. *Veltheimia bracteata* COR (fl. as *Aloe*, rouge rosé, leaves undulating) (& 100 seeds)
WHITEHEADIA (Liliaceae)
 JL10-207. †*Whiteheadia bifolia* BS (RSA)#
EXOTICS, BULBS...
 JL10-208. **NEW!** *Gladiolus carinatus* BEY (RSA)# Blue fl. (Iridaceae)
 JL10-209. *Gladiolus carneus* BEY (RSA)# (Iridaceae)
 JL10-210. **NEW!** *Hippeastrum* sp f. *blanche* GX (Amaryllidaceae)
 JL10-211. **NEW!** *Hippeastrum* sp f. *red* GX (*Colombia*)# (Amaryllidaceae) (also by 50 seeds)

JL10-212. †*Homeria ochroleuca* BEY (RSA)# (Iridaceae)
 JL10-213. *Homeria* sp blue fl. BEY (RSA)# (Iridaceae) (& 100 seeds)
 JL10-214. †*Ixia viridiflora* BEY (RSA)# (Iridaceae)
 JL10-215. †*Romulea khamiesensis* BEY (RSA)# (Iridaceae)
 JL10-216. †*Sparaxis bulbifera* BEY (RSA)# (Iridaceae)
 JL10-217. *Stenomesson coccineum* MCA (*San Jeronimo de Surco*, Peru)# (Amaryllidaceae) fl. orange
 JL10-218. *Synnotia bicolor* BEY (RSA)# (Iridaceae)
 JL10-219. **NEW!** *Tritonia* sp BEY (Iridaceae)
RARE OR CITES 1: 1,20Euros 5-10 seeds The CITES1 seeds are artificially propagated)
ALOE (Liliaceae)
 JL10-220. **NEW!** † *Aloe haworthioides* GX **1,20€**
 JL10-221. **NEW!** † *Aloe morogoroensis* JL
 JL10-222. **NEW!** † *Aloe perryi* JL (*Mayhah*, *Socotra*)# **1,20€**
 JL10-223. † *Aloe porphyrostachys* ssp. *koeneni* (*Petra*, *Jordan*)# *Discovery* JL 1985 red flowers (5 seeds) **1,20€**
HAWORTHIA (Liliaceae)
 JL10-224. **NEW!** † *Haworthia bolusii* v. *pringlei* JAA ex MBB7006 (*Noeder Joon Poort*, RSA)#
 JL10-225. **NEW!** † *Haworthia cummingii* JAA ex DMC11214 (*Committees Drift*, RSA)#

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Haworthias and Chameleons

Bruce Bayer

There is a very curious parallel in the problems and aspects of classification and identification of haworthias and chameleons that I personally find a bit mystifying. Classification of succulent plants and especially *Haworthia* is often done outside of mainstream science, which means that it is not done by trained professional botanists who can stand in the intellectual arena with academics and degreed intellectuals. It has been pointed out to me that this is the problem in *Haworthia* and also why professionals do not want to attempt to resolve the issue because the nomenclature has been so confused and complicated by all the bungling that has taken place. Having been on the fringes, and indeed even failed attempting to cross the bridge into academia, I find it very difficult indeed to reconcile my life experience in the amateur arena with what I encounter from the professional one. This is because I have observed an ever widening gap between the perceptions of the non-science individual compared with that of the professional. My interest in chameleons is simply another aspect of my interest and passion for living things and I am distressed that the knowledge and understanding of these fascinating animals, as with *Haworthia*, is so clouded by ignorance and confusion.

It is a bit problematic for me to explain why I think classification and plant names is such a big issue and why it is important to me, but fundamental to me is trying to understand and know something about plants and animals as an extension of my exploration.

Recently a very welcome and valuable booklet, "Chameleons of Southern Africa" has been authored by Krystal Tolley and Marius Burger and published by Struik Publishers (Cape Town). What makes it so interesting for me, beyond my interest in the animals themselves, is the remarks the authors make in the preface in respect of writing the species accounts. The problem of finding identifying characters was a key issue and there is constant reference to confusion. There is of course no statement about what a chameleon species actually is and there is this curious statement "There are few consistencies of identification characteristics and we admit that we sometimes initially identify a chameleon by means of 'gut feeling'". What makes this so curious is that there is nothing in the booklet to indicate there is any more to the mystery of identification and how a final identification could be made to possibly help the even more than average individual to arrive at an own conclusion.

In *Haworthia* (as indeed is the case in many plant genera) the description of species has been based on a basis of simple visual (morphological) difference, with barely any consideration of variation and in the total absence of a definition of a species beyond the assumption that if they look different they are different (species).

One has to ask what is it that is referred to as "gut-feeling"? I have often heard and read that classification and taxonomic statement is a matter of opinion and felt compelled to respond by quoting a writer who made the

distinction between mere opinion and informed opinion. "Gut-feel" may vary from the instant response of the ignorant to a fleeting image, to the deeply considered intuitively driven reservation of another who is highly informed and who has a vast bank of experience, images and literature to draw from.

The significant thing is that any decision-making in the chameleon booklet has been facilitated by results from DNA analysis. Now I must make it clear that I am not attacking the book or the authors. I want to draw attention to the problems inherent in a methodology which amounts to nothing more than saying "trust me" and the very serious problem that own judgment is by implication quite useless. As a very knowledgeable observer wrote to me "Our own eyes and brains are seemingly no longer good enough to serve the world - well that is what the RNA-DNA lab technicians are trying to tell us." There have been several attempts to evaluate the classification of *Haworthia* by DNA sequencing that do little more than ring alarm bells. Without any pretence at understanding all the convolutions of genetics and the repository of DNA in all its forms, I would have to ask again what does one do to organize one's scepticism about the results that are thrust upon one? If the total facies that an individual organism presents to the eye and senses is not a reasonable representation of the information encoded in the DNA, then we are absolutely helpless. Could one say that we have been put into this creation without the sensory capabilities to distinguish and discriminate anything?

Recently I submitted photographs of two chameleons to an authority for identification stating that I thought they were not the Karoo Dwarf. The reply I received was "It looks like the Karoo Dwarf. What makes you think it is not?" Apart from the fact that I had already given reasons, the truth is that my correspondent could not possibly have said why he thought it did look like the Karoo Dwarf, thereby shifting the responsibility back on to me. Are we stuck with the sad and unavoidable fact that unless one can get a DNA result, one cannot know what one is looking at.

What has now happened with respect to *Haworthia* DNA, where we have the same dreadful problem of identification and understanding? I have elsewhere (see *Haworthia* Update 3,2:Ch3:p 92) discussed the papers by Messrs Treutlein *et al* and I summarily dismiss what I think may be unpublished results by another source I must politely keep to myself. There was a rather immodest statement by Messrs Wallace and Noll published in **Haworthiad** that promised to unfold the problems of *Haworthia* classification by DNA analysis. The results have never been disclosed and there is a disconcerting failure by the authors to respond to any inquiry. More recently Dr. Syd Rhamdhani has also been busy sequencing the DNA of a range of *Haworthia* and species of related genera. The work was initiated in an attempt to relate variability to habitat diversity, but to preclude a total negative result it was deemed advisable

to widen the scope to ensure that the methodology was applicable at a broader scale. The results demonstrated, at least from my personal perspective, a complete failure to relate the DNA sequences with the realities of the classification of at least the semi-rational mind of an experienced and informed observer.

Dr Rhamdani has so far generated results from DNA sequencing using the nuclear ITS and chloroplast trnL-F markers. The former, on the evidence of the “species” considered, seems to give a good view of the generic possibilities, with not enough information with respect to the species. The trnL-F spacer results contain several spurious associations if my existing classification (Bayer 1999) and geographic distance are valid considerations. (A poster presentation of the results has been published in **Alsterworthia International 9(3)13-17 - November 2009**) Dr Rhamdani has been kind enough to send me the product of an alternative manipulation of his results (page 20) that I tend to equate with an attempt to display the relationships of his samples as they would be in geographic space. One can see from the groupings (see tables) that there are gross anomalies that cannot possibly be taken to have classification truth. Group 1Aa for example has *H. angustifolia*, *H. marumiana* ‘reddii’ and *H. truncata* ‘maughanii’ nested together. Group 1Bd includes *H. parksiana* and *H. rossouwii*. The presence of *H. kingiana* in two different groups viz 2Ad and 2Bb has to be dismissed as an identification error where I would stake my reputation on EA1211 rather than AJ290298. Each group can be tediously discussed but one needs to consider that the actual focus of the

exercise was to explore the geographic relationship of DNA sequences below species level. Far too much was expected of a still poorly understood technology.

Coming back to chameleons, I have the problem that being interested in the creatures I want to know what they are. Having familiarized ourselves (my wife and I) with the Cape Dwarf (*Bradypodium pumilum*) we came into contact with the (then) Robertson Dwarf (*B. gutturale*). The distribution given by W R. Branch and the descriptive detail did not seem to match what we were experiencing in the field and we concluded that the Robertson Dwarf and the Karoo Dwarf (*B. karroicum*) were surely the same species. We then encountered what we thought was the Western Dwarf (*B. occidentale*) and were derailed by the opinion given us from a DNA analysis of the “population” observed, that it was a variant of the Cape Dwarf viz. a “renosterveld form”. What we were told did not satisfy our “gut-feel” however profound and true it may have been or is. Then the booklet was published that confirmed our conviction that the Robertson and Karoo Dwarves were being confused (The true Karoo dwarf is now said to equate the Eastern cape dwarf!), but not throwing any more light on the question of the “Renosterveld form” of the Cape Dwarf.

We then learned of a chameleon in the Gouritz River valley. On seeing these we concluded that on morphological grounds they were not the Karoo Dwarf and had to fall within the ambit of the Swartberg and Eastern Cape Dwarves as accepted by Tolley and

(Continued on page 20)

Group 1

Group 1A

Group 1Aa

Code	Collector Number	Taxon name	Subgenus	Locality	Source
54	MBB 7128	angustifolia var. baylissii	Haworthia	Wellsgate, E. of Kirkwood	Field
47	MBB 6843	marumiana var. reddii	Haworthia	Inverbolo, Stutterheim	Sheilam
58	MBB sn	truncata v. maughanii	Haworthia		Sheilam

Group 1Ab

	Collector Number	Taxon name	Subgenus	Locality	Source
35	JDV 90/57	monticola var. asema	Haworthia	S. of Kruis River	Field
40	JDV 97/128	mucronata var. mucronata	Haworthia	SE of Barrydale	Sheilam
6	SR&TDsn 4	angustifolia	Haworthia	Mountain Drive (Gtown)	Sheilam

Group 1Ac

	Collector Number	Taxon name	Subgenus	Locality	Source
32	EvJ 17548	cymbiformis var. transiens	Haworthia	Horee	Field
52	MBB 7032	mutica var. mutica	Haworthia	Rietfontein	Sheilam

Group 1B

Group 1Ba

Code	Collector Number	Taxon name	Subgenus	Locality	Source
30	PVB 7047	zantneriana	Haworthia	N. of Redcliffe, Willowmore	Sheilam
62	MBB sn	reticulata	Haworthia	Bosfontein	Sheilam
48	MBB 6875	maraisii	Haworthia	Cogmanskloof, Ashton	Shadowlands
51	MBB 6985	rossouwii var. calcaria	Haworthia	De Hoop	

Group 1Bb

	Collector Number	Taxon name	Subgenus	Locality	Source
33	GM 623	marxii	Haworthia	Rooi Nek Pass S. of Laingsberg	
36	JDV 91/91	cymbiformis var. setulifera	Haworthia	Rainbow Valley	Sheilam
4	SR & TDsn 2	cooperi var. gracilis	Haworthia	Mayfair (Gtown)	Field
18	SR & BBsn Site 5- 27/6	cooperi var. viridis	Haworthia	Kaboega, Dassiekop NE of farmhouse	
15	SR & BBsn Site 3- 26/6	cymbiformis var. obtusa	Haworthia	Glen Avon falls	Field
16	SR & BBsn Site 2- 27/6	cooperi var. 'puberula'	Haworthia	Kaboega, W of Wilgefontein	Field
1	SR&TD 719	cymbiformis var. incurvula	Haworthia	Platosvale	Field
21	SR & BBsn Site 3- 18/10	cooperi var. viridis	Haworthia	Kaboega, De Plaat	Field
24	SR & BBsn Site 1- 19/10	cooperi var. spec.1	Haworthia	Kaboega, Kaboegapoort	Field
23	SR & BBsn Site 1- 19/10	cooperi var. spec.3	Haworthia	Kaboega, Kaboegapoort	Field
25	SR & BBsn Site 1- 19/10	cooperi spec. 4	Haworthia	Kaboega, Kaboegapoort	Field
22	SR & BBsn Site 4- 18/10	cooperi var. viridis Grassland form	Haworthia	Kaboega, W of Wilgefontein	Field
38	JDV 93/45	cymbiformis var. obtusa	Haworthia	Kagasmond	Sheilam
27	SR & BBsn Site 1- 19/10	cooperi spec.2	Haworthia	Kaboega, Kaboegapoort	Field
39	JDV 94/98	decipens var. xiphiophylla	Haworthia	W. of Coega	Sheilam
64	BBsn	aristata	Haworthia	E of Hopewell farm	Field

Group 1Bc

	Collector Number	Taxon name	Subgenus	Locality	Source
13	SR & BBsn Site 1- 18/10	cooperi typical	Haworthia	Kaboega, Gertpiets area	Field
26	SR & BBsn Site 2- 19/10	cooperi var. viridis	Haworthia	Kaboega, back of the Dam (Spekboomberg)	Field
44	MBB 6791/4	cooperi var. picturata	Haworthia	Andrieskraal	Sheilam
3	SR & TDsn 1	cooperi var. pilifera	Haworthia	Mayfair (Gtown)	Field

Group 1Bd

	Collector Number	Taxon name	Subgenus	Locality	Source
63	MBB sn	parksiana	Haworthia	Mossel bay	Sheilam
50	MBB 6983	rossouwii var. rossouwii		Soutkloof, Napier	Sheilam
67	MBB sn	pulchella var. pulchella	Haworthia	Constable Station	Sheilam
43	MBB 6762	puchella var. globifera	Haworthia	Touwsberg, Little Karoo	Sheilam

Group 2

Group2A

Group 2Aa

Code	Collector Number	Taxon name	Subgenus	Locality	Source
46	MBB 6829	Poellnitzia rubiflora	NA	Rooikloof	Shielam
71	AJ290302	Poellnitzia rubiflora			Genbank

Group 2Ab

Code	Collector Number	Taxon name	Subgenus	Locality	Source
73	MBB sn	Aloe bowiae	NA	???	Sheilam
9	SR&TD S3- 29/8	Aloe speciosa	NA	Plutosvale	Field
10	SR&TD S6- 29/8	Aloe africana	NA	Bothas Hill (Grahamstown)	Field
11	SR&TD S7- 29/9	Aloe lineata	NA	Stones Hill (Grahamstown)	Field
72	AJ290289	Aloe vera			Genbank

Group 2Ac

Code	Collector Number	Taxon name	Subgenus	Locality	Source
7	SR & TDsn 6	attenuata	Hexang.	Plutosvale	Field
34	JDV 85/145	scabra var. morrisiae	Hexang.	Schoemanspoort	Sheilam
31	EvJ 16840	attenuata var. glabrata	Hexang.	Collywobbles	Sheilam
56	MBB 7179	viscosa	Hexang.	Constantia, W. of Willowmore	Sheilam
65	MBB sn	venosa var. venosa	Hexang.	Breede Riv., Swellendam	Sheilam
41	JDV 1942	attenuata var. attenuata	Hexang.	Soutkloof, Addo	Sheilam
28	Clark & Pienaar 120	venosa var. tessellata	Hexang.	Farm Hughdale 161, Kikvorsberge (Noupoort Region, N. Cape) 31o04'14"S 25o07'46"E (3125AA) - ca. 1900 m	

Group 2Ad

Code	Collector Number	Taxon name	Subgenus	Locality	Source
66	MBB sn	reinwardtii	Hexang.	Wesley	Sheilam
68	AJ290299	kingiana	Robusti		Genbank
5	SR & TDsn 3	coarctata	Hexang.	Ecce Reserve (Gtown)	Field
42	MBB 6380	pungens	Hexang.	Braam River	Sheilam
17	SR & BBsn Site 3- 27/6	sordida	Hexang.	Kaboega, E of Olifantskop	Field

Group 2Ae

Code	Collector Number	Taxon name	Subgenus	Locality	Source
19	SR & BBsn Site 2- 28/6	nigra	Hexang.	DePlaat, Kaboega	Field
61	MBB sn	venosa var. woolleyi	Hexang.	Springbokvlakte	Sheilam
74	AJ290298	Gasteria liliputiana			Genbank
45	MBB 6809	fasciata	Hexang.	Gamtoos	Selecta Succ.
57	MBB 7695	glauca	Hexang.	15 km S of Kaboega Farm house, Darlington Dam to Kirkwood	Field
20	SR & BBsn Site 1- 27/6	glauca	Hexang.	Kaboega, W of Wilgefontein	Field

Group 2Af

Code	Collector Number	Taxon name	Subgenus	Locality	Source
59	MBBsn	glauca	Hexang.	????	
12	SR sn 30/6/08	glauca	Hexang.	Gertpiet se Kraal	Field

Group 2Ag

Code	Collector Number	Taxon name	Subgenus	Locality	Source
60	MBB sn	Hybrid arachnoidea X blackburniae v. graminifolia	Haworthia	Schoemanspoort	Sheilam
55	MBB 7145	limifolia var. glaucophylla	Hexang.	Three Sisters, Barberton	Sheilam

Group2B**Group 2Ba**

Code	Collector Number	Taxon name	Subgenus	Locality	Source
2	SR843	Astroloba foliolosa		Kaboega, De Plaat	Field
69	MBB 6756	Astroloba bullata		??	Sheilam
49	MBB 6952	marginata	Robusti.	N. of Ashton	Sheilam
70	AJ290292	Astroloba foliolosa			Genbank

Group 2Bb

Code	Collector Number	Taxon name	Subgenus	Locality	Source
53	MBB 7096	pumila	Robusti.	Konings River	Sheilam
37	JDV 92/51	blackburniae	Haworthia	Voorbaat	Sheilam
29	EA 1211	kingiana	Robusti.	Great Brak	Selecta Succ.

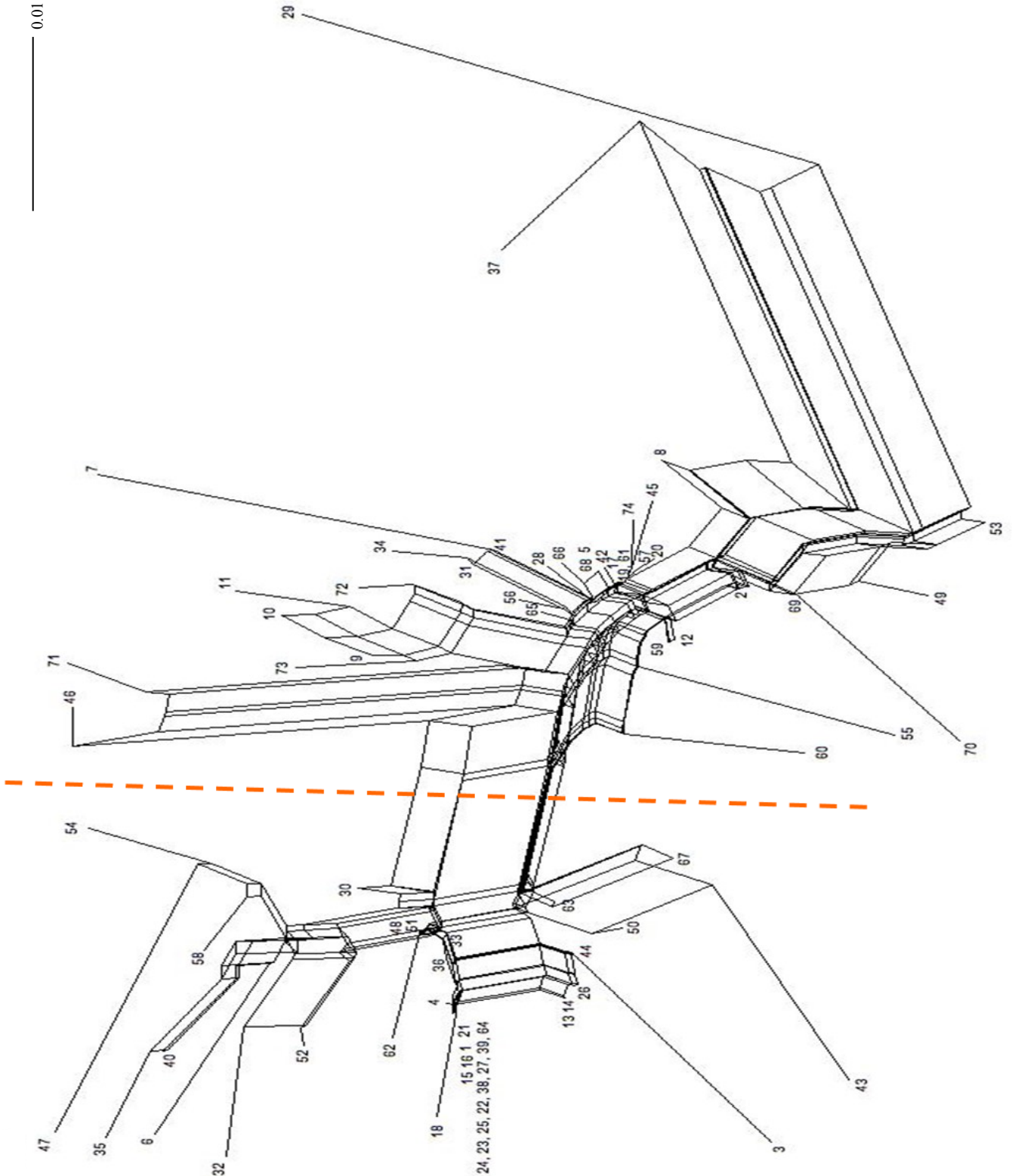
Group 2Bc

Code	Collector Number	Taxon name	Subgenus	Locality	Source
8	SR&TD S2-29/8	Aloe tenuior		Committees Drift Junction	Field

(Continued from page 17)

Burger. These are the chameleons “identified” by an authority as the Karoo Dwarf despite our submission of evidence why it was not. This led us back to the published DNA work and a paper by Tolley *et al* that discussed specifically the Eastern Cape Dwarves and a number of variants suggested being new species. My experience in *Haworthia* generated the strong “gut-feel” that this may be quite wrong as wide field experience suggests that species are highly complex systems that

defy the conventional taxonomic approach. Further sampling would quite probably generate a host of still other variants and require explanation. It is quite obvious that the chameleons cannot be identified with certainty using morphological characters and this is equally true for *Haworthia*. My experience is that it is true for many plant genera. Nevertheless, I think that this is because morphological criteria are so heavily relied on with not enough reference to geographic distribution and a rational species definition as opposed to an open-ended



species concept. In another paper by Tolley et al, the two species *B. melanocephalum* and *B. thamnobates* are shown to be genetically identical, despite the fact that they are known to be morphologically different and geographically separated. Thus it was a pleasant surprise to find another article (Miller & Alexander - 2009) that probes this question and speculates that it is possible that the DNA sequences used in the analysis may not be representative of the full genome. The available results of DNA sequencing for *Haworthia* suggest to me that those sequences are also not adequately or accurately representing a true or reasonable phylogeny. A problem I then also have is that a phylogram is a simple two-dimensional tree that is being drawn to illustrate the relationship of elements that are spread in at least two-dimensional space derived from change with time. In my opinion far too much is thus inferred from complex statistical procedures that generate a wholly theoretical diagram wholly beyond penetration by ordinary skepticism. I would suggest that the so-named bootstrap and posterior probability values may be subject to the same apparently many vagaries of multivariate statistical procedures that are not perhaps fully understood or even recognized by those who use them.

Dr Rhamdhani suggested that I mention some of the limitations of the sequencing process that he lists:

1. mostly extant samples are used as these are only available for analysis (except in some cases fossils can be sequenced).
2. small sample size .
3. use of a few selective markers.
4. hybridization and incomplete lineage sorting distorts and complicates patterns.
5. appropriate analytical tools have not be formulated to handle the data and the above issue.
6. manipulation, misuse etc. of species concepts to justify desired results – this can be related to the “gut-feel” issue that this article raise.

I did complain about the problem of probing results published in complex technical papers when the results conflict with my “gut-feel”. The response was that “our eyes and our intuition are frequently tricked by the complexity of the real world...”. This is flatly not true for *Haworthia* and I strongly suspect that it is not true for chameleons either. In *Haworthia* we are tricked by a very simplistic approach and the failure of taxonomic botany to serve interested parties. My kind authority I referred chameleons to, also wrote “I know the genetic information may seem very confusing but it is essential to remember that the genes tell us about genealogy and not morphological or behavioural similarity.” I have said before that the traditional approach of taxonomy was always to relate morphology, and whatever other information one could acquire, to phylogeny. It is an unlucky fabrication foisted on us by DNA sequencing that this is a new direction for classification. To totally believe that, say, less than a thousand base pairs on a tiny section of mitochondrial DNA is giving what must be seen as a final answer that defies the doubt of an observer is perhaps too much to ask.

An end point in my chameleon inquiry came when Dr. Tolley conceded (as most DNA experts now seem to

be doing) “DNA is obviously not a final answer, and everyone that understands well how evolution works, already agrees on that. However, when used wisely, in connection with morphology (which is subject to phenotypic plasticity, strong selection, and local adaptation) it obviously can be useful in understanding the evolutionary history of organisms. We can use DNA to give us clues as to the evolutionary lineages, which sometimes can be the same as what we humans like to call "species". For me, "species" is partly an artificial construct because evolutionary processes do not suddenly jump, and divide one thing into two species. there are gradual changes, and sometimes (more often than we care to admit), they do not fit in the box we have labelled "species". She exposes the fundamental problem that no one probably understands properly how evolution works not do any of us have the wisdom to use DNA information to best advantage.

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Chameleon. Gouritz, doubtful.



Supplement - Haworthia Update Volume 5 Part 2

replacement for

Chapter 14. *Haworthia jakubii* – another new species?



Alsterworthia produced a special edition (No.7) in 2004 to publish new species and combinations subsequent to the publication of **Haworthia Revisited**. I was given a copy because of my own contributions in respect of primarily new combinations. I had the previous year done some exploration along the Duiwenhoks River south of Heidelberg and found several *Haworthia* populations notably MBB7727 Witheuwel and MBB7229 Somona. I discussed these in Chapter 6 of my **Update Vol. 2**, dealing with the complexity of the element *H. retusa* (*mutica*) var. *nigra* and the problematic nature of *H. mirabilis* as it occurs around and south of Heidelberg. So when I saw the picture of *H. jakubii* I merely glanced at the description to see the words Duiwenhoks River to think this was another of those weird arm chair products to befuddle the enthusiast and add another name from an endless production belt. There was nothing about the illustration that suggested anything new to me so it is really fascinating to now only read what the author had to say “When the author first saw them, he thought they were something new because of their features”. This is a very subjective statement and I have no doubt that the author could be misled into thinking that other plants from the same population could also be “something new”. Why “something new” should be allied to a Latin binomial is intrinsic to “namenklutter” and the disrepute into which taxonomy has fallen.

I must dwell on that statement a little because it helps to demonstrate, falling very far short of explaining, why plant classification becomes such a hopeless mess. In 1986 I wrote an article published in **Excelsa 12:91** entitled “Confusion reigns again” where I stated that it had become seemingly impossible to write about *Haworthia* without casting doubts on one’s own, or someone else’s, integrity or sanity. This was because of the apparent lack in the literature of any sense of discrimination and recognition of what might be right or



wrong about any written piece. The more painful aspect of course is that it meant that I could write nothing myself that would be believable. I have to state that since 1986, the situation has not improved one iota and I regret that I am not tactless, aggressive or unkind enough to list a set of prominent people, including botanists, who have done nothing more than fuel the fire of enthusiastic writers. So we have “because of their features”. What features? I presume these same unlisted features are what made me sigh and think “Oh dear! – another name for *H. mirabilis*”.

I did not give the element anymore thought until I happened to see Jakub Jilemicky’s website and e-mailed him to query the principles he was adopting for recognition of “species”. From him I learned that the origin of “*jakubii*” was in fact the Goukou (ex Kafferkuils) River north of Stilbaai and Jakub kindly also sent me map details. Because there are virtually no records of *H. mirabilis* further south east of Riversdale than in the Frehse reserve close to town, I suspected that perhaps we had to do with a *H. retusa* ‘*turgida*’ variant or possibly a hybrid between that and *H. variegata*. While not generally prone to concede oddities to hybridization, I have become much more circumspect in this respect after learning a great deal more about hybridization between species despite big discrepancies in flowering time. Jakub’s map was a bit problematic, because the designated spot was quite far from the Goukou River and in the middle of cultivated land. Furthermore the farm name Melkhoutkraal is cited and the boundary lay east of the designated spot. However, my wife and I came to the designated place where a road serves two farms south of the road. The first farm deserves special mention in respect of the negative aspects of agriculture where an over zealous new owner has decimated the landscape with no consideration for conservation whatsoever. The invasive *Acacia cyclops* (Rooikrans) has been bulldozed away and what may have been uncultivated before certainly is not now, and this also extends into that fragile zone between the productive shales and the non-productive calcrete. The owner initially offered, being busy at the time, to show us a hill that was being “conserved” and we made an appointment to do so. However, when we later arrived back we were informed that here had been a change of mind and we would not be allowed there. The reason will become apparent.

We went on to the second farm where the owners were delightful and allowed us to explore at will. The farm borders the river, but we stayed away from that as we were fairly sure that *H. retusa* ‘*turgida*’ would be all there was to see on the steep banks. So we explored the calcrete that is so reminiscent of *H. paradoxa* and Vermaaklikheid. We found a small and very cryptic population of *H. variegata* that rather strengthened our suspicion that perhaps ‘*jakubii*’ was of hybrid origin. Then we went further north to continue some exploration we had started there and we found a strong population of *H. mirabilis* about 15km SE Riversdale (MBB7818 Windsor – see figs 1-6). We connected this population to plants at KomseRante east of Riversdale and also Kruisriver further east and north and suggested the possibility that ‘*jakubii*’ was then a Duiwenhoks River image of *H. mirabilis*.

Back home and back onto the internet, and Jakub sent a better description of the locality much nearer to the river and on the farm Klipfontein rather than Melkhoutkraal. An error and something I might have worked out had I

dug out the publication and recognized that the stated geographical facts were as unreliable as the taxonomic claims. Kobus Venter was thankfully able and anxious to get into the field in connection with other finds, and he kindly offered to drive all the way to Stilbaai to follow newest information. Gerhard Marx was also with us as a most welcome guest and we then found the evasive ‘*jakubii*’ growing in a very narrow band right alongside the road and extremely vulnerable to any road works (see Figs 7-11 MBB7820). Our over zealous farmer had not only erected a new fence and deposited all the *Acacia* branches on the road reserve, but had also concentrated stock on the river bank on the farm side of the fence. The result was what is to be expected when there is no sympathy for the environment or for the stock. Animals under pressure will eat anything and everything and the concept of selective grazing and suitable stocking rate can fall away. One may as well cultivate the soil for the devastation too many animals in too small an area for too long causes. It is fortunate then that we have the road reserve. We found about 40 plants that appeared from the dry capsules and stalks to have flowered about 6 weeks previously in early February in close synchrony with *H. variegata* nearby and also with the Windsor population of *H. mirabilis*. We took Kobus and Gerhard to see the Windsor plants and they confirmed the similarity of individuals there to ‘*jakubii*’. Among Figures 2-6 are plants that demonstrate these similarities, but also the wide range of variation so evident in most populations of *H. mirabilis*. Thus: *H. mirabilis* ‘*jakubii*’ - a significant population and well worthy of a name outside of formal botany, which brings me back to my near opening remarks. The formal nomenclatural system works very well as no doubt does the horticultural code. However, there are serious limitations that severely affect *Haworthia*. The first is that few people actually have much experience with plants in the field and the true nature of natural variation. There are too few field-familiar competent taxonomists and a whole field of taxonomy is seriously flawed by any form of peer review outside of the nomenclatural rules and procedures. Another serious flaw is simply the absence of any general and common understanding of what a Latin binomial is actually supposed to be appended to. The same is true of lesser taxonomic ranks. Gordon Rowley many years asked (of me) “I would love to know what is to become of the luckless hybrids and cultivars if they are to be deprived of the rank of genus and species.” I am now not sure if he thought through that question very well, but I understand what he means and in recent literature he has highlighted the value of names for the sphere of horticulture in which “collectors” operate. Short of microchipping, many cultivated plants are going to be deprived of names simply through loss of physical labels. I am not sure, and underlined by that very curious statement about the features that made ‘*jakubii*’ into something new, that any formal system of cultivar recognition is going to work in *Haworthia*. The problem is that we are not dealing with flower characteristics and colours of virtually a single species, as happens in most horticultural groups. Nor are we dealing with any controlled breeding program. We are dealing with vegetative characters of perhaps 30 species where there is much evidence of gross misidentifications by experienced professionals (botanists) at species level. Also there are



MBB7818 *Haworthia mirabilis* Windsor



MBB7818 *Haworthia mirabilis* Windsor



MBB7818 *Haworthia mirabilis* Windsor



MBB7820 *Haworthia mirabilis* Klipfontein



MBB7820 *Haworthia mirabilis*
Klipfontein



MBB7820 *Haworthia mirabilis*
Klipfontein

any numbers of potential new cultivars by virtue of the simple facts of natural variation. How are we going to ever arrive at descriptive matter and even illustrations that will allow correct identification when growing conditions and season influence the vegetative characters of the plants concerned and we cannot even be sure to what species they belong.

The author of '*jakubii*' does end by saying that the taxon is intermediate between *H. mirabilis* '*paradoxa*' and *H. mirabilis* '*magnifica*', listing shape, surface, coloration and solitary growth as reasons. This may seem reasonable on the surface of things. But it is totally unreasonable if one considers that one could take representatives from the same and different populations of these, and use the same

argument to justify many more names within those two elements as variable components of a much greater cohort of variants. The description itself simply cannot be taken literally. A plant is illustrated with leaves having from 3 – 9 face lines however one chooses to count them, while the description states 5-7. The colour is given as grass-green (in poor light), but we saw most plants in semi-shaded and poor light microhabitats and none were “grass-green”. The leaf surfaces are also described as “smooth” and this was not evident in the plants we saw. The converse is true and also in respect of either ‘*paradoxa*’ or ‘*magnifica*’. In fact the statement underscores the (poetic) license that is taken with descriptions that end up unworkable. In *H. mirabilis*, the leaves may indeed be smooth (e.g. ‘*badia*’) but in any population there are plants that have incipiently rough surfaces extending to prominent tubercles and even prominent hair-like spines. So, indeed, if Latin names are said to have a reality they do not in fact possess, this certainly is the case here.

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MBB7820 *Haworthia mirabilis* Klipfontein



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×Gasteraloe 'Green Ice'