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Fig. 1. *Haworthia* 'Rasper'

Contents.

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Gasteraloe 'Kabela'

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As is the way of many things, beauty is in the eye of the beholder. A number of years ago I crossed a wide range of interesting, mainly variegated, *Gasteria* with *Aloe aristata*. Naturally, this resulted in a range of very ordinary looking plants. Most were pretty much discarded, but a few interesting ones were kept, put aside and I thought nothing much further of them.

An offset of one of these was given to a collector in Northern Australia and an offset of this offset was given to Gary Robinson in Western Australia. Gary promptly set about tissue culturing it and as a result has 10,000 odd to release on an unsuspecting public. As is the wont of nurserymen everywhere, marketing dictates a label so *Gasteraloe* 'Kabela' was born, fig. 2, below. Gary is to be thanked for this name, which is Swahili for Tribe.

The plant is a cross between *Gasteria* 'Perfectus' and *Aloe aristata*. However, things are not quite this simple. There are three basic forms of *A. aristata.* The flattened thin leaf type (rarely offsets), the common type that offset easily and has wider flexible leaves (looks somewhat like *Haworthia arachnoidea*) and the larger and rigid leaf type (possibly the mountain form). This cross involved the rigid leafed form, which I have had for over 10 years without it offsetting. *Gasteria* 'Perfectus' is a David Cumming hybrid of *Gasteria armstrongii* cv? x *Gasteria* 'Old Man Silver'. *Gasteria* 'Perfectus' is characterised by having a pale silver leaf with a dark-green stripe along its margin.

Gasteraloe 'Kabela' has characteristics intermediate between its two parents. That is, it forms a rosette around 25cm diameter, stands about 15cm tall, has leaves around 12-14cm long, around 3 cm broad at the base, tapering to a fine hair at the tip, with fine teeth along the leaf margins and scattered tubercles. Like its *Gasteria* parent, the leaves are pale silver-green with darker-green margins. Despite it being passed around by offsets - offsetting is not common and plants will remain solitary for some time.

Fig. 2.

Photographs of plants in the National Haworthia Collection of Harry Chi-king Mak

Harry Mays

In the November 2005 issue of Alsterworthia International, details of the NCCPG National Plant Collection Scheme were given with an introduction to Harry Mak's NCCPG National Haworthia Collection. Limitations on space allowed only photographs of Harry's propagation work to be shown. This issue contains some photographs of plants in the collection.

Fig. 3. A corner showing *Astroloba* species, *Haworthia pumila, minima*, *marginata* and *viscosa*.

Fig. 4.

Part of a show display of plants from Harry Mak's National Haworthia Collection

Fig. 5. Part of the collection of hybrids from Japan and hybrids created by Harry Mak

Fig. 6. Some of the choicer *Haworthia* species

Fig. 7. Variegated haworthias.

Fig. 8. Variegated haworthias.

The Extremes of *Aloe excelsa*

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Aloe excelsa A. Berger is a tall *Aloe* with plants up to 6m. tall. It is thus surprising that I did not know it occurred in Botswana until Peter Smith showed me a plant in his garden in Maun in 1991. I had actually been through the area south of Ramokgwebane, where Peter had collected it, as early as 1969, when we went from Francistown to Bulawayo (and beyond). I am not the only one who seems to have missed these giants. Even as recently as 2002 the revised edition of *Trees of Southern Africa* (Coates Palgrave) has a distribution that stops on the Zimbabwe side of the border. The previous year *Flora Zambesiaca* came out with a distribution that did include Botswana, citing the specimen P.A. Smith 2462 from 25 km S of Ramokgwebane (Carter 2001).

In 1993 I found *Aloe excelsa* on a dolerite hill just north of Tshesebe, which is halfway between Peter's locality and Ramokgwebane. More recently I found plants (including young ones) at a volcanic hill east of Themashanga, which is just west of Peter's locality. At Ramokgwebane itself I found only *Aloe chabaudii* and 10 km north at the border village of Jakalasi I found *Aloe littoralis*. Ten km west (and still along the border) I again found *Aloe excelsa* with *Aloe aculeata* at the site of foundations of grain storage bins from the time of Great Zimbabwe. (The Kalanga who live in this area are descendents of the builders of the ancient empires of Zimbabwe.)

The *Aloe excelsa* trees in Botswana are like those in neighbouring Zimbabwe (where the majority of these trees occur). The type locality for *Aloe excelsa* is, in fact, at Bulawayo, which is not far from Botswana. In addition to Zimbabwe, trees of *Aloe excelsa* occur in the northeastern end of South Africa, the Kafue Gorge of Zambia and the Ruo River on the border of Malawi and Mozambique. Most of these are quite similar with young plants with leaves that have thorns on both surfaces, but fewer thorns on leaves of mature plants. The flowers are usually red, but may vary from nearly white to dark carmine as well as bicoloured (Court 1981).

Aloe excelsa in the Ruo River area was

Fig. 9 (upper)
Aloe excelsa (left) and *Aloe aculeata* (right) with Peter Smith at his garden in Maun 11 Aug. 1991.
(Aloes originally from the Ramokgwebane area of Botswana).

Fig. 10 (lower)
Flowers of *Aloe excelsa* in the Maun garden.

Fig. 11. *Aloe excelsa* at Great Zimbabwe, Zimbabwe. 28 July 1988.

discovered by Roger Royle. Larry Leach described it as *A. excelsa* var. *breviflora* on the basis of the shorter flowers in laxer racemes and the narrow, deeply channelled leaves (Leach 1977). Roger Royle reported outlying plants on the Tuchila Plain and near Thyolo, but these are apparently remnants of populations which are no longer there. Plants of this subspecies now occur at Makatche Falls, Nchenachena Falls and Zoa Falls. I visited Nchenachena Falls by train in 1977 and Zoa Falls in 1980 and 1981. At that time I was teaching at the University of Malawi. I managed to find all of the succulents mentioned by Larry Leach (1977), including the only *Bowiea volubilis* which I've seen in the wild (although it is very common in cultivation).

Flowering times in Botswana and Malawi fall within the period given for the species by Coates Palgrave (2002), that is between July and September. Leach (1977) notes that no hybrids with *Aloe chabaudii* were found on the Ruo River, although they are common elsewhere. Reynolds 1974, for instance, shows such a hybrid which was collected by T.M. Southam near Masvingo in Zimbabwe. Southam also collected a hybrid with *Aloe aculeata* from a farm in the same

Fig. 12. *Aloe excelsa* var. *breviflora*, Nchenachena Falls, Malawi. 14 Aug. 1977.

Fig. 13. *Bowiea volubilis* on *Aloe excelsa,* Zoa Falls, Malawi. 12 July 1981. Some insect spotting on aloe leaves.

area. I collected a rather large plant near Ramokgwebane in Botswana, which may be a hybrid of *Aloe excelsa* and *Aloe chabaudii.*

I have not come across any uses or local names for *Aloe excelsa* in Botswana, but I suspect they do exist. In literature it is known as the Zimbabwe aloe which is appropriate. The journal of the Zimbabwe Aloe, Cactus & Succulent Society is named *Excelsa* and features this aloe on its cover. I have not observed any birds feeding on the flowers, but this is probably due as much to lack of observation time as anything. There is obviously room for much more research.

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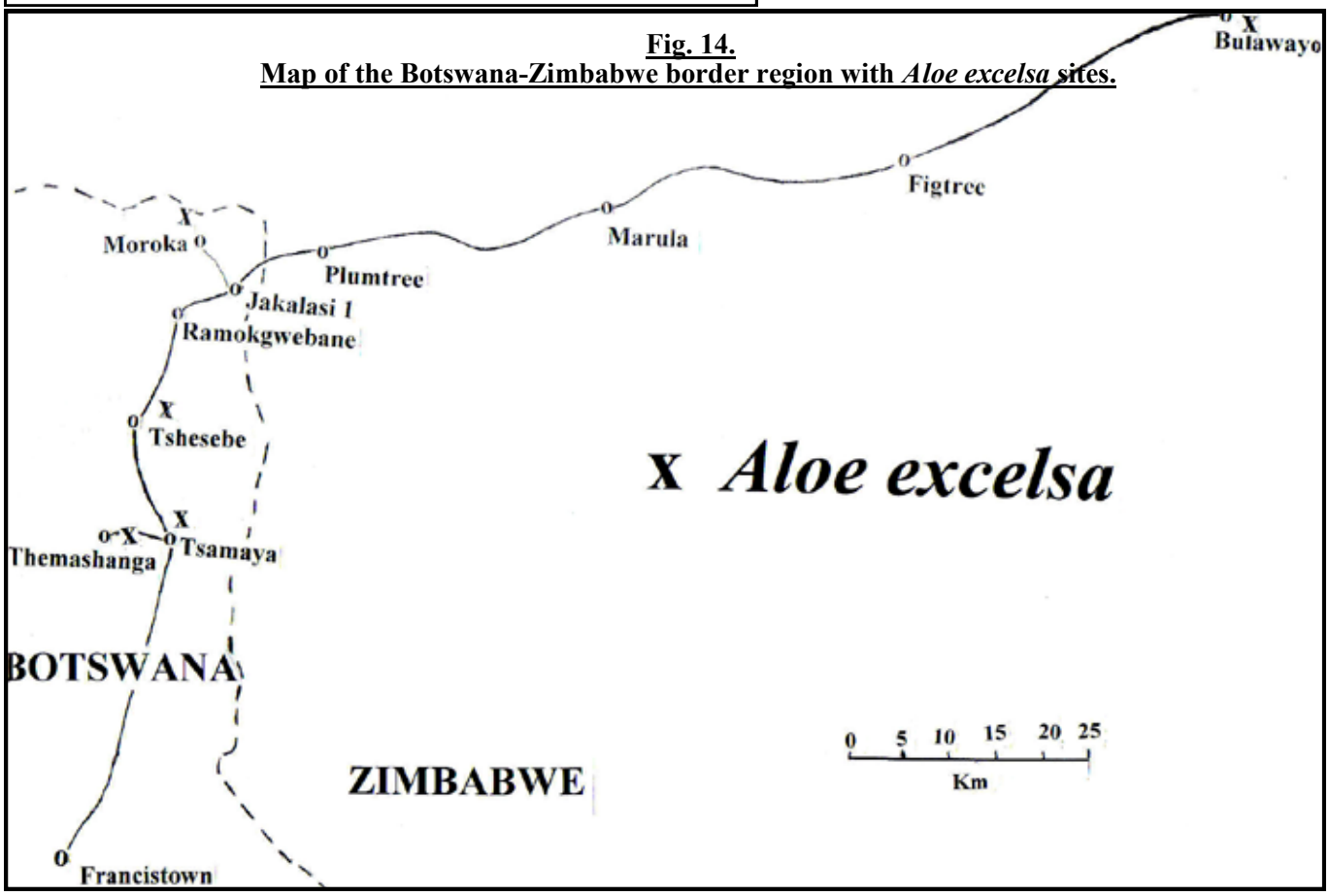
Fig. 14.
Map of the Botswana-Zimbabwe border region with *Aloe excelsa* sites.



Some thoughts on recent literature of the Alooideae (Asphodelaceae).

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Abstract:
Classification of plants is often controversial and it is common to suggest that further research and application of technology will resolve problems. This paper overviews six publications in peer reviewed botanical journals with respect to the classification of Asphodelaceae: Alooideae and particularly *Haworthia.* It demonstrates that there is a gulf between the results produced by researchers using sophisticated technology and the practical, ordinary observations of the layman. This is because researchers are not familiarizing themselves with grassroots information and observation, which is observation of the plants in the field, in cultivation, in the herbarium and in the literature.

Introduction:
The classification of *Haworthia* has quite a turbulent history. This is generally attributable to the fact that it is a difficult genus in terms of the vegetative plasticity of individual plants and the many populations that have a shared history in time and space in geologically and geomorphologically diverse environments. Confounding these environmental variables are the concepts and techniques of the taxonomists that have been involved in naming plants within the genus. The popularity of haworthias with succulent plant hobbyists has meant that many of these workers have by-and-large not been professional or qualified taxonomists. Therefore it is of considerable interest to note some significant publications in respect of the broader subject viz. the Alooideae, written by professionals and recently published in peer-reviewed botanical journals. This could confirm whether or not the problem lies with the difficulty of the subject and/or skills of the respective researchers or taxonomists.

Discussion:
The first publication of six that I review here is by Vosa and Bennet (1990) with respect to *Gasteria.* The general conclusion was reached that the cytological differences are minimal and that there may be only one species. In this work the nomenclature and terminology is inconsistent and the data are also presented in an inconsistent way. Furthermore, the material used is not representative of the genus (Bayer, 2000). The paper very effectively demonstrates the need for a sound organization (classification) of materials before work commences. There was no revision in place prior to the work by Vosa and Bennet and there is no statement to say how their material was identified nor by whom. They concluded "The slight variability is probably not more than that found between the individuals of a normal natural population of a single species". A correct conclusion would be that the technique employed produced no meaningful understanding of the genus.

A second paper is that by Smith & Van Wyk (1991). This is a cladistic study of the genera in the Alooideae. It is concluded that it is a monophyletic group and suggests that some clarity has been brought to the relationships of the genera. It can, however, be shown that the characters used and the evaluated states of those characters, are erroneous and that the results are consequently misleading. The following is a brief synopsis of the characters and coding (plesiomorphic - derived or advanced character state – 1; and apomorphic - residual or primitive character state - 0) applied by Smith & Van Wyk in their cladistic analysis:-

1. Habit (caulescence) – all genera are scored 1 for this character except the outgroup *Kniphofia.* According to G.W. Reynolds (1960), *Aloe* has 130 species in southern Africa of which 30 are acaulescent, 56 caulescent and 47 may be neither of the two states. In my observation of 68 *Haworthia* species, 58 are acaulescent and 16 are semi-caulescent. Among the former are species like *H. pumila* and *H. herbacea* that can form quite distinctive, if prostrate, stems. In *H. cymbiformis*, which is generally acaulescent, there is the surprising var. *ramosa*, which is caulescent. It is part of an extensive population north of Wooldridge where the plants are otherwise acaulescent. If the condition is examined in the other genera such as *Gasteria* and *Chortolirion*, it seems that the coding used by Smith and van Wyk is simplistic and incorrect.

2. Leaf arrangement (congestion on stem) - *Aloe* and *Lomatophyllum* are scored 1 as each genus is said to have species in which the "leaves are comparatively widely spaced" (Others are scored 0). *Gasteria rawlinsonii* has leaves which must be regarded as "widely spaced". It can be said that in *Haworthia*, because the leaves are spirally arranged, it is differences in leaf congestion that result in trifarious, quinquefarious and multifarious leaf arrangements. Thus there is a range of spacing and in fact *H. coarctata* and *H. reinwartdtii* can be separated by the difference in the congestion of leaves on the stems of these two species.

3. Leaf consistency (succulence) – all genera are again scored 1. It is obvious that this is again a simplification. Even Uitewaal (1947) suggested that leaf consistency could provide a basis for separation of *Haworthia* into the three groups he proposed. In the *Hexangulares* there are species with the added state of having fibrous leaves. The consistency of the leaves of *H. graminifolia* cannot be equated with that of the case of, say, *H. mucronata.*

4. Leaf tuberculation – *Astroloba*, *Gasteria* and *Haworthia* are scored 1, while *A. aristata* is noted to be tuberculate as a "rare exception" in *Aloe*. My observation in *Haworthia* is that 26 species have tuberculate leaves and 42 have smooth, non-tuberculate

leaves. It is common for *H. marginata* to have both tuberculate and smooth leaves and this is less rarely the case in other species of the *Robustipedunculares*. In *H. limifolia*, the var. *gigantea* has tubercled leaves, the vars. *ubomboensis* and *glaucophylla* have entirely smooth leaves, while vars. *limifolia* and *arcana* are characterized by transverse ridges or semiconfluent tubercles. The state in *A. aristata* adds a complication as the "tubercles' may be homologous or comparable with the surface spination, translucent or simple white markings on the leaves of many species in many of the genera.

5. Outline of leaf cross-section – all genera are again scored 1, as of course, against the outgroup *(Kniphofia)*. Reynolds (1950) states that in *A. cooperi*, "leaves are keeled resembling a "V" in cross-section, and mentions this for *A. variegata*, *A. sladeniana* and *A. dinteri* too. It is quite misleading to suggest that leaf outline in the Alooid genera is crescentiform/cymbiform and synapomorphic for all the taxa in the Alooideae. Note the confusion of the terms outline as described by "cymbiform" and cross-section. How can one consider the shape of the leaves (cross-section or outline) of, say *H. viscosa* as even similar to the leaves of for e.g. *H. cymbiformis* var. *obtusa*?

In total the two authors code sixteen such characters and it is beyond the scope of this paper to tediously discuss each of them. The question of the character "floral symmetry" does, however, perhaps deserve attention and that will be discussed in the fourth paper.

The third paper is by Smith et al. (1995). It concerns the reversal of the very curious re-instatement of the genera *Aloinella* (as *Lemeea*) and *Guillauminia* affected by Heath (1993, 1994). Heath's argumentation was weak indeed, but the counter argument by Smith *et al* is equally poor. The balance is only in favour of Smith *et al* because there are no substantial criteria that suggest that different genera are involved in the first place. (Bayer, 2003a). My complaint now is that the papers by both Heath and Smith *et al* fiddle with the classification and nomenclature, without adding one iota of information to the subject.

Some facts are:-

A. haworthioides and *A. albiflora* do in fact have characters which make them most unusual in the genus *Aloe*. There is no *Aloe* remotely like *A. haworthioides* that has the extraordinarily protruding flattened filaments. These form a reddish tube nearly as large and conspicuous as that of the perianth itself, which is almost hidden by the large floral bract. In the case of *A. albiflora*, the florets are widely campanulate and sparsely arranged on the slender peduncle. Reynolds placed 12 species together in his Group 1 of Madagascan Aloes and stated most plainly that they were not closely allied. Now Heath has ignored three of those 12 species and made two groups out of the disparate remnant. This is the problem that Smith *et al* should have addressed. The curious thing about this is that there appears to be a similarity between *A. bellatula* and *A. perrieri* (ignored and abandoned in *Aloe* by Heath, and not even considered by Smith *et al.*), which in terms of variability could be extended to *A. albiflora* and perhaps further to *A. parvula.* There is no such similarity between *A. haworthioides* and *A. bouteaui. A. descoingsii* and *A. calcairophylla* do seem to have unique florets. There is nothing odd about the florets in *A. rauhii* or *A. bakeri* that could necessarily separate them from *A. versicolor* and *A. parallelifolia.*

The fourth paper concerns the genus *Poellnitzia* and its transfer to *Astroloba* by Manning and Smith (2000). Again the argument is weak, particularly in respect of the statement… "accords completely with the genus in its tubular actinomorphic flower with included stamens". The flowers in neither genus are actinomorphic and it was, and is, the elongation of the tube as well as the connivent petal tips that precluded anyone from suggesting that *Poellnitzia* was an *Astroloba* in the first instance (Bayer, 2003a)

The next paper is by Smith *et al.* (2000) and it concerns nectar sugars particularly with respect to *Haworthia.* Smith *et al.* cite my paper (Bayer, 1972) where the main message was that the genera in this group would never be resolved while the main elements within the genus *Haworthia* were not recognized to be discrete. Uitewaal's (1947) attempt to subdivide *Haworthia* was a very laboured effort. He was clearly a victim of his time in trying to establish a hierarchical classification and it is a distortion of the facts to say that he divided *Haworthia* into two main groups. There is no difficulty whatsoever in recognizing that he identified and recognized THREE, and not the two that Smith *et al* claim. Uitewaal recognized two groups; *Triangulares* and *Hexangulares* based primarily on the shape of the flower base, but he then split *Hexangulares* into *Robustipedunculatae* and *Gracilipedunculatae*, primarily on the robustness of the peduncle. As an interested observer of *Haworthia*, I added the additional facts from geographical distributions and capsules to recognize Uitewaal's groups as three sub-genera. It is interesting that no significance seems to be attached by Smith *et al* to the fact that the nectar sugars in *Astroloba* are sucrose dominated whereas in *Poellnitzia* the nectar sucrose is less than 5%. These authors also find that… "The correlation of nectar in *Astroloba* and members of the *H.* subg. *Robustipedunculares* with the sucrose-rich *Hexangulares* type is surprising. Because of floral and other morphological features they expected that the sugar composition belonging to these two units would be nearer to the sucrose-low *Aloe* type nectar…". This seems to be an odd statement when there is very little to support their expectation in the sense of the classification history of the groups and the statements concerning the two genera (Bayer, 1972).

The paper concerning a DNA study by Treutlein *et al.* (2003a) is also a very curious one and the result is summarized in this statement... "The current taxonomic system does not reflect the phylogenetic affinities and relationships among the succulent genera *Aloe*, *Chortolirion*, *Gasteria*, *Haworthia* and *Poellnitzia*." That is quite obvious simply from the papers noted to this point and, had this been considered at the start of the study,

surely this would have been the question to be addressed. The selection of material I take to be somewhat irresponsible given the past history of classification of the group and the literature. The inclusion of unknown hybrids such as *H.* X *ryderiana*, *H.* X *kewensis*, and *H. X icosiphylla* can tell us nothing. Likewise the failure to deposit vouchers in a recognised herbarium is problematic. Ignorance of the taxonomic position of *H. geraldii* is similarly curious and had the authors (and reviewers) known, as well they could have, that this taxon is simply a local variant in the *H. retusa/turgida* complex, they would have been alerted to the anomalous and also startling result which finds them placing it in a different sub-genus. It can be noted that B.J.M. Zonneveld's (geneticist, Leiden Univ. – pers. comm.) observations on total mass of nuclear DNA suggest that plants in cultivation in Europe are polyploids while field collected samples from South Africa fall in the normal diploid range for *H. turgida* or *H. retusa* as opposed to a higher value for species of the *Hexangulares.*

The authors repeat the mistake of stating Uitewaal's contention that there were two main groups in *Haworthia* and mistakenly state "….two main units (*Triangulares* and *Hexangulares*), the former including the subgenus *Haworthia* and Subgenus *Robustipedunculares*." Uitewaal divided the group *Hexangulares* into *Gracilipedunculatae* and *Robustipedunculatae*, not the group *Triangulares*. The way this has been repeated in the closing paragraph of Uitewaal's paper has confounded Treutlein *et al*, who go on to say, "This division (into two groups) is strongly supported by..." their results. This is not true. Treutlein *et al* have no representatives from the *Robustipedunculares* in their analysis apart from the DNA (cytoplasmic) in the hybrid X *Astroworthia.* It is thus not surprising that this "species" comes out in the "heterogenous group" that includes *Aloe aristata*, *Gasteria*, *Poellnitzia*, *Astroloba* and *H. retusa* ("*geraldii*", with the position here of the latter extremely dubious if not totally erroneous). The suggestion that *Haworthia* could be split into two genera as a result of this study is misplaced because of the omission of members of the *Robustipedunculares* and ignorance of the actual situation reflected in the history of the groups where there are three groups that have to be considered.

Treutlein *et al* are also the authors of another paper (2003b) and there three observations are made which I must contest.

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."

Where Treutlein *et al*, did not cite my *Haworthia Revisited* (Bayer, 1999) in their first paper, they do in this second one. It is difficult to know why, when they have not grasped that it is not a "morphological classification" as they claim, and thus could not have referred to it at all. My revision is probably unusual in that such pains are taken to explain a species concept and to state specifically that the geographical component is the over-riding consideration in the classification although it is also fortuitously a morphological one.

The question of the subgeneric relationships of *H. geraldii* and *H. gracilis* var. *tenera* is a fundamental issue. If either of these had been considered and reviewed as the taxa that the literature suggests (Bayer, 1974, Bayer 1999, Bayer, 2002a), it would have been quite evident that the conclusion Treutlein *et al.* reach with such facility is impossible. Certainly the taxon "*geraldii*" has been discussed many times. Further discussion gives credibility to the recognition of local variants as full species that is wholly misplaced. In the case of *H. gracilis* var. *tenera*, the writers can be excused for overlooking the discussion of this taxon in my book *Haworthia Update* (Bayer, 2002a) or in "Ecotypes in *Haworthia*" (Bayer, 2003b). In the latter paper I explain why the species "gracilis" and all its varieties are transferred to *H. cooperi*. This was effected in *Haworthiad* (Bayer, 2002b). It is obvious to any reader that the two taxa "*tenera*" and "*gracilis*" cannot be excised from the subgenus *Haworthia* by any stratagem at all, but this should have been apparent regardless of my two papers. That the term "sister species" is used, wholly disregards anything that I have written in respect of a "species" concept for *Haworthia.* No matter how the subgenus *Haworthia* is manipulated these two taxa are elements in quite different sub-domains of two species and in the subgenus *Haworthia*, not *Hexangulares* as Treutlein *et al.* show in their phylograms. It is unfortunate that researchers can be so unfamiliar with the classification of the elements they work with. Lee (2004) argues that such molecular diagnoses need to be based on an appropriate taxonomic framework in turn based on all appropriate biological information. Otherwise they are premature and likely to cause problems rather than solve them.

The observation that the classification of *Haworthia* should be revisited is quite unnecessary in the light of what I stated in my revision (1999). These authors have not understood what the basis of the revision was. It is based on a conceptualization of species as systems and recognition of three sub-genera. Thus where Treutlein *et al* (2003b) state that "The present study unequivocally shows that molecular evidence conflicts with the current treatment of *Haworthia* as a single genus" is therefore misleading. Similarly the statement that their data set supports a dichotomy of *Haworthia* is only true because of the omission of representatives of one of the sub-genera. Their failure to have familiarized themselves with the literature that they cite is evident.

One has to recognize that the classification in place is the product of a very long history and is reasonably sound and practical. There is also a very extensive

herbarium record to support it. It is professional botanists that are not properly familiarizing themselves with the fields they engage. They are not asking logical questions about the relationships of the plants of interest, nor are they selecting authentic or representative samples. Their work in peer-reviewed journals does not pass scrutiny and one is left to consider that the selected peers are not competent to undertake the task expected of them in a proper review process. It should not be necessary for writers in the popular literature to be discredited by results and conclusions derived from frail, poorly conceived and badly planned research projects and publications at the higher academic and intellectual level. Neither should a functional classification system be shaken and threatened by weak research of this kind.

Acknowledgement:
I must thank the reviewers of this paper, the editor of Haseltonia and the editor of this journal for instructive and necessary comment. Steven Hammer similarly provided incisive comment. Dr. Paul Forster has been particularly supportive in assisting me with significant literature as well as his views as a contemporary plant taxonomist and systematist. I must state that I am a parataxonomist (as opposed to a professional botanical systematist). The sometimes-voiced opinion that I should present a full phylogenetic analysis of my own, rather than direct my criticism of other efforts, should also take cognizance of the fact that all the evidence I can present is that within the extant genera and the three subgenera of *Haworthia.* It should also be stated that, the nature of variation may frequently defy any conventional Linnanean or Hennigian paradigms (Brummitt,2002).

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SEED & PLANT LIST 2006
KINDLY MADE AVAILABLE BY JOEL LODE.

SEED LIST

"NEW!" = new to list, not new species.
JL Numbers (e.g.: JL73) and # are seed collected in habitat or seed from collected plants.
Others = glasshouse collection numbers.
† = limited quantity
0.75 Euros a packet of 20-30 seeds, less for rarer species or if available only in small quantity = †,
1.50 Euros a packet (rarer species end of list, CITES)
1.80 Euros a packet 50 or 100 seeds (minimum) as indicated.
6 Euros per packet 1000 seeds (minimum) as indicated.
POSTAGE & HANDLING add 4.5 Euros (Order of 100 Euros or more also add 4 Euros for certificated mail)
Please list substitutes if **NOT** paying by credit card
PLEASE LIST SEED REQUIRED ONLY IN CATALOGUE NUMBER ORDER followed by the plant name.

Send your order with payment (I.M.O. or Visa/MasterCard details) to:
Joël Lodé, Desert Springs, **Villaricos, 04618 Cuevas del Almanzora (AL), SPAIN.**
Fax: 00 (34) **950.45.84.34**. Tel. portable : 00 **(34) 620.657.988** E-mail: joel@cactus-aventures.com

ALOE (see also Lomatophyllum and rare list at end)

2850 Aloe abyssinica JL73 (also 50 seeds).
2851 †**NEW!** Aloe aculeata JL74
2852 †**NEW!** Aloe acutissima v. antanimora PR
2853 Aloe affinis JL75
2854 Aloe africana COR (also 50/500 seeds)
2855 †Aloe (Chamaealoe) albiflora JL78 CITES1 (artificially propagated)
2856 Aloe alooides COR (also 50/500 seeds)
2857 Aloe andongensis JL5960
2858 Aloe ankabarensis JL79 (also 50 seeds) NEW SPECIES !
2859 **NEW!** Aloe arborescens cv. JL968
2860 †Aloe aristata JL82 rustique à –10°C One packer.
2861 **NEW!** Aloe asperifolia AJ (Khorixas, Namibia)#
2862 **NEW!** Aloe asperifolia AJ (Outjo, Namibia)#
2863 Aloe bakeri JL84 (possible par 50 graines/seeds)
Aloe barbadensis (= see A. vera)
2864 Aloe bellatula JL85+PR CITES1 (artificially propagated) (also 50 seeds)
2865 Aloe branddraaiensis AJ (Branddraai, Transvaal)# (& 50 seeds)
2866 Aloe brevifolia JL87 (also 50 seeds)
2867 Aloe broomii COR (also 50 seeds)
2868 Aloe buhrii KV+COR (also 50 seeds)
2869 †Aloe cameronii v. dedzana AJ
2870 **NEW!** Aloe capitata PR
2871 Aloe capitata v. gneissicola COR (also 50 seeds)
2872 Aloe capitata v. quartziticola JL974+COR (also 50 seeds)
2873 Aloe castanea GC (also 50 seeds)
2874 Aloe chabaudii JL962+JCD (also 50/500 seeds)
2875 Aloe ciliaris GC+PR (also 50 seeds)
2876 Aloe claviflora REY (South Africa)#+PR (also 50 seeds)
2877 Aloe commixta JL DSCF4143 (ex Worcester)#
2878 Aloe comosa KV (also 50 seeds)
2879 Aloe comptonii BUG
2880 †Aloe concinna JL032
2881 Aloe confusa JL83
2882 **NEW!** Aloe conifera JL738
2883 †Aloe cremnophila JL93
2884 Aloe cryptopoda JCD
2885 Aloe X delaetii JL95 (also 50 seeds)
2886 Aloe deltoideodonta JAA
2887 Aloe deltoideodonta v. candicans JCD
2888 †**NEW!** Aloe desertii JL98
2889 Aloe dhufarensis COR
2890 Aloe dichotoma JAA228 (Upington)+REY+KV (SWA)#
2891 Aloe dichotoma JAA453 (Gamsberg Crater, RSA)#
2892 Aloe distans JL767 (also 50 seeds)
2893 **NEW!** Aloe divaricata JAA734 (N. Tulear, Madagascar)#
2894 Aloe dumetorum JL100 (Kenya)# (also 50/500 seeds)
2895 Aloe dyeri JCD ex AJ98
2896 Aloe elegans JCD
2897 Aloe ellenbeckiiXgreatheadii JAA
2898 Aloe falcata KV
2899 Aloe ferox KHE+MB (also 50/500 seeds)
2900 Aloe ferox JAA269 (near Stormulei, RSA)#
2901 Aloe fosteri JL106 (also 50 seeds)
2902 Aloe framesii JAA516 (N. Port Nolloth, RSA)#
2903 Aloe gariepensis JL3309 (Umdaus, RSA)# (also 50 seeds)
2904 Aloe gariepensis REY+PR (Orange River, South Africa)# (also 50 seeds)
2905 Aloe gariepensis JAA249 (Beauvallon, Richtersveld)#
2906 Aloe gariepensis JAA608 (Warmbad, Namibia)#
2907 Aloe globuligemma JCD+KHE (also 50/500 seeds)
2908 Aloe graminicola exNakuru JL83/1 (Kenya)# (& 50/500 seeds)
2909 Aloe grandidentata JL110 et al. (also 50 seeds)
2910 Aloe greatheadii PR+JAA (also 50 seeds)
2911 †Aloe greatheadii v. davyana JL
2912 Aloe greenii JL111 (also 50 seeds)
2913 Aloe helenae TIN+JCD CITES 1 (also 50 graines/seeds)
2914 Aloe hereroensis JL101 (also 50 graines/seeds)
2915 Aloe hereroensis JAA227 (150 km E. Upington)#
2916 **NEW!** Aloe hereroensis AJ (Zarishoogte, Namibia)#
2917 Aloe humilis JL113+COR (also 50 seeds)
2918 †Aloe ibitiensis JL731
2919 Aloe imalotensis COR (also 50 seeds)
2920 Aloe jucunda JL114+GX (also 50 seeds)
2921 †**NEW!** Aloe juvenna (=squarrosa) JL115
2922 Aloe karasbergensis AG+COR (also 50 seeds)
2923 Aloe khamiesensis JL3114+JAA614 (Carolusberg, RSA)# (also 50/500 seeds)
2924 Aloe khamiesensis JL3800 (Okiep, RSA)# (also 50 seeds)
2925 Aloe khamiesensis JL3942 (S. Steinkopf, RSA)# (& 50/500 seeds)
2926 Aloe khamiesensis PR
2927 Aloe kilifiensis Lavr.12298 (Kilifi, Kenya)# (also 50 seeds)
2928 Aloe krapohliana BUG+COR (in-situ, RSA)# (also 50 seeds)
2929 Aloe krapohliana JAA569 (E.Lloinggras,RSA)# (& 50/500 seeds)
2930 Aloe laeta COR (also 50/500 seeds)
2931 Aloe littoralis AJ (S. Etosha, Namibia)#(also 50 seeds)
2932 Aloe longistyla COR (also 50 seeds)
2933 Aloe maculata AJ (RSA)# (also 50/500 seeds)
2934 †**NEW!** Aloe madecassa JAA
2935 Aloe marlothii KHE (fl. oranges) (also 100/1000 seeds)
2936 Aloe marlothii JCD (also 50 seeds)
2937 Aloe marlothii JL119 (also 50 seeds)
2938 †Aloe mcloughlinii JL
2939 Aloe melanacantha REY (South Africa)# (also 50/500 seeds)
2940 Aloe melanacantha JL3808 (Rd Springbok-Kleinzee, RSA)# (also 50 seeds)
2941 Aloe melanacantha JL3839 (N. Kommagas, RSA)# (& 50 seeds)
2942 Aloe microstigma JL121et al. (also 50/500 seeds)
2943 Aloe microstigma JAA266+549 (Worcester, RSA)#
2944 Aloe microstigma JAA648 (Karrooport, RSA)# (& 50/500 seeds)
2945 Aloe millotii JL122+JCD
2946 †**NEW!** Aloe mubendiensis JL124
2947 Aloe mudenensis AJ (Muden, Natal, RSA)# (& 50/500 seeds)
2948 Aloe mutabilis PR
2949 Aloe ngobitensis GC
2950 Aloe niehburiana JL127 (Al Barh, Yemen)#+JAA (& 50 seeds)
2951 Aloe ortholopha COR (Zimbabwe) (also 50/500 seeds)
2952 **NEW!** Aloe parvibracteata AJ
2953 Aloe parvula JL5900 et al. **CITES 1**
2954 Aloe peglerae DS (also 50/500 seeds)
2955 Aloe plicatilis COR (also 50/500 seeds)
2956 Aloe pluridens COR (also 50/500 seeds)
2957 Aloe pretoriensis COR
2958 Aloe ramosissima JL3628 (W. Kolke, RSA)#
2959 Aloe rauhii JL132 (Madagascar)# CITES1 (artificially propagated) (also 50/500 seeds)
2960 Aloe reynoldsii JL999 (possible par 50/500 graines/seeds)

2961 †Aloe cf. rigens Lavr.232602 (N. Somalia)#
2962 Aloe aff. rubroviolacea ? NK
2963 Aloe sabaea PEL+JL134 (Karia, Yemen)# (also 50 seeds)
2964 Aloe saponaria JL136 et al. (also 50 graines/seeds)
2965 †Aloe scobinifolia Lavr. (Erigavo, Somalia)#
2966 Aloe secundiflora JL125 (Namanga, Kenya)# (& 50/500 seeds)
2967 Aloe sinkatana JL137+PR (also 50 seeds)
2968 †Aloe somaliensis JL
2969 Aloe spectabilis KV (also 50 seeds)
2970 Aloe speciosa COR (50/500 seeds)
2971 **NEW!** Aloe spicata PR
2972 †Aloe spinosissima GX
2973 Aloe striata JL128 et al. (also 50/500 seeds)
2974 Aloe suarezensis JAA+BUG+PR (Montagne des Français, Diego Suarez, Madagascar)#
2975 Aloe succotrina JL140 (also 50 seeds)
2976 †Aloe suprafoliata JCD
2977 Aloe tenuior JAA
2978 Aloe thraskii PEL+JCD (Mkambuki, Natal)# (& 50/500 seeds)
2979 Aloe tugenensis ? JL141 (non tacheté, non cespiteux), (Nakuru, Kenya)# (also 50/500 seeds)
2980 Aloe umfoloziensis JL143
2981 Aloe vaombe GO+BUG +JCD+PR (Madagascar)# (& 50 seeds)
2982 Aloe vaombe JAA (W. Behara, Madagascar)#
2983 Aloe vaombe JAA (E. Tranoroa, Madagascar)#
2984 Aloe variegata JL144 (also 50/500 seeds)
2985 Aloe vera (= A.barbadensis) JL67 (also 50 seeds)
2986 Aloe zebrina JL139 (Kalahari 1978, Botswana)# (& 50 seeds)
2987 †**NEW!** Aloe aff. concinna JL92 UN SEUL SACHET!
2988 Aloe sp Nakuru JL76/2 (also 50 seeds)
2989 **NEW!** Aloe aff. dawei AJ (fl. jaunes)
2990 Aloe aff. globuligemma KHE (also 50/500 seeds)
2991 Aloe aff. greenwayi AJ (Tanzania)# fl. jaunes (& 50/500 seeds)
2992 †Aloe aff. zebrina JL
2993 Aloe sp Kenya JL (fleurs saumon)#
2994 Aloe sp KHE (also 50 seeds)
2995 Aloe descoingsii X rauhii JL97 (superbe hybride !) (& 50/500 seeds)
2996 Aloe globuligemmaXvariegata JAA
2997 Aloe Xspinosissima (= humilisXarborescens) JCD
2998 Aloe striataXsaponaria JCD
2999 Aloe sp ress. sabaea JL
3000 Aloe X bolleyi X parvula JAA
3001 †**NEW!** Aloe bowieaXhumilis GX (Dwarf aloe)
3002 †**NEW!** Aloe Xfragilis GX
3003 **NEW!** Aloe globuligemmaXvariegata BUG (also 50 seeds)
3004 **NEW!** Aloe humilis X rugosa GX
3005 **NEW!** Aloe X jacksonii GX
3006 **NEW!** Aloe jucunda X humilis GX (also 50 seeds)
3007 **NEW!** Aloe jucunda X variegata GX
3008 **NEW!** Aloe spinosissima X humilis GX
3009 †**NEW!** Aloe sp ex Zipacon GX (Aloe géant)
3010 Aloe mix (also 100/1000 seeds)

ASTROLOBA
3049 Astroloba pentagona JL157 (also 50 seeds)

BULBINE (Liliaceae / Asphodelaceae)
3073 Bulbine alooides JAA
3074 Bulbine annua ND+EA (also 50 seeds)
3075 †Bulbine caulescens GX
3076 Bulbine frutescens JCD
3077 Bulbine lagopus JAA
3078 Bulbine vitrea JL2985 (Carolusberg, RSA)#
3079 **NEW!** Bulbine sp JL S. Calvinia (RSA)#
3080 †Bulbine ? sp JAA640 Nuwerus (RSA)#

GASTERIA (Liliaceae)
3348 Gasteria acinacifolia JL5937 (géante!) (also 50 seeds)
3349 Gasteria (nitida v.) armstrongii JL366+JAA (also 50 seeds)
3350 Gasteria (bicolor v.) liliputana JL373+GX (also 50 seeds)
3351 †Gasteria brachyphylla JL5956
3352 Gasteria caespitosa JL368
3353 Gasteria candicans v. glabrata JL370
3354 Gasteria conspicua JL369
3355 Gasteria ellaphiae JAA +AS (Paul Sayer Dam, Type location)# (also 50 seeds)
3356 Gasteria ellaphiae EJV11150 (Kouga Dam, RSA)# (also 50 seeds)
3357 Gasteria excelsa JAA
3358 Gasteria glomerata PR+BUG (also 50 seeds)
3359 Gasteria maculata TIN+AG
3360 Gasteria minuscula JL374
3361 Gasteria pillansii JAA (Bullhouer)# (also 50 seeds)
3362 **NEW!** Gasteria pulchra JL+ JAA (E. Hankey, RSA)#
3363 Gasteria trigona JL378 (also 50 seeds)
3364 Gasteria (carinata) v. verrucosa JL379 (also 50 seeds)
3365 Gasteria verrucosa v. major JL380 (also par 50 seeds)
3366 Gasteria vlokii JAA
3367 Gasteria sp JL01/364 (almost glabrous)
3368 **NEW!** Gasteria Xverrucosa GX
3369 Gasteria mix (+ include non-listed sp) (also 50 seeds)

GASTROLEA (Gasteraloe correct name) (Liliaceae)
3370 †Gastrolea beguinii JL381

HAWORTHIA (Some hybridisation is possible, ex 100 year old collection of Jardin des Plantes de Nantes)
3401 Haworthia altilinea JL409
3402 †**NEW!** Haworthia arachnacantha JAA (Kammanassie Dam, RSA)#
3403 Haworthia asperula JL411
3404 Haworthia attenuata JL412
3405 Haworthia attenuata v. britteniae JL414
3406 Haworthia attenuata v. clariperla JL415 (also 50 seeds)
3407 †**NEW!** Haworthia bolusii v. blackbeardiana JAA (S.E. Catheart, RSA)#
3408 Haworthia chloracantha v. denticulifera JL418
3409 †Haworthia coarctata v. adelaidensis
3410 **NEW!** Haworthia cooperi GX
3411 Haworthia cymbiformis v. agavoides JL426
3412 Haworthia cymbiformis v. compacta JL427
3413 †**NEW!** Haworthia emelyae JAA
3414 Haworthia fasciata v. browniana JL435
3415 Haworthia fasciata v. concolor JL5938
3416 Haworthia glabrata JL436 (also 50 seeds)
3417 Haworthia glauca v. armstrongii JL437 (also 50 seeds)
3418 Haworthia X kuentzii JL442 (also 50 seeds)
3419 †Haworthia limifolia JL443
3420 †**NEW!** Haworthia marginata BUG
3421 †Haworthia marumiana JL446
3422 Haworthia marumiana v. batesiana JL416
3423 Haworthia maughanii BUG
3424 Haworthia minima (margaretifera f.) JL448 (also 50 seeds)
3425 **NEW!** Haworthia mucronata v. habdomadis RB23-2 (& 50 seeds)
3426 Haworthia papillosa KHE (possible par 100 seeds)
3427 Haworthia pumila JAA (Bonniesvale, RSA)#
3428 †**NEW!** Haworthia pygmaea JAA
3429 †Haworthia radula JL462
3430 Haworthia reticulata v. hurlingii JL469 (also 50 seeds)
3431 Haworthia subrigida JL475 (also 50 seeds)
3432 **NEW!** Haworthia tessellata GX
3433 Haworthia tortuosa JL478
3434 Haworthia transluscens JL479 (also 50 seeds)
3435 Haworthia truncata BUG
3436 Haworthia venosa (tessellata) JL
3437 Haworthia venosa (tessellata) v. parva JL477 (also 50 seeds)
3438 Haworthia sp JL401/03 (aff. fasciata, feuilles jaune-vert clair)
3439 Haworthia sp JL403/05
3440 Haworthia sp JL406/08 (aff. fasciata)
3441 Haworthia mix (+ espèces non listées) (also 100/1000 seeds)

LOMATOPHYLLUM
3638 Lomatophyllum citreum JL436+PR
3639 Lomatophyllum occidentale PR
3640 Lomatophyllum prostratum GH (ex Uhlig)
3641 Lomatophyllum tormentorii AJ+Lavr. (Ile Maurice)
3642 **NEW!** Lomatophyllum sp nova La Réunion JL629

CITES 1 or rare list.
ALOE
4347 Aloe bowiea JL86 et al. (Port Elizabeth, RSA)# + JAA **1,50Euros**
4349 Aloe haworthioides GX **1,50Euros**

4350 Aloe polyphylla COR **1,50Euros** (also 50 seeds = **6 Euros**)
(from cultivated plants in New-Zealand)
4351 †Aloe vacillans BS (Yemen)# TRES RARE **1,50Euros**

PLEASE NOTE:

Most of our seed is stored in cold store, which makes it possible to preserve the seed viability under optimal conditions. However, it is important to note that these seeds thus preserved must be sown quickly, for after leaving the refrigerator, as for frozen food, they must be quickly "consumed"!

For those who do not wish substitutes in case of unavailable seeds, order **by credit card only**. You will then be charged only seeds for supplied.

Please do not ask if some seeds are available or not, it takes a lot of time to answer each of your questions and we need full time to prepare orders.

PLAN T LIST.

Plants are produced from cuttings, including cuttings from plants in the personal collection of Joël Lodé (JL), and from seed of our own production. (For pots of **8.5cm / 10.5cm / 12.5cm** or more!) **No habitat plants are sold**.

Plants are available in **small quantities**, are not "standardised" and are produced for collectors. They are not forced plants. They are sent bare roots. All are labelled. The prices are according to size and rarity. Carriage is extra**.**

Aloe: some plants are for 12-15cm pots.
Aloe abyssinica JL73 3,80€
Aloe albiflora JL78 CITES 1 (rooted cuttings) 4,80€
Aloe andongensis JL58 4,80€
Aloe ankabarensis JL79 2,90€
Aloe antandroi JL80 (ex Rauh918, Madagascar)# 2,90€
Aloe arenicola JL81 3,80€
Aloe aristata JL82 2,90€
Aloe bakeri JL 3,80€
Aloe bellatula JL85 CITES 1 (rooted cuttings) 4,80€
Aloe brevifolia JL87 2,90€
Aloe brevifolia v. depressa JL934 2,90€
Aloe bulbillifera v. paulianae JL 3,80€
Aloe concinna JL92 3,80€
Aloe confusa JL83 2,90€ / 4,80€
Aloe cremnophila JL93 2,90€
Aloe Xdelaetii JL95 2,90€
Aloe descoingsii JL96 CITES1 (rooted cuttings) 3,80€
Aloe distans JL767 3,80€
Aloe dumetorum JL100 (Kenya)# 2,90€
Aloe fosteri JL106 2,90€
Aloe fragilis JL727 CITES1 (rooted cuttings) 3,80€
Aloe graminicola ex sp Nakuru JL83/1 3,80€
Aloe grandidentata JL110 2,90€
Aloe greenii JL1114€
Aloe helenae JL730 4,80€
Aloe humilis JL113 3,80€
Aloe ibitiensis JL731 2,90€
Aloe jucunda JL114 2,90€
Aloe juvenna (= A. squarrosa) JL115 2,90€
Aloe lineata v. muirii JL725 (ex PV944) 3,80€
Aloe millotii JL122 2,90€
Aloe mubendiensis JL124 3,80€
Aloe nobilis JL965 3,80€
Aloe parvula JL935 CITES1 (rooted cuttings) 4,80€
Aloe pratensis JL725 3,80€
Aloe rauhii JL132 CITES1 (rooted cuttings) 4,80€
Aloe rebmannii JL1200 6€
Aloe sinkatana JL137 3,80€
Aloe thraskii JL731 4,80€ (pot de 13 cm !)
Aloe variegata JL144 2,90€
Aloe vera JL67 3,80€
Aloe zanzibarica JL973 3,80€
Aloe sp nova Nakuru JL83/3 (without spots) 3,80€
Aloe descoingsii X rauhii JL97 (superb hybrid !) 2,90€
Aloe sp aff. concinna DSCF5904 2,90€
Aloe sp rubroviolacea aff. JL 3,80€
Aloe sp DSCF5624 JL72 2,90€

Astroloba pentagona JL157 2,90€

Gasteria acinacifolia JL5937 4,80€
Gasteria armstrongii JL366 3,80€. Large branching plants, pot 15cm = 5€
Gasteria candicans v. glabrata JL370 2,90€ / 4,80€ (big branching plants, pot 15cm !)
Gasteria carinata v. verrucosa JL379 2,90€ / 4,80€
Gasteria carinata v. verrucosa f. major JL380 2,90€ / 4,80€
Gasteria conspicua JL369 2,90€ / 4,80€
Gasteria disticha v. compacta JL372 2,90€ / 4,80€
Gasteria glomerata JL406 2,90€
Gasteria bicolor (caespitosa) JL368 2,90€
Gasteria bicolor v. liliputana JL373 2,90€ / 4,80€
Gasteria sp minuscula JL374 2,90€
Gasteria pillansii JL5946 2,90€ / 4,80€
Gasteria pulchra JL 2,90€ / 4,80€
Gasteria trigona JL378 2,90€ / 4,80€

Gastrolea bedinghausii JL367 2,90€ / 4,80€
Gastrolea beguinii JL381 2,90€ / 4,80€
Gastrolea hayfieldii JL382 2,90€ / 4,80€

Haworthia altilinea JL409 2,90€
Haworthia asperula JL411 2,90€
Haworthia attenuata JL412 2,90€
Haworthia attenuata v. clariperla JL415 2,90€
Haworthia attenuata v. radula JL462 2,90€
Haworthia cassytha JL1838 2,90€
Haworthia chloracantha v. denticulifera JL418 2,90€
Haworthia coarctata BB44.1 2,90€
Haworthia coarctata JL419 2,90€
Haworthia coarctata v. adelaidensis JL420 2,90€
Haworthia coarctata f. greenii BB44.11 2,90€
Haworthia coarctata v. tenuis BB44.3 2,90€
Haworthia cooperi JL 2,90€
Haworthia cooperi v. leightonii JL423 2,90€
Haworthia cooperi v. truncata JL423 2,90€
Haworthia cuspidata JL424 2,90€
Haworthia cymbiformis JL425a 2,90€
Haworthia cymbiformis (planifolia) JL425b (BB9.1) 2,90€
Haworthia cymbiformis v. compacta JL427 2,90€
Haworthia cymbiformis v. obtusa BB9.3 2,90€
Haworthia cymbiformis v. ramosa JL429 2,90€
Haworthia cymbiformis v. reddii BB9.5 2,90€
Haworthia cymbiformis v. ryneveldiae JL430 2,90€
Haworthia fasciata JL434 (BB45) 2,90€
Haworthia fasciata v. browniana JL435 2,90€

Haworthia fasciata v. ovato-lanceolata JL 2,90€
Haworthia glabrata JL436 (BB46) 2,90€
Haworthia glauca aff. JL 2,90€
Haworthia herbacea JL440 2,90€
Haworthia Xkuentzii JL442 2,90€
Haworthia limifolia JL443 (magnifique !) 2,90€
Haworthia magnifica v. acuminata JL470 2,90€
Haworthia maraisii v.notabilis JL641 2,90€
Haworthia marumiana JL446 2,90€
Haworthia marumiana v. batesiana JL416 2,90€
Haworthia maughaniiXobtusaXpilifera JL484 2,90€
Haworthia minima JL448 2,90€
Haworthia mirabilis v. mundula JL451 2,90€
Haworthia mucronata v. habdomadis JL426 (= cymbiformis v. agavoides) 2,90€
Haworthia mutica JL453 2,90€
Haworthia nigra JL454 3,80€
Haworthia nigra var. JL 3,80€
Haworthia pumila (margaretifera) JL461 2,90€
Haworthia pumila (papillosa) JL461 2,90€
Haworthia pygmaea JL569 3,80€
Haworthia resendeana JL467 2,90€
Haworthia reticulata v. hurlingii JL469 (BB31.3) 2,90€
Haworthia reticulata v. subregularis JL639 2,90€
Haworthia retusa JDV87/5 2,90€
Haworthia retusa variegata JL403 2,90€
Haworthia rigida JL472 2,90€
Haworthia tortuosa JL478 2,90€
Haworthia tortuosa v. curta JL 2,90€
Haworthia transluscens JL479 2,90€
Haworthia truncataXretusa JL481 3,80€
Haworthia turgida JL640 2,90€
Haworthia turgida v. suberecta JLJDV87/68 2,90€
Haworthia variegata JL482 (BB38.1) 2,90€
Haworthia venosa ssp. parva JL477 2,90€
Haworthia venosa ssp. tessellata JL476 2,90€
Haworthia venosa var. JL1837 3,80€
Haworthia viscosa JL483 2,90€
Haworthia sp JL03/401 (aff. fasciata, leaves pale yellow green!) 2,90€
Haworthia sp JL05/403 2,90€

Lomatophyllum macrum JL5674€ (pot de 15cm !)

COLLECTIONS (plants 8.5cm) are available as below plus carriage:
15 Aloes (our choice, CITES included) all different, labelled: 49€
10 Gasterias/Gastroleas (our choice, CITES inclus) all different, labelled: 24€
30 Haworthias (our choice) all different, labelled: 62€

Ordering details: Plants can be supplied only to E.U. addresses

Postage and packing all orders: add 25 Euros. (Postage free if order is more than 120 Euros)

Payment with order, by credit card or international money order (I.M.O.)

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Special Issue - Hybrids and Cultivars.

Work on Part 1 of the Special Issue - Hybrids and Cultivars continues.
We already have a good range of photographs and much useful information, but it is, as expected, proving difficult to impossible to locate the original publication of many cultivar names. In the past it has been common practice and legitimate to publish cultivar names in a wide range of publications, at least some of which are either no longer available or held privately by someone who may not realise the nature of what he/she is holding. Many hobbyists accumulate catalogues of plants for sale. Some of these may hold the original descriptions of cultivars. A catalogue, or even a list, can contain the valid publication (establishment) of a cultivar name if there is a (brief) description of the cultivar and the list is dated at least to the year. These need to be traced so that correct names can be used and duplicate names eliminated. On the other hand some cultivar names in catalogues and lists are invalid because they contain only the cultivar name. These also need to be located so that a valid name can be published and duplication eliminated. *If any members have any old plant lists or catalogues it would be very helpful if they could be checked to see if they contain new cultivar names. If you find anything do please let the editor know - Harry Mays, Woodsleigh, Moss Lane, St Michaels on Wyre, Preston, PR3 0TY, UK. E-mail: hmays@freenetname.co.uk. . It would be most helpful.* Australian, European, Japanese an USA plant lists and catalogues are the most likely to contain cultivar information, though such information could appear on any lists in any country.

When Part 1 is published, work will continue with the preparation of Part 2.

A point of note for all who are concerned with cultivars (propagation, naming, studying, writing etc) is that a revised and updated Cultivated Plant Code (Edition Seven) is now in force. It supersedes all previous editions.

POELLNITZIA Uitewaal: INFERRED RELATIONSHIPS FROM LIMITED HYBRIDIZATION.

David M Cumming
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Keywords. Relatedness, *Poellnitzia, Aloe, Gasteria, Haworthia, Astroloba*, intergeneric hybrids.

Abstract. While intergeneric hybrids within *Aloaceae* have been achieved with most genera (Cumming 1999a, 2005), few have been recorded with *Poellnitzia*. Genetic evidence in taxonomy is not generally regarded as a major taxonomic tool at generic level, that is, if it is considered at all. The ease with which the species of different 'genera' within Aloaceae can be hybridized with the production, in many cases, of fertile or partially fertile hybrids can only be equalled in a few other groups of plants such as American members of *Crassulaceae* and in *Orchidaceae*. It points to the fact that barriers preventing production of hybrids in the wild must be ecological, geographical and/or biological and for the most part not cytogenetical. Therefore, where it appears that there are cytogenetical barriers these must be treated with some significance. This leads to the conclusion that in certain groups of plants, such as *Aloaceae*, genetic evidence can prove to be definitive in determining genetic relationships. The following experiments were carried out to explore relatedness between *Poellnitzia* and the other genera contained in *Aloaceae*.

Introduction: *Poellnitzia* Uitewaal is named for Joseph Karl L. A. von Poellnitz a German agriculturist and botanist with an interest in succulent plant systematics. It is a monotypic genus, which, due to this fact, has lead to an insecure taxonomic life, having been placed in *Astroloba* E Lamb (1955) (nom. invalid Art 33.2), *Haworthia* Parr (1971), *Aloe* G.D. Rowley (1981), *Gasteria* M Hayashi (2004), *Astroloba* G.F. Smith & Manning (2004)

While broadly tubular flowers, often with exerted stamens and styles are to be found in most other members of *Aloaceae, Poellnitzia* presents tepals closely adhering apically, which suggests deviation from the typical ornithophilous pollination syndrome suggested by flower colour. As is typical for most *Aloaceae*, self-incompatibility is the norm (Smith 1992 & personal observation)

Poellnitzia has a limited distribution in the Western Cape, centred mainly around the Elandsberg, including the surrounding districts of Robertson, Bonnievale, Stormsvlei and McGregor, predominantly winter rainfall areas of karroid shrub.

Records show X *Poellneria*, G.D. Rowley (1973), was erected for a hybrid between *Poellnitzia* and an unidentified *Gasteria* species, this is the only hybrid listed by Rowley, which does not reflect its subsumation in other genera. X *Cummingara* G.D. Rowley (1999) was erected for a trigeneric cross, (*Haworthia* x *Gasteria*) x *Poellnitzia*.

Methods & Materials: these were previously discussed, see Cumming (2005). However the plants used are detailed in table 1, page 14

Results: tables 2 - 5. 7/10 indicates seven successful pollinations out of ten attempts. X indicates not attempted. Wherever possible ten attempts were undertaken.

Conclusions.

***Poellnitzia* as an *Astroloba*?** Astrolobas hybridize readily with aloes (Cumming 1999a, 2006 in prep). They also hybridise with subgenera *Hexangulares* and *Robustipedunculares* of the genus *Haworthia* and also with other members of that genus. *Poellnitzia* does not display these abilities. DNA sequences (Chase et al 2000) shows a grouping of *Astroloba* with *Poellnitzia*, and others (Treutlin et al 2003) group *Poellnitzia* with *Aloe aristata*, X *Astroworthia*, *Haworthia* X *Kewensis* as well as *Astroloba,* yet there is no single ISSR (Inter Simple Sequence Repeat) band to support this placement. *Poellnitzia* sugar composition reflects bird pollination and is hexose-dominant, compared with *Astroloba* which is sucrose-dominant (Van Wyk et al. 1993), though it is stated that adaptations for specialised pollination strategies alone are insufficient grounds for recognition of genera and that *Poellnitzia* is best treated as a species of *Astroloba* adapted to pollination by sunbirds (Manning & Smith 2000). However this failed to take into account the complete picture of Nectar Sugar composition in all the *Aloaceae* tested and the constancy of results within the genera, even to distinguishing between the subgenera in *Haworthia.* These facts led to stating that the overall pattern reflected taxonomic affinities rather than that of pollinator types. It should be noted that *Gasteria* is also pollinated by sunbirds (E. J. van Jaarsvsld 1994) but has a high sucrose composition and almost negligible levels of hexose. *Poellnitzia* displays a sugar composition which indicates a closeness with *Aloe* (Van Wyk et al. 1993).

***Poellnitzia* as an *Aloe*?** Aloes hybridize readily with each other and form sterile hybrids with *Gasteria* (personal observation). X*Poellneria* appears to be fertile. Aloe hybridizes readily with *Astroloba.* As stated, *Poellnitzia* fails to demonstrate these traits.

***Poellnitzia* as an *Haworthia*?** Haworthias hybridize extremely readily within the same subgenera, but rarely outside. *Poellnitzia* does not hybridise with any of the three subgenera.

***Poellnitzia* as a *Gasteria*?** There is a close evolutionary relationship with *Gasteria* as

Table 1 **Plants used in the hybridization experiments**

Plant		Origin
***Poellnitzia rubriflora* Uitewaal**	**DMC 4979**	Morceaux, N of McGregor
	DMC 7664	N of Bonnievale
	DMC 10035	E of Langewatch
	DMC 10037	Rebok
***Gasteria bicolor* v *lilliputana* (von Poellnitz) van Jaarsveld**		Pluto's Vale
***G.* 'Monaku'**		
***G. carinata* (Miller) Duval**	**DMC 9294**	Hort.
***G. carinata* v *glabra* (Salm-Dyck) van Jaarsveld**	**DMC**	Hartenbos
***G. batesiana* Rowley**		Clonotype.
***G. brachypylla* v *bayeri* van Jaarsveld**	**DMC 8725**	Kerkplaas, W of Ladismith
***G.* unknown hybrid (A)**		Hort
***G.* unknown Hybrid (B)**		Hort
***Aloe albiflora* Guillaumin**		Hort
***A. bellatula* Reynolds**		Hort
***A. descoingsii* Reynolds**		Hort
***A. minima* Baker**		Tala Hill KZN
***A. variegata* Linne**	**DMC 6720**	Drennan, S of Cradock
***A. parvula* Berger**		Hort
***A. jucunda* Reynolds**		Clonotype
***A. tenuior* Haworth**		Hort
***Haworthia cymbiformis* (Haworth) Duval**	**DMC 6548**	Kap/Fish River confluence
***H. gracilis* von Poellnitz**	**DMC 5272**	W of Patensie
***H. cooperi* Baker**	**DMC 6682**	Eastpoort, NE Cookhouse
***H. turgida* Haworth**		Hort
***H. minima* (Aiton) Haworth**	**DMC 2711**	Gouritzmond
***H. attenuata* Haworth**		Hort
***H. scabra* Haworth**	**DMC 2597**	N of Oudtshoorn
***H. tesselata* Haworth**	**DMC 2121**	W of Pofadder
***Astroloba foliosa* (Haworth) Uitewaal**		N of Mt Stewart
A. herrei Uitewaal	**DMC 9075**	W of Prince Albert
"	**I.S.I.**	
***A. congesta* (Salm -Dyck) Uitewaal**	**DMC 8589**	W of Steytlerville
"	**DMC 6721**	Drennan, S of Cradock
"		Hort
***A. corrugata* Meyer & Smith**	**DMC 2770**	W of Ladismith
***A. spiralis* (Linne) Uitewaal**	**DMC 5041**	W of Ladismith

Table 2. ***Poellnitzia* x *Gasteria***

Pollen		**Pod Parent**								
		1	2	3	4	5	6	7	8	9
Poellnitzia	1		7/10	8/10	2/6	7/10	0/10	6/10	2/10	1/10
Gasteria bicolor* v. *liliputana	2	0/10		X	X	X	X	X	X	X
***Gasteria* 'Monaku'**	3	0/10	X		X	X	X	X	X	X
Gasteria carinata* v. *verucosa	4	0/10	X	X		X	X	X	X	X
Gasteria carinata* v. *glabra	5	0/10	X	X	X		X	X	X	X
Gasteria batesiana	6	0/10	X	X	X	X		X	X	X
Gasteria brachyphylla* v. *bayeri	7	0/10	X	X	X	X	X		X	X
***Gasteria* unknown hybrid (A)**	8	0/10	X	X	X	X	X	X		X
***Gasteria* unknown hybrid (B)**	9	0/10	X	X	X	X	X	X	X	

Table 2. As expected *Poellnitzia* was compatible with *Gasteria*. *Gasteria* acts as a universal donor (Cumming 1999a). Seed was set on the *Gasteria* rather than the *Poellnitzia. Poellnitzia* generally has a longer style. Pollen tubes often fail to grow the full length of longer styled plants.

Table 3.		***Poellnitzia* x *Aloe***								
Pollen		**Pod Parent**								
		1	2	3	4	5	6	7	8	9
Poellnitzia	1		0/10	0/10	0/6	0/10	0/3	0/10	0/10	0/5
Aloe albiflora	2	0/10		X	X	X	X	X	X	X
Aloe bellatula	3	0/10	X		X	X	X	X	X	X
Aloe descoingsii	4	0/6	X	X		X	X	X	X	X
Aloe minima	5	0/10	X	X	X		X	X	X	X
Aloe variegata	6	0/10	X	X	X	X		X	X	X
Aloe parvula	7	0/5	X	X	X	X	X		X	X
Aloe jucunda	8	0/10	X	X	X	X	X	X		X
Aloe tenuior	9	0/4	X	X	X	X	X	X	X	

Table 3 demonstrate no comparability between ***Poellnitzia*** and ***Aloe.***

Table 4.		***Poellnitzia* x *Haworthia***								
Pollen		**Pod Parent**								
		1	2	3	4	5	6	7	8	9
Poellnitzia	1		0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/4
Haworthia cymbiformis	2	0/10		X	X	X	X	X	X	X
Haworthia gracilis	3	0/10	X		X	X	X	X	X	X
Haworthia cooperi	4	0/5	X	X		X	X	X	X	X
Haworthia turgida	5	0/6	X	X	X		X	X	X	X
Haworthia minima	6	0/5	X	X	X	X		X	X	X
Haworthia attenuata	7	0/10	X	X	X	X	X		X	X
Haworthia scabra	8	0/10	X	X	X	X	X	X		X
Haworthia tessellata	9	0/6	X	X	X	X	X	X	X	

Table 4 indicates no comparability between ***Poellnitzia*** and ***Haworthia*** - all three subgenera are represented. If ***Poellnitzia*** were a ***Haworthia***, compatibility should be demonstrated between ***Poellnitzia*** and 7, 8, 9 or 6.

Table 5.		***Poellnitzia* x *Astroloba***					
Pollen		**Pod Parent**					
		1	2	3	4	5	6
Poellnitzia	1		0/10	0/10	0/10	0/10	0/10
Astroloba foliosa	2	0/10		X	2/4	X	X
Astroloba herrei	3	0/10	X		X	X	X
Astroloba congesta	4	0/10	X	X		X	X
Astroloba corrugata	5	0/10	X	X	X		X
Astroloba spiralis	6	0/10	X	X	3/4	X	

Table 5.

The results indicate no compatibility between *Poellnitzia* and *Astroloba.*

demonstrated in floral characters. Based on these characters, *Poellnitzia* was reduced to subgenus status, being subsumed under Gasteria (Hayashi 2004). However gasterias do readily hybridize with each other, also with all the other genera within *Aloaceae,* but *Poellnitzia* does not behave as does *Gasteria.*

It appears from the results that the only genus into which *Poellnitzia* could conceivably be placed is the genus *Poellnitzia.* Why is there an inordinate desire to eliminate monotypic genera? Would indeed, anything be gained by placing *Poellnitzia* in *Gasteria*, *Aloe, Astroloba, Haworthia*? Does it give a clearer understanding of relatedness within *Aloaceae?* The answer must be in the negative. As long as there are more than just the genus *Aloe* within *Aloaceae*, *Poellnitzia rubriflora* should remain as a monotypic genus where its unique characteristics can be fully appreciated.

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Rare Japanese cultivar seed.

Harry Mays

Readers will undoubtedly know that it is rarely possible to produce *Haworthia* cultivars true-to-form from seed, but in Japan, in particular, seed is produced by crossing some of the finest clones with a view to producing new, improved cultivars. This is not a hit or miss process, because only the most outstanding plants are used, not just any. Therefore, the chances of producing some new clones with outstanding characteristics are enhanced compared with random crossing. Nevertheless, the results in Japan seem to indicate that less than 10% of cultivars, produced from seed obtained by crossing outstanding clones, will be regarded as worthy of becoming new cultivars. In *Haworthia* breeding terms, these are excellent results. The seed is in great demand, but in very short supply, and it is often retained by the breeder to enhance his collection and breeding stock before any clones are propagated vegetatively for exchange and sale (which will also be in short supply).

Because of the anonymous (for obvious reasons!) generosity of one of the foremost Japanese collectors and propagators of *Haworthia* cultivars, especially those derived from *Haworthia picta*, Alsterworthia International received a supply of seed derived mainly from special cultivars of *Haworthia picta* at the end of November 2005. *At the donor's request, those of you who subscribed to Haworthia Study in 2005 received some of this seed free of charge as a thank you for your support for that journal.* The remainder was for sale to Alsterworthia International members for the benefit of Alsterworthia International funds. In accordance with the note at the end of page 19 of the November 2005 issue and also because the seed had been harvested in the spring of 2005, members for whom I had e-mail addresses were informed of the availability of the seed in early December. Orders soon flowed in and PayPal proved a quick and popular means of payment. All the seed was sold by Christmas day.
The plants which produced the seed were mainly from the following cultivar groups: Silver Green, Royal, Silver Zebra, Pearl, Marble and Mosaic. No seeds were from the Galaxy Group, but in some instances pollen from that group was used to produce seed from the groups mentioned above. Seed was also obtained from *Haworthia picta* var. *janvlokii* using pollen from the above groups (Please see Alsterworthia International, November 2005, pages 21-23 for information on cultivar groups).

The donor hopes that making the seed available to Alsterworthia International members will stimulate interest in the beauty of *Haworthia* cultivars and encourage seedling selection in the interests of improved cultivar production. In years to come, members might be able to cross the best cultivars they have produced to further improve their cultivars.

The names of any cultivars produced, which you consider worthy of naming, can be validly published (established) in Alsterworthia International.

Members who succeed in raising plants from this seed are welcome to make any seed they obtain in years to come, by crossing selected clones, available to members through the columns of this journal. There will be no charge for this service to members.

It has been intimated, but without promise, that further hybrid seed from Japan could be made available at some time in the future.

On a closing note, members are urged to send their current e-mail addresses direct to me (hmays@freenetname.co.uk) and to notify changes without delay, as some were found to be out of date.

Aloe claviflora. Burch.

Albert Pritchard
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Fig. 15. *Aloe claviflora* in habitat at Kendrew. October 2003.

Fig. 16. *Aloe claviflora* showing "Horseshoe" growth pattern.

Fig. 17. Dead clump of *Aloe claviflora*.

Aloe claviflora [The name refers to its Club Shaped Flowers] is a widespread species found in many areas of the Karoo. [See Reynolds page 318-320]. The species is quite common around the Graaff Reinet area of the Karoo, where many plants can be found. [Fig.15] It grows in well-drained positions on stony ground or rocky hillsides and experiences extreme drought conditions in areas receiving less than 5 inches of annual rainfall and frequently tolerates temperatures of 37-40° C. The plant has the unusual habit of forming a circle or horseshoe of offsets; this results from the initial formation of a dense, crowded, circular group [Fig.16]. The heads of the inner plants tend to die out thus forming the circle or horseshoe appearance, likened to a campfire, as the sun often blackens the remains of the central plants. As the group grows larger, plants are formed to fill any gaps and an area of 1-2.5 m in diameter is created, comprising 6-12 plants. Sometimes the group is formed by a double row of plants and in extreme cases three rows. Reynolds notes that if the circle is incomplete, then the gap usually faces west. The early Dutch farmers referred to the species as "Kanonaalwyn" [Cannon Aloe] from the angle of the inflorescence and the shape of the rosettes somewhat resembling a cannon. It is also known as the "Aanteel Alwyn" [The Increasing Aloe], or the "Kraal Alwyn". It is easily recognisable by this feature and the mode of growth of its inflorescence. In its habitat it is a very attractive Aloe.

The plant comprises a stem 10-20 cm long that grows flat with the ground and a dense rosette of 30-40 leaves. [The rosettes do not grow erect but face outwards giving them an irregular shape.] The leaves are ovate-lanceolate and about 20 cm long, 6-8 cm wide at their base. The upper surface of the leaves is flat or very slightly convex, whilst the lower surface is convex. The colour of the leaves is glaucous green/ grey. The keels of the leaves are armed with 4-6 sharp brownish spines, 2-4 mm long towards the tip. The margins of the leaves are also armed with brownish, 2-4 mm long teeth.

The inflorescence can be up to 50 cm

long. The plant produces one or two inflorescence which can be simple or branched and grow horizontally or slightly angled from the plant body - never erect. The flowers are produced on short peduncles and are club shaped with the widest part near the mouth. The tube tapers quite strongly and merges with the flower stalk. Buds and young flowers are usually red with a bloom and greenish tipped, the older flowers eventually turning lemon-yellow to ivory. The length of the flowers is between 30-40 mm. The pale yellow stamens extend 10-15 mm from the mouth of the flower. The stigma is exerted beyond the mouth of the flower and remains so after pollination. Flowering time is from August through September.

Fig. 18. *Aloe claviflora.* Inflorescence budding up.

It is reputed that the species is difficult to grow in cultivation, both in its native South Africa and also elsewhere in the world. I have never seen it being grown in the U.K. or offered for sale. The difficulty is, I believe, in the management of the watering regime.

On a visit in October 2003 to the Kendrew area near Graaff Reinet in the Karoo, many plants were suffering from drought and, indeed, a large number had died. As can be seen in Fig. 17. Plants were still managing to bloom and produce their flowers on the unusual, side-spreading flower stalk. Some plants in this area were just beginning to flower [Fig.18], some were in flower [Fig.19] and others had finished and had set their seedpods [Fig.20]. It was interesting to see plants in different stages of flowering in a relatively small area. Reynolds records the flowering time as August for plants furthest south and east and September for more northerly growing specimens, but as we all know, nature does not comply with man's findings and, as usual, does her own thing. The species suffers greatly during the drought, but still survives and grows on each year.

Fig. 19. *Aloe claviflora.* Flowering inflorescence.

Fig. 20. *Aloe claviflora.* Seed Pods.

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A brief look at some plants in my collection

Verhoeven Jozef
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***Aloe* 'Brass Hat'**. Fig. 21 left.

This is one of John Bleck's hybrids. It is a small *Aloe* cultivar, very attractive in its own right, but also very suitable for a small glasshouse.

The leaves are dark bronzy-green with many small, but prominent, teeth. When my plant has full sun it turns almost black. The flowers are small, which becomes a small plant. The parents are (*Aloe haworthioides* x *A. bakeri*) x {(*A. descoingsii* x *A. calcairophila*) x A. *bakeri*}.

Aloe 'Lysa' Fig. 22.

Another well-known hybridist is David Cumming, who selected this cultivar from a cross between *Aloe bakeri* x *A. variegata*.

It is also a small plant and, as the photograph shows, the leaf colour can vary with the cultivation conditions.

***Aloe* 'Parjay'**. Fig. 23.

This cultivar is also a selection from a D. Cumming hybrid, but little is known about the plant.

The parents are unknown, but the shape of the leaves suggests it includes *Aloe descoingsii* and the teeth *Aloe parvula*. Like the suggested parents, it is a small plant.

***Haworthia* 'Rasper'**. Fig. 1, page 1.

A beautiful, compact *Haworthia*. I suspect that its parents are *Haworthia emelyae* var *major* and *Haworthia truncata*, but I am not certain. It has a wart-like appearance.

It is best watered sparingly and given a small quantity of fertilizer. In my collection it stands in full sun.

Aloe rauhii* x *Aloe saundersiae Fig. 24

An interesting cross between a small Madagascan species and a small South African.

The hybrid is not perhaps the most attractive of cultivars and it is sensitive. It does not like too much sun and is in fact better grown in shade. It should be watered and fertilized regularly.

***Gasteraloe* 'World Beauty'** Fig. 25.

An intergeneric cultivar with leaf rugosity and thickness inherited from the Gasteria and leaf formation substantially from the Aloe. It is a very sensitive plant which does not like too much sun. It too is better grown in shade.

The parents are *Gasteria glomerata* and *Aloe parvula*, the latter being the reason the plant has a bluish hue on its leaves.

***Haworthia* 'Ivory Tips'** Fig. 26.

I received this plant from Tarrington under the name *H. truncata* x *H. setata*.

If the plant is given full sun, it reveals why it has been named 'Ivory Tips'. The tips of the leaves turn golden.

***Gasterhaworthia* 'Flipper'** Fig. 27.

A very beautiful plant, which I recommend to everyone.

Young growth is coloured silver because of the many silvery spots on the leaves. If the plant is kept in full sun it remains very compact. It should be watered regularly and fertilized economically.

The parents are *Haworthia pygmaea* and a *Gasteria* sp.

***Aloe* 'Boris'** Fig. 28.

This is a small *Aloe*, which I received from Rudolf Schultz. It is submitted so that it may be known.

I do not know the parentage.

***Aloe* 'Purple Delight'** Fig. 29.

It is a very compact plant with bluish leaves. I keep these plants in the full sun to ensure good colour. It grow slowly, but is easy to keep when given regular water and fertilisation. The parents are probably *A. parvula* and *A. descoingsii* with perhaps a third, but this is far from certain.

***Gasterhaworthia* "A1"** Fig. 30.

I received this plant from Lambert Coppus, a Dutchman who lives in Australia. It produces offsets, which assists propagation. The parents are unknown, but I suspect that *Gasteria verrucosa* and *H. attenuata* may be involved, but I'm not certain!

It is a nice plant which grows well. I keep it in full sun to brings out the purplish red colour

Aloe 'Dainty' Fig. 31.

Another small *Aloe,* but with impressive teeth along the edges of the dark-coloured leaves, the edges of which curve inwards.

It is a compact plant. I keep it in a little shade and water with care.

The parents are *Aloe descoingsii* x *A. haworthioides.*

A collector's view on two very popular Haworthias of the Little Karoo growing together with many other succulents.

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Abstract.
In this short article the author gives a broad look at two haworthias and some other succulents of the Little Karoo. The mention of specific sites does not mean that these are the only *Haworthia* localities of the species mentioned in the Little Karoo.

Geographical Area.
The Little Karoo forms part of the Southern Cape in South Africa, an area surrounded with two majestic mountain ranges, the Outeniqua, that forms the southern border, and the Swartberge that forms the northern border.

The visitor can get to the Little Karoo through one of five passes. When travelling from the north, one can enter the area through Meiringspoort, Swartberg pass, or the Seweweekspoort pass. From the south one has to cross the Outeniqua Mountains through the Robinson pass or the Outeniqua pass.

Discussion
This region is extremely rich in haworthias (and other succulents), which are often the topic of speculation.

Haworthia truncata.
The succulent lover who wants to tour only through this area will be exposed to the well-known, and perhaps always-wanted, *Haworthia truncata*. Localities are found from De Rust to the Rooiberge, west of Calitzdorp. The locality near the Hazenjacht River may be destroyed within the next few years because the land is being given back to the previous owners and resettlement and development in this area is expected.

What makes *H. truncata* so interesting is that it changes in shape from De Rust, where the typical *H truncata* var. *truncata* is found, until one gets to the last locality near the Rooiberg Mountains where *H. truncata* f. *crassa* grows.

Haworthia picta.
Crossing the Outeniqua Mountain range from the south, one gets to a very well-known locality of *H. picta* a species which changes in size and form as one travels in the direction of Oudtshoorn.

Should the more serious botanist have an in depth look at the plant found in the very first locality, he will notice that the leaves of these plants have a more pinkish colour (fig. 33). The leaves are covered with little white dots, and the size of the biggest plant is about 75mm in diameter.

Getting to the next locality, one will find that the plants grow amongst some *Conophytum truncatum* and other succulents. The size of the plants varies between 30 and 45 mm in diameter.

Reaching the second last locality, it is interesting to see that here the plants grow on the shaded slopes of a hill, amongst a totally different vegetation. Here the plants are bigger in size and have no pinkish colour

At the last locality near Oudtshoorn, *H. picta* looks totally different. There are fewer white stripe, no pinkish colour and the size is about 45 mm in diameter, fig. 34.

During springtime in South Africa (September) the succulent lover can indulge himself with the many succulents blooming this time of the year, one of which is *Conophytum truncatum* growing between Calitzdorp and Steytlerville. In this area it occurs under bushes along with *Haworthia picta*. Another well-loved succulent growing in this area is *Glottiphyllum,* fig. 35. Plants tend to be smaller where they grow in exposed, rocky places opposed to the more robust plants which grow in the shade of surrounding vegetation. The flowers of these plants open in the morning and stay open all day.

A visit to this region is successful if one comes upon the very popular *Euphorbia inermis* var. *huttonae,* fig. 36.

Conclusion
This is just a very short overview of these two *Haworthia* species, growing amongst so many other succulents, which I decided to share with other Haworthia lovers.

PHOTOGRAPHS.
All photographs in this issue are by the authors of the relevant articles, with the exception of those of Harry Mak's collection, which were taken by Harry Mak, not Harry Mays.

Fig. 32
Haworthia truncata
South of Calitzdorp.

Fig 33
Haworthia picta

Fig. 34.
Haworthia picta

Fig. 35.
Glottiphyllum species

Fig. 36.
Euphorbia
inermis var. *huttonae*

Fig. 37. Some choicer haworthias in the National Haworthia Collection of Harry Mak, with two very interesting hybrids from Japan - *H. truncata* x *H. magnifica* v. *splendens* (largest one) and 'Tengai' (*H. pumila* x *H. bruynsii*) in front of this hybrid.