Haworthia truteriorum I. Breuer & G. Marx. A member of a significant and neglected transitional species group

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It is a good custom to write an informal article about a new species soon after it has been published because it offers the opportunity to place the new name in context and familiarize readers with its history and other background details. In this case such an explanation is particularly necessary as it involves not only the introduction of a new name but highlights an entire group of related and relatively poorly known populations. Below follows a discussion of the various factors behind my own involvement with the publication of *Haworthia truteriorum* which was formally published in ALOE 48 (3) in 2011.

The morphic field of scepticism towards new Haworthia names is strong and growing and rightly so. It is good that enthusiasts question new names and allow the test of time and familiarity to decide whether it is valid or not. The publication of *H. truteriorum* emphasises more than just the fact that a Haworthia with rather distinct characters and features have been found in the wild. It actually represents an entire group of somewhat related plants occurring immediately north of the coastal mountains that has been completely ignored until recently. Before dealing with *H. truteriorum*, let us take a brief look at some of the other and slightly more familiar members of this group:

Haworthia indigoa and H. jadea:

The first discovery of a member of this group was made by Vincent de Vries back in 1998 when he encountered the first population of what is now known as *H. indigoa*. These plants were growing a short distance north of the Outeniqua Mountains near Matjiesdrift which is situated to the east of Herold in the Little Karoo. Up to then the only retusoid species within the Little Karoo were *H. emelyae* (picta) and *H. bayeri*. *H. indigoa* was clearly and very obviously unrelated to *H. emelyae* but shared some features with *H. bayeri*. However, when compared to members of the *H. mirabilismagnifica* groups and in particular *H. atrofusca*, it seemed virtually identical. (See fig. 1).



Fig. 1. Haworthia indigoa (left) and H. magnifica (now mirabilis) var. atrofusca (JDV 90-91) on the right. Virtually identical plants also with identical flowers and flowering time – the only separation is geographical.

In addition, its flowering time was also the same as that of *atrofusca*. Both *H. bayeri* and *H. emelyae* flower in spring (August to October) while *H. indigoa* consistently flowers in summer (December to January). But of course, in Bayer's rationalization of names based mainly upon geographical proximity and morphological features, *H. indigoa* is considered synonymous with *H. bayeri* simply on the basis of it growing within *H. bayeri* territory and one or two shared leaf characters. (See "*A rationalization of names in Haworthia. A list of species with new combinations and new synonyms*" by M.B. Bayer and J.C. Manning, (Alsterworthia International 12 (1): 7 -17).)



Haworthia indigoa in habitat near Matjiesdrift, east of Herold



Haworthia atrofusca in habitat at Droërivier south of Riversdale.

I too overwhelmingly welcome a short and simple and easy-to-memorise species list such as the one offered by Bayer, but only as long as it truthfully reflects and meaningfully arranges the significant variety as found in the wild into cohesive groups. The majority of us warmly welcome the idea of having fewer species that incorporate varieties. But then the groups of variants that are arranged under separate species must not be ignorant of important differences and be determined upon a consistent and accepted set of rules. In traditional taxonomy these rules suggest that floral characters must always enjoy priority consideration. To completely ignore the flower features and differing flowering seasons in the wild just because the flower differences in *Haworthia* are mostly rather subtle, is not a desirable solution.



Typical Haworthia bayeri in habitat south of De Rust.

But even if we forget about the flower characters for a moment and restrict ourselves to the geographical situation of H. indigoa in relation to H. bayeri, a very interesting situation is revealed. If one travels only 10km to the north-west from Matjiesdrift to the farm Leeublad, a significant co-occurrence is encountered. The farm Leeublad lies at the eastern edge of the Paardeberg hills to the east of the Kammanassie dam. This may be a familiar name for H. emelyae (picta) enthusiasts as H. picta var. janvlokii was described from these hills east of the Kammanassie dam. During my own initial unsuccessful search to find the latter I encountered a small form of H. bayeri along the eastern part of the Paardeberg range of hills on the farm Leeublad (GM 261). At the time it was quite a noteworthy find as it played a role to change Bayer's mind from considering H. emelyae and H. 'uniondalensis' (bayeri) to be the same species. The fact that both H. bayeri and H. emelyae occur only two or three km apart along the same range of hills was convincing enough to bring an end to the confusing containment of two such different elements as the same identity.



GM 261 H. jadea in cultivation.



Haworthia jadea in habitat on Leeublad farm.

The Paardeberg *H. bayeri GM 261* was propagated afterwards and became relatively widespread in cultivation. Many growers noticed the few subtle morphological differences it possesses compared to normal *H. bayeri*, like the greener colour and the smaller size with fewer leaves. But those growers who also pollinate and propagate their plants could not help noticing the fact that it also flowers a whole two months after normal *H. bayeri* and that the peduncles and flowers are more slender with thinner perianth lobes. But despite the latter it was just generally assumed that it was only a rather distinct ecotype of *H. bayeri*. The strictly discriminate Dr. Hayashi, however, felt that the differences are enough to justify a different species status and named it *H. jadea* in 2004, recognizing its distinct sea-green colour with the name.

As with many of Hayashi's names it was also received with scepticism at the time and generally rejected and few people made changes to their labels. About two years later I revisited Leeublad farm in search for the long-lost *H. smitii*. I searched a flat-topped low hill about 2km south of the *GM 261 'jadea*' locality and found no *H. smitii* but instead a population of typical *H. bayeri* plants. At first sight I could see that these plants were larger than *jadea* with more leaves and the typical colour of normal *H. bayeri*. More importantly, it was September and the plants were all in flower, which is the flowering period for normal *H. bayeri*. The flowering period for *H. jadea* is during November-December.



Normal spring-flowering H. bayeri on the farm Leeublad.

The fact that two such deceptively similar but clearly different elements occur within two kilometres from each other on the same farm surely suggest that *some* recognition need to be given to the phenomenon! To call them both just *H. bayeri* without recognizing the integral differences would simply be ignorant and disrespectful towards the truth. The shared features between *H. jadea* and *H. bayeri* are numerous and whether Dr. Hayashi's full species status is warranted is doubtful in my opinion, but the differences between two such closely situated populations need to be recognized at variety level at least. Therefore, I feel it would be more correct to say that on Leeublad farm grows *H. bayeri* as well as *H. bayeri* var. *jadea* and that the latter with its summer flowering habit is undoubtedly a transitional link towards *H. indigoa* and relatives occurring a short distance to the south.



Haworthia indigoa normally grows well hidden amongst grass, moss and lichens.



Habitat of H. indigoa near Matjiesdrift.

Returning briefly to *H. indigoa*: When comparing typical *H. bayeri* to *H. indigoa* the differences are far more numerous and blatant than between *jadea* and *bayeri*. Even the way *H. indigoa* grows in habitat, mostly deeply hidden amongst grass tufts, is more typical of *H. magnifica* than of *H. bayeri*. In *H. indigoa* the links to *H. bayeri* are so few and superficial that the only reason one would be tempted to do any comparison with *H. bayeri* would purely be because the latter grows only 10km away. However, in terms of flower features and flowering time, there are strong links towards *H. jadea*, which suggests that *H. jadea* must be a transitional element towards the *H. indigoa* group.



Haworthia bayeri at its type locality near Uniondale.

Haworthia truteriorum:

At Heimersrivier which lies about 15km southwest of Leeublad farm and 20km west of H. indigoa, Sean Gildenhuys and I encountered another surprising and significant occurrence. During field exploration in 2007 in the Heimersrivier area, we encountered a most unexpected population of haworthias tightly nestled in shale crevices on the south slope of a low hill. Never before have retusoid haworthias been found growing in shale in the Little Karoo. H. bayeri and H. emelyae (picta) are always in quartzite or quartzitic conglomerates. Even H. truncata and H. maughanii keep strictly away from shale. South of the Outeniqua mountains, however, it is common to find H. magnifica, H. mirabilis, H. mutica and particularly H. maraisii growing in shale.



Several plants of *Haworthia truteriorum* growing tightly wedged in shale crevices.



An attractively marked plant of *H. truteriorum* in habitat.

The dull grey-green leaf colour and silverywhite facial lines of these Heimersrivier plants do remind somewhat of H. bayeri but differ by having numerous small teeth around the leaf-margins and there are many flecks inbetween the facial lines in the windows of the upper leaf surface. The silvery-white lines are also not smooth and solid but consist of tightly grouped confluent flecks. But more importantly, these plants flower during mid to late summer (February-March) which is more than three months after H. bayeri. The flowers also have the same thin peduncles and slender perianth tubes as found in H. indigoa and members of the H. mirabilis and magnifica groups occurring to the south of the mountains. Therefore, in terms of its flower characters and geographical situation as well as morphological features it is clear that this element is profoundly enough removed from H. bayeri to be considered a separate identity.



Two mature plants of H. truteriorum sharing confined root space.



H. truteriorum is almost always solitary and closer inspection of this 'cluster' revealed that these are all separate individuals sharing the restricted pocket of soil amongst the shale slabs.

The big question is whether it is justified to be a new species. With apologies to my co-author I must confess that I would have been happier to see it published as a variety of H. indigoa. The only reason why it was not done is because Ingo Breuer's current system was not designed to incorporate 'variety' as status indicator. Breuer was forced to construct his system in such a way that he could easily include the vindicatable identities from the overwhelmingly extensive list of Hayashi names, without having to re-publish them in each case as variety or subspecies. Therefore, Breuer's groupings are at aggregate level and with species as the only ultimate differentiation. (Which means Breuer's aggregates = Bayer's species).



H. truteriorum in shrivelled condition during mid summer.



Mid-summer is the flowering period for *H. truteriorum* but due to the stressful conditions at this time, very few plants manage to flower in habitat. Even this large individual plant did not have enough reserve energy to produce a flower.



About 2km to the west is a second population of *H. truteriorum* amongst scattered quartzite. This plant was easy to find during the dry summer due to its flower that attracted attention.



H. truteriorum. A plant with prominent pimpled upper leaves.



The habitat of H. truteriorum near Heimersrivier.



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Ezeljagd:

On the very same day that *H. truteriorum* was encountered, Sean and I also went southeastwards to Ezeljagd farm. The latter farm was reported to be a locality for *H. emelyae* (*picta*) and we wanted to locate it there. Our searches revealed no *H. picta* but yet another *H. bayeri* look-alike. We found two populations on Ezeljagd farm where the plants were growing in ferricrete and white kaolin-like clay. The younger plants displayed flecking and teeth along the leaf margins that remind a lot of



Intimately related to *H. truteriorum* but slightly different and growing in kaolin-like clay on the farm Ezeljagd.



The Ezeljagd plants show superficially little more resemblance towards *H. bayeri* than *H. truteriorum* but flowers and flowering time is different.

H. truteriorum but older plants looked more like *H. bayeri* although with the facial lines also consist of confluent separate flecks like in *H. truteriorum* and not solid lines like in *H. bayeri*. The most noteworthy indication of distance in the relationship with *H. bayeri* is of course again the flowers and the flowering time which is also exactly the same as that of *H. truteriorum* in February and March.

The question remains whether the differences between the Ezeljagd plant and *H. truteriorum* justifies it being seen as separate from it.



The habitat at Ezeljagd farm. The Outeniqua Mountains are visible in the background.



H. bayeri (Uniondale) in cultivation displaying the more robust flower peduncle with more numerous bracts in comparison to the Ezeljagd plant above.

But that is a discussion for another opportunity, the main focus here is just to emphasize that these elements belong to an important and hitherto ignored transitional group between the Little Karoo retusoid species and the coastal *H. magnifica* and *H. mirabilis* members. Fact remains, the substantially different and unique characters of the members of this transitional group demand attention and recognition from the serious student of the genus. The solution to force these transitional elements synonymously into distantly related geographical neighbours as done by Bayer and Manning adds nothing to our knowledge of the genus.

Fact also remains, the genus Haworthia will remain a taxonomical problem for many years

to come. There are indeed probably only a few good real species but with such a lot of significant variation that reducing Haworthia truthfully and sensibly into fewer species would mean having to formally recognize these important variations at variety level and with the use of a very consistent set of measurements.

References:

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