

# MRS BARBER'S BEAUTY: *LOTONONIS HARVEYI* REDISCOVERED

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The first ever photograph of *Lotononis harveyi* in flower, next to the 19th-century wagon track over the Great Winterberg (Eastern Cape province). Photo by Ralph Clark.

South Africa is often thought of as 'well-explored' and 'well-studied'. The exciting thing is that it's not – especially if you add 'biodiversity' and 'mountains' to your search engine. The Cape Midlands Escarpment, for example (comprising the Sneeuberg, Great Winterberg–Amatholes and Stormberg, mostly in the Eastern Cape province, South Africa) has seen numerous plant discoveries and rediscoveries since 2005. This has been the direct result of focused biodiversity exploration in this region.

Despite intensive field surveys, numerous endemic plant species known only from their type material remain elusive, while the ecology of several others is hardly known. In the 7,000 km<sup>2</sup> Great Winterberg–Amatholes alone (among the most ‘well-studied’ mountain blocks in South Africa), a whopping eight of the c.35 endemic plant species (or 23%) are only known from their original collections, most dating from the mid- to late-nineteenth century.

One of the most elusive of these has been the legume *Lotononis harveyi*. Described by William Harvey in *Flora Capensis* in 1862 as *Buchenroedera spicata*, *L. harveyi* was originally collected by Mrs Elizabeth Mary Barber sometime in the mid-1800s. Unfortunately no dates are given on the type material, so it is not possible to know the exact date of discovery. Three specimens of her original collection exist: one in the Bolus Herbarium at the University of Cape Town, one in the Herbarium at the Royal Botanical Gardens, Kew (under her husband’s initials, F.W. Barber) and one in the Herbarium of Trinity College, Dublin (TCD). At the time of Ben-Erik Van Wyk’s ‘Synopsis of the genus *Lotononis*’ (published in 1991), this species was still only known from the type material. This remained the case in 2014 when our overview of plant diversity and endemism in the GWA was published. So, for at least 147 years, *L. harveyi* was only known from ‘somewhere’ on the ‘Winterberg’.

Re-examination in 2014 of a number of tentatively identified specimens from an exhaustive field trip to the Great Winterberg, in January 2009, revealed that *L. harveyi* had in fact been rediscovered in 2009, but the specimen had been misidentified as *L. cf. viminea*. The elongated raceme (therefore eliminating *L. trichodes*, another local Great Winterberg endemic), long calyx lobes, hirsute leaves and long stipules all suggested *L. harveyi*. However the deal was clinched with the discovery of remnant white, hairy petals on the (mostly fruiting) specimen and confirmed by the label data.

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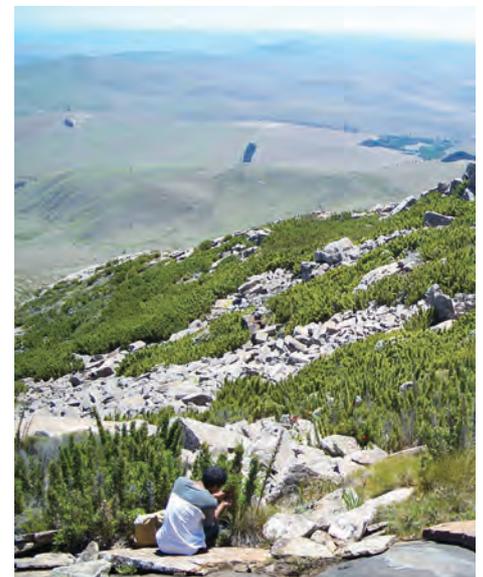
Excitedly, we undertook a follow-up expedition on 6 November 2014 to try and find the plant in full flower – based on the 2009 specimen having been in fruit in January. We found the 2009 site without too much difficulty – situated on a *middelmannetjie* between the current farm access road and the original 19<sup>th</sup>-century wagon track over the Great Winterberg. Here

we found three plants: one leggy, 50 cm tall individual in full flower with trademark white, hairy petals, and two smaller plants – probably the living remainders of the 2009 collections. From there we extended our search to cover approximately one square kilometre, following the old wagon track south down past the trig. beacon and east towards a side ravine of the Fenella Gorge complex. Here, three more solitary plants in full flower and 15–20 cm tall were discovered nearer the edge of the plateau.

Ben-Erik Van Wyk’s comments in his revision of *Lotononis* indicate that the habit of *L. harveyi* was not known. Now we can say that *L. harveyi* grows between 15 and 50 cm tall, and branches when taller into a wispy suffrutex (subshrub or dwarf shrub). This supports Mrs Barber’s notes on her TCD voucher: “about a foot and a half high – slender with very few branches – perennial”. Mrs Barber also notes on her TCD voucher that it “blossoms in autumn”, and as we found the species in full bloom in November, *L. harveyi* perhaps flowers in sync with the bimodal rainfall regime dominant in this area, i.e. early and late summer, thus having two flowering periods. The three plants which were in flower were floribund, and so seed production should be abundant, yet surprisingly few plants are present and there is no obvious recruitment. If the two smaller plants recorded at the 2009 site are indeed the survivors of the two 2009 vouchers, their limited growth



Left: The southern spur off the Great Winterberg peak – called Mt Frederick & Besterskop (middle-ground) – has yet to be botanically explored, and may host additional populations of *Lotononis harveyi* (and other long-lost endemics). Note the dense Lesotho Red-hot Poker (*Kniphofia caulescens*) population in the foreground. Photo by Ralph Clark.



Right: Compared to the Amatholes, the Great Winterberg component (viewed here from the summit of the Great Winterberg peak, looking west) of the Great Winterberg–Amathole mountain block is relatively poorly explored. Ryan Daniels in the foreground. Photo by Ralph Clark.



The Fenella Gorge environs (foreground) with the Great Winterberg peak (background) has been relatively well-explored botanically, but east of here might offer more possibilities for *Lotononis harveyi*. Note the invasive Patula Pine (*Pinus patula*) trees.  
Photo by Ralph Clark.

since suggests that the species grows extremely slowly, and this may partly account for its apparent rarity.

Mrs Barber notes that her specimens grew “amongst the rocks and long grass” and in “good soil”. Our plants were all found in *Tenaxia* (previously *Merxmuellera*) *disticha*–*Themeda triandra*–*Festuca costata* grassland, not rocky, except for one plant on the edge of the plateau, where fire and grazing have been excluded for some time. Notably, no plants were found in the well-grazed and regularly burnt *Festuca costata* plateau grassland in the area, although this is what would be considered ‘good soil’ compared to the shallow lithosols on the rocky sandstone margins of the ravines. All of this suggests that the species is susceptible to fire and grazing pressure. As a comparison, other, commoner species of *Lotononis* in the Cape Midlands Escarpment – e.g. *L. caerulescens*, *L. pulchella* and *L. sericophylla* – are highly palatable and

are often heavily browsed. While these species are able to stand up to these pressures, wispy *L. harveyi* might not.

In summary, indications are that *L. harveyi* would require a long absence of fire and grazing to become established or require rocky, inaccessible refugia to persist. We did not, however, find it on the well-vegetated south-facing slopes of the Gorge itself where, although free of fire and grazing pressure, it may be susceptible to being smothered by the more vigorous fynbos vegetation typically present. We also did not pick it up on the Great Winterberg peak – even though we climbed it three times in one week – and it appears to offer perfect *L. harveyi* habitat.

*Lotononis harveyi* is currently listed as Data Deficient. Based on our observations, we suggest that it be considered Critically Endangered until more surveys in the general area are carried out and other populations are

found, or not. Apart from possible fire and grazing risks, *L. harveyi* is vulnerable to alien invasive plants, three of which were seen in the immediate vicinity of our plants: Sweet Briar (*Rosa rubiginosa*), Patula Pine (*Pinus patula*) and Grey Poplar (*Populus x canescens*).

There is also the possibility that we stumbled on some outliers of a larger population still to be discovered – a more exhaustive search along the rugged, extensive rocky rims of Fenella Gorge area and perhaps on the slopes of Mount Frederick and Besterskop (the southern promontory below the main Great Winterberg peak), and along the scarp slopes below The Ruitjies, might produce more plants. In fact, much of this area has still to be explored botanically.

Alternatively, the plant may just be extremely rare – end of story. But in the meantime, perhaps a common name for an apparently uncommon plant could be ‘Mrs Barber’s Beauty’.



Moribund plateau grassland: the apparently favoured habitat of *Lotononis harveyi*. It would seem that grazing and fire are detrimental to the survival of this species, and it has only been found on sites where both have obviously been excluded for some time. Photo by Ralph Clark.

## ACKNOWLEDGEMENTS

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## FURTHER READING

Clark, V.R., Dold, A.P., McMaster, C., McGregor, G., Bredenkamp, C., Barker, N.P. 2014. Rich Sister, Poor Cousin: Plant Diversity and Endemism in the Great Winterberg–Amatholes (Great Escarpment, Eastern Cape, South Africa). *South African Journal of Botany* 92: 159–174.

Van Wyk, B.-E. 1991. A synopsis of the genus *Lotononis* (Fabaceae: Crotalariaeae). *Contributions from the Bolus Herbarium*, Nos 14–19. University of Cape Town, Rondebosch.

## WEBSITES

Great Escarpment Biodiversity Research Programme:  
<http://greatescarpment.com/>.

School of Plant Science, University of Pretoria: [www.up.ac.za/plant-science](http://www.up.ac.za/plant-science).