Mzansi's Mystery Mountain Hemlocks:

Insights from the Cape Midlands Escarpment

A close-up of the ribbed fruits of Cliff Hemlock (*Conium hilliburttorum*).

BY RALPH CLARK[1, 2], ANTHONY MAGEE[3, 4], NIGEL BARKER[5]

ALL PHOTOS BY THE CORRESPONDING AUTHOR, RALPH CLARK:
VINCENTRALPH.CLARK@GMAIL.COM

1 DEPARTMENT OF BOTANY, RHODES UNIVERSITY.
2 RESEARCH ASSOCIATE, GREAT ESCARPMENT BIODIVERSITY PROGRAMME, DEPARTMENT OF PLANT & SOIL SCIENCES, UNIVERSITY OF PRETORIA.
3 COMPTON HERBARIUM, SANBI.
4 DEPARTMENT OF BOTANY & PLANT BIOTECHNOLOGY, UNIVERSITY OF JOHANNESBURG.
5 PRINCIPAL INVESTIGATOR, GREAT ESCARPMENT BIODIVERSITY PROGRAMME, DEPARTMENT OF PLANT & SOIL SCIENCES, UNIVERSITY OF PRETORIA.

HEMLOCK

When Socrates was downing the poison that did him in, he probably wasn't wondering about the centre of diversity of the Hemlock genus *Conium*. From the carrot family, Apiaceae, *Conium* is best known by the widespread Poison Hemlock (*C. maculatum*), an infusion of which was used to execute the Greek philosopher. What he didn't know is that the centre of *Conium* diversity is in southern Africa – a truly 'local is lekker' genus. Poison Hemlock is the one and only northern hemisphere species (Eurasia and North Africa) and has been introduced widely around the world (including South Africa). The other four species are found exclusively in southern Africa, notably along the 5,000 km-long Great Escarpment. The southern African species contain similar alkaloids to the Poison Hemlock and are therefore also poisonous.

HILLIARD AND BURTT

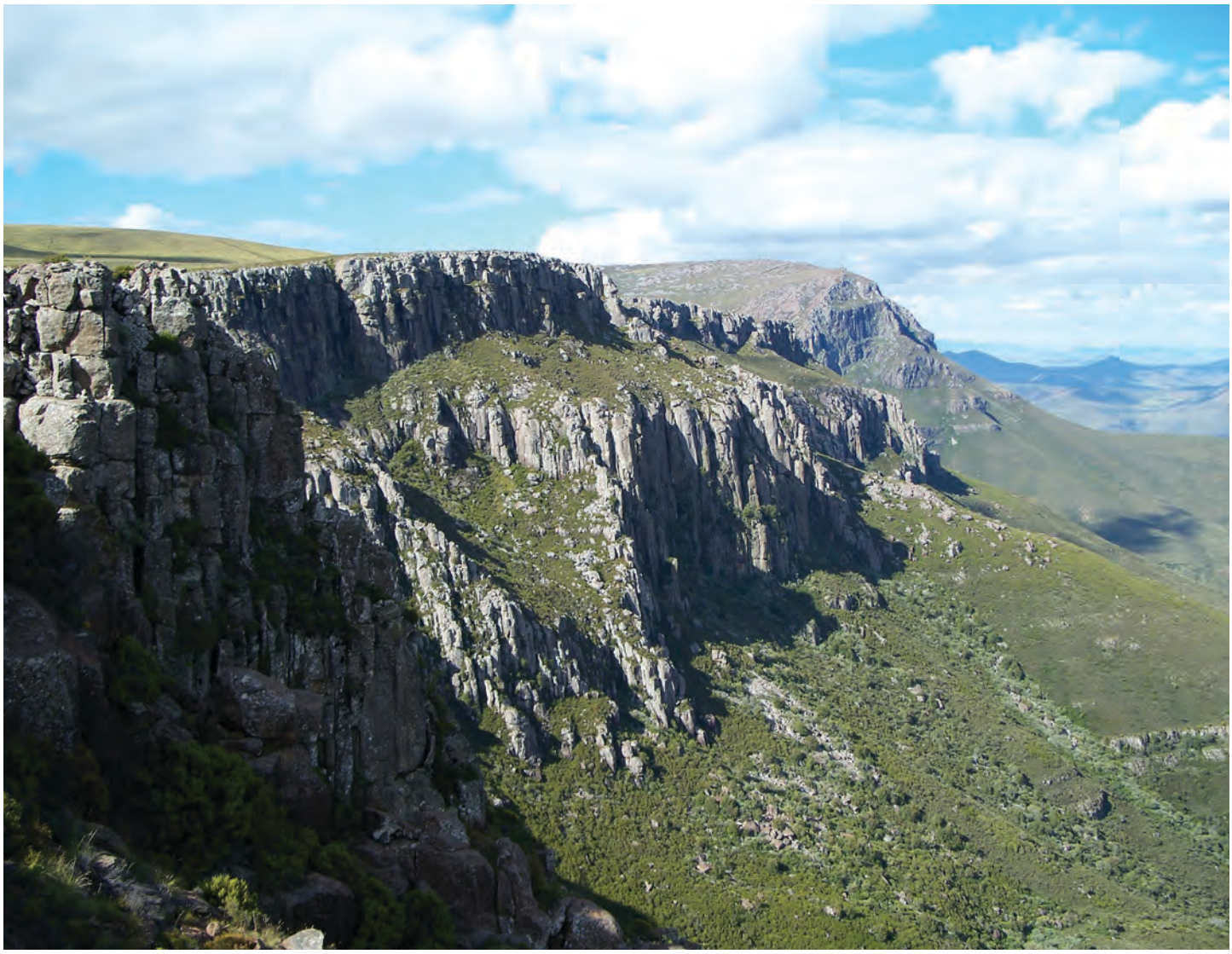
Olive Hilliard and Bill Burtt, two giants in southern African plant taxonomy, have possibly contributed more to our knowledge of eastern Great Escarpment plant diversity than anyone else. Their extensive fieldwork in the Drakensberg and reams of taxonomic publications (e.g. in the *Journal of the Royal Botanical Gardens, Edinburgh*, among many others), testify to this. In 1985, Hilliard and Burtt assigned some mountainous *Conium* material to "species 3 and 4", with not enough voucher material being available to place them under existing species or to describe them as new taxa at the time. These entities remained 'mystery mountain hemlocks' until extensive post-2005 fieldwork in the poorly explored Sneeuberg, Great Winterberg–Amatholes, and Stormberg – of the Cape Midlands Escarpment in the Eastern Cape – provided enough herbarium material to resolve their taxonomic statuses.

DISTINGUISHING SPECIES

Conium sp. 3 turned out to be similar enough to Drakensberg Hemlock (*C. fontanum*) to warrant it being lumped under this Drakensberg Alpine-centred species. Although there are several varieties of Drakensberg Hemlock, these are doubtful, and we have not assigned the Cape Midlands Escarpment material to any of these. In the Cape Midlands Escarpment, Drakensberg Hemlock is typically encountered above 1,800 m along stream lines, in wetlands, and in other sunny, damp areas. It is a common species, characteristically tall with large, white umbels. It was not previously known this far west along the Escarpment, so this is a significant range extension throughout the Sneeuberg.

The attractive Cliff Hemlock (*Conium hilliburttorum*), growing near the summit of the Klein Winterberg, Tarkastad area.

Conium sp. 4 is morphologically and ecologically distinct from any of the other known hemlocks, and we have described this taxon as a new species, *C. hilliburttorum*, with the suggested common name of 'Cliff Hemlock'. So far only known from the Cape Midlands Escarpment, particularly prevalent in the Sneeuberg, *C. hilliburttorum* is one of very few endemic species – among the c.90 endemics in this mountainous region – that can actually be called a cliff specialist. Interestingly, another Carrot Family species, Scree Carrot-Shrub (*Polemannia grossulariifolia*), is also a high altitude Cape Midlands Escarpment endemic, but specialises in cliff faces, cliff bases and high altitude scree slopes. Cliff Conium is confined almost exclusively to the base of moist, shaded high altitude cliffs, with a minimum altitude of 1,800 m, occurring up to 2,300 m. It forms a typical component of what is really a temperate flora in an otherwise harsh semi-karroid environment along with soft annual grasses like *Brachypodium bolusii* and *Bromus leptoclados*; herbs such as Common Nettle (*Urtica dioica*; naturalised), Mountain Buttercup (*Ranunculus multifidus*), Grey Cliff-daisy (*Troglophyton capillaceum* subsp. *diffusum*) and Forget-me-not (*Myosotis sylvatica*; allegedly naturalised), and also



The dramatic habitat of Cliff Hemlock (*Conium hilliburttorum*) – dolerite cliff bases above 1,800 m, usually on south-facing aspects.

Cliff Hemlock's (*Conium hilliburttorum*) preferred habitat: shaded, south-facing cliff-lines at high elevations, especially where there is moisture.

soft shrubs such as various heaths (e.g. *Erica caespitosa*, *E. caffrorum*, and *E. woodii*).

CLIFF HEMLOCK HABITAT

Being an annual or biennial species, Cliff Hemlock is only evident in the short summer months, when it grows up to 1,5 m tall, having lace-white flowers and green, ribbed fruits. Winter conditions are severe, with these shaded (mostly south-facing) cliffs succumbing to months of sub-zero conditions. Snow and ice are common in this environment, and snow drifts can persist for weeks. Drip zones from cliff seepage or small waterfalls are usually iced up. The environment is also unstable, being prone to rock falls and soil movement, and cliff bases are often favoured as thoroughfares by wild animals and livestock. It is therefore not surprising that there is only one specialised endemic in this environment: most endemics in this region prefer very stable environments in undisturbed rocky grassland on moderate topography.

Not encountering new cliff specialists every day, estimating what sort of conservation status should be assigned is challenging. Cliffs are not uncommon in these mountains (obviously), but the habitat zone for this species is so narrow and specialised that accurately estimating an Extent of Occurrence (EOO) is difficult.

HABITAT THREATS

This specialised cliff zone is coming under pressure from woody invasive species. The rampant Sweet Briar (*Rosa rubiginosa*), which is especially established

Typical Cliff Hemlock (*Conium hilliburttorum*) habitat: shaded, moist, and cool, at elevations above 1,800 m.

in the Stormberg, is partial to south-facing cliffs. Elderberry (*Sambucus nigra*) has colonised cliff bases in the Sneeuberg and even a Common Hawthorn (*Craetagus monogyna*) has been recorded in the cliffs of the Compassberg. Other woody risks are Firethorns (*Pyracantha* species) and Cotoneasters (*Cotoneaster* species), especially in the Amatholes and Stormberg.

The threat of naturalised herbs such as nettles (*Urtica dioica*) is unclear, but this species (together with the indigenous *U. lobata*), is ubiquitous along cliff bases, and is often accompanied by introduced grasses such as Squirrel-tail Fescue (*Vulpia bromoides*), Annual Fescue (*V. myuros*) and Rescue Grass (*Bromus catharticus*). All in all, these ecologically interesting cliff communities are still poorly studied. Based on all this, we have proposed the status of 'Vulnerable' for the Cliff Conium.

So next time you visit our mountains for deep philosophical introspection on the direction of Western thinking, observe a moment of silence for Socrates and the genus *Conium*.

FURTHER READING

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