

PTERIDOPHYTA: PTERIDACEAE

*CHEILANTHES DELTOIDEA*, A NEW LOCALITY IN GAUTENG, SOUTH AFRICA

*Cheilanthes deltoidea* Kunze is a small fern with a short, creeping rhizome covered in narrowly lanceolate, pale brown scales, thick black roots and old stipe bases. Fronds are closely spaced and erect. The dark brown, glabrous stipe is up to 75 mm long. The lamina, 18–100 × 16–110 mm, is triangular in outline, 2-pinnatifid to deeply 3-pinnatifid and entirely glabrous with obscure venation. Lamina margins are irregular and entire. Sori form a marginal line around the lobe apices, with the indusium continuous (Jacobsen 1983; Burrows 1990).

The species is endemic to southern Africa and occurs in the western and northwestern parts of Northern Cape, the Cederberg area in Western Cape and in southern Namibia. An isolated record from the Waterberg in the Limpopo Province is also known (Figure 9). It grows only in sheltered rock crevices on southern aspects, where it is completely sheltered from sunlight. Here it forms ribbon-like clusters of densely crowded fronds. It is found mostly on granite or gneiss rock formations. During the dry season it shrivels up completely and revives when sufficient moisture is available (Jacobsen 1983; Burrows 1990).

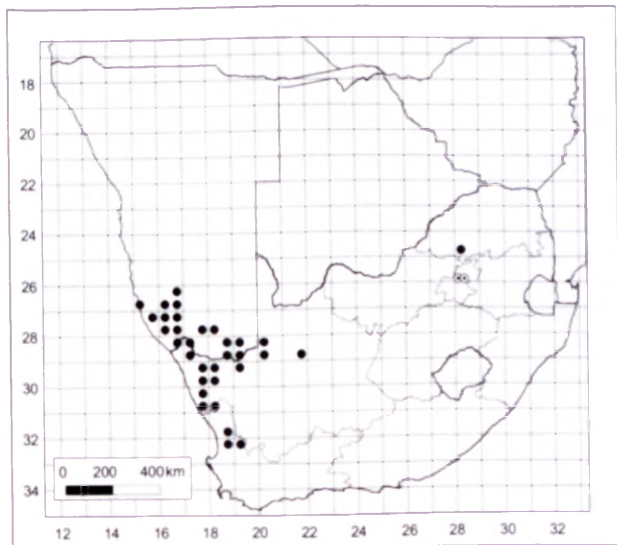


FIGURE 9.—Distribution of *Cheilanthes deltoidea*, adapted from the map in Burrows (1990), with his kind permission: localities based on specimens kept at PRE and NBG, ●; new localities in Gauteng, ⊙.

After above-average rainfall in January and early February 2006, a population of *C. deltoidea* was discovered in Centurion, Gauteng, on a property that is earmarked for development. The population consists of ± 13 plants in a relatively small area in the transition between Carletonville Dolomite Grassland and Rocky Highveld Grassland. Plants are very small, no more than 50 mm tall and grow in mainly southwest-facing soil pockets and rock crevices in chert rock. The chert outcrops are associated with dolomite and form part of the Dolomite Series of the Transvaal System. The fern has only been found on the chert and not the associated dolomite.

Upon further investigation of a similar site adjacent to the Rietvlei Nature Reserve, another population of several plants was found. Unfortunately this site is also earmarked for development. On this site, plants grow in northwest-facing rock crevices on a single isolated chert boulder. These plants seem to be somewhat smaller and more stunted than those on the other site, perhaps because they are to some extent more exposed. More populations of this fern were subsequently found on two other sites nearby that are to be developed.

Since the above-mentioned populations are threatened by development, rocky outcrops in the Rietvlei Nature Reserve were searched, with the hope of finding this species inside the reserve. However, since the geology of the reserve falls within the Pretoria Series of the Transvaal System, the specific chert rock on which the fern grows at the other sites was not found and no population of this fern could be located in the reserve. Follow-up visits will be carried out and one of the rangers has agreed to keep searching for the fern in the reserve. Fortunately a healthy population was later found on the grounds of the Smuts House Museum.

Owing to its small size and the fact that it shrivels up completely during dry times, it is possible that many other populations of this fern have been overlooked in the past. It is only now, after exceptionally good rains, and while the plants are still green, that they are easily spotted. It is unfortunate that much of the suitable habitat, where populations could be found, has already been destroyed through massive urban expansion.

The specimens from these new localities will be examined further and compared to material from the

distribution range of the species in Namaqualand, as well as with the available specimens from the Waterberg. The preliminary view is that it warrants description as a new infraspecific taxon.

GAUTENG.—2528 (Pretoria): Centurion, Portion 107 on Farm Doornkloof 391-JR. (–CC), *P. Lemmer 623* (PRE), Portion 198 (part of remainder of Portion 335), *R.R. Klopper, J. Nel & A. Nel 216* (PRE); Centurion, Irene, Farm Doornkloof 391-JR, rocky ridges between Smutskoppie and M57, (–CC), *A.E. van Wyk 13630, 13653* (PRU); Centurion, Irene, Smuts House Museum, on koppie close to monument, (–CC), *R.R. Klopper & A.W. Klopper 217* (PRE); Centurion, Farm Rietvallei 377-JR, adjacent to Rietvlei Nature Reserve, close to where Olifantsfontein road crosses Sesmyspruit, (–CD), *R.R. Klopper & A.W. Klopper 215* (PRE).

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Riaan Marais for giving permission to search for the fern in the Rietvlei Nature Reserve; Cecil Labuschagne for his time and for taking us to the rocky outcrops in the Rietvlei Nature Reserve; Ate Berga for taking the time to look for and find the fern at the Smuts House Museum; Emelia Baumgartner for giving permission to collect a specimen on the property of the Smuts House Museum. We are also grateful to two anonymous referees for helpful comments on improving the manuscript.

#### REFERENCES

- BURROWS, J.E. 1990. *Southern African ferns and fern allies*. Frandsen Publishers, Sandton.  
 JACOBSEN, W.B.G. 1983. *The ferns and fern allies of southern Africa*. Butterworths, Durban.

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