

ADIANTACEAE/PTERIDACEAE

DORYOPTERIS PILOSA, A NEW RECORD FOR SOUTH AFRICA

On the 25th October 1980, the junior author collected the fern specimen *Jacobsen 5252* in the Penge area of the eastern Transvaal (Quarter degree sheet 2430 AD at an altitude of 840 m) in the shade of dry scrub, where the plant grew associated with *Ceterach cordatum* (Thunb.) Desv. The plant is hairy, 260 mm tall and displays strong dimorphism, with long fertile fronds and short sterile ones (Figure 3). At that time it was examined only

casually by the senior author and was filed away amongst plants ascribed to the *Doryopteris concolor* (Langsd. & Fish.) R. & A. Tryon complex.

In January 1987, Mrs Susan Strauss of the Fern Society of Southern Africa sent a fragmentary specimen of a hairy fern to the senior author, consisting of a long-stalked fertile frond, 150 mm high, and a very short 50 mm high sterile frond. The plant obviously belonged to the genus *Doryopteris*. It was found in the Thabazimbi District, in the Kransberg area on the farm Geelhoutbosch 269 KQ (2427 BC) at an altitude of 1 350 m. The little clump of plants grew together with *Cheilanthes concolor*, *Ceterach cordatum* and *Anemia simii* Tard.

On checking through the senior author's herbarium it was found that *Jacobsen 5252* and *Susan Strauss s.n.* are specimens of a species distinct from *Cheilanthes concolor*. They were identified as *Doryopteris pilosa* (Poir.) Kuhn. This species is described and illustrated in Tardieu-Blot (1958): 146, Figure 21, 3–5. As it has so far not been described in the comprehensive literature on southern African ferns (Jacobsen 1983; Schelpe & Anthony 1986), its synonyms and a short description are inserted here (mainly after Tardieu-Blot, 1958).

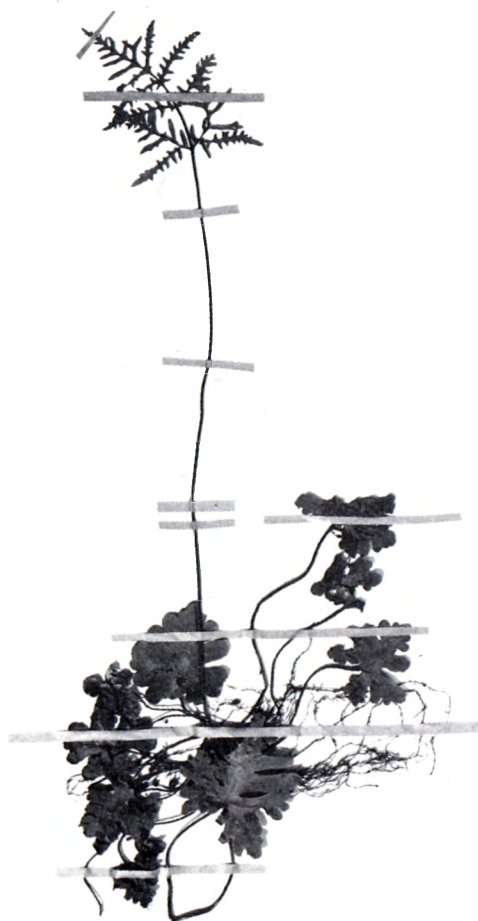


FIGURE 3.—*Doryopteris pilosa* from Penge, eastern Transvaal, $\times 0,4$.

***Doryopteris pilosa* (Poir.) Kuhn** in C. C. von der Decken's Reisen in Ost Afrika in 1859–1861, 3,3:63 (1879). *Pteris pilosa* Poir. in Lam.: 717 (1804). *Pellaea pilosa* Hook.: t. 112A (1858). *Allosorus pilosus* Kuntze: 806 (1891). *Cheilanthes heterophylla* Willd. in Kaulf.: 120 (1824). *Pellaea hirtula* C.Chr.: 196 (1925).

Rhizome short, with tufted fronds and linear clathrate scales, composed of elongate cells. *Sterile fronds* with very short stipe 20–30 mm long, bearing pale, thin and narrow, reddish scales; *lamina* 30–40 mm long and broad, triangular, hirsute on both surfaces, palmately lobed, with the basal lobe basiscopically developed and sinuately lobed, upper lobes entire, rounded. *Stipe* of fertile fronds 180–200 mm long, dark brown, shiny, scaly at the base, but increasingly beset upwards with stringy, adpressed matted hairs; *lamina* pedate-triangular, 60–120 mm long, 2-pinnate to 3-pinnatifid, ultimate lobes incised to $\frac{3}{4}$ of their length, the lowest basal pinnules strongly basiscopically developed, the upper pinnae decurrently lobed; lower surface pilose with whitish or reddish hairs and narrowly lanceolate, caudate scales on costae and rhachis; costae dark brown and shiny for half the length of the pinnae. *Sori* continuous with a scarious, narrow, slightly fringed indusium; *sporangia* long-stalked (fide Tryon 1942); *spores* globular tetrahedral with convex faces and short, irregularly reticulate cristae (fide Tardieu-Blot 1958).

In view of some recent nomenclatural changes within the genus *Doryopteris*, which resulted in the transfer of some species to the genus *Cheilanthes*, the authors have paid particular attention to the characteristics of this species. They are of the opinion that due to the strong dimorphism, the pedate, non-multipinnate structure of the fertile leaf (Tryon & Tryon 1982) and the long-stalked sporangia (Tryon 1942), the species should remain within the genus *Doryopteris*.

The species was so far known only from Madagascar (Tardieu 1958), Mauritius, Réunion (Tardieu-Blot 1960), the Congo Republic and Zaire (Tardieu-Blot 1953). The two widely separated localities in the Transvaal are new records (Figure 4). The distribution pattern is entirely disjunct and the ecology is somewhat puzzling. The locality in the Congo Republic is given as near Djambala, about 180 km north of Brazzaville, i.e. in an area of tropical rain forest with an annual rainfall of 1 200–1 600 mm, whereas all the other occurrences are apparently in drier areas. Tardieu-Blot (1958) however, mentions 'forêt tropophile et bush xérophile' for the localities in the relatively dry south-west of the Malagasy

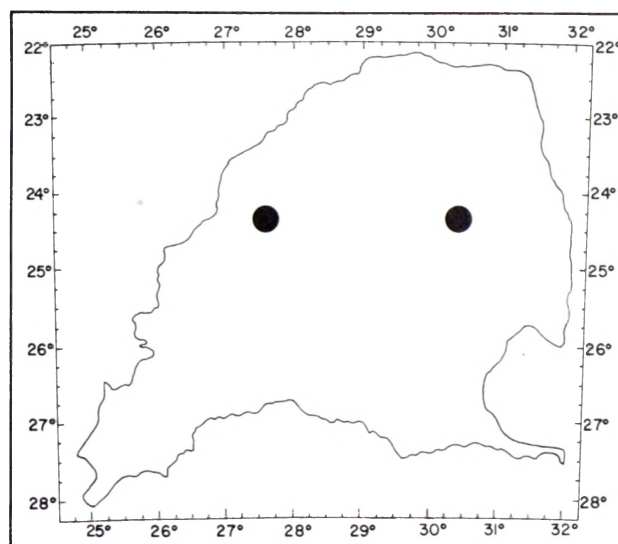


FIGURE 4.—The distribution of *Doryopteris pilosa*.

Republic. Those on Réunion and Mauritius are concentrated on the drier south-western rain shadow side of the islands, where the annual rainfall is between 475 and 890 mm (White 1983), with a very distinct dry season.

The South African localities seem to have a climate similar to that of south-western Madagascar (400–500 mm annually). The plants grow on south facing rocky slopes, in the shade or half-shade of scrub. Their appearance is xeromorphic.

The very distinct disjunct distribution pattern is not easily understood. It is comparable to that of other ferns such as *Microsorium pappei* (Mett. ex Kuhn) Tard. (Madagascar, Tanzania, Zimbabwe, Natal), *Asplenium christii* Hieron. (Kenya/Tanzania, Zimbabwe/Mozambique and Zululand), *Asplenium platyneuron* (L.) Oakes (North America, South Africa), *Elaphoglossum conforme* (Swartz) J. Sm. (St Helena, Liberia, tropical east African mountains, south-western Cape) and *Doryopteris callolepis* (East African mountains, Zimbabwe, south-western Cape), to name but a few.

In a number of occurrences very specific edaphic and/or climatic conditions may be responsible, other records may represent relics of a former, wider distribution. The discovery of exotic invaders in a number of oases with totally sporadic distribution patterns, however, seems to point more and more to completely chance settlement, facilitated by the minute spores readily distributed by wind. Such sporadic distribution records are known for *Lunathyrium japonicum* (Thunb.) Kurata, *Adiantum hispidulum* Swartz, *Macrothelypteris torresiana* (Gaud.) Ching and others. In many instances more complete records, supported by new finds, may close such distribution gaps or at least make the explanation of these sporadic occurrences more credible.

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