

NEW COMBINATIONS IN *HERSCHELIANTHE*

The discovery that the genus *Herschelia* is illegitimate (Rauschert, 1983) has necessitated the following additional new combinations:

***Herschelianthe forficaria* (H. Bol.) N. C. Anthony, comb. nov.**

Disa forficaria H. Bol., Icones Orch. Austro-Afr. 1: t. 87 (1896). Type: Cape Province, Du Toit's Kloof, Drège 2211b (K, holo.).

***Herschelianthe newdigatae* (L. Bol.) N. C. Anthony, comb. nov.**

Disa newdigatae L. Bol. in Flower. Pl. Afr. 11: t. 415 (1931). Type: Cape Province, Knysna, Forest Hall, Newdigate sub *Bolus* 6327 (BOL, holo.).

***Herschelianthe schlechteriana* (H. Bol.) N. C. Anthony, comb. nov.**

Disa schlechteriana H. Bol. in Trans S. Afr. phil. Soc. 16: 149 (1907). Type: Cape Province, Riversdale, Garcias Pass, Luyt sub BOL 10571 (BOL, holo.; BM; BR; K; W).

***Herschelianthe barbata* (L. f.) N. C. Anthony, comb. nov.**

Orchis barbata L. f., Suppl. 399 (1781). Type: Cape of Good Hope, Sparrman s.n. (LINN, holo.; S).

***Herschelianthe spathulata* (L. f.) Rauschert subsp. *tripartita* (Lindl.) N. C. Anthony, comb. nov.**

Disa tripartita Lindl., Gen. Sp. Orch. 353 (1838). Type: Cape Province, Albany, Geelhoutboom, Drège 3577a (K, holo.; P; S).

***Herschelianthe lugens* (H. Bol.) Rauschert var. *nigrescens* (Linder) N. C. Anthony, comb. nov.**

Herschelia lugens var. *nigrescens* Linder in Bothalia 13: 379 (1981). Type: Cape Province, Humansdorp, near Oyster Bay, Muller s.n. (NBG, holo.).

REFERENCE

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PTERIDOPHYTA

TWO NEW TAXA AND A NEW COMBINATION IN SOUTHERN AFRICAN PTERIDOPHYTA

ASPIDIACEAE

In southern Africa the name *Polystichum lucidum* (Burm. f.) Becherer has traditionally been applied to the few-scaled, forest-dwelling species of *Polystichum* centred in Cape Province, while similarly the name *Polystichum pungens* (Kaulf.) Presl has been used to denote the high altitude rocky habitat, ferruginous-scaled species. Recent examinations of the type specimens of both taxa necessitate several changes:

The type of *Asplenium lucidum* Burm. f. in Geneva has been interpreted by Morton (Photographs of Fern Specimens distributed by the U.S. National Museum no. 3865) as *Asplenium adiantum-nigrum*: 'There are two specimens in Geneva, both collected by Burman and both labelled *A. lucidum*. This one . . . (a photograph of *Asplenium adiantum-nigrum*) . . . agrees with the description best . . .'

The type of *Aspidium pungens* in Leningrad has been found to be the forest-dwelling species of *Polystichum*.

The result of these discoveries is therefore a change in the application of the epithet 'pungens' to the forest species and, since there is no subsequent epithet, a new name for the montane species: *P. monticola*. Photographs of all the relevant type specimens are lodged in the Bolus Herbarium.

***Polystichum monticola* N. C. Anthony & Schelpe sp. nov.**

Rhizoma repens, c. 15 mm diametro, basibus persistentibus stipitum et paleis lanceolatis ferrugineis breviter laciniatis concoloris castaneo-fasciatisve c. 10 mm longis onustum. *Fronde*s caespitosae ad api-

cem rhizomae, arcuatae; *stipes* pallido-brunneae, dense paleis brunneis vel plerumque ferrugineis latis et angustis vestitus, denique subglaber praeter base caespitem paleum; *lamina* herbacea ad tenuiter carnosocoriacea, ovato-truncata, c. 350 × 140 mm, bipinnata ad tripinnatifida, pinnae basales aegre reducta; *pinnae* angustissime ovatae, attenuatae; *pinnae* primum visum lunatae, aristae non prominens, supra glabrae, infra paleis capillaceis conspersis vestitae; *venatio* submanifesta; *rhachis rhachides secundariaeque* paleis ferrugineis laciniatis praeditae. *Sori* c. 1 - 1,5 mm diametro; *indusium* membranaceum, erosum, c. 1 mm diametro.

TYPE. — Cape Province, Cape Peninsula, Devil's Peak, Dark Gorge, *Esterhuysen* 26685 (BOL, holo.; B; C; CHR; G; GH; K; M; MO; NBG; NU; P; PR; PRE; S; STE).

Polystichum pungens sensu Sim, Ferns S. Afr. edn 2: 116, t. 27 (1915).

Rhizome creeping, c. 15 mm in diameter, with persistent stipe bases and set with lanceolate ferruginous shortly lacinate concolorous or castaneous-striped rhizome-scales c. 10 mm long. *Fronde*s tufted at the front of the rhizome, arching: *stipe* pale-brown, thickly set with brown or more usually ferruginous broad and narrow scales, becoming subglabrous with age except for a tuft of scales basally; *lamina* herbaceous to thinly coriaceous, ovate-truncate, c. 350 × 140 mm, 2-pinnate to 3-pinnatifid, the basal pinnae only slightly reduced; *pinnae* very narrowly ovate, attenuate; *pinnules* appearing lunate, the aristae not prominent, glabrous ventrally, set with occasional hair-like scales dorsally; *venation* somewhat apparent; *rhachis* and *secondary rhachises*

set with numerous laciniate-based ferruginous scales. Sori c. 1–1.5 mm in diameter; *indusium* membranous, erose, c. 1 mm in diameter.

P. monticola is found on rocky mountain slopes in shaded habitats, between c. 1 000–2 000 m altitude in the Cape Province, Transkei, Lesotho, Natal and Orange Free State.

Vouchers

Dieterlen 695 (PRE; SAM; STE); Esterhuysen 26698 (B; BOL; C; G; GH; K; M; MO; NBG; NU; PR; PRE; STE); Esterhuysen 35645 (B; BOL; C; G; GH; K; M; MO; NBG; NU; P; PRE; S; STE); Hilliard & Burt 11795 (NU; PRE); Schlechter 6932 (NBG; PRE).

BLECHNACEAE

Blechnum australe L. var. *aberrans* N. C. Anthony & Schelpe var. nov.; a varietato typico *Blechnum australe* L. lamina fertili non reducti et lamina sterili simili, et soris discretis, ad angulum costae portatis haud aegre distinguitur.

TYPE. — Cape Province, Stutterheim, Amabele, *Hardcastle* 297 (NBG, holo.).

Easily distinguished from the typical variety of *Blechnum australe* L. by the fertile lamina being similar to the sterile lamina, and the sori being discrete and set at an angle to the costa.

This taxon is therefore similar to *Blechnum punctulatum* var. *krebsii* (Kunze) Sim. which is also found in the eastern Cape Province, and further eastwards into the Transkei and Natal. The lack of both pointed apices to the pinnae and minute marginal teeth distinguish it from *B. australe* var. *aberrans*.

ISOETACEAE

Isoetes capensis Duthie var. *stephanseni* (Duthie) Schelpe & N. C. Anthony comb. et stat. nov.

Isoetes stephanseni Duthie in Trans. R. Soc. S. Afr. 17: 330 (1929).

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× PLEOPODIUM — A PUTATIVE INTERGENERIC FERN HYBRID FROM AFRICA

Sim (1892) described a new variety of the common epiphytic fern now known as *Pleopeltis macrocarpa* (Bory ex Willd.) Kaulf., naming it var. *sinuatum* due to the departures of the frond shape from the normal subentire form. The extreme irregularity of the laminar outline in the known collections, even on a single plant, has prompted a reinvestigation of this widespread form. It now seems most probable that this taxon is not a simple variety but an intergeneric hybrid.

A study was made of the available herbarium material of *Polypodium polypodioides* subsp. *ecklonii* (Kunze) Schelpe, *Pleopeltis macrocarpa* and the putative hybrid. In addition, live colonies of all three taxa were available for study at the National Botanic Gardens, Kirstenbosch.

The venation patterns were obtained by soaking herbarium material in a commercial solution of sodium hypochlorite (3,5%) for 2 to 3 days and the venation then drawn with the aid of a dissecting microscope and drawing tube.

Frond shape

The gross morphologies of the putative parents *Pleopeltis macrocarpa* and *Polypodium polypodioides* subsp. *ecklonii* are depicted in Fig. 5A & C respectively. A range of frond shapes of the putative hybrid is depicted as Fig. 5B¹–B³; their most obvious feature is the extreme variation and irregularity of the lobing. The entire lanceolate outline of *P. macrocarpa* and the deeply pinnatifid one of *P. polypodioides* subsp. *ecklonii* are combined very irregularly, resulting in random situations, closely juxtaposed deltate segments and broadly adnate, elongate lobes. These are usually confined to the lower portion of the frond, which is in turn often sterile.

Scales

A comparison of the scale morphology of both rhizome-scales and lamina-scales yielded the following results, depicted in Fig. 6:

P. macrocarpa has relatively short and broad rhizome-scales, with the thickened central area dark brown, fading towards the apex, and quite narrow relative to the pale marginal area. The margin itself is irregularly laciniate-erose. *P. polypodioides* subsp. *ecklonii* has long, narrow rhizome-scales with an almost black central stripe extending uniformly almost to the apex, and very narrow pale margins. The margin itself is erose and lacks the deep irregular lacerations of *P. macrocarpa*. To the naked eye, the rhizome of the *Polypodium* is effectively darker and relatively smooth, whereas that of the *Pleopeltis* is paler and has a scurfy appearance. The rhizome-scales of × *Pleopodium simiana* are intermediate in having the elongate shape of the scales of the *Polypodium* and the margin and central thickening of the scales of the *Pleopeltis*.

The lamina-scales follow the same pattern in characteristics of the margin and central thickening (scales of a similar shape were chosen for illustration). Those of *P. polypodioides* subsp. *ecklonii* cover most of the lower surface of the lamina, c. 80% or more, whereas those of *P. macrocarpa* are spaced one or two scale-widths apart. × *Pleopodium simiana* has an intermediate covering of scales on the lower surface, and the presence of very occasional scales on the upper surface in *P. macrocarpa* (as opposed to the quite glabrous upper surface of *P. polypodioides* subsp. *ecklonii*) is repeated.

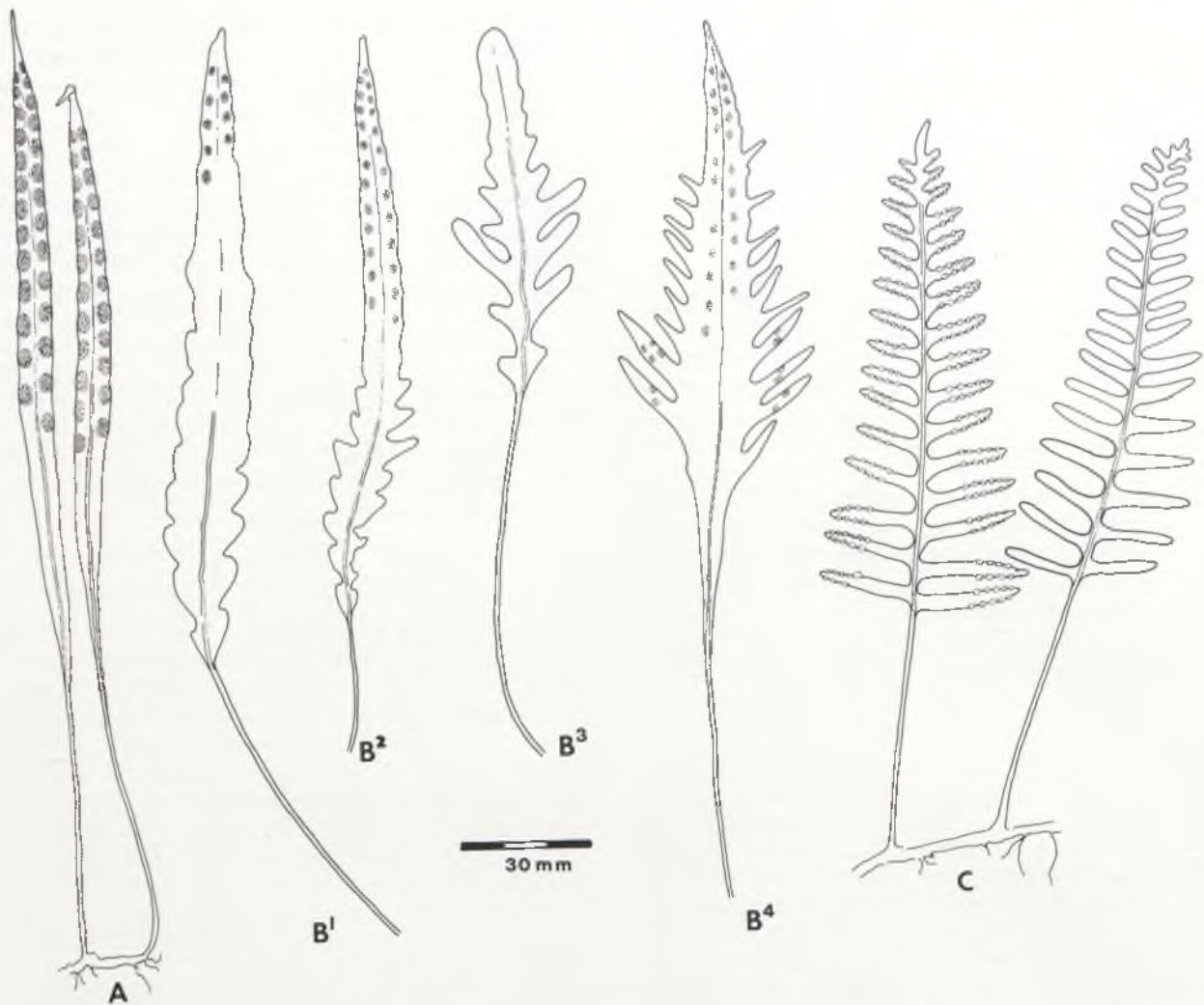


FIG. 5. — A, *Pleopeltis macrocarpa*, Natal, Lions River, 'Braco', Karkloof, Schelpe 5129 (BOL). B¹⁻³ × *Pleopodium simiana*: B¹, Schelpe 6039 (BOL); B², Esterhuysen 13265 (BOL); B³, Pope 152 (BOL). B⁴, *Pleopeltis macrocarpa* mutant, Kenya, South Kinangop, Isaac 3004 (BOL). C, *Polypodium polypodioides* subsp. *ecklonii*, Cape Province, Griqualand East, Zuurburg, Tyson 1778 (BOL).

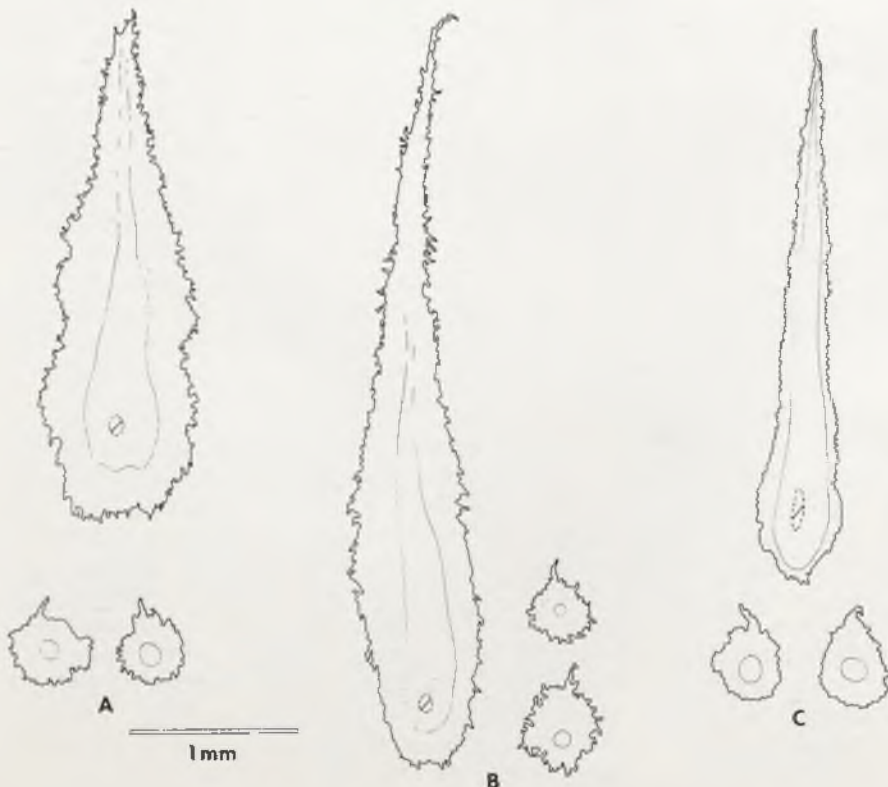


FIG. 6. — Rhizome-scale and two lamina-scales. A, *Pleopeltis macrocarpa*, Natal, Lions River, 'Braco', Karkloof, Schelpe 5129 (BOL); B, × *Pleopodium simiana*, Schelpe 6039 (BOL); C, *Polypodium polypodioides* subsp. *ecklonii*, Orange Free State, Harri-smith, Sterkfontein, Blom 7 (BOL).

Venation

In *P. polypodioides* subsp. *ecklonii* the venation is free (see Fig 7), whereas in *P. macrocarpa* the veins anastomose along the whole length of the lamina. In \times *Pleopodium simiana* the veins anastomose within the lobes, but not between them, in the more deeply sinuate portions of the lamina.

Sori

The positioning of the sori in the putative hybrid follows the pattern of *P. macrocarpa* when the lobing is shallow, being placed in the upper unlobed portion of the frond. When the lobes are well-developed they often bear sori close to the margin, as in *P. polypodioides* subsp. *ecklonii*. The sori themselves are intermediate in size and are usually completely surrounded by the peltate lamina-scales when young, as in *P. polypodioides* subsp. *ecklonii*. The young sori of *P. macrocarpa* are covered by peltate paraphyses, some of which often persist to maturity, whereas the sori of *P. polypodioides* subsp. *ecklonii* do not have paraphyses. The sori of the specimens of the putative hybrid examined do not have peltate paraphyses and the spores are abortive.

A note of interest here is the existence of three collections of *P. macrocarpa* with irregularly-shaped fronds from localities outside the distribution range of *P. polypodioides* subsp. *ecklonii*. Further examination of these specimens revealed the presence of peltate paraphyses in the sori and normal spores in all three. It is postulated that these are mutants of the normal form — specimens with irregularly shaped fronds that do occasionally occur in nature, e.g. the abnormal fronds of species of *Blechnum attenuatum* and *B. punctulatum* illustrated by Sim (1915, plates 76 and 78). Comparable mutants of *Phyllitis scolopendrium* with lobed instead of entire fronds are well known in horticulture (see *Scolopendrium vulgare* in Lowe, 1872). Fig. 5 B⁴ is an illustration of a frond taken from just such a mutant specimen from Kenya (Isaac 3004). The other known sports were collected above Kirstenbosch on the Cape Peninsula (Schelpe sub BOL 32597) and in Uganda (Stauffer 679). The three are similar in that the random situations are superimposed on the

basic *P. macrocarpa* frond outline and are considered to be simple enations.

The distribution ranges of the three taxa are shown in Figs 8–10.

Wagner & Wagner (1975) describe a very similar polypodiaceous hybrid from Jamaica, *Polypodium* \times *leucosporum* Klotz. Its putative parents are *Polypodium lanceolatum* L. (synonymous with *Pleopeltis macrocarpa*) and *Polypodium thyssanolepis* A. Br. (a 'divided-leaved' taxon with anastomosing venation). In the case of *P. \times leucosporum*, cytology revealed the presence of both 4x and 5x forms. The authors note that the spores are abortive and conclude that 'in Jamaica, *P. \times leucosporum* arose as a sterile cross of tetraploid forms of the parental species'. No cytological work was carried out on the three southern African taxa.

\times *Pleopodium Schelpe* & N. C. Anthony.

Pleopeltis H. B. K. ex Willd. \times *Polypodium* L.

\times *Pleopodium simianum* Schelpe & N. C. Anthony hybr. nov.; filix inter *Pleopeltis macrocarpa* (Bory ex Willd.) Kaulf. et *Polypodium polypodioides* subsp. *ecklonii* (Kunze) Schelpe quasi intermedia et verisimiliter ex hybratione harum taxorum orta, ab ambobus irregulariter formo pinnatifido frondium et sporis abortivis differt; a *P. macrocarpa* paraphysum peltatorum in indusio absento et a *P. polypodioides* subsp. *ecklonii* semper lobis subdeltatis et angulatioibus etiam recedit.

TYPE. — Natal, Lions River District, Everglades, Moll 1263 (BOL, holo.; PRE, iso.).

Polypodium lanceolatum var. *sinuatum* Sim, Ferns S. Afr. edn 1: 202, t. 118 (1892), Ferns S. Afr. edn 2: 279, t. 143 (1915). Syn-types: South Africa, Cape Province, Tsitsikamma, Atherstone s.n. (?K), Fordyce Tree, Holland s.n. (NBG 80444!), Boschberg, MacOwan s.n., above Perie Mission Station, Sim s.n., above Evelyn Valley, Sim s.n.; Natal, Seven Mile Bush, Upper Umkomaas, on the heights near York, Buchanan s.n.

Pleopeltis macrocarpa forma *sinuata* (Sim) Schelpe in Contr. Bolus Herb. 1: 96 (1969).

A fern almost intermediate between *Pleopeltis macrocarpa* (Bory ex Willd.) Kaulf. and *Polypodium polypodioides* subsp. *ecklonii* (Kunze) Schelpe and probably arising from the hybridization of these taxa, it differs from both by the irregularly pinnatifid

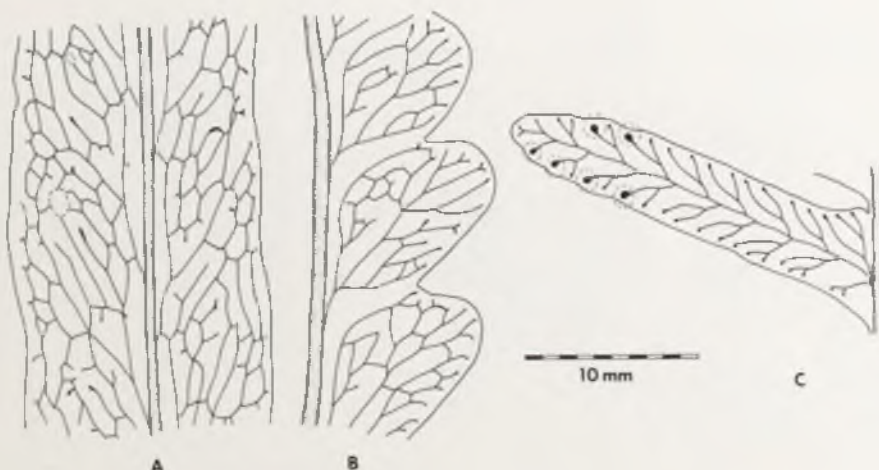


FIG. 7. — Venation. A, *Pleopeltis macrocarpa*, Natal, Lions River, 'Braco', Karkloof, Schelpe 5129 (BOL); B, \times *Pleopodium simiana*, Schelpe 6039 (BOL); C, *Polypodium polypodioides* subsp. *ecklonii*, Cape Province, Hogsback, Schelpe 5014 (BOL).

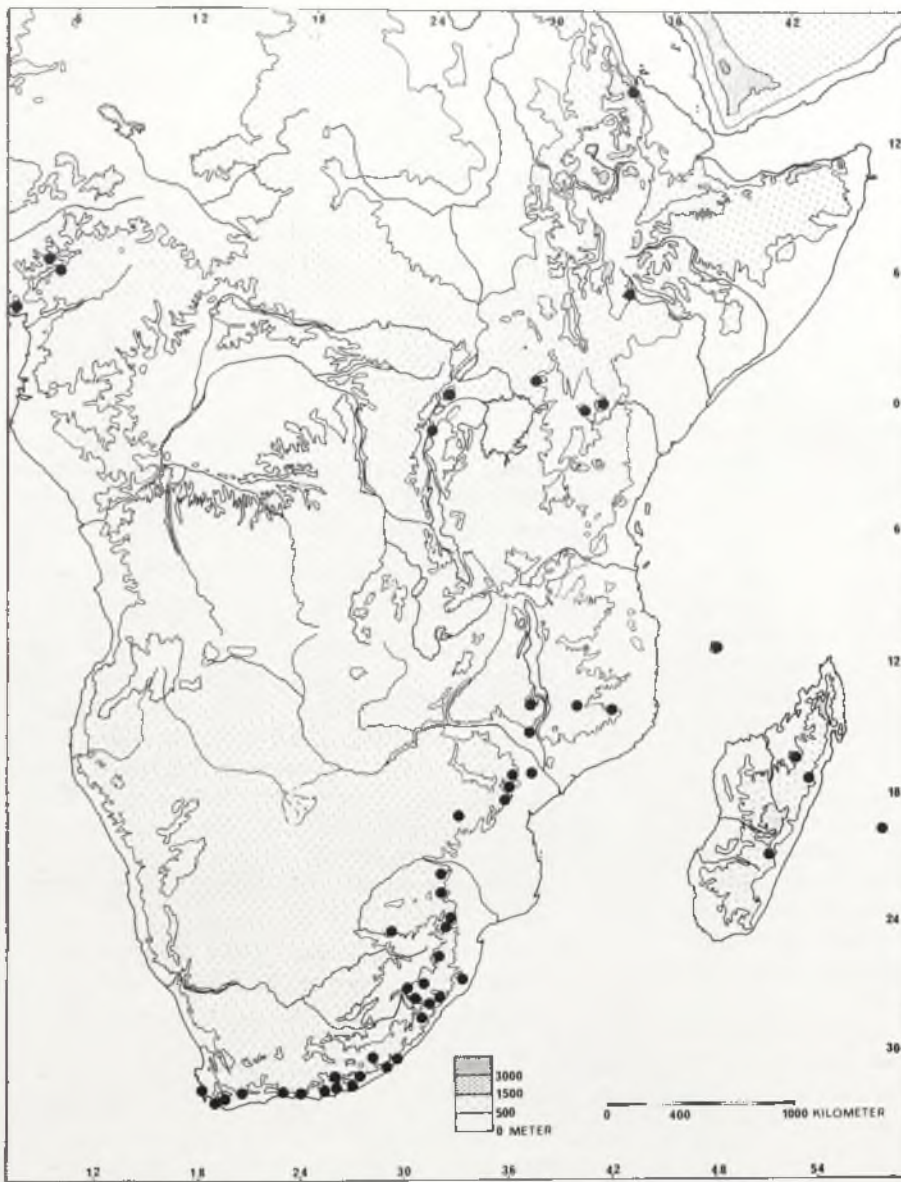


FIG. 8. — Distribution range of *Pleopeltis macrocarpa* in Africa.

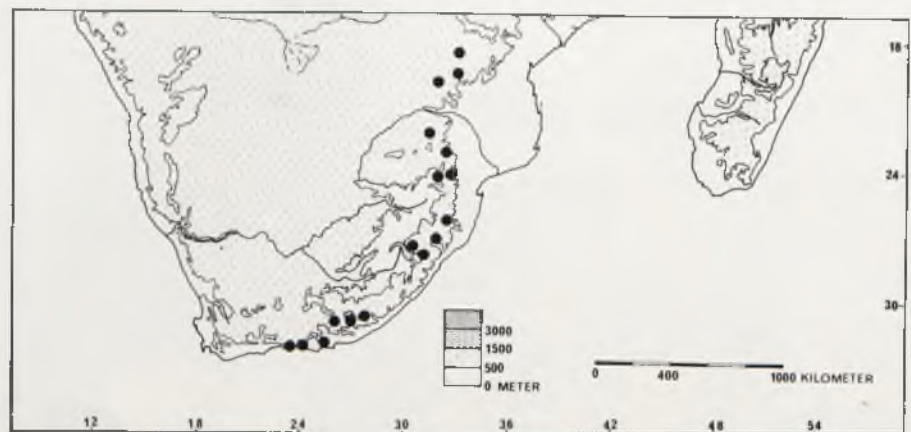


FIG. 9. — Distribution range of \times *Pleopodium simiana*.

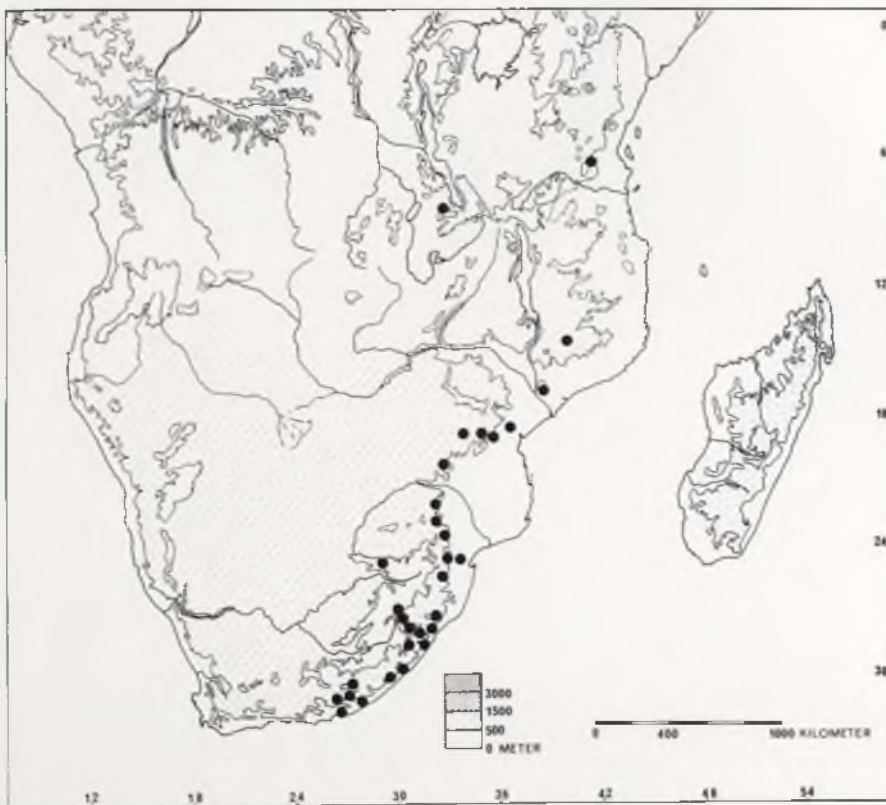


FIG. 10. — Distribution range of *Polypodium polypodioides* subsp. *ecklonii*.

lamina shape and abortive spores; from *P. macrocarpa* it differs also in the lack of peltate paraphyses in the indusium, and from *P. polypodioides* subsp. *ecklonii* by the lobes being most often subdeltate and more steeply angled.

Rhizome creeping, c. 2–3 mm in diameter, set with peltate, lacinate-lacerate, ovate-lanceolate, pale rhizome-scales c. 3×0.7 mm with a central, dark brown stripe. Fronds spaced 20–25 mm apart; stipe set with peltate, rounded to ovate-lanceolate scales, becoming subglabrous with age; lamina thinly carnose-coriaceous, c. 140×20 mm, sinuate to deeply pinnatifid, often only in the lower half, irregular, the segments unequally deltate or the elongate segments adnate, set at an angle to the costa, upper half often subentire to very shallowly sinuate around the sori, set with peltate, erose-lacerate, rounded, dark-centred scales less than 1 mm in diameter dorsally, ovate-lanceolate towards the costa, and very occasional similar scales ventrally; veins anastomosing in groups within the segments or throughout the non-pinnatifid portions. Sori borne in two rows, one on either side of the costa, in the upper parts of the lamina, or borne in the lobes, close to the margins of the longer lobes, oval, non-paraphysate; spores abortive.

Known localities of the putative hybrid:

ZIMBABWE. — 1831 (Marandellas): Wedza Mountain (–DC) Burrows 2924 (BOL). 2030 (Fort Victoria): Belingwe, Mt Buhwa (–CB) Pope 955 (BOL; PRE; SRGH). 2031 (Bikita): Mt Horzi (–BA) Pope 152 (BOL; PRE; SRGH).

TRANSVAAL. — 2329 (Pietersburg): Houtboschberg (–DD) Schlechter 163 (PRE), Schlechter 4452 (BOL). 2330 (Tzaneen): Woodbush (–CC) Schelpe 6039 (BOL). 2430 (Pilgrims Rest): Mariepskop, Bedford Footpath (–DB) V.d. Schijff 4958, 5580 (PRE); Graskop area, Erasmus Kop (–DB) Hardcastle 51 (PRE).

2530 (Lydenburg): Lydenburg, Coromandel Farm (–AB) Burrows 3076 (BOL); Long Tom Pass (–CA) Balsinhas & Kersberg 2126 (PRE); Long Tom State Forest, Sabie (–CA) Burrows 3242 (BOL); Stella Mine (–DB) V. Jaarsveld 311 (NBG, PRE).

NATAL. — 2830 (Dundee): Umsinga (–DA) Buchanan s.n. 2929 (Underberg): Hlatikulu Forest (–BA) Killick 1955 (PRE); Impendhle, Seven Mile Bush (–DB) Sim; Impendhle (–DB) Randles 80 (NU). 2930 (Pietermaritzburg): Everglades (–AC) Moll 1263 (BOL; PRE); Umgeni above Midmar (–AC) Moll 1240 (BOL; NU; PRE); Zwartkop (–CB) Hill 161 (PRE), Sim sub CH 4231 (PRE), Lawson 204 (NU).

CAPE. — 3225 (Somerset East): Boschberg (–DA) MacOwan s.n. 3226 (Fort Beaufort): Fordyce Tree (–CB) Holland s.n. (NBG 80444); Hogsback (–DB) Esterhuysen 13265 (BOL), Giffen 511 (PRE). 3227 (Stutterheim): above Evelyn Valley (–CA) Sim; Hogsback, Guncuka Forest (–CA) Roux 514 (NBG); Frankfort (–CB) Sim 446 (PRE); Perie Forest (–CB) Sim 445, 447, 675 (PRE), Flanagan FH 54 (PRE); above Perie Mission Station (–CC) Sim. 3325 (Port Elizabeth): Van Staadensberg (–CC) MacOwan s.n. 3423 (Knysna): Knysna (–AA) Pappé s.n.; Tsitsikamma (–BB) Atherstone s.n.

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