

A contribution to the pteridophyte flora of Transkei

C.T. JOHNSON* and A. HUTCHINGS**

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ABSTRACT

An analysis of the data is presented in three tables and a comparison is made with that of adjacent areas. *Lygodium kerstenii**** and *Dryopteris dracomontana* are recorded from Transkei for the first time. The 129 species, with their subspecies and varieties (137 taxa in all), in the 51 genera of Transkei are listed. Coded distribution ranges are given for each taxon.

UITTREKSEL

'n Analiese van die data word in drie tabelle gegee en 'n vergelyking word getref met naasliggende areas. *Lygodium kerstenii**** en *Dryopteris dracomontana* word vir die eerste keer vir Transkei aangeteken. Die 129 spesies, met hulle subspecies en variëteite (137 taksons altesaam), in die 51 genusse van Transkei word gelys. Vir elke takson word 'n gekodeerde verspreiding gegee.

INTRODUCTION

Prior to this publication, information on the pteridophytes of Transkei was limited (Sim 1915; Roux 1982; Jacobsen 1983; Anthony & Schelpe 1985; Schelpe & Anthony 1986). The aim of this research project was to establish a herbarium of the pteridophyte flora of Transkei, to determine the distribution of the taxa within Transkei, to compile a floristic analysis of the pteridophytes and to prepare a checklist of them.

METHODS

The data for this paper was collected over a period of six years (1981-1986) and presents a summary of an unpublished report by Johnson & Hutchings (1986). During the course of this survey extensive collections were undertaken and the herbarium specimens are housed at KEI and BOL. The following herbaria were visited in order to record additional collections: BOL, J, NBG, NU, SAM, GRA, PRE, UPR.

Transkei comprises a number of quarter degree grids. For each taxon the grid references are given in which it was collected in Transkei (Figure 1). The arrangement and spelling of the families and genera are according to Schelpe & Anthony (1986). Southern Africa is delimited as in the *Flora of southern Africa*.

RESULTS AND DISCUSSION

From the floristic analysis (Tables 1 & 2) it is apparent that Transkei is relatively rich in pteridophytes. Twenty three pteridophyte families are present with 51 genera and 129 species. Only five of the 28 families listed for southern Africa (Anthony & Schelpe 1985) are not found in Transkei. A comparison of the 23 families (Table 1)

* University of the Western Cape, Private Bag X17, Bellville 7530, South Africa.

** University of Transkei. Present address: University of Zululand, Private Bag X1001, Kwadlangezwa 3886. South Africa.

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common to Transkei and southern Africa reveals a difference of 16 genera and 114 species.

The four largest pteridophyte families in Transkei are Dryopteridaceae with seven genera, Adiantaceae and Polypodiaceae with six genera and Schizaeaceae and Davalliaceae have three genera, Aspleniaceae, Athyriaceae, Blechnaceae, Thelypteridaceae and Osmundaceae are represented by two genera each, while the remaining 12 families have one genus each.

The two largest genera are *Asplenium* and *Cheilanthes* with 22 and 10 species respectively. *Lycopodium* has seven species followed by *Thelypteris* with six species. *Blechn*

TABLE 1.—Comparison of number of taxa per family for Transkei and southern Africa. Comparative data for southern Africa from Schelpe & Anthony 1986

	Transkei		Southern Africa	
	Genera	Spp.	Genera	Spp. & va s
Psilotaceae	1	1	1	1
Lycopodiaceae	1	7	1	10
Selaginellaceae	1	4	1	7
Equisetaceae	1	1	1	1
Ophioglossaceae	1	3	1	7
Marattiaceae	1	1	1	1
Osmundaceae	2	2	2	2
Gleicheniaceae	1	2	2	3
Schizaeaceae	4	5	4	7
Marsileaceae	1	2	1	16
Cyatheaceae	1	2	1	2
Hymenophyllaceae	1	3	2	11
Dennstaedtiaceae	3	4	5	7
Vittariaceae	1	1	1	1
Adiantaceae	6	21	9	57
Polypodiaceae	6	10	6	15
Davalliaceae	2	3	4	5
Aspleniaceae	2	23	2	31
Thelypteridaceae	2	7	3	12
Athyriaceae	2	2	5	6
Lomariopsidaceae	1	5	2	9
Dryopteridaceae	7	14	10	22
Blechnaceae	2	6	2	10
Total	51	129	67	243

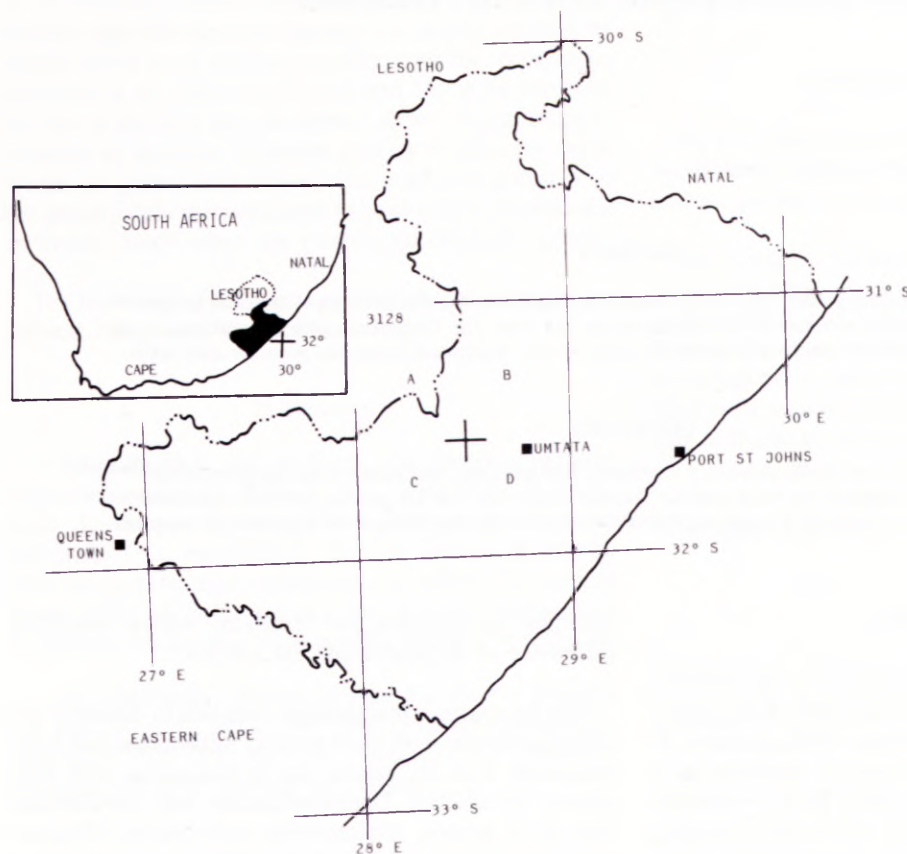


FIGURE 1.—Map showing geographical location and grid references of the study area.

num, *Polystichum*, *Pteris* and *Elaphoglossum* each have five species. *Selaginella* and *Dryopteris* have four species each; *Ophioglossum*, *Trichomanes*, *Adiantum* and *Microsorium* have three species each; *Gleichenia*, *Schizaea*, *Marsilea*, *Cyathea*, *Blotiella*, *Polypodium* and *Pleopeltis* have two species each and there are 30 genera with one species each.

During this survey *Lygodium kerstenii** and *Dryopteris dracomontana*, previously not recorded for Transkei, were collected. The gap in the distribution range of *Dryopteris dracomontana*, from Natal to the Cape Province (Schelpe & Anthony 1986), was closed with the discovery of this species. The distribution range of *Elaphoglossum conforme*, which was previously assumed to be confined to the southern and south-western Cape, has now been extended to the Transkei. *Mohria caffrorum* and *Equisetum ramosissimum* are species with wide distribution and were recorded in 60% of the degree grids.

It must be emphasized that *Adiantum raddianum*, *Nephrolepis exaltata* and *Macrothelypteris torresiana* are introduced species (Jacobsen 1983) which are widely cultivated and have now become established in nature.

Comparing the statistical data (Table 2), one finds that the Transkei flora comprises 68,9% (51) and 51,6% (129) of the southern African genera or species respectively. The decrease in the number of taxa from Natal to the southern Cape must be attributed to the differences in the climatic conditions along this gradient.

Information about density and species distribution can be drawn from the distributional analysis (Table 3) and

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TABLE 2.—Comparison of the pteridophyte floras of various regions. Comparative data from Schelpe & Anthony 1986

	Spp.	Genera	Families
Southern Africa	250	7	28
Natal	192	67	28
Transkei	129	51	23
Eastern Cape	111	42	23
Southern Cape	98	35	21

TABLE 3.—Distribution of taxa in grids

Degree square	Number of taxa in quarter degree square				Degree square
	A	B	C	D	
3028	4	3	—	6	10
3029	17	8	8	12	36
3030	*	*	24	*	25
3127	1	4	4	30	31
3128	18	36	32	13	65
3129	10	33	12	75	95
3130	14	*	*	*	14
3227	—	—	*	*	0
3228	7	18	3	4	29
3229	3	*	*	*	3

* Quarter degree not in study area.

the floristic analysis (Figure 2). The first impression is that species density is at its highest in grid 31°S 29°E (95 taxa: 69,3% of total number in Transkei) and 31°S 28°E (65 taxa: 47,4%). Within these degree squares, the most concentrated collecting occurred around the towns of Port St Johns and Umtata. Closer examination shows that no record exists for grid 32°S 27°E. Since the collecting

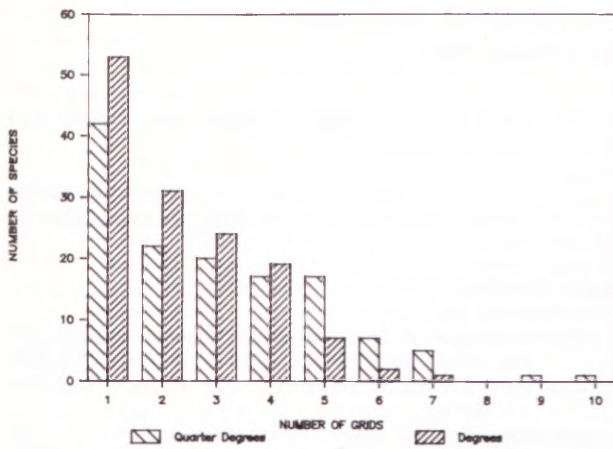


FIGURE 2.—Species density in the study area.

intensity for the entire area is very low (Gibbs Russell *et al.* 1984), it is impossible to state whether Pteridophyta are completely absent from these areas.

ECOLOGY

Pteridophytes are distributed across a wide range of habitats in Transkei, occurring from the coastal regions to the highest elevations of over 2 700 m. The greatest variety of species, habit and development is found in the forest, where they grow along streams, on the forest floors, on boulders, or on the stems of trees. Roux (1982) divided the pteridophyte flora of Transkei into forest and non-forest types.

High-level epiphytes are found growing high up on the stems and even branches of trees in humid forest. These include *Pyrrhosia africana*, *Microsorium punctatum*, *Pleopeltis macrocarpa* and *Polypodium polypodioides* subsp. *ecklonii*. *Asplenium sandersonii*, *A. prionitis* and *Microgramma lycopodioides* are low-level epiphytes that are found growing low down on the stems of trees.

Lithophytes that occur in wet coastal forest with high humidity and deep shade are *Asplenium rutifolium* and *Microsorium punctatum*. True lithophytes are *Lycopodium gnidioides*, *L. verticillatum*, *Selaginella mittenii*, *Trichomanes pyxidiferum* var. *melanotrichum*, *Microgramma lycopodioides*, *Oleandra distenta*, *Asplenium gemmiferum*, *Rumohra adiantiformis* and *Vittaria isoetifolia*.

Occurring as ground cover in forests are *Selaginella kraussiana*, *Marattia fraxinea* var. *salicifolia*, *Pteris buchananii*, *P. catoptera* var. *horridula*, *Cheilanthes bergiana* and *Blechnum punctulatum* var. *krebsii*. *Microsorium scolopendrium* occurs on the landward side of dune forests.

Few ferns are found in open grassland and when they do it is always in association with rocky outcrops, stream banks, ditches and along forest margins. *Selaginella dregei*, *Pityrogramma calomelanos* var. *aureoflava*, and *Cyrtomium caryotideum* var. *micropterum* were collected from exposed rocky outcrops. In a similar habitat but slightly protected, *Selaginella caffrorum*, *Cheilanthes inaequalis* var. *buchananii*, *Elaphoglossum macropodium*,

Blechnum punctulatum var. *punctulatum* and *Lycopodium gnidioides* occur.

Lycopodium clavatum, *L. cernuum*, *L. carolinianum* var. *carolinianum*, *Equisetum ramosissimum*, *Osmunda regalis*, *Todea barbara*, *Mohria caffrorum*, *Gleichenia polypodioides*, *Cyathea dregei*, *Hypolepis sparsisora*, *Pteridium aquilinum*, *Adiantum capillus-veneris*, *A. raddianum*, *Pteris vittata*, *Nephrolepis exaltata*, *Thelypteris confluens*, *T. totta*, *Blechnum capense* and *B. tabulare* are found growing on wet banks and forest margins. The only aquatic species are *Marsilea macrocarpa* and *M. capensis*.

Selaginella dregei, *Schizaea pectinata*, *Cheilanthes involuta* var. *involuta* and *Pellaea calomelanos* are found in fully exposed dry habitats.

CONSERVATION

Although the primary concern of this manuscript does not relate to the problems of conservation, it is necessary to sound a warning on the threat that exists to this element of Transkei's flora. Of the 60 species that are regarded as rare for southern Africa (Jacobsen 1983), *Asplenium simii*, *Elaphoglossum angustatum*, *E. hybridum*, *Lycopodium saururus*, *Microsorium ensiforme*, *Polystichum luctuosum*, *Psilotum nudum*, *Trichomanes reptans* and *Woodsia montevidensis* var. *burgessiana* were recorded in Transkei. With the discovery of *Lygodium kerstenii**, along the south-facing slope of Mt Sullivan in Port St Johns, the rare species count was increased to 10. This figure is probably still too low as Transkei is undercollected.

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CHECKLIST OF THE PTERIDOPHYTES OF TRANSKEI

(*information from Schelpe & Anthony 1986)

PSILOTALES

PSILOTALES

Psilotum Swartz

nudum (L.) Beauv., 3129 BD, Johnson 896 (KEI); 3129 DA, Schelpe 350 (NU); 3228 CB, Pocock 30134 (GRA)

LYCOPODIALES

LYCOPODIACEAE

Lycopodium L.

saururus Lam., 3030 CC, Johnson 2116 (KEI)
 verticillatum L. f., 3029 DA, Getliffe 105 (NU); 3128 BC, Hutchings & Johnson M2 (KEI); 3129 DA, Johnson 138 (KEI); 3228 AD, Pegler 821 (BOL)
 dacrydioides Bak., 3128 CA, Cawe 709 (KEI); 3129 DA, Mcloughlin s.n. (BOL)
 gnidioides L. f., 3029 DA, Roux 630 (NBG); 3030 CC, Roux 651 (NBG); 3030 AA, Strey 8646 (BOL); 3128 BC, Hutchings & Johnson M3 (KEI); 3128 CA, Cawe 709 (BOL); 3129 DA, Mcloughlin s.n., 809 (BOL)
 cernuum L., 3029 DD, Johnson 168 (KEI); 3030 CC, Hilliard 1122 (NU); 3129 BC, Ward 5794 (NU); 3129 BD, Cawe s.n. (KEI); 3129 DA, Hutchings & Plumstead 2058 (KEI); 3130 AA, Ward 205 (NU); 3129 BD, Johnson s.n. (KEI); 3129 DA, Johnson 88, 168 (KEI); 3229 AA, Johnson 81, 758 (KEI)
 clavatum L., 3128 BA, Bolus 10374 (BOL); 3129 AB, Roux 618 (NBG)
 carolinianum L. var. carolinianum, 3030 CC, Roux 662 (NBG); 3128 BC, Hutchings & Plumstead 1627 (KEI); 3129 BD, Cawe 110 (KEI); 3129 DA, Schelpe 239 (NU); 3130 AA, Ward 206 (NU)

SELAGINELLALES

SELAGINELLACEAE

Selaginella Beauv.

dregei (Presl) Hieron., 3128 DB, Hutchings 2284 (KEI); 3129 BC, Leighton s.n. (BOL); 3129 AB, *Bachman 9 (B); 3129 BD, Cawe 342 (KEI)
 caffrorum (Milde) Hieron., 3028 AA, Roux 1343 (NBG); 3127 AA, Britten s.n. (GRA); 3129 DA, Hardcastle 289 (NBG)
 kraussiana (Kunze) A. Br., 3127 AA, Royffe 140 (GRA); 3128 BC, Cawe 479 (KEI, BOL); 3128 CB, Baur 13 (SAM); 3129 DA, Hutchings & Johnson 2239 (KEI); 3228 AD, Mcloughlin 728 (BOL); 3228 BD, Johnson students s.n. (KEI)
 mittenii Bak., 3030 CC, Roux 670 (NBG); 3228 AD, Pegler 893 (GRA)

EQUISETALES

EQUISETACEAE

Equisetum L.

ramosissimum Desf., 3028 BD, Tyson 1622 (BOL, SAM); 3030 CC, Johnson 2050 (KEI); 3127 AA, Pegler & Kolbe s.n. (BOL); 3127 CA, Hutchings & Johnson 1670 (BOL, KEI); 3128 DB, Schonland 3813 (GRA); 3129 DA, Hardcastle 290 (NBG); 3228 AD, Pegler 553 (BOL)

OPHIOGLOSSALES

OPHIOGLOSSACEAE

Ophioglossum L.

polyphyllum A. Br., 3128 AA, Roux 1194 (NBG)
 reticulatum L., 3129 AC, Hutchings 957 (KEI); 3129 DA, Schelpe 355 (NU)
 vulgatum L., 3029 DA, Hilliard & Burt 7706 (NU); 3128 DB, Hutchings 2281 (KEI)

MARATTIALES

MARATTIACEAE

Marattia Swartz

fraxinea J.E. Sm. ex J.F. Gmel. var. salicifolia (Schrad.) C. Chr., 3128 BC, Cawe 736 (BOL); 3128 CB, Baur s.n. (GRA); 3128 DB, Mcloughlin s.n. (BOL); 3129 BC, Meaker s.n. (NU); 3129 BC, Sims 2451 (GRA); 3129 BD, Roux 614 (NBG); 3129 DA, Bolus 10372 (BOL)

FILICALES

OSMUNDACEAE

Osmundia L.

regalis L., 3029 DD, Schelpe 5070a (BOL); 3030 CC, Abbott 2661

(KEI); 3128 AD, Hutchings 1264 (BOL, KEI); 3128 CB, Baur s.n. (GRA, SAM)

Todea Willd.

barbara (L.) T. Moore, 3030 CC, Roux 656 (NBG); 3129 BC, Mcloughlin 722 (BOL); 3129 BC, Cawe 30 (KEI); 3129 DA, Schelpe 361 (NU)

GLEICHENIACEAE

Gleichenia J.E. Sm.

polypodioides (L.) J.E. Sm., 3029 BB, Sr. Wheeler s.n. (NU); 3127 DB, Mcloughlin 121 (BOL); 3128 CB, Hutchings 2205 (KEI, NH); 3129 BD, Roux 611 (NBG); 3129 DA, Jacot Guillarmod s.n. (GRA)
 umbraculifera (Kuntze) T. Moore, 3128 BC, Hutchings 2036 (BOL, KEI); 3128 CB, Baur 10 (SAM), 178 (GRA); 3129 BC, Cawe 79 (KEI); 3130 AA, Taylor 2618 (NBG)

SCHIZAEACEAE

Schizaea J.E. Sm.

pectinata (L.) Swartz, 3129 BD, Johnson 176 (KEI)
 tenella Kaulf., 3127 DB, Flanagan 2755 (PRE)

Anemia Swartz

dregeana Kunze, 3030 CC, Abbott 2457 (KEI); 3128 CA, Hutchings & Plumstead 2076 (BOL, KEI); 3129 CC, Wells 3540 (GRA); 3129 DA, Hutchings & Johnson 2247 (KEI); 3228 BD, Roux 551 (NBG); 3228 CB, Flanagan 285 (GRA)

Mohria Swartz

caffrorum (L.) Desv., 3027 DB, Roux 1207 (NBG); 3028 AD, Johnson 713 (KEI); 3029 AD, Taylor 5487 (NBG); 3028 DD, Barker 6158 (NBG); 3029 AB, Schelpe 5062 (BOL); 3127 CB, Schelpe 5831 (BOL); 3128 BC, Hutchings 125 (KEI); 3128 CA, Cawe 839 (KEI); 3129 AC, Hutchings 1010 (BOL, KEI); 3129 DA, Hutchings & Johnson 2243 (KEI); 3228 BD, Johnson 270 (KEI)

Lygodium Swartz

kerstenii Kuhn, 3129 DA, Hutchings 2192 (BOL, E, KEI, NH). The identity of this material is still being investigated.

MARSILEACEAE

Marsilea L.

macrocarpa Presl, 3127 AA, Pegler & Kolbe 1528a (BOL); 3127 DB, Pegler 1528 (BOL); 3127 AD, Kolbe & Pegler 193 (GRA); 3129 DA, Hardcastle 317 (NBG); 3228 AB, Roux 543 (NBG)
 capensis A. Br., 3129 DA, Hardcastle 317

CYATHEACEAE

Cyathea J.E. Sm.

dregei Kunze, 3030 BC, Roux 664 (NBG); 3128 BC, Hutchings 1067 (KEI); 3128 CB, Baur 161 (GRA, SAM); 3129 BB, Roux 612 (NBG); 3129 BC, Hutchings 1997 (KEI); 3130 AA, Griffen s.n. (GRA)
 capensis (L. f.) J.E. Sm., 3128 CB, Baur 194 (SAM)

HYMENOPHYLLACEAE

Trichomanes L.

reptans Swartz, 3129 DA, Schelpe 5043 (BOL)
 rigidum Swartz, *grid unknown, Drège s.n. (BM)
 pyxidiferum L. var. melanotrichum (Schlecht.) Schelpe, 3030 BC, Roux 648 (NBG); 3129 BC, Strey 8581 (BOL); 3129 DA, Hutchings 1177 (BOL, KEI)

DENNSTAEDTIACEAE

Blotiella Tryon

natalensis (Hook.) Tryon, 3129 BC, Sim s.n. sub CH 3744 (PRE)
 glabra (Bory) Tryon, 3129 DA, Bolus 10368 (BOL); *grid unknown, Drège s.n. (K, BM)

Pteridium Gled. ex Scop.

aquilinum (L.) Kuhn subsp. aquilinum, 3029 AB, Schelpe 5084 (BOL); 3129 BD, Cawe 81 (KEI); 3129 CB, Roux 567 (NBG); 3129 DA, Schelpe 359 (NU); 3130 AA, Schelpe 5084 (BOL)

Hypolepis Bernh.

sparsisora (Schrad.) Kuhn, 3030 CC, Roux 666 (NBG); 3129 BC, Cawe 229 (KEI); 3129 CB, Roux 566 (NBG); 3129 DA, Hutchings & Johnson 2238 (KEI)

VITTARIACEAE

Vittaria J.E. Sm.

isoetifolia Bory, 3030 CC, Roux 657 (NBG); 3129 BC, Strey 8868 (BOL); 3129 DA, Mcloughlin 776 (BOL); 3129 DA, Hutchings 1175 (BOL, KEI); 3228 CB, Flanagan 1809 (GRA)

ADIANTACEAE/PTERIDACEAE

Acrostichum L.

aureum L., 3130 AA, *Ward 911* (NU, KEI)

Pityrogramma Link

calomelanus (Swartz) Link var. aureoflava (Hook.) Weath. ex Bailey, 3029 AB, *Schelpé 5056* (BOL); 3129 DA, *Hutchings & Johnson 2246* (KEI)

Adiantum L.

capillus-veneris L., 3127 AA, *Esterhuysen 29208* (BOL); 3127 BC, *Schelpé 5837* (BOL); 3128 BC, *Hutchings 2216* (KEI); 3129 DA, *Hutchings & Johnson 2235* (KEI); 3129 CC, *Hoffman 014* (KEI)
 poiretii Wikstr., 3028 DD, *Barker 6166* (NBG); 3029 DA, *Strey 6393* (BOL); 3128 CA, *Hutchings & Plumstead 1092* (KEI)
 raddianum Presl, 3129 DA, *Hutchings & Plumstead 2056* (KEI)

Pteris L.

vittata L., 3029 CC, *Hutchings 1354* (BOL, KEI); 3128 AB, *Baur 225* (SAM); 3129 CB, *Roux 569* (NBG)
 cretica L., 3028 DD, *Barker 6170* (NBG); 3029 DA, *Law s.n.* (NU); 3127 AA, *Royffe 240* (GRA); 3128 BC, *Hutchings & Johnson M8* (KEI); 3128 CA, *Johnson 331* (BOL, KEI)
 buchananii Bak. ex Sim, 3129 DA, *Hardcastle 282* (NBG); 3129 CC, *Hoffman 16* (KEI)
 dentata Forssk., 3030 CC, *Roux 667* (NBG); 3127 DB, *Cawe 842* (BOL, KEI); 3128 CA, *Wells 3599* (GRA); 3129 DA, *Giffen s.n.* (GRA); 3228 BD, *Johnson students s.n.* (KEI)
 catoptera Kunze, 3029 AB, *Schelpé 5064* (BOL); 3029 DA, *Taylor 5325* (NBG); 3128 BC, *Cawe 451* (KEI, BOL); 3129 DA, *Schelpé 360* (NU); 3228 BD, *Johnson students 2* (KEI)

Cheilanthes Swartz

eckloniana (Kunze) Mett., 3029 AB, *Mcloughlin 726* (BOL); 3029 DD, *Schelpé 5076* (BOL); 3127 AA, *Pegler 1636* (BOL); 3128 CA, *Cawe 759* (BOL, KEI); 3128 BD, *Roux 563* (NBG)

inaequalis (Kunze) Mett. var. buchananii (Bak.) Schelpé, 3029 AD, *Taylor 5486* (NBG); 3030 CC, *Roux 679* (NBG); 3128 DB, *Roux 563* (NBG); 3129 DA, *Flanagan 2580* (SAM)

parviloba (Swartz) Swartz, grid unknown, *Young 3675* (PRE)

hirta Swartz, 3029 CC, *Hutchings 1383* (BOL, KEI); 3127 AA, *Schelpé 5840* (BOL); 3127 CA, *Hutchings & Johnson 1660* (KEI); 3128 CA, *Cawe 897* (BOL, KEI); 3129 AB, *Hutchings 1353* (KEI); 3129 DA, *Roux 595* (NBG)

involuta (Swartz) Schelpé & N.C. Anthony

var. involuta, 3128 DB, *Hutchings 96* (KEI)

var. obscura (N.C. Anthony) N.C. Anthony, 3227 DB, *Flanagan 1240* (GRA)

viridis (Forssk.) Swartz

var. viridis, 3128 BC, *Lewis 2853* (SAM); 3129 DA, *Roux 597* (NBG); 3228 BB, *Hutchings 650* (KEI)

var. macrophylla (Kunze) Schelpé & N.C. Anthony, 3029 AD, *Taylor 5221* (NBG); 3030 CC, *Strey 8718* (BOL); 3129 BC, *Hutchings & Johnson 2251* (KEI); 3129 DA, *Hutchings 1176* (BOL, KEI); 3228 DB, *Hutchings 650* (KEI); 3228 BC, *NBG 365/73* (BOL); 3228 BD, *Roux 553* (NBG); *grid unknown, *Drège s.n.* (K)

var. glauca (Sim) Schelpé & N.C. Anthony, 3030 CC, *Roux 661* (NBG); 3127 DB, *Cawe 232* (KEI); 3129 DA, *Roux 597* (BOL); 3130 AA, *Schelpé 5078* (BOL)

quadripinnata (Forssk.) Kuhn, 3028 AD, *Roux 1377* (NBG); 3028 DD, *Barker 6168* (NBG); 3029 AD, *Taylor 5483a* (NBG); 3029 DA, *Taylor 5324* (NBG); 3127 AA, *Pegler 1634* (BOL); 3127 BC, *Schelpé 5843* (BOL); 3127 DB, *Esterhuysen 29146* (BOL); 3128 AB, *Johnson & Hutchings 1077* (BOL, KEI); 3128 BC, *Hutchings 2167* (BOL, KEI)

multifida (Swartz) Swartz

subsp. multifida, 3127 AA, *Schelpé 5838* (BOL); 3129 DA, *Mcloughlin s.n.* (BOL)

subsp. lacerata N.C. Anthony & Schelpé, *grid unknown, *Drège s.n.* (LZ, B)

bergiana Schlecht., 3029 AD, *Taylor 5230* (NBG); 3029 DA, *Taylor 5324* (NBG); 3030 CC, *Roux 652* (NBG); 3128 BC, *Hutchings 23* (KEI); 3128 CB, *Bear II, 42* (SAM); 3129 DA, *Schelpé 352* (NU); 3228 BD, *Johnson 14* (KEI)

concolor (Langsd. & Fisch.) R. & A. Tryon, 3030 CC, *Roux 691* (NBG); 3128 CA, *Cawe 737* (BOL, KEI); 3129 DA, *Schelpé 349* (NU); 3228 BD, *Johnson students 12* (KEI); 3229 AA, *Johnson 753* (KEI)

Pellaea Link

calomelanus (Swartz) Link, 3029 AD, *Taylor 5484* (NBG); 3127 CB, *Schelpé 5883* (BOL); 3127 CA, *Hutchings 1607* (BOL, KEI); 3128 DB, *Johnson 36* (KEI); 3129 DA, *Schelpé 356* (KEI); 3228 AD, *Compton 17731* (NBG)

POLYPODIACEAE

Pyrrosia Mirb.

africana (Kunze) Ballard, 3129 BC, *Strey 8583* (BOL); 3129 DA, *Roux 571* (NBG); 3228 AD, *Ward 5710* (NU); 3228 BB, *Wells 3566* (GRA); 3228 BD, *Johnson students 5a* (KEI)

Loxogramme (Blume) Presl

lanceolata (Swartz) Presl, 3128 CB, *Baur 1* (GRA) s.n. (SAM); 3129 DA, *Hardcastle 267* (NBG)

Polypodium L.

vulgare L., 3029 CB, *Tyson 1642* (SAM); 3128 BC, *Cawe 625* (BOL, KEI)

polypodioides (L.) Hitchc. subsp. ecklonii (Kunze) Schelpé, 3128 BC, *Hutchings 47* (KEI); 3129 AB, *Roux 619* (NBG); 3128 CB, *Baur s.n.* (SAM)

Pleopeltis H.B.K. ex Willd.

macrocarpa (Bory ex Willd.) Kaulf., 3029 AD, *Taylor 5228* (NBG); 3128 CB, *Baur s.n.* (BOL); 3129 DA, *Hutchings & Johnson 2242* (KEI)

schraderi (Mett.) Tardieu, 3028 DD, *Barker 6167* (NBG); 3128 BA, *Cawe 624* (KEI, BOL); 3128 CA, *Hutchings & Plumstead 2078* (KEI)

Microgramma Presl

lycopodioides (L.) Copel., 3130 CC, *Johnson 2075* (KEI)

Microsorium Link

punctatum (L.) Copel., 3130 CC, *Johnson 2077* (KEI); 3129 DA, *Hutchings & Johnson 2234* (KEI)

scolopendrium (Burm. f.) Copel., 3129 DA, *Hutchings & Johnson 2231* (KEI); 3130 AC, *Hutchings 2215* (KEI)

ensiforme (Thunb.) Schelpé, 3129 DA, *Burt Davy 3895* (PRE)

DAVALLIACEAE

Nephrolepis Schott

exaltata (L.) Schott, 3129 DA, *Hutchings & Johnson 2229* (KEI)

Oleandra Cav.

distenta Kunze, 3129 DA, *Roux 591* (NBG)

Davallia J.E. Sm.

chaerophylloides (Poir.) Steud., 3030 CC, *Roux 678* (NBG); 3129 BC, *Leighton s.n.* (BOL); 3129 BD, *Hutchings 2024* (KEI); 3129 DA, *Schelpé 5030* (BOL); 3130 AA, *Schelpé 5076* (BOL)

ASPLENIACEAE

Asplenium L.

anisophyllum Kunze, 3129 BC, *Strey 8871* (BOL)

prioritis Kunze, grid unknown, *Drège s.n.*; 3030 CC, *Roux 649* (NBG); 3128 BC, *Hutchings 44* (KEI); 3129 DA, *Hutchings 1174* (KEI); 3228 BD, *Johnson students 9* (KEI)

boltonii Hook. ex Schelpé, 3029 BB, *Schlechter 6229* (GRA); 3128 BC, *Hutchings s.n.* (BOL, KEI); 3129 DA, *Mcloughlin s.n.* (BOL)

gemmiferum Schrad., 3030 CC, *Roux 650* (NBG); 3127 DB, *Mcloughlin s.n.* (BOL); 3129 DA, *Schelpé 346* (NU); 3228 BD, *Roux 549* (NBG)

gemmiferum Schrad. × flexuosum Schrad., 3129 DA, *Mcloughlin s.n.* (BOL)

protensum Schrad., 3029 BB, *Schlechter 6635* (GRA); 3128 AD, *Cawe 673* (BOL, KEI); 3128 AC, *Cawe 800* (BOL, KEI); 3129 DA, *Mcloughlin 755* (BOL)

sandersonii Hook., 3228 BD, *Roux 545* (NBG)

stoloniferum Bory, 3127 AA, *Pegler 1637* (BOL); 3128 AB, *Johnson & Hutchings 1079* (BOL, KEI)

trichomanes L., 3128 AD, *Roux 1379* (NBG)

platyneuron (L.) Oakes, 3027 DB, *Roux 1208* (NBG)

monanthes L., 3028 DD, *Barker 6169* (NBG); 3127 AA, *Royffe 240* (GRA); 3128 AD, *Cawe 665* (BOL, KEI)

lunulatum Swartz, 3030 CC, *Roux 653* (NBG); 3128 BC, *Cawe 454* (BOL), 456 (BOL, KEI); 3128 BC, *Hutchings 119* (KEI); 3129 DA, *Hutchings & Johnson 2240* (KEI); 3228 BD, *Johnson students 13* (KEI)

erectum Bory ex Willd. var. erectum, 3127 DB, *Cawe 868* (BOL, KEI); 3128 AC, *Cawe 799* (BOL, KEI); 3128 BA, *Cawe 623* (BOL, KEI); 3128 BC, *Cawe 489*, *Hutchings 40*, 119 (BOL, KEI); 3129 DA, *Mcloughlin 783* (BOL)

inaequilaterale Willd., 3129 DA, *Schelpé 5042* (BOL)

dregeanum Kunze, 3129 DA, *Johnson 108* (KEI); *grid unknown, *Drège s.n.*

theciferum (H.B.K.) Mett. var. concinnum (Schrad.) Schelpé, 3029 AD, *Taylor 5229* (NBG)

rutifolium (Berg.) Kunze, 3030 CC, *Roux 646* (NBG); 3127 DB, *Mcloughlin 1* (BOL); 3129 BC, *Hutchings & Johnson 2248* (KEI); 3129 CB, *Wells 3489* (GRA); 3129 DA, *Hutchings 1174a* (KEI); 3228 BD, *Johnson students 11* (KEI)

- lobatum *Pappe & Rawson*, 3128 AD, *Cawe 670* (BOL, KEI)
 varians *Wall. ex Hook. & Grev.* subsp. *fimbriatum* (*Kunze*) *Schelpe*,
 3129 DA, *Hardcastle 255a* (NBG)
adiantum-nigrum L. var. *solidum* (*Kunze*) *J.P. Roux*, 3228 CB, *Flanagan*
146 (PRE)
splendens *Kunze*, 3030 CC, *Roux 647* (NBG); 3128 BC, *Hutchings 122*
 (KEI); 3128 BC, *Hutchings 670* (BOL, KEI); 3128 CA,
Hutchings 388 (KEI); 3129 CC, *Wells 3547* (GRA); 3129 DA,
Hutchings & Johnson 1137 (KEI); 3228 BD, *Johnson students*
II (KEI)
simii *Braithwaite & Schelpe*, 3130 AA, *Bayliss 2223* (BOL, KEI)
aethiopicum (*Burm. f.*) *Becherer*, 3127 AA, *Royffe 197* (GRA); 3127
 AD, *Schelpe 5832* (BOL); 3127 DB, *Flanagan 2580* (SAM);
 3127 DB, *Cawe 865* (BOL, KEI); 3128 AC, *Cawe 805* (BOL);
 3128 BC, *Cawe 484*, *Hutchings* (BOL, KEI)
Ceterach D.C.
cordatum (*Thunb.*) *Desv.*, 3127 BC, *Schelpe 5842* (BOL); 3128 CA,
Cawe 892 (BOL, KEI); 3129 DA, *Mcloughlin s.n.* (BOL), *794*
 (BOL); 3228 BD, *Roux 556* (NBG)

THELYPTERIDACEAE

- Thelypteris* *Schmidel*
madagascariensis (*Fée*) *Schelpe*, 3128 BA, *Cawe 734* (KEI, BOL)
interrupta (*Willd.*) *K. Iwats.*, 3128 BC, *Cawe 726* (KEI); 3129 BD, *Cawe*
80 (KEI); 3129 CB, *Wells 3479* (NBG); 3129 DA, *Roux 602*
 (NBG); 3229 AA, *Johnson 756* (KEI)
pozoi (*Lagasca*) *Morton*, 3029 BB, *Cawe 1003* (BOL); 3127 DC, *Cawe*
901 (BOL, KEI)
dentata (*Forssk.*) *E. St. John*, 3127 DB, *Cawe 898* (BOL, KEI); 3129
 DA, *Schelpe 5033* (BOL); 3130 AA, *Schelpe 5075* (BOL); 3228
 BD, *Moll 5747* (BOL); 3229 AA, *Johnson 756* (KEI)
gueinziana (*Mett.*) *Schelpe*, 3029 AB, *Schelpe 5058a* (BOL); 3129 DA,
Hutchings & Johnson 2249 (BOL, KEI)
bergiana (*Schlechtid.*) *Ching*, 3029 CB, *Schlechter 6512* (NBG); 3129
 DA, *Roux 581* (NBG); 3228 BD, *Roux 555* (NBG)
Macrothelypteris (*H. Ito*) *Ching*
torresiana (*Gaud.*) *Ching*, 3129 DA, *Roux 1971* (NBG)

ATHYRIACEAE

- Athyrium* *Roth*
schimperii *Moug. ex Fée*, 3029 BC, *Schlechter 6585* (GRA)
Cystopteris *Bernh.*
fragilis (*L.*) *Bernh.*, 3029 BB, *Schlechter 6638* (GRA); 3029 BC,
Schlechter 6585 (GRA)

LOMARIOPSISIDACEAE

- Elaphoglossum* *Schott*
hybridum (*Bory*) *Brack*, 3127 DB, *Mcloughlin 106* (PRE)
macropodium (*Fée*) *T. Moore*, 3129 DA, *Roux 586* (NBG); 3129 BC,
Sim 2461 (PRE)
conforme (*Swartz*) *J. Sm.*, 3129 DA, *Roux 586* (NBG); grid unknown,
Taylor 2602 (NBG)
acrostichoides (*Hook. & Grev.*) *Schelpe*, 3128 BC, *Hutchings 1977* (KEI);
 3128 CA, *Cawe 871* (BOL)
angustatum (*Schrad.*) *Hieron.*, 3129 BC, *Cawe 231* (KEI)

ASPIDIACEAE/DRYOPTERIDACEAE

- Woodsia* *R. Br.*
montevidensis (*Spreng.*) *Hieron.* var. *burgessiana* (*Gerr. ex Hook. &*
Bak.) *Schelpe*, 3129 CB, *Schlechter 6526* (GRA)

- Dryopteris* *Adans.*
squamiseta (*Hook.*) *Kuntze*, 3028 AD, *Johnson 709* (KEI)
athamantica (*Kunze*) *Kuntze*, 3029 AB, *Hutchings 2133* (KEI, NU); 3029
 CB, *Schlechter 6556* (GRA); 3128 CA, *Cawe 767* (BOL, KEI);
 3128 DB, *Fr. Abbott 29* (GRA)
inaequalis (*Schlechtid.*) *Kuntze* sens. lat., 3029 AD, *Taylor 5482* (NBG);
 3029 BC, *Schlechter 6512* (GRA); 3129 AB, *Schelpe 5063*
 (BOL); 3129 CB, *Roux 565* (NBG); 3129 DA, *Hutchings 571*
 (BOL, KEI); 3228 BD, *Johnson students 8* (KEI)
dracomontana *Schelpe & N.C. Anthony*, 3128 AD, *Roux 1376* (NBG)
Cyrtomium *Presl*
caryotideum (*Wall. ex Hook. & Grev.*) *Presl* var. *micropterum* (*Kunze*)
C. Chr., 3128 AD, *Flanagan s.n.* (SAM); 3029 BB, *Schlechter*
6635 (GRA); 3127 DC, *Cawe 900* (KEI, BOL); 3128 BC, *Cawe*
327 (BOL, KEI); 3129 DA, *Hutchings & Johnson 2232* (KEI)
Polystichum *Roth*
transkeiense *Jacobsen*, 3029 DA, *Taylor 5227* (NBG); 3129 BC, *Strey*
8869 (BOL, NU); 3129 DA, *Jacobsen 4301* (BOL)
pungens (*Kaulf.*) *Presl*, 3128 AB, *Hutchings & Johnson 1081* (BOL,
 KEI); 3128 BC, *Cawe 443*, *Hutchings 118* (BOL, KEI); 3129
 DA, *Schelpe 357, 358* (NU)
lucuosum (*Kunze*) *T. Moore*, 3128 AC, *Cawe 777* (BOL, KEI); 3128
 AD, *Cawe 660* (BOL, KEI); 3128 BC, *Hutchings 118* (KEI)
transvaalense *N.C. Anthony*, 3129 DA, *Wager s.n. sub CH 2905* (PRE);
 3127 DB, *Mcloughlin s.n. sub CH 7677* (PRE); 3127 DA, *Young*
s.n. sub TM 511c (PRE)
monticola *N.C. Anthony & Schelpe*, 3129 BC, *Cawe 228* (KEI)
Arachniodes *Blume*
foliosa (*C. Chr.*) *Schelpe*, 3029 CD, *Adams 164* (UN)
Rumohra *Raddi*
adiantiformis (*G. Forst.*) *Ching*, 3129 DA, *Roux 593* (NBG); 3228 AD,
Ward 5715 (NU)
Ctenitis (*C. Chr.*) *C. Chr. ex Tardieu*
lanuginosa (*Willd. ex Kaulf.*) *Copel.*, 3128 BA, *Cawe 735* (BOL, KEI);
 3128 CB, *Baur 221* (GRA); 3129 DA, *Mcloughlin 785* (BOL);
 *grid unknown, *Drège s.n.* (LZ)

BLECHNACEAE

- Blechnum* *L.*
giganteum (*Kaulf.*) *Schlechtid.*, 3127 DB, *Cawe 867* (BOL, KEI); 3128
 BC, *Hutchings & Johnson M7* (BOL, KEI); 3129 DA,
Hardcastle 288 (NBG)
capense (*L.*) *Burm. f.*, 3129 BD, *Johnson 179* (KEI); 3130 AA, *Schelpe*
5074 (BOL)
tabulare (*Thunb.*) *Kuhn*, 3029 AB, *Schelpe 5061* (BOL); 3029 CC, *Cawe*
945 (BOL); 3128 BC, *Hutchings 2165* (KEI, NH); 3129 AB,
Roux 520 (NBG)
australe *L.* var. *australe*, 3028 BA, *Matthews 957* (NBG); 3127 AA,
Royffe 90 (GRA); 3128 AB, *Hutchings & Johnson 1082* (BOL,
 KEI); 3127 DC, *Cawe 899* (BOL, KEI); 3128 AD, *Cawe 666*
 (BOL, KEI); 3128 CA, *Cawe 840* (BOL, KEI); 3128 CB, *Baur*
s.n. (GRA)
punctulatum *Swartz*
 var. *punctulatum*, 3129 AD, *Johnson 710* (KEI); 3128 CB, *Cawe 680*
 (BOL, KEI); 3129 DA, *Williams 102* (NU)
 var. *atherstonei* (*Pappe & Raws.*) *Sim*, 3128 CB, *Baur 640* (SAM)
 var. *intermedium* *Sim*, 3128 AC, *Taylor 2599* (NBG); 3129 BC, *Taylor*
2632 (NBG)
 var. *krebsii* (*Kunze*) *Sim*, 3129 DA, *Mcloughlin 800* (BOL); 3129 DA,
Roux 583 (NBG); 3129 BC, *Taylor 2632* (NBG)
Stenochlaena *J. Sm.*
tenuifolia (*Desv.*) *T. Moore*, *grid unknown, *Drège s.n.* (LZ)