

## PTERIDOPHYTA

### NEW DISTRIBUTION RECORDS OF SOUTHERN AFRICAN PTERIDOPHYTA

Recent travels by the authors have resulted in the collection of a number of new national and provincial records of pteridophytes from the southern African sub-region which are not reflected in the most recent revisions and regional checklists. The Malawian records update Burrows & Burrows (1993); the South African records update Burrows (1990) and Roux (1995), while the Zambian records update Kornas (1979). All specimens are housed in the Buffelskloof Herbarium, Lydenburg, South Africa; duplicates, where distributed, are indicated.

#### MALAWI

**Anogramma leptophylla** (*L.*) *Link.* Filicum species in horto regio botanico berolinensis cultae: 137 (1841); Schelpe: 99, t. 32 (1970); J.E.Burrows: 114, t. 26 (1990). Type: South Europe, *Tournefort 5337* (P, lecto.).

MALAWI.—1033: (North), Nyika National Park, S slopes of Nganda Hill, 2 480 m, (–BD), 31 March 2000, *J.E. & S.M. Burrows 6850* (Buffelskloof Herb., MAL, NBG, SRGH, UZL).

This very small, ± 10 mm tall annual fern, frequently mistaken for sporelings of other ferns, was found growing in the lee of large boulders in montane grassland. It is fairly widespread in Africa although, due to its extremely small size, it is frequently overlooked. It has been collected in South Africa and Zimbabwe to the south, and northwards in Tanzania and Kenya.

**Asplenium erectum** *Bory ex Willd.* in *Species plantarum* edn 5: 328 (1810); N.C.Anthony & Schelpe: 190 (1986); J.E.Burrows: 223, t. 51 (1990). Type: Réunion, *Bory s.n. (B-W19906)*, lecto.).

#### var. **erectum**.

MALAWI.—1033: (North), Nyika National Park, Zovochipolo Forest, 2 200 m, (–DA), 2 April 2000, *J.E. & S.M. Burrows 6893* (Buffelskloof Herb.).

This specimen was found growing near a small stream in the deep shade of evergreen montane forest. In addition to being a new record for Malawi, it is significant that, in Africa, this variety was only previously known from South Africa. It is not known from Zimbabwe or southern Malawi and therefore represents an unusually disjunct record into tropical Africa.

**Cyathea mossambicensis** *Baker* in *Annals of Botany* 5: 185 (1891); Schelpe: 72 (1970); J.E.Burrows: 86, t. 18 (1990). Type: Mozambique, Namuli, *Last s.n. (K, holo.)*.

MALAWI.—1134: (North), Mzuzu, ± 15 km from Mzuzu on the Nkhata Bay road, (–CA), 14 May 1999, *J.E. Burrows 6484* (Buffelskloof Herb.).

Plants were found growing in dense riverine forest along a small stream, near the summit of the western

escarpment of the Lake Malawi rift above Nkhata Bay, an area of unusually high rainfall in Malawi (Chapman & White 1970). This is the first record of this taxon from Malawi; elsewhere *C. mossambicensis* occurs in eastern Zimbabwe, Mozambique and Tanzania.

**Ophioglossum convexum** *J.E. Burrows* in *Bothalia* 19: 167, t. 1 (1989). Type: South Africa, Mpumalanga, Lydenburg Dist., Coromandel Farm, *J.E. Burrows 3683* (PRE, holo.; BOL!, K!).

MALAWI.—1033: (North), Nyika National Park, Wowve River, 2 030 m. (–BD), 4 Apr. 2000, *J.E. & S.M. Burrows 6909* (Buffelskloof Herb., MAL, PRE, UZL).

This very small fern (trochophore 10–13 mm long) is distinguished by its small suborbicular trochophores which are held ± appressed to the ground. It was found growing in montane grassland on alluvial soils near a river, growing in association with *O. lusoaffricanum* Welw. ex Prantl. It is currently known from South Africa and Zimbabwe and this record therefore extends its known distribution well into tropical Africa.

#### SOUTH AFRICA

**Thelypteris dentata** (*Forssk.*) *E.P. St. John* var. **buchananii** *Schelpe* in *Journal of South African Botany* 31: 265 (1965), excl. *Buchanan 8* [vide Holttum: 142 (1974)]; *Schelpe*: 198 (1970); *J.E. Burrows*: 264 (1990). Type: Mozambique, Manica e Sofala, Garuso, 'Jaegersberg' (Bandula Mt), *Schelpe 5599* (BOL, holo.).

KWAZULU-NATAL.—2831 (Nkandla): Ongoye Forest, (–DC), 18 Feb. 1996, *J.E. & S.M. Burrows 5944* (Buffelskloof Herb.).

Plants were found growing on a deeply shaded forest floor in evergreen forest. Previously this variety was only known from Zimbabwe, Mozambique and Malawi. Var. *buchananii* is distinguished from the typical variety by having two or more pairs of veins anastomosing below the sinus between the ultimate pinna lobes (compared to 1½ pairs, or 3 veins, in var. *dentata*).

**Thelypteris hispidula** (*Decne.*) *C.F. Reed* in *Phytologia* 17: 283 (1968); *J.E. Burrows*: 264, t. 64 (1990); *J.E. Burrows & S.M. Burrows*: 95 (1993). *Christella hispidula* (*Decne.*) *Holttum*: 312 (1976). Type: Indonesia, Timor, *Guichenot s.n.* (P, holo.).

*Thelypteris quadrangularis* (*Fée*) *Schelpe*: 196 (1964); *Schelpe*: 266 (1965); *Schelpe*: 195 (1970). Type: Guyana, *Leprieur 182* (P, ?holo.; NY).

*Christella hilsenbergii* (*C. Presl*) *Holttum*: 142 (1974). *Thelypteris hilsenbergii* (*C. Presl*) *Panigrahi*: 369 (1975). Type: Mauritius, *Sieber s.n.* (PRC, holo.; K, P).

KWAZULU-NATAL.—2831 (Nkandla): Ongoye Forest, (–DC), 18 Feb. 1996, *J.E. & S.M. Burrows 5932* (Buffelskloof Herb.).

Growing in evergreen forest, in deeply shaded sites along a stream. This is the first record of *T. hispidula* from South Africa; previously this species had been recorded as far south as Chirinda Forest in southeastern Zimbabwe.

**Polypodium vulgare** *L.*, *Species plantarum* 2: 1085 (1753); *Schelpe & N.C. Anthony*: 157 (1986); *J.E. Burrows*: 193, t. 195 (1990). Type: Europe (not found).

MPUMALANGA.—2530 (Lydenburg): Lydenburg Dist., Moko-bulaan Plantations, (–BA), 2 100 m, 26 Feb. 2000, *J.E. Burrows, A. & J. Nel 6716* (Buffelskloof Herb., J, NBG, PRE).

*Polypodium vulgare* is widespread throughout the temperate zone of the northern hemisphere. Somewhat anomalously it also occurs on the South Atlantic island of Kerguelen, and in temperate South Africa, extending from the mountains of the Western Cape to the high Drakensberg Mountains of KwaZulu-Natal (*Schelpe & Anthony 1986*). This new record extends the distribution of the species northwards well beyond its current range.

**Polystichum wilsonii** *H. Christ* in *Botanical Gazette* 51: 353 (1911); *J.P. Roux*: 149, t. 51 (1998). Type: China, Szechuan Province, Mupin, *Wilson 2614* (BM, holo.).

*Polystichum alticola* *Schelpe & N.C. Anthony* in *Anthony & Schelpe*: 144 (1982); *Schelpe & N.C. Anthony*: 257 (1986); *J.E. Burrows*: 317 (1990). Type: South Africa, Western Cape, Ladismith, Swartberg, Towerkop, *Esterhuysen 26699* (BOL, holo.; C, G, GH, K, M, MO, NBG, P, PRE).

MPUMALANGA.—2530 (Lydenburg): Lydenburg Dist., Mokobulaan Plantations, (–BA), 2 100 m, 26 Feb. 2000, *J.E. Burrows, A. & J. Nel 6717* (Buffelskloof Herb., NBG).

This species occurs from the southern Cape mountains through the mountains of the Drakensberg to the Wakkerstroom area. Further north, *P. wilsonii* is represented in Zimbabwe by three collections. It then 'jumps' to northern Tanzania, Kenya, Ethiopia and westwards to Cameroon and Bioko (*Roux 1998*). It is found also through much of eastern Asia as far as China. The above collection serves to close the perceived gap in its distribution between the Drakensberg Mountains of South Africa and the Eastern Highlands of Zimbabwe.

#### ZAMBIA

**Mohria marginalis** (*Savigny*) *J.P. Roux* in *South African Journal of Botany* 56: 401 (1990). Type: Réunion ('Bourbon'), *Commerson s.n.* (P, lecto.).

*Mohria hirsuta* *J.P. Roux*: 435 (1984). Type: South Africa, Free State, Qwa Qwa, Tsheseng, near cave on road to The Sentinel, *Roux 907* (NBG, holo.; K, PRE).

ZAMBIA.—1124: North-Western Province, Luakela River, on road from Mwinilunga to Ikalenge, (–CB), 4 March 1999, *J.E. & S.M. Burrows 6433* (Buffelskloof Herb., NBG).

Plants were found growing in miombo (*Brachystegia-Julbernardia-Isobertinia*) woodland near a river, on a rocky outcrop in light shade. This is the first record of this species from Zambia and the first record of any species of *Mohria* from the western half of Zambia (*Kornas 1979*). The woodland habitat of this collection is anomalous for this taxon which is otherwise a montane species (*Roux 1995*).

**Ophioglossum ammophilum** *C.D. Adams* in *Annals and Magazine of Natural History*, ser. 12, 7: 874 (1954). Type: Nigeria, Accra Dist., near Labadi, near Kapeshi Lagoon, *Adams GC4642* (BM, holo.; K!).

ZAMBIA.—0932: Northern Province, 52 km from Nakonde on the Mbala road, (–AB), 14 Feb. 1995, *J.E. & S.M. Burrows 5796* (Buffelskloof Herb., K).

Plants were found growing on the outer margins of a shallow seasonally inundated pan over laterite, in miombo woodland, in association with *Ophioglossum costatum* R.Br., *O. lusoafricanum* Welw. ex Prantl, *O. thomasi* R.T.Clausen and *O. vulgatum* L. subsp. *africanum* Pocock ex J.E.Burrows var. *africanum*. This is the first record of this species for the southern African subregion; previously it was known only from Nigeria, Sudan and Ethiopia. *Ophioglossum ammophilum* is very similar to *O. gomezianum* Welw. ex A.Braun but is distinguished from that species in the field by its somewhat orange tinge to the sporophore and the few pale basal-medial cells on the tropophore, creating the impression of a pseudo-midrib.

#### ACKNOWLEDGEMENTS

The Fern Society of South Africa, particularly Allan and Jolanda Nel, is acknowledged for their part in the discovery of the two new Mpumalanga records; the Parker and Engelbrecht families for access to Mokobulaan; and J.P. (Koos) Roux for confirming the identification of *Mohria marginalis*. The Southern African Botanical Diversity Network (SABONET) is thanked for providing the opportunity to visit northern Malawi.

#### REFERENCES

- ADAMS, C.D. 1954. New species of ferns from the Gold Coast. *Annals and Magazine of Natural History*, ser.12, 7: 874.
- ANTHONY, N.C. & SCHELPE, E.A.C.L.E. 1982. New species and new combinations in African Pteridophyta and Orchidaceae. *Contributions from the Bolus Herbarium* No.10: 143–164.
- BAKER, J.G. 1891. A summary of the new ferns which have been discovered or described since 1874. *Annals of Botany* 5: 185.
- BURROWS, J.E. 1989. New taxa, combinations and records of Pteridophyta from southern and central Africa. *Bothalia* 19: 167–174.
- BURROWS, J.E. 1990. *Southern African ferns and fern allies*. Frandsen Publishers, Sandton.
- BURROWS, J.E. & BURROWS, S.M. 1993. An annotated checklist of the pteridophytes of Malawi. *Kirkia* 14: 78–99.
- CHAPMAN, J.D. & WHITE, F. 1970. *The evergreen forests of Malawi*. Commonwealth Forestry Institute, University of Oxford.
- CHRIST, K.H.H. 1911. Filices wilsonianae. *Botanical Gazette* 51: 345–359.
- HOLTUM, R.E. 1974. Thelypteridaceae of Africa and adjacent islands. *Journal of South African Botany* 40: 123–168.
- HOLTUM, R.E. 1976. The genus *Christella* Léveillé, sect. *Christella*. Studies in the family Thelypteridaceae, XI. *Kew Bulletin* 31: 293–339.
- KORNAS, J. 1979. *Distribution and ecology of the pteridophytes in Zambia*. Państwowe Wydawnictwo Naukowe, Kraków.
- LINK, J.H.F. 1841. *Filicum species in horto regio botanico berolinensis cultae*. Berolini.
- LINNAEUS, C. 1753. *Species plantarum* 2, edn 1. Holmiae.
- PANIGRAHI, G. 1975. Notes on certain taxa of *Thelypteris* (Thelypteridaceae) of Asia, II. *Phytologia* 31: 369–372.
- REED, C.F. 1968. Index thelypteridis. *Phytologia* 17: 249–466.
- ROUX, J.P. 1984. *Mohria hirsuta*, a new fern species from the Drakensberg. *Journal of South African Botany* 50: 435–441.
- ROUX, J.P. 1990. A new species and combination in *Mohria* (Schizaeaceae: Pteridophyta). *South African Journal of Botany* 56: 399–402.
- ROUX, J.P. 1995. Systematic studies in the genus *Mohria* (Pteridophyta: Anemiaceae). VI. Taxonomic review. *Bothalia* 25: 1–12.
- ROUX, J.P. 1998. *A taxonomic revision of Polystichum (Pteropsida: Dryopteridaceae) in Africa and neighbouring islands*. Ph.D. thesis, University of Pretoria, Pretoria.
- SCHELPE, E.A.C.L.E. 1964. Pteridophyta collected on an expedition to northern Moçambique. *Journal of South African Botany* 30: 177–200.
- SCHELPE, E.A.C.L.E. 1965. A review of the southern African species of *Thelypteris*. *Journal of South African Botany* 31: 259–269.
- SCHELPE, E.A.C.L.E. 1970. Pteridophyta. In A.W. Exell & E. Lauenroth, *Flora zambesiaca*. Crown Agents, London.
- SCHELPE, E.A.C.L.E. & ANTHONY, N.C. 1986. Pteridophyta. *Flora of southern Africa*. Botanical Research Institute, Pretoria.
- WILLDENOW, C.L. 1810. In Caroli a Linné, *Species plantarum* edn 5. Berolini.

J.E. BURROWS\* and S.M. BURROWS\*

\* Buffelskloof Herbarium, P.O. Box 710, 1120 Lydenburg, South Africa. MS. received: 2000-09-26.