

PTERIDOPHYTA—THELYPTERIDACEAE

METATHELYPTERIS BURROWSIORUM, A NEW SPECIES FROM SWAZILAND AND A FIRST GENUS RECORD FOR SOUTHERN AFRICA

Metathelypteris (H.Itô) Ching is a genus of \pm 16 species with a number of additional infraspecific taxa. It is widely distributed in the Old World, particularly Asia (Ching 1963). In recent years a collection was made in the Lebombo Mountains of northeastern Swaziland, representing not only a first record for this genus in southern Africa, but also a new species; this novelty is described here. *Metathelypteris* is poorly represented in Africa, with only one species—*M. vandervekenii* Pic. Serm.—known previously from the continental mainland, in Rwanda (Pichi Sermolli 1983). *M. fragilis* (Baker) Holttum subsp. *guineensis* Benl occurs only on two islands in the Gulf of Guinea, São Tomé and Bioko (Fernando Po) (Benl 1988; Figueiredo 1998; 2002), whereas the typical subspecies is known only from a single gathering from Madagascar (Baker 1877; Holttum 1974).

Metathelypteris burrowsiorum *N.R.Crouch*, sp. nov., *M. fragilis* (Baker) Holttum similis sed pinnis profunde bipinnatifidis neque ad costam anguste alatum sec-tis, frondibus longioribus cum 15–22 paribus pinnarum discretis, non 8–16 paribus, et venis in pinnulis discretis non furcatis, differt.

TYPE.—Swaziland: 2632 (Bela Vista): dry stream bed in riverine forest next to boulder, Carmichael Farm, Siteki, Lebombo Mtns, (–AC), 02-12-2006, *J.E. Burrows* & *S.M. Burrows* 9649 (BNRH, holo., PRE, iso.).

Plants terrestrial. *Rhizome* erect, caudex short, \pm 8 mm long, up to 8 mm diam., closely set with roots and stipe bases; scales sparse, up to 9×1 mm, chartaceous, castaneous, sessile, attenuate, margins irregularly set with acicular hairs. *FronDS* tufted, arching, up to 370 mm long; stipe firm, 70–120 mm long, up to

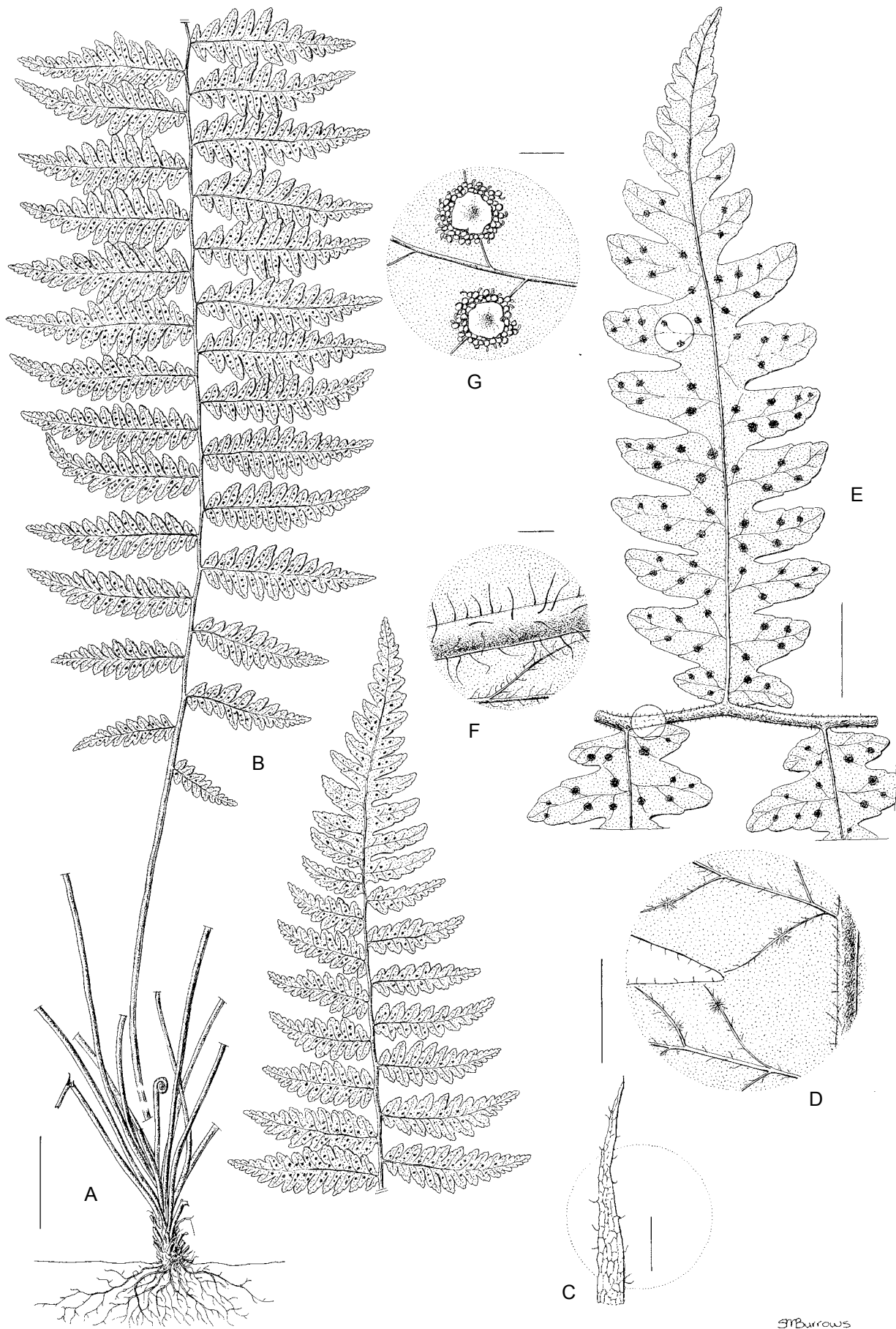


FIGURE 13.—*Metathelypteris burrowsiorum*, Burrows & Burrows 9649 (BNRH). A, rhizome with lower stipes; B, frond; C, rhizome scale; D, free, pinnate venation; E, deeply pinnatifid pinna; F, rachis section with uniseriate acicular hairs; G, indusiate round sori along veins. Scale bars: A, B, 20 mm; C, 2 mm; D, 2.5 mm; E, 5 mm; F, 1 mm; G, 0.5 mm. Artist: S. Burrows.

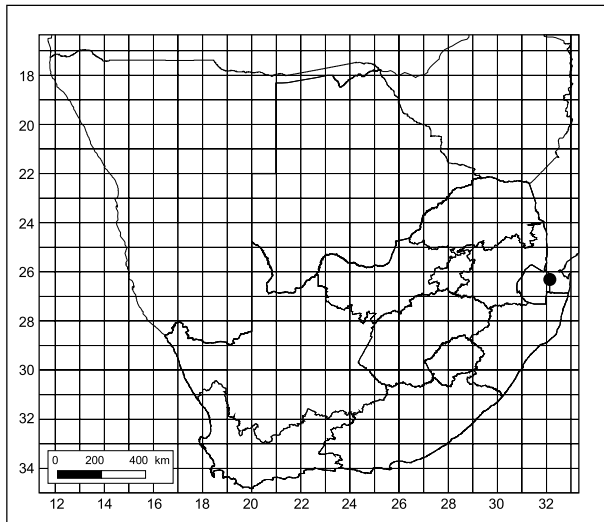


FIGURE 14.—Known distribution of *Metathelypteris burrowsiorum*,

1.5 mm diam., pale green to stramineous, scales proximally sparse, similar to those of rhizome, up to 2.6×0.3 mm, pilose with short, acicular hairs up to 0.12 mm long. *Lamina* 1-pinnate-pinnatifid, lanceolate, $220\text{--}300 \times 50\text{--}80$ mm, pale green to yellow-green, tapering apex formed by gradually shortened upper adnate pinnae, with 15–22 free pinna pairs, with 1 or 2 basal pinna pairs gradually reduced; rachis shallowly sulcate, pale green, sulca more pronounced distally, with hairs similar to those on stipe but longer, 0.5–1.0 mm long. *Pinnae* sessile, thinly herbaceous, subopposite to alternate, spaced, elliptic, decrescent at bases, largest $28\text{--}40 \times 10\text{--}12$ mm, deeply lobed to more than $\frac{2}{3}$ way to costa. *Pinnule* lobes oblong, obtuse, often somewhat falcate, up to 4.5×2.5 mm, irregularly crenate-sinuate; basal acroscopic lobe sometimes enlarged, adaxially moderately set with unicellular acicular hairs along costa, veins and along margins, and sparsely set along costa and veins with minute capitate hairs (0.08–0.13 mm long) bearing a translucent to opaque to orange gland at top, abaxially moderately set with unicellular acicular hairs along and occasionally scattered between veins, up to 0.45 mm long, and sparsely set along costa and veins with capitate hairs as for adaxial surface; costa adaxially without sulci, pronounced abaxially, set with hairs similar to those on rachis. *Venation* evident, free, pinnately branched in lobes, branches simple not forked, ending short of margin, with no vein pairs anastomosing below sinus. *Sori* circular, medial on veins, up to 7 per lobe; indusium chartaceous, green turning pale brown, persistent, reniform to subcircular, with unicellular acicular hairs above, up to 0.5 mm diam.; receptacle naked. *Sporangium stalk* 2 cells thick, simple, capsule circular in lateral view, with 12 or 13 indurated annulus cells, 5 or 6 stomial cells; spores 64 per sporangium, brown, ellipsoidal, monolete, verruculose to shortly echinate. Figure 13.

Distribution: *Metathelypteris burrowsiorum* is known only from a single Swaziland locality (Figure 14) at 520 m, at a well-shaded site within Southern Lebombo Bushveld (SVI 16). It falls within the summer rainfall region with a mean annual precipitation of 550–1 000 mm (Rutherford *et al.* 2006). It is terrestrial, and was

found on soils derived from underlying rhyolite of the Jozini Formation, in a seasonally dry stream bed protected from the erosive action of floodwater by a boulder. Other ferns in close vicinity included *Doryopteris concolor* and *Microgramma mauritiana*. Although the new species is evidently rare in Swaziland, it has possibly been located on the periphery of its range, given the close proximity of the type locality to Mozambique. Searches for further subpopulations should accordingly focus on the adjacent region in Mozambique. The rather unexpected and sparse occurrence of *M. burrowsiorum* in the region is consistent with the history of discovery of other *Metathelypteris* taxa in Africa and its surrounding islands—when present, plants are typically very rare and localized.

Etymology: the specific epithet *burrowsiorum* jointly honours John and Sandra Burrows, for their contribution to pteridology in south-central Africa that spans three decades, and as the collectors of the type specimen.

Diagnostic characters: *Metathelypteris burrowsiorum* differs from *M. fragilis* in having pinnae that are deeply bipinnatifid but not cut to a narrowly winged costa, in producing longer fronds with 15–22 free pinnae pairs rather than 8–16, having veins free in the pinnules and not forked, and possessing indusia with acicular rather than capitate hairs. The pinnule margins of *M. fragilis* are obtusely lobed a third to halfway to the rachis, not irregularly crenate-sinuate as with *M. burrowsiorum*. The new species differs from *M. vandervekenii* in lacking capitate glandular hairs on the abaxial lamina surface and on the indusia—although these are present on the costule and veins—and in having the rachis hairy throughout, not only on the upper surface. The Rwandan taxon also has a more dissected lamina (Pichi Sermolli 1983). Other African *Metathelypteris* species have fronds that are ovate-lanceolate or deltate in outline, relative to the somewhat narrow lanceolate lamina of *M. burrowsiorum*.

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N.R. CROUCH*

* Ethnobotany Unit, South African National Biodiversity Institute, P.O. Box 52099, Berea Road, 4007 Durban / School of Chemistry, University of KwaZulu-Natal, 4041 Durban. Email: n.crouch@sanbi.org.za.
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