

## A New Brazilian Species of the Genus *Asplenium* L. (Aspleniaceae)

FERNANDO B. MATOS

Universidade Federal do Paraná, Depto. de Botânica, C.P. 19031, 81531-980, Curitiba, PR, Brazil.  
fbtms@yahoo.com.br

PAULO H. LABIAK

Universidade Federal do Paraná, Depto. de Botânica, C.P. 19031, 81531-980, Curitiba, PR, Brazil.  
plabiak@ufpr.br

LANA S. SYLVESTRE

Universidade Federal Rural do Rio de Janeiro, Depto. de Botânica, BR-465, Km 7, CEP 23890-000,  
Seropédica, RJ, Brazil. lana@ufrj.br

**ABSTRACT.**—*Asplenium truncorum*, a new asplenioid fern from the Brazilian Atlantic Rain Forest, is described, illustrated and compared to the most similar species. So far, it seems to be restricted to the montane moist forests of southern Bahia and Espírito Santo States, at elevations of 750 to 950 m. Field observations suggest that this species grows exclusively as an epiphyte on the trunks of tree ferns, especially *Alsophila setosa* Kaulf. (Cyatheaceae).

**KEY WORDS.**—*Asplenium truncorum*, Atlantic Rain Forest, Bahia, Espírito Santo, ferns, taxonomy

The asplenioid ferns, including the genus *Asplenium* L. and its putative segregates, make up one of the most species-rich groups among leptosporangiate ferns, comprising approximately 700 species, mainly with tropical distribution (Schneider *et al.*, 2004; Smith *et al.*, 2006). According to Sylvestre and Windisch (2003), Brazil harbors about 70 species of *Asplenium*, representing nearly half of the diversity found in the Neotropics (close to 150 species, according to Tryon and Tryon, 1982). As is the case with many other fern genera (*e.g.*, Moran, 1981; Moran *et al.*, in press), the Serra do Mar mountains along the coast of southeastern Brazil play a very important role in the diversification of this group, presenting a high level of endemism. Recent botanical expeditions to these mountains, in the States of Bahia and Espírito Santo, have revealed a new species of the genus *Asplenium*, which we describe as follows:

***Asplenium truncorum*** F. B. Matos, Labiak & L. Sylvestre, *sp. nov.* TYPE.—BRAZIL. **Bahia:** Camacan, RPPN Serra Bonita, 15°23'25"S, 39°34'05"W, 920 m, 29 Jul 2008, F. B. Matos *et al.* 1537 (holotype: UPCB; isotypes: CEPEC, NY, RB, SP). **Figs. 1, 2A–C, F–G.**

Species *Asplenio martiano* C. Chr. similis, differt laminis minus divisis, ad basin 1-pinnatis, petiolis laminis dimidio brevioribus et habitu epiphytico.

*Plants* epiphytic. *Rhizomes* erect; *scales* 1.5–2 × 0.3–0.5 mm, lanceolate, atrocastaneous, clathrate, tips twisted and long attenuate, margins with



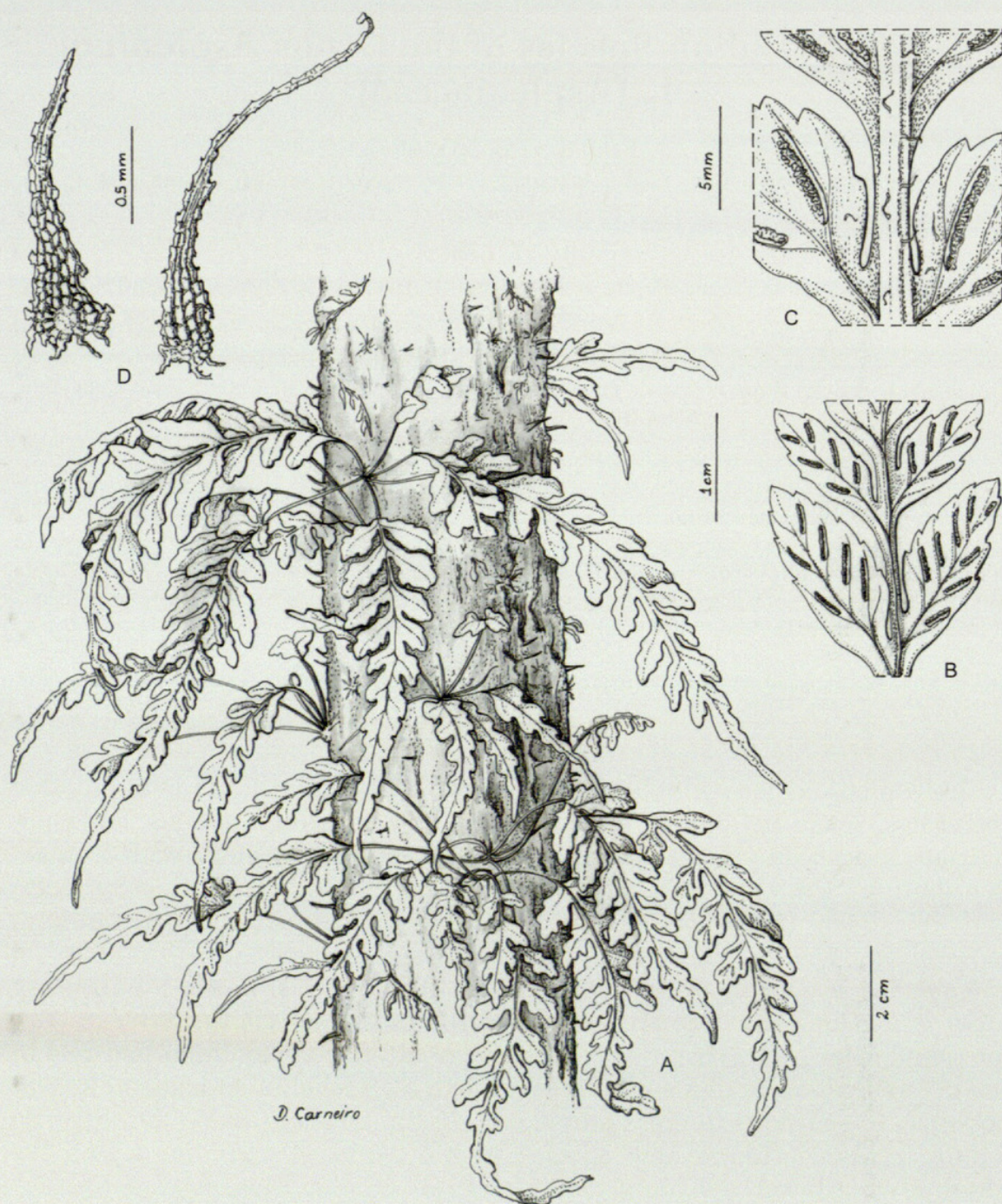


FIG. 1. A–D. *Asplenium truncorum* (Matos 1537, UPCB). A. Habit. B. Medial portion of the lamina. C. Rachis and sori detail. D. Rhizome scales.

irregular projections; *roots* thin and wiry, not proliferous. *Fronde*s (5)10–16(30) cm long, arcuate, clustered; *indument* abaxially of scattered, linear, clathrate scales, 0.2–1 mm long, also with inconspicuous clavate hairs, especially on leaf axes. *Stipes* 2–5(8) cm long, 0.3–0.7 mm diam., ca. 1/3–1/2 of the lamina length, brownish at base and greenish to stramineous distally, dull, with narrow green wings less than 0.4 mm wide. *Blades* 4–15(21) cm long  $\times$  1–5(13)



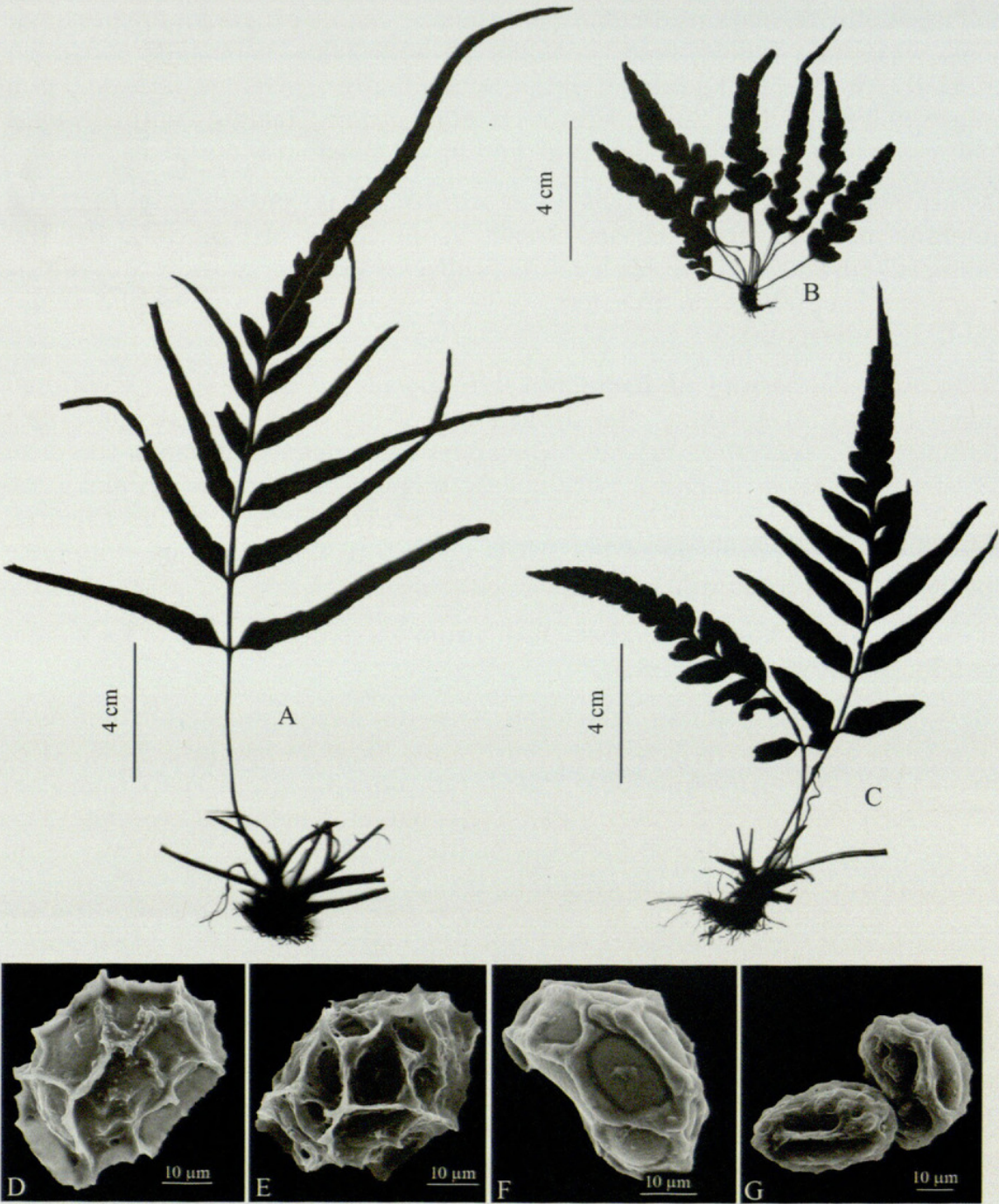


FIG. 2. A–C. Silhouettes illustrating the morphological variation in *Asplenium truncorum*. A. (Matos 1537, MBM). B. (Matos et al. 806, CEPEC). C. (Matos 1537, UPCB). D–E. *Asplenium martianum* (Handro 2664, NY), spores with alate folds, echinulate wings. D. Lateral view of the spore. E. Distal view of the spore. F–G. *A. truncorum* (Thomas et al. 13796, CEPEC), spores with low folds and large areolas. F. Lateral view of the spore. G. Proximal and lateral view of the spores.

cm wide, membranaceous, 1-pinnate proximally, with long attenuate pinnatifid apices; *rachises* greenish to stramineous, dull, with narrow green wings up to 0.5 mm wide; *pinnae* 1–11 cm long, less than 1 cm wide, flabellate to linear-lanceate, subfalcate, 2–5 pairs, the bases cuneate, non-auriculate, apices obtuse



to long-attenuate, margins dentate; *veins* mostly simple except for the proximal ones, which are forked, readily visible on both sides, vein ends expanded adaxially. *Sori* 1–5(12) pairs per pinna, occasionally diplazioid; *indusia* 5 mm long  $\times$  0.3 mm wide, linear, firmly membranaceous, margins entire; *spores* reniform, monolete, with a few large and broad anastomosing ridges.

**DISTRIBUTION AND ECOLOGY.**—*Asplenium truncorum* is known only from the montane moist forests of coastal Brazil, in the States of Bahia and Espírito Santo, at 750–950 m above sea level. This species seems to grow exclusively as a low-trunk epiphyte on tree ferns (Fig. 1, A), especially *Alsophila setosa* Kaulf. (Cyatheaceae).

**CONSERVATION.**—Despite of its remarkable species richness and exceptional concentration of endemics, the devastation of the Brazilian Atlantic Forest continues at a very alarming rate. Nowadays it is considered one of the most threatened biomes on Earth, with a very fragmented distribution along the Brazilian coast. Because it has a narrow extent of occurrence in this scenario, *Asplenium truncorum* meets the IUCN criteria (IUCN, 2001) of vulnerable species (VU: B1 a + b iii).

**ETYMOLOGY.**—The specific epithet “truncorum” was chosen due to its habitat preference for tree fern trunks.

**PARATYPES.**—BRAZIL. **Bahia:** Almadina, Serra do Corcovado, 9,8 km ao SW de Coarací na estrada para Almadina, daí N até a Fazenda São José, 14°42'21"S, 39°36'12"W, 750 m, 19 Apr 2007, *Matos et al.* 1408 (CEPEC, UPCB); Camacan, RPPN Serra Bonita, 15°23'30"S, 39°33'55"W, 835 m, 1 Feb 2004, *Thomas et al.* 13796 (CEPEC); Camacan, RPPN Serra Bonita, 15°23'30"S, 39°33'55"W, 835 m, 3 Feb 2005, *Matos et al.* 305 (CEPEC, UPCB); Camacan, RPPN Serra Bonita, 15°23'30"S, 39°33'55"W, 835 m, 13 Feb 2005, *Matos et al.* 446 (CEPEC, UPCB); Jussari, RPPN Serra do Teimoso [750 m], 27 Jul 2005, *Matos et al.* 806 (CEPEC, UPCB). **Espírito Santo:** Santa Teresa, Alto São Lourenço, Sítio da Cachoeira, 25 Oct 2000, *Demuner et al.* 1477 (BHCB, MBML); Santa Teresa, Nova Lombardia, Reserva Biológica Augusto Ruschi [800 m], 27 Jul 2002, *Vervloet et al.* 559 (BHCB, MBML); Santa Teresa, Nova Lombardia, Reserva Biológica Augusto Ruschi [800 m], 18 Dec 2002, *Rose & Pereira* 20 (BHCB, MBML).

*Asplenium truncorum* can be recognized by its erect rhizome, stipes with ca. 1/3 to 1/2 of the lamina length, 1-pinnate or less divided lamina, non-conform apical pinnae, and membranaceous to chartaceous leaf texture. Superficially, it resembles *Asplenium auriculatum* Sw. in habit, leaf dissection and color. However, the latter can be easily recognized by the presence of prominent auricles in the acroscopic base of the pinnae that often overlap the rachis. *Asplenium martianum* C. Chr. is probably one of the most closely related species in Brazil, being distinct by its longer stipes (the same length as the lamina or longer), blades usually 2-pinnate at base (or at least deeply 1-pinnate-pinatifid), and preferentially terrestrial habitat. Besides that, their spores are quite distinct, with those of *Asplenium martianum* showing alate



folds and echinulate wings (Fig. 2, D–E). *Asplenium austrobrasiliense* (Christ) Maxon also seems to be related morphologically, differing mainly by its chartaceous to coriaceous blades with conform apical pinnae, and longer stipes with approximately the same length as the laminae. *Asplenium cariocanum* Brade, which is ecologically similar in habitat, differs in having fringed stem scales with pronounced dark teeth, pinnae with lobately serrate margins and nearly symmetric pinnae bases that are usually auriculate.

#### ACKNOWLEDGMENTS

The authors thank André M. Amorim (UESC) and Wm. Wayt Thomas (NYBG) for supporting field work in southern Bahia and studies at the NYBG, as part of the project “Flora of the montane forests in Southern Bahia, Brazil” (Beneficia Foundation, NSF 9972116, NGS 7785-05, and CNPq 474648-4), and CAPES for providing the Master’s scholarship to the first author. This contribution was also partially funded by CNPq (Proc. n. 306878/2007-0 and 309415/2008-0) and NSF (DEB 0717056, in name of Dr. Robbin C. Moran). We also thank Dr. William A. Rodrigues for the Latin diagnosis, Diana Carneiro for preparing the illustrations, and Judith Garrison Hanks for preparing the SEM images of the spores.

#### LITERATURE CITED

- IUCN. 2001. IUCN Red list categories and criteria: Version 3.1. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.
- MORAN, R. C. 1987. Monograph of the Neotropical fern genus *Polybotrya* (Dryopteridaceae). Illinois Nat. Hist. Surv. Bull. 34:1–138.
- MORAN, R. C., J. PRADO and P. LABIAK. *Megalastrum* (Dryopteridaceae) in Brazil, Paraguay and Uruguay. Amer. Fern J. (in press).
- SCHNEIDER, H., S. J. RUSSEL, C. J. COX, F. BAKKER, S. HANDERSON, F. RUMSEY, J. BARRETT, M. GIBBY and J. C. VOGEL. 2004. Chloroplast phylogeny of asplenioid ferns based on *rbcL* and *trnL-F* spacer sequences (Polypodiidae, Aspleniaceae) and its implications for biogeography. Syst. Bot. 29:260–274.
- SMITH, A. R., K. M. PRYER, E. SCHUETTPELZ, P. KORALL, H. SCHNEIDER and P. G. WOLF. 2008. Fern classification. Pp. 417–467. In: RANKER, T. A. and C. H. HAUFLER. (eds.). Biology and evolution of ferns and lycophytes. Cambridge University Press, United Kingdom.
- SYLVESTRE, L. S. and P. G. WINDISCH. 2003. Diversity and distribution patterns of Aspleniaceae in Brazil. Pp. 107–120. In: CHANDRA, S. and M. SRIVASTAVA. (eds.). Pteridology in the New Millennium. Kluwer Academic Publishers, Dordrecht.
- TRYON, R. M. and A. F. TRYON. 1982. Ferns and allied plants, with special reference to tropical America. Springer-Verlag, New York.





Matos, Fernando B , Labiak, Paulo Henrique, and Sylvestre, Lana da Silva.  
2009. "A New Brazilian Species of the Genus *Asplenium* L. (Aspleniaceae)."  
*American fern journal* 99, 101–105. <https://doi.org/10.1640/0002-8444-99.2.101>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/182330>

**DOI:** <https://doi.org/10.1640/0002-8444-99.2.101>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/230929>

#### **Holding Institution**

Missouri Botanical Garden, Peter H. Raven Library

#### **Sponsored by**

Missouri Botanical Garden

#### **Copyright & Reuse**

Copyright Status: Permission to digitize granted by rights holder

Rights Holder: American Fern Society

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.