

**Zeitschrift:** Candollea : journal international de botanique systématique = international journal of systematic botany

**Herausgeber:** Conservatoire et Jardin botaniques de la Ville de Genève

**Band:** 64 (2009)

**Heft:** 1

**Artikel:** Polystichum faucicola M. Kessler & Lehnert (Dryopteridaceae) : a new fern species from Ecuador

**Autor:** Kessler, Michael / Lehnert, Marcus

**DOI:** <https://doi.org/10.5169/seals-879197>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 14.03.2026

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

# Polystichum faucicola M. Kessler & Lehnert (Dryopteridaceae), a new fern species from Ecuador

Michael Kessler & Marcus Lehnert

## Abstract

KESSLER, M. & M. LEHNERT (2009). *Polystichum faucicola* M. Kessler & Lehnert (Dryopteridaceae), a new fern species from Ecuador. *Candollea* 64: 123-126. In English, English and French abstracts.

*Polystichum faucicola* M. Kessler & Lehnert, a new species of *Dryopteridaceae*, is described from a single specimen collected at 2520 m in a cloud forest of SE Ecuador. It differs from *Polystichum maximum* M. Kessler & A. R. Sm.

## Key-words

DRYOPTERIDACEAE – *Polystichum* – Ecuador – Ferns – Taxonomy

## Résumé

KESSLER, M. & M. LEHNERT (2009). *Polystichum faucicola* M. Kessler & Lehnert (Dryopteridaceae), une espèce nouvelle de fougère d'Equateur. *Candollea* 64: 123-126. En anglais, résumés anglais et français.

*Polystichum faucicola* M. Kessler & Lehnert, une nouvelle espèce de *Dryopteridaceae*, est décrite d'un unique spécimen récolté à 2520 m dans une forêt tropicale de montagne au SE de l'Equateur. Elle diffère de *Polystichum maximum* M. Kessler & A. R. Sm.

---

Addresses of the authors: MK: Systematic Botany, University of Zürich, Zollikerstrasse 107, CH-8008 Zürich, Switzerland.

ML: Staatliches Museum für Naturkunde Stuttgart, Am Löwentor, Rosenstein 1, 70191 Stuttgart, Germany.

Email (ML): [marlehnert@yahoo.com](mailto:marlehnert@yahoo.com)

Submitted on July 3, 2008. Accepted on January 22, 2009.

Edited by P. Bungener

The genus *Polystichum* Roth (*Dryopteridaceae*) has about 180-230 species, of which approximately 50 species are found in the mountain regions of tropical America (LU & al., 2007). *Polystichum* is a taxonomically difficult genus, with many similar and variable species, frequent hybridization, and apogamy (KNOBLOCH, 1976; BARRINGTON, 1985; SOLTIS & al., 1990; MULLENNIEX & al., 1999). Taxonomic treatments of *Polystichum* are available for Peru (TRYON & STOLZE, 1991) and Bolivia (KESSLER & al., 2005). For Ecuador, JØRGENSEN & LEÓN-YÁNEZ (1999) list eleven *Polystichum* species, but *P. hartwegii* (Klotzsch) Hieron. has since been found there. During fieldwork in southeastern Ecuador in 2003, one of the two authors (Marcus Lehnert) collected a distinct *Polystichum* in a ravine within mossy cloud forest at 2520 m at Reserva Tapichalaca, Zamora-Chinchi Province. Examination of the specimen revealed that it does not correspond to any species of *Polystichum* currently known from the Andes. We therefore describe the following new species.

Terminology follows LELLINGER (2002). Consequently we use “frond”, “stipe”, and “lamina” instead of “leaf”, “petiole”, and “blade”, respectively, and the main axis of a pinna is called “costa” and not “pinna rachis”.

***Polystichum faucicola*** M. Kessler & Lehnert, **spec. nova**  
(Fig. 1A-G)

**Typus:** ECUADOR, Zamora-Chinchi: Reserva Tapichalaca, study plot B3, near Ventanillas, 04°29'S 79°07'W, 2520 m, 1.XI.2003, Lehnert 1057 (holo-: UC; iso-: GOET, QCA).

*A Polysticho maximo M. Kessler & A.R. Sm. pinnis pro fronde ca. 15 jugis (vs. > 25 jugis), squamis petiolorum valde fimbriatis (vs. marginibus erosis, denticulatis vel parce fimbriatis), squamis costarum rhachidumque uniformibus, furfureis, 0.5-6 × 0.1-1 mm, denticulatis vel ciliatis, et anguste lanceolatis usque linearibus et partim tortuis (vs. squamis dimorphis), superficie sporarum cristata (vs. foveolata et irregulariter aculeata) differt.*

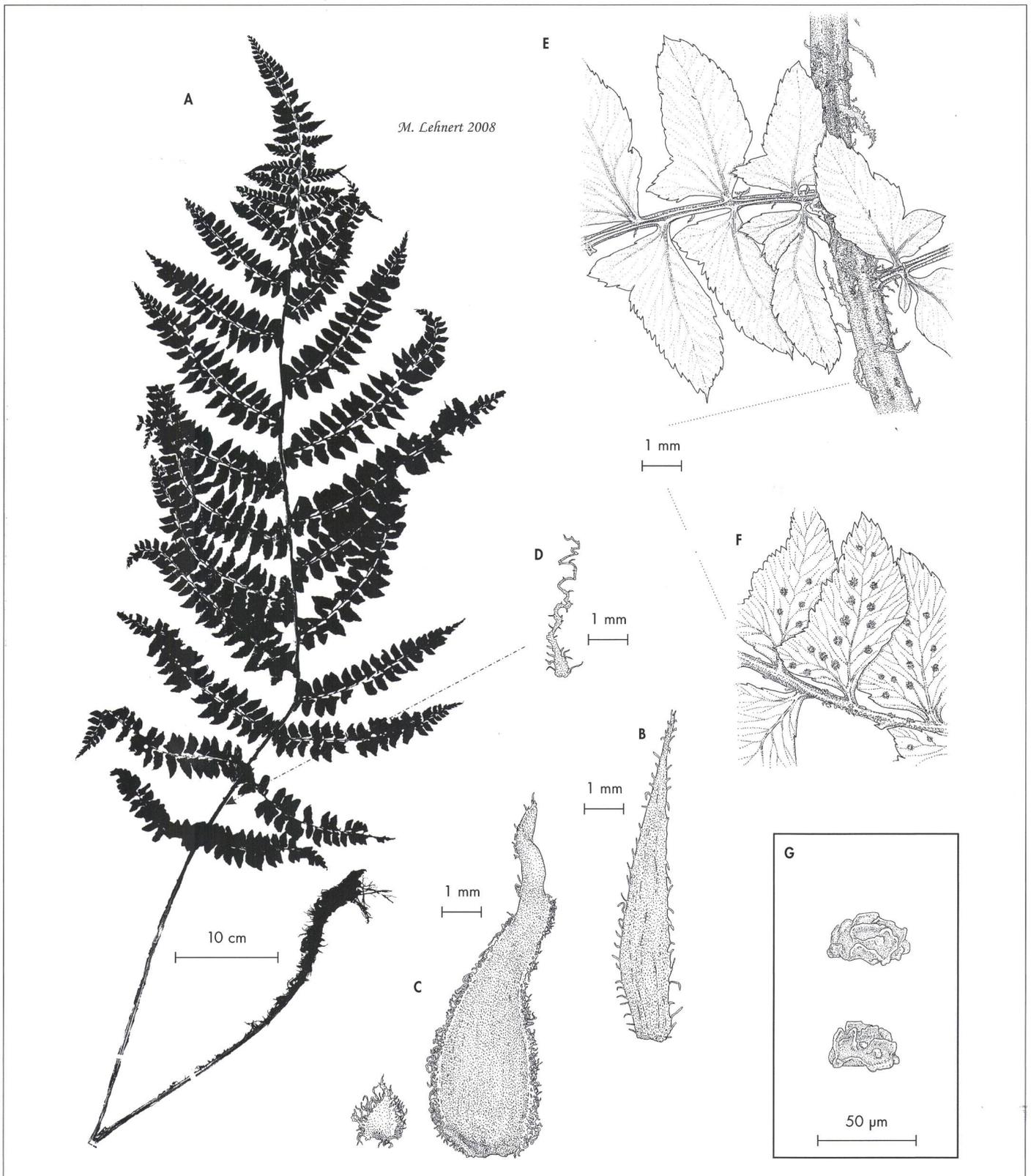
Plants terrestrial. Rhizomes erect, ca. 3.5-4 cm in diameter with stipe bases; rhizome scales reddish brown, opaque, slightly darker proximally and slightly paler marginally, lanceolate, 8-21 × 1.5-2.5 mm, with sparsely ciliate margins. Fronds ascending, to ca. 100-125 cm long. Stipes ca. 55 cm × 3-4 mm, reddish brown, moderately scaly; stipe scales fimbriate to ciliate, opaque, weakly bicolorous with paler margins and darkened bases, of two types, spreading ones 3-12 × 0.3-2.5 mm, lanceolate to linear-lanceolate with acuminate, partly tortuous apices, reddish brown, appressed ones 1-5 × 0.3-0.8 mm, ovate to broadly lanceolate with acute apices, reddish brown, with stronger color contrast and wider margins than the spreading scales. Laminae 45-70 × 30-35 cm, chartaceous, oblong-lanceolate, bipinnate, with ca. 15 pinnae per

side, gradually reduced to pinnatifid apices, without bulbils. Pinnae to 16-22 × 4.3-4.5 cm, long-lanceolate, attenuate, each with 15-21 free pinnule pairs plus short pinnatifid apices; pinnae proximally opposite, distally alternate, remote throughout (up to 8 cm) or becoming more approximate distally, the lowermost pinnae about 3/4 the length of the longest pinnae. Pinnules to 25 × 14 mm, flat, trapeziform to ovate-elliptic with a distinct acroscopic lobe, bases asymmetrically cuneate, margins denticulate, apices acute, subspinulose; proximal pinnules 2/3-3/4 of the length of the largest pinnules on a given pinna. Rachises and costae red-brown, moderately scaly; scales of rachises and costae 0.5-6 × 0.1-1 mm, narrowly lanceolate to linear, denticulate to ciliate, partly tortuous, distally often sinuous, reddish brown, opaque; scales of pinnules 0.1-1.5 × 0.5-0.3 mm, linear-lanceolate to filiform, often tortuous, margins denticulate, yellowish to reddish brown, abaxially sparse to moderately dense on the veins, very rarely on the laminae itself, adaxially lacking. Veins evident. Sori to 20 per pinnule. Indusia lacking. Spores 42-48 × 35-40 μm, perispore cristate.

**Distribution and habitat.** – *Polystichum faucicola* is known from a single specimen collected at 2520 m in Ecuador, Prov. Zamora-Chinchi. Despite intensive fieldwork in the general area as well as specific searches for further individuals at the type locality, no further individuals were found. However, this does not mean that the species is genuinely rare, because the steep terrain and the dense vegetation render much of the area inaccessible. The only other species of *Polystichum* in this area, *P. dictyophyllum* C. Chr. and *P. platyphyllum* (Willd.) C. Presl (LEHNERT & al., 2007), also occur in rather low frequency.

**Etymology.** – The name refers to the habitat in which the plant was found, namely in the shade of a *Chusquea* thicket in a deep gorge (Latin, *faucicola* = gorge dweller).

**Note.** – The most conspicuous characters of *P. faucicola* that separate it from any other Ecuadorian species of *Polystichum* are its large, flat pinnules and the widely spaced basal pinnae. These characters are reminiscent of *P. maximum* M. Kessler & A. R. Sm. (KESSLER & al., 2005; KESSLER & SMITH, 2007) from Bolivia, but the two species differ in several aspects. Most noteworthy, the stipe scales of *P. faucicola* have strongly fimbriate margins (abraded in some older scales) whereas those of *P. maximum* have erose, denticulate, or sparsely fimbriate margins. Furthermore, all scales of *P. faucicola* are narrower than the equivalent scales in *P. maximum* and tend to be less translucent. On the costae and rachises, *P. maximum* has two distinct scale types (some scales orange-brown, long-lanceolate, 3-5 × 0.5-1 mm, the margins erose; others deep brown, filiform to lanceolate, 1-8 × 0.05-0.4 mm, margins entire to slightly erose), whereas in *P. faucicola* only one, different type can be found (reddish brown, narrowly lanceolate to linear, partly tortuous, 0.5-6 × 0.1-1 mm, the margins denticulate to ciliate). Macroscopically, *Polystichum*



**Fig. 1.** – *Polystichum faucicola* M. Kessler & Lehnert. **A.** Habit; reconstructed from mounted specimen at UC, pinnae on the right complemented with GOET material; **B.** Rhizome scale; **C.** Stipe scales; **D.** Rachis scale; **E.** Proximal pinnules of medial pinna, adaxially; **F.** Medial pinnules of medial pinna, abaxially, with sori; **G.** Spores, lateral view.

[**B-G:** Lehnert 1057, GOET] [Drawing: M. Lehnert]

*faucicola* has fewer pinnae (ca. 15 vs. > 25 pinna pairs per frond) that are more widely spaced (up to 8 cm) than in *P. maximum* (4 cm). The proximal pinnae of *P. faucicola* are patent, but those of *P. maximum* are typically reflexed. The spores of *P. faucicola* fall within the same size range as that of *P. maximum* (45-50 µm), but whereas the spore surface of *P. maximum* is foveolate and irregularly aculeate, that of *P. faucicola* has cristae up to 8 µm tall. The spores of both species are larger than those of related species and KESSLER & al. (2005) interpreted this as a possible sign of polyploidy in *P. maximum*.

*Polystichum faucicola* differs from *P. dictyophyllum* C. Chr. and *P. platyphyllum* (Willd.) C. Presl, the other two species of found in its native habitat, by its larger size and by lacking the elongate 1-pinnate apices of the other two species.

### Acknowledgments

We thank Nicki Mandl for collaboration in the field and the anonymous reviewers for their comments on the manuscript. Dave Barrington (VT) kindly provided digital images of the holotype. This study was funded by the Deutsche Forschungsgemeinschaft (DFG).

### References

- BARRINGTON, D. S. (1985). The present evolutionary and taxonomic status of the fern genus *Polystichum*. *Amer. Fern J.* 75: 22-28.
- JØRGENSEN, P. M. & S. LEÓN-YÁNEZ (1999). *Catalogue of the vascular plants of Ecuador*. Missouri Botanical Garden Press.
- KESSLER, M., A. R. SMITH & M. A. SUNDUE (2005). Notes on the genus *Polystichum* (Dryopteridaceae, Pteridophyta) in Bolivia, with descriptions of ten new species. *Brittonia* 57: 205-227.
- KESSLER, M. & A. R. SMITH (2007). Ten new species and other nomenclatural changes for ferns from Bolivia. *Brittonia* 59: 186-197.
- KNOBLOCH, I. W. (1976). Pteridophyte hybrids. *Publ. Mus. Michigan State Univ. Biol. Ser.* 5: 277-352.
- LEHNERT, M., M. KESSLER, L. I. SALAZAR, H. NAVARRETE, F. A. WERNER & S. R. GRADSTEIN (2007). Pteridophyta. In: LIEDE-SCHUMANN, S. & S.-W. BRECKLE (ed.), Provisional checklists of fauna and flora of the San Francisco valley and its surroundings (Reserva San Francisco / Prov. Zamora-Chinchiipe, southern Ecuador). *Ecotrop. Monogr.* 4: 59-68.
- LELLINGER, D. B. (2002). A modern multilingual glossary for taxonomic pteridology. *Pteridologia* 3.
- LU, J.-M., D. S. BARRINGTON & D. Z. LI (2007). Molecular phylogeny of the polystichoid ferns in Asia based on rbcL sequences. *Syst. Bot.* 32: 26-33.
- MULLENNIEX, A., T. M. HARDIG & M. R. MESLER (1999). Molecular confirmation of hybrid swarms in the fern genus *Polystichum* (Dryopteridaceae). *Syst. Bot.* 23: 421-426.
- SOLTIS, P. S., D. E. SOLTIS & P. G. WOLF (1990). Allozymic divergence and species relationships in North American *Polystichum* (Dryopteridaceae). *Syst. Bot.* 15: 205-215.
- TRYON, R. M. & R. G. STOLZE (1991). Pteridophyta of Peru, Part IV, 17. Dryopteridaceae. *Fieldiana, Bot. ser.* 2, 27.