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Four New Species and Additional Distributions of *Elaphoglossum* Section *Elaphoglossum* (Dryopteridaceae) from the Neotropics

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Abstract

Four new species of *Elaphoglossum* sect. *Elaphoglossum* are described: *E. amparoanum* A. Rojas, *E. chocoense* A. Rojas, *E. fayorum* A. Rojas and *E. luciae* A. Rojas. The first species is related to *E. variolatum* Mickel, but differs from it by having rhizome scales bicolorous and long ciliate margin. The second species is different to *E. moranii* Mickel by having narrower rhizome, shorter stipe, elliptic blade, attenuate blade base, shorter fertile fronds with blackish costa and present at lower altitudinal distribution. After that, the third species differs from *E. lingua* (C. Presl) Brack. by pale rhizome scales with long ciliate margin, shorter fronds and blade scales denser and lighter. Finally, the fourth species is related to *E. atrosquamatum* Mickel, but with relative longer fronds and broader blade. The geographical distributions of *E. guatemalense* (Klotzsch) T. Moore, *E. longicrure* Christ, *E. minutum* (Pohl ex Fée) T. Moore and *E. nicaragüense* A. Rojas are expanded.

Keywords

Dryopteridaceae, *Elaphoglossum*, Ferns, New Records, New Species, Section *Elaphoglossum*, Taxonomy

1. Introduction

Section *Elaphoglossum* is the largest group of the genus and is characterized by hydathodes absent, phyllopodia present and medium sized blades with stellate blade scales (Mickel & Atehortúa 1980). Subsection *Pachyglossa* is characterized by subcoriaceous to coriaceous blade and minute stellate blade scales (vs. chartaceous blade and scales absent in subsection *Tenuifolia*) [1].

Rouhan *et al.* performed a phylogenetic analysis of the fern genus *Elaphoglossum* using two non-coding chloroplast spacers: trnL-trnF and rps4-trnS, ob-

taining a cladogram based in strict consensus of 1008 most parsimonious combined trees that reveal two well supported subclades in section *Elaphoglossum*: *Pachyglossa* and *Platyglossa* [2], each of which corresponds to a subsection defined by Christ [3]. Also, two species: *E. aemulum* (Kaulf.) Brack. and *E. glaucum* T. Moore appeared as different groups to sect. *Elaphoglossum* and the authors proposed they as new sections. However, no morphological characters were associated for recognize the new sections and subsections in section *Elaphoglossum*, also the new subsections weren't described formally.

Skog *et al.* [4] investigated the fern genus *Elaphoglossum* using cpDNA sequence data from rbcL, trnL-F, and rps4-trnS, and encountered two groups from section *Elaphoglossum*: *Pachyglossa* and *Platyglossa* clades. However the position of *E. glaucum* within section *Elaphoglossum* is unresolved by MP and Bayes sequence analyses, the taxon shares insertion rt11 with subsection *Pachyglossa*, which suggests a closer affinity with this subsection than with subsection *Platyglossa*. Interestingly, inclusion of *E. glaucum* in the subsection *Pachyglossa* cannot be rejected by the nonparametric Templeton [5] test, whereas inclusion in the subsection *Platyglossa* is rejected by the same test. The authors auditioned morphological characters in the maximum parsimony tree, and defined *Pachyglossa* clade with leaves less than 30 cm long and rhizomes narrow, long and creeping, and *Platyglossa* clade with leaves more than 30 cm long and rhizomes thick compact, but apparently the trends in morphological characters were associated on the contrary.

Moran *et al.* [6] studied perispore structure using a scanning electron microscope and compared the spore ornamentation with a previously published phylogenetic analysis [2] of the genus based on two chloroplast noncoding DNA regions, trnL-trnF and rps4-trnS. They analyzed presence and continuously of broad folds or cristae, perispore character, presence of spines and perforations, and discovered three sinapomorphic characters from sect. *Pachyglossa*: cristate perispore, spines and perforations; however none is constant for separate the two subsections.

Because previous authors do not support the description of the new sections, or not defined appropriately morphologically sections and subsections included in section *Elaphoglossum*, the author of this paper prefers to maintain the classification system proposed by Mickel & Atehortúa [7].

2. Materials and Methods

The new species here considered are the result of comparisons with specimens of other Neotropical species, and a review of related species and keys from the neotropical ferns by Gómez & Arbeláez [8], Mickel [9] [10] [11] [12], Mickel & Beitel [13], Mickel & Smith [14], and Murillo *et al.* [15] and other papers in the *Elaphoglossum* genus by Kessler & Mickel [16], Mickel [17] [18] [19] [20] [21], Neves & Salino [22], Rojas [23] [24] [25] [26] [27] and Rojas & Rodríguez [28]. The examined specimens are deposited in the following herbaria CR, COL, EAP, F, HUA, MEXU, MO, TEFH, UC, US and USJ (acronyms following Thiers, [29]).

To ensure the correct application names, original type material or digital type images were examined as available (Jstor Global Plants (http://plants.jstor.org/)), and the new names were corroborated with International Plant Name Index (http://www.ipni.org/ipni/plantnamesearchpage.do).

3. Results

3.1. New Species

3.1.1. *Elaphoglossum amparoanum*

A. Rojas, **sp. nov.** (Figure 1, Figure 2)

TYPE: COLOMBIA. Antioquia: San Andrés Municipio, km 13 of road Toledo-San José de La Montaña, 06˚54'N, 75˚41'W, 2300 m, 13 May 1988, *J. Zarucchi & J. Betancur* 6521 (holotype: MO).

Diagnoses. Ab *Elaphoglosso variolato* Mickel rhizomatis squamis ciliatas vel stellatis (adversus integris ad costo ciliatis) et nigras (adversus atroflavescentibus) differt.

Description. Epiphytic; *rhizomes* 2 - 3 mm in diameter, creeping, fronds 13 - 25 mm distant; rhizome *scales* 2 - 3 by 1 - 1.5 mm, ovate to lanceolate, bicolorous, blackish with the base and margin commonly yellowish-brown, peltate, appressed, marginally long-ciliate; *phyllopodia* 7 - 15 mm long; *fronds* 10 - 42 cm

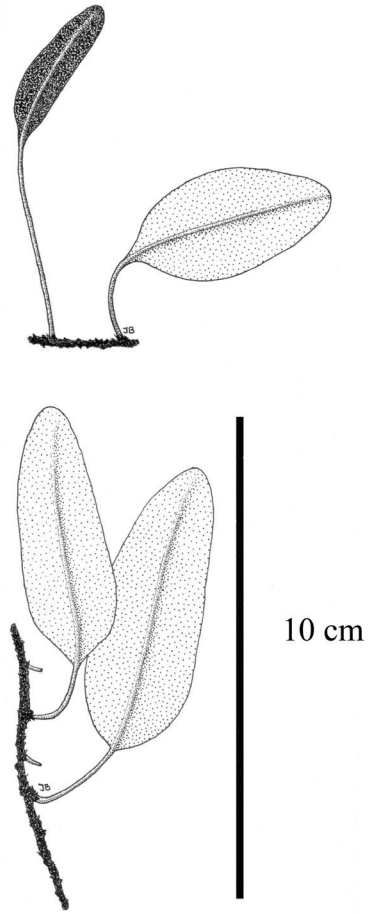

Figure 1. *Elaphoglossum amparoanum* (*J. Zarucchi & J. Betancur* 6521, MO). A. Habit.

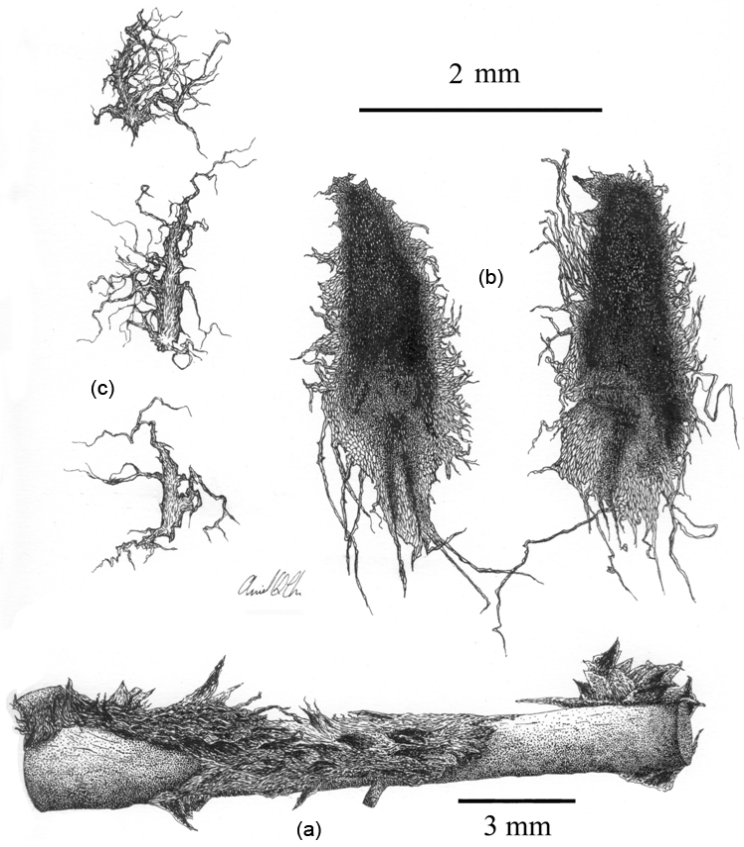

Figure 2. *Elaphoglossum amparoanum* (*J. Zarucchi & J. Betancur* 6521, MO). (a) Rhizome detail; (b) Rhizome scales; (c) Blade scales.

long; *stipe* 3 - 22 cm long, brown, scaly, the scales similar to the rhizome scales; *blade* 7 - 21 by 2.5 - 7.2 cm, ovate to lanceolate, coriaceous, basally obtuse, apically obtuse; *costa* brown at base, higher up stramineous, scaly, the scales 1 - 2 by 0.7 - 1 mm, ovate, gold-brown, medium-dense, marginally with lateral processes; *blade abaxially* with scales 0.5 - 1.5 mm long, rounded to ovate (including cilia), stellate, yellowish-brown; *blade scales adaxially* similar in size and form to abaxialy scales but whitish and sometimes deciduous; *veins* little evident; *hydathodes* absent; *fertile fronds* 15 cm long; *stipe* 9.5 cm long; *blade* 5.5 by 1.4 cm, oblong-elliptic, basally broadly cuneate, apically obtuse to rounded; *intersporangial scales* absent.

Etymology. The new species is dedicated to Luz Amparo Triana Moreno, who works with Colombian ferns.

Distribution. Known only from Colombia in the Cordillera de Los Andes at 2100 - 2600 m.

Additional revised specimens (paratypes). COLOMBIA. Antioquia: Laguna de Guarne, Dec. 1935 *Bro. Daniel s.n.* (COL); ibídem., San Pedro, Feb. 1937, *Bro. Daniel* 1020 (COL, US); Municipio de Belmira, vereda El Yerbal, sitio Los Patos, margen izquierda del Río Chico, alto de Sabanazos, 06˚35'N, 75˚32'W, 2600 m, 24 Apr. 1991, *D. Echeverri et al.* 454 (MO). Antioquia-Chocó: at and on both sides of the principal ridge W of La Mansa, at ca. Km 105.5 of the Ciudad

Bolívar-Quibdó road, 2100 - 2200 m, 4 Apr. 1971, *D. Lellinger & E. de la Sota* 939 (US). Cauca: Parque Nacional Munchique, Km 50 - 55 along road above Uribe, 1875 - 2256 m, 25 Apr. 1979, *J. Luteyn et al.* 7483 (COL). Cundinamarca: Muni- cipio San Bernardo, Vereda Santa Rita, Hacienda El Placer, 2150 - 2200 m, 27 Jul. 1981, *S. Díaz* 3211 (COL); San Miguel a Aguabonita, carretera Aguabonita- Fusagasugá, 2000 m, 15 Apr. 1946, *J. Duque* 3304 (COL). Huila: Municipio San Adolfo, Parque Nacional Cueva de Los Guácharos, 1800 m, 6 - 7 Feb. 1976, *Acosta* 1041 (COL); Cordillera Oriental, 15 km SE of Garzón, 7200 ft. [=2190 m], 1 Feb 1945, *E. Little* 9348 (US).

In its creeping rhizome and blade shape, the new species is similar to *Elaphoglossum variolatum* Mickel; however, *E. amparoanum* differs by its ciliate to stellate (vs. entire to short-ciliate) and bicolorous rhizome scales with blackish center (vs. concolorous). The new species is also similar to *E. lingua* (C. Presl) Brack., but differs from it by its ciliate to stellate (vs. entire to short-ciliate) rhizome scales, yellowish-brown (vs. blackish) and medium-dense (vs. sparse to glabrescent) blade scales (Figure 1, Figure 2).

3.1.2. *Elaphoglossum chocoense*

A. Rojas, **sp. nov.** (Figure 3, Figure 4)

TYPE: COLOMBIA. **Chocó**: Mpio. Bahía Solano, corregimiento El Valle, Parque Nacional Natural Ensenada de Utría, serranía del Baudó, camino de Utría a El Valle, 6˚06'N, 77˚21'W, 30 - 50 m, 27 Jun 1999, *J. Betancour & N. García* 8062 (holotype: HUA; isotype: COL).

Diagnoses. *Elaphoglossum chocoense* a *E. moranii* Mickel rhizomatibus angustioribus, stipitibus brevioribus, lamina elliptica, basi laminae attenuata, frondibus fertilibus brevioribus costa nigrescenti et altitudinale inferna distributio differt.

Figure 3. *Elaphoglossum chocoense* (*J. Betancour & N. García* 8062, HUA). A. Habit.

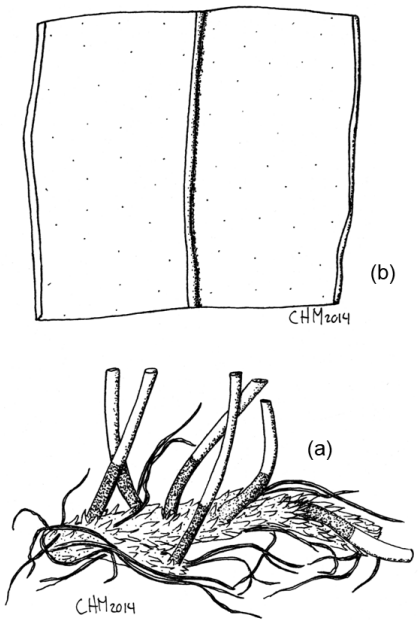

Figure 4. *Elaphoglossum chocoense* (*J. Betancour & N. García* 8062, HUA). A. Rhizome detail. B. Blade detail.

Description. Epiphytic; *rhizomes* 1 - 2 mm in diameter, short-creeping, fronds 2 - 7 mm distant; *rhizome scales* 0.7 - 2 by 0.5 - 1 mm, ovate to lanceolate, peltate, appressed, dark brown to blackish, flat, marginally dentate to ciliate with a narrow brown-yellowish ribbon; *fronds* 11 - 19 cm long; *stipe* 2 - 3 cm long, stramineous, scaly at base, the scales 0.5 - 1.5 by 0.3 - 0.7 mm, similar to the rhizome scales but gradually shorter towards the lamina; *phyllopodia* 7 - 10 mm long; *blade* 8 - 14 by 1.4 - 2.8 cm, elliptic, coriaceous, basally attenuate, apically broadly acute to obtuse; *costa* stramineous, basally scaly, the scales 0.5 - 1.0 by 0.2 - 0.5 mm similar to stipe scales but smaller; *blade abaxially* gabrous, with resinous dots or with minute (less than 0.1 mm) stellate and orange scales; *blade adaxially* glabrous; *veins* not evident; *hydathodes* absent; *fertile frond* 11.5 - 15 cm long; *stipe* 5.5 - 8.0 cm long; *blade* 6 - 8 by 0.7 - 1.0 cm, narrowly elliptic, base attenuate, apex acute, with blackish costa abaxially; *intersporangial scales* absent.

Etimology. The specific epithets make referent to type locality.

Distribution. Known only from the type in Colombia in the biogeographic Chocó at 30 - 50 m.

Elaphoglossum chocoense differs from *E. moranii* Mickel by having narrower (1 - 2 mm vs. 2 - 3 mm) rhizome, shorter (2 - 3 cm long vs. 4 - 18 (- 26) cm) stipe, elliptic (vs. narrowly oblong to linear-lanceolate) blade, attenuate (vs. narrowly cuneate) blade base, shorter (11.5 - 15 cm vs. 17 - 41 (–50) cm) fertile fronds with blackish (vs. strawish) costa and present at lower altitudinal distribution (30 - 50 m vs. 500 - 2000 m). The new species is also similar to *E. lingua* (C. Presl) Brack., but differs from it by its shorter (2 - 3 cm long vs. 4 - 17cm) stipe, elliptic (vs. lanceolate) blade, attenuate (vs. broadly cuneate) blade base, shorter (11.5 - 15 cm vs. 20 - 50 cm) fertile fronds and present at lower altitudin-

al distribution (30 - 50 m vs. 900 - 2000 (- 2500) m) (Figure 3, Figure 4).

3.1.3. *Elaphoglossum fayorum*

A. Rojas, **sp. nov.** (Figure 5, Figure 6)

TYPE: ECUADOR. Pichincha: Quito Cantón, Río Guajalito Reserve, 10 km W of Chiriboga, km 59 on old road Quito-Santo Domingo, 00˚14'S, 78˚48'W, 1900 - 2100 m, 16 Jun 1991, *A. Fay & L. Fay* 3129 (holotype: MO; isotype: NY).

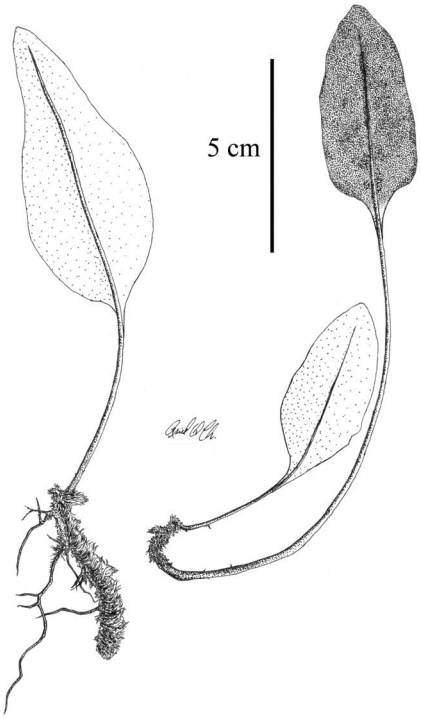

Figure 5. *Elaphoglossum fayiorum* (*A. Fay & L. Fay* 3129, MO). A. Habit.

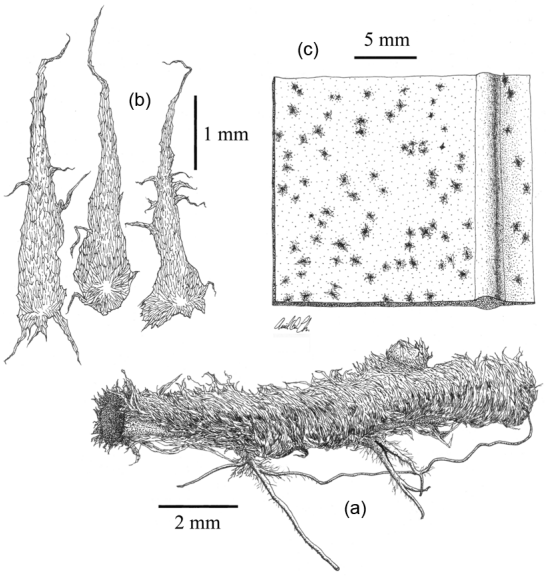

Figure 6. *Elaphoglossum fayiorum* (*A. Fay & L. Fay* 3129, MO). A. Rhizome detail. B. Rhizome scales. C. Blade detail.

Diagnoses. Ab *Elaphoglosso lingua* (C. Presl) Brack. rhizomatis squamis densioribus longioribus auratis, lamina breviore, laminae squamis densioribus differt.

Description. Epiphytic; *rhizomes* 1 - 2 mm in diameter, creeping, fronds 5 - 15 mm distant; *rhizome scales* 2 - 4 by 0.5 - 1 mm, lanceolate, gold to reddish brown, crisped, marginally with lateral processes dense at the base and sparse elsewhere; *fronds* 6 - 10 cm long; *stipe* 2.5 - 4 cm long, stramineous, scaly at base, the scales 1 - 2 by 0.3 - 1 mm, similar to the rhizome scales but gradually shorter towards the lamina; *phyllopodia* 2 - 9 mm long; *blade* 3.5 - 6 by 1.3 - 2.5 cm, ovate, coriaceous, basally obtuse, apically broadly acute to obtuse; *costa* stramineous, scaly, the scales similar to abaxial blade scales; *blade abaxially* scaly, the scales 0.5 - 1.5 by 0.3 - 0.6 mm, rounded and stellate to lanceolate with long ciliate margin; *blade adaxially* glabrous; *veins* few evident; *hydathodes* absent; *fertile frond* 14.5 cm long; *stipe* 10.3 cm long; *blade* 4.2 by 1.8 cm, lanceolate, base obtuse, apex obtuse to round; *intersporangial scales* absent.

Etimology. The specific epithet honors Alice and Luis Fay, collectors of the type material.

Distribution. Known only from the type in Ecuador in Cordillera de Los Andes at 1900 - 2100 m.

Elaphoglossum fayorum differs from *E. lingua* (C. Presl) Brack. by the longer (2 - 4 mm vs. 1 - 2 mm), gold to reddish brown (vs. dark brown to blackish) and basally ciliate (vs. entire to dentate) rhizome scales, smaller (3.5 - 6 by 1.3 - 2.5 cm vs. 8 - 24 by 2.7 - 6.5 cm) blades and dense (vs. sparse or absent) blade scales. It is also similar to *E. pteropus* C. Chr.; however, *E. fayorum* differs by gold to reddish brown (vs. dark brown) and ciliate (vs. entire) rhizome scales (Figure 5, Figure 6).

3.1.4. *Elaphoglossum luciae*

A. Rojas, **sp. nov.** (Figure 7, Figure 8)

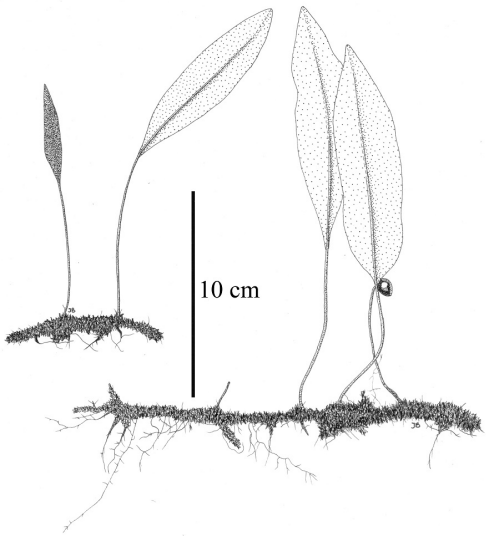

Figure 7. *Elaphoglossum luciae* (*B. Boyle & S. Chapotin* 5965, MO). A. Habit.

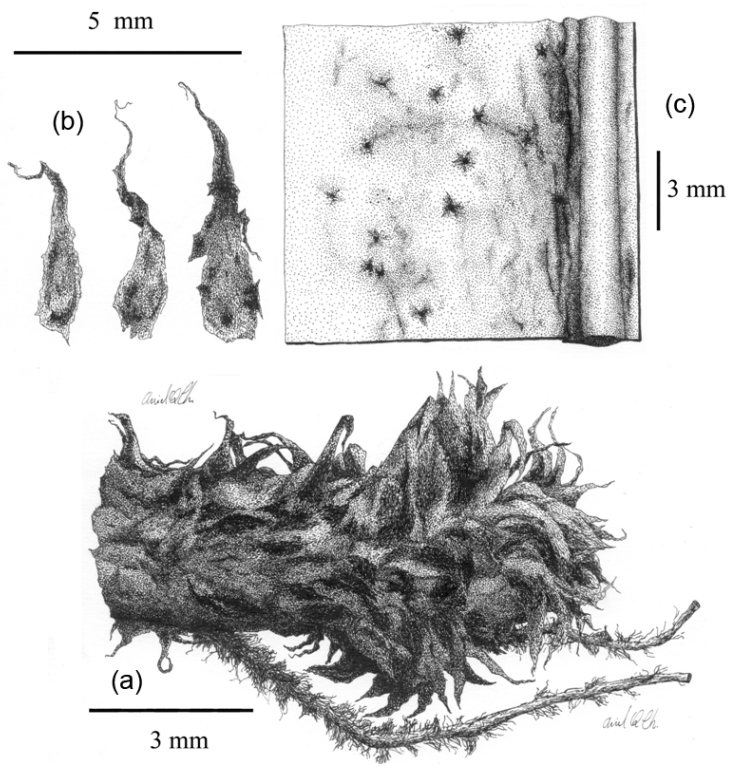

Figure 8. *Elaphoglossum luciae* (*B. Boyle & S. Chapotin* 5965, MO). A. Rhizome detail. B. Rhizome scales. C. Blade detail.

TYPE: COSTA RICA. San José: Pérez Zeledón, Cerro de La Muerte, trail from microwave towers to highway, 09˚33'30"N, 83˚43'04"W, 3450 m, 9 Jul 2000, *B. Boyle & S. Chapotin* 5965 (holotype: USJ; isotypes: CR, NY).

Diagnoses. Ab *Elaphoglosso atrosquamato* Mickel rhizomatis crassiore et lamini ovatis ad ovato-lanceolatis (adversus anguste ellipticam) differt.

Description. Terrestrial; *rhizomes* 2 - 3 mm in diameter, moderate to long-creeping, fronds 5 - 15 mm distant; *rhizome scales* 5 - 8 by 0.5 - 15 mm, linear-lanceolate, dark brown to blackish, twisted, patent to curved, marginally entire to long-ciliate near the apex; *fronds* 7 - 22 cm long; *phyllopodia* 5 - 10 mm long; *stipe* 1/3 - 1/2 of the frond length, scaly, the scales 2 - 4 by 0.4 - 0.8 mm, linear-lanceolate, brown to dark brown, patent, sparse to dense, marginally entire; *blade* 5 - 9 by 1.5 - 3 cm, elliptic, coriaceous, basically cuneate, apically acute to acuminate; *costa* stramineous, scaly, the scales 1 - 2 by 0.3 - 0.7 mm, linear-hastate, dark brown to blackish, dense, marginally ciliate, commonly with short lateral extensions, mixed with scales 0.5 - 1 mm indiameter, stellate to linear-hastate, blackish, sparse, marginally ciliate; *veins* few evident; *hydathodes* absent; *fertile fronds* 10 - 18 cm long; *stipe* 1/2 - 2/3 of the frond length; *fertile blade* 4 - 7 by 1.5 - 2.0 cm, elliptic, basally cuneate, apically acute; *intersporangial scales* absent.

Etimology. The new species is dedicated to my daughter, Diana Lucía, because she is an incentive to continue with my work.

Distribution. Known only from Costa Rica in Cordillera de Talamanca at

(2000−) 2600 - 3400 m.

Additional revised specimens (paratypes). COSTA RICA. Cartago: Cantón de Paraíso, investigation area of CATIE, 09˚33'30"N, 83˚41'30"W, 2600 - 2700 m, 19 December 1990, *J. Bittner* 142 (CR); Estación Biológica Cerro de La Muerte, (run by Federico Valverde), 9˚33'40"N, 83˚44'30"W, 3140 m, 20 Jan 2001, *R. Moran* 6333 (USJ); S slopes of Volcán Turrialba, near the Finca del Volcán Turrialba, 2000 - 2400 m, *P. Standley* 35252 (US); ibídem, *P. Standley* 35253 (US); ibídem., *P. Standley* 35310 (US); Volcán Turrialba, 3300 m, *A. Torres* 24 (US); ibídem., *A. Torres* 134 (US). Cartago/San José: Cantones de Paraíso/Pérez Zeledón, Carretera Interamericana, entre Cerro Estaquero y la entrada a las torres, 09˚33'35"N, 83˚45'25"W, 3100 - 3300 m, 24 Apr. 1998, *A. Rojas* 4522 (INB); road from Cartago to San Isidro del General (Pan American Hwy., Rte. 2), km 87 - 88, ca. 1 km NW of Asunción, 9˚34'48"N, 83˚45'36"W, 3200 m, 29 Jan. 1986, *A. Smith & T. Béliz* 2021 (CR, MO, UC); Interamerican Hwy., ca. 1.5 km NW of Restaurant La Georgina, 3100 m, 24 Aug. 1975, *J. Utley & K. Utley* 2967 (CR). Limón: Cordillera de Talamanca, southwestern foot of Cerro Kámuk, 09˚16'N, 83˚02'30"W, 3200 - 3350 m, 24 Mar 1984, *G. Davidse et al.* 25953 (CR, MO, UC). San José: Pérez Zeledón, Cerro de La Muerte, trail from microwave towers to highway, 9˚33'30"N, 83˚43'04"W, 3450 m, 9 Jul 2000, *B. Boyle & S. Chapotin* 5965 (USJ); *ibidem*, 3350 m, *B. Boyle & S. Stefanovic* 5817 (USJ); Cerro Chirripó, SW slopes, along trail from Canaán to summit, nr. La Caverna, 9800 - 10,300 ft [=2985 - 3140 m], *A. Evans et al.* 88 (US); Cordillera de Talamanca, near Villa Mills, 9˚33'N, 83˚41'W, 2700 m, 11 Jan. 1990, *Merz* 613 (CR); Dota, Reserva Forestal Los Santos, Cuenca del Savegre, camino a San Gerardo de Dota, desde la entrada hasta 1.5 km, 09˚32'14"N, 83˚49'27"W, 2900 - 3000 m, 18 Aug 2001, *A. Rojas* 5488 (CR).

Elaphoglossum luciae differs from *E. atrosquamatum* Mickel by having a thicker (2 - 3 mm vs. 1 - 1.5 mm) rhizome and broader (1.5 - 3 cm vs. 0.3 - 1.3 cm), ovate to ovate-lanceolate (vs. narrowly elliptic) blades and cuneate (vs. long-decurrent) at the base. Probably it is more closely related to *E. hoffmannii* (Mett. ex Kuhn) H. Christ due to its blackish rhizome scales and blue-green adaxial blade surface, but differs by relatively shorter (7 - 22 cm long vs. 12 - 36 cm) fronds, longer 1/3 - 1/2 of the frond length vs. ca. 1/5) stipes and shorter [5 - 9 cm long vs. 9 - 35 cm] elliptic (vs. narrowly elliptic to linear-elliptic) blades. Also is similar to *E. antisanae* (Sodiro) C. Chr. but the scales are narrower and dark brown to blackish fully (**Figure 7**, **Figure 8**).

3.2. New Records

3.2.1. *Elaphoglossum guatemalense*

(Klotzsch) T. Moore, Index Filicum, 357. 1862.

Acrostichum guatemalense Klotzsch, Allgemeine Gartenzeitung 23: 66. 1855. Type: Guatemala (from cult. in Potsdam, Germany, grown from spores of unknown locality in Guatemala), *Anon.* (B?).

Distribution. Mexico, Guatemala, Belize, El Salvador, Honduras and **Nicara-**

gua.

Material of new distribution. NICARAGUA. Matagalpa: Río Tuma, Aug 1957, *J. Salas & B. Taylor* 3010 (EAP).

3.2.2. *Elaphoglossum longicrure*

Christ, Bulletin de l'Herbier Boissier, sér. 2, 7, 273. 1907.

Type: Costa Rica: San José, Tablazo, 1900 m, Sep 1906, *C. Biolley s.n.* (Holotype: P!).

Distribution. Guatemala, **El Salvador**, **Honduras**, Nicaragua, Costa Rica, Panama and Colombia.

Material of new distribution. GUATEMALA. Alta Verapaz: road from Chama x Cobán, 3000 ft. [=915 m], *H. Johnson* 543 (US); vicinity of Cobán, about 1300 m, *P. Standley* 90853 (F). Isabal: along Río Frío, 50 - 75 m, *J. Steyermark* 41631 (US). Quezaltenango: high barranco along Río Samalá, between Santa María de Jesús and Calahuaché, 1200 - 1300 m, *J. Steyermark* 33874 (F). San Marcos: Finca El Porvenir, Loma Trocodoná, S facing slopes of Volcán Tajumulco, 1300 - 1500 m, *J. Steyermark* 37538 (F, US). Sololá: Volcán Atitlán, 1700 - 3800 m, *J. Steyermark* 47346 (US); Río Bravo, in vicinity of Finca Mocá, S facing slopes of Volcán Atitlán, 1000 - 1100 m, *J. Steyermark* 47965 (F, US). Suchitepéquez: Finca Moca, *W. Muenscher* 12136 (F).

EL SALVADOR. Ahuachapán: El Imposible Reserve, Campana, 13˚51'N, 89˚54'W, 1400 m, *A. Monro et al.* 2018 (MEXU).

HONDURAS. El Paraíso: Mpio. San Antonio de Oriente, La Labranza, Montaña de Uyuca, *J. Linares & R. Dressler* 3810 (MEXU); Ciudad de Yuscarán, Cerro Monserrat, 2000 m, *M. Espinal* 120 (CR). Francisco Morazán: W sloep of Cerro de Uyuca, along trail from Las Flores toward Tatumbla, 1500 - 1600 m, 17 Aug 1949, *P. Standley* 22792 (EAP); Sierra San Juancito, road to San Juancito, *J. Swallen* 11129 (US). Ocotepeque: El Portillo on Cordillera Merendón, 20 km from Nueva Ocotepeque, 1800 m, 28 Aug 1968, *A. Molina* 22335 (EAP, NY).

3.2.3. *Elaphoglossum minutum*

(Pohl ex Fée) T. Moore, Index Filicum, 12. 1857. *Acrostichum minutum* Pohl ex Fée, Mémoires sur les Familles des Fougères 2: 39, pl. 10. 1844 [1845]. Type: Brazil, near Goyas, *J. Pohl s. n.* (Holotype: W, n. s.).

Distribution. **El Salvador**, Costa Rica, Panama, Colombia, Venezuela, Ecuador, Peru, Bolivia, Brazil, Jamaica and La Española.

Material of new distribution. EL SALVADOR. Santa Ana: Áraferrand des Santa Ana, 2380 m, 3 Jun 1953, *E. Lotschert* 309 (EAP).

3.2.4. *Elaphoglossum nicaragüense*

A. Rojas, Revista de Biología Tropical, 51, 1 - 32. 2003.

Type: Nicaragua, Jinotega, Laguna Miraflores, 13˚15'N, 86˚15'W, 1250 - 1300 m, 10 - 11 Jun. 1981, *J. Henrich & W. Stevens* 299 (holotype: MO!; isotypes: CR!, MEXU!, NY!, UC!).

Distribution. Honduras and Nicaragua.

Material of new distribution. HONDURAS. Comayagua: Barranco de Trin-

cheras, 20 km N of Siguatepeque, 1200 m, 8 Apr. 1951, *L. Williams & A. Molina* 17605 (EAP). Intibucá: 1600 m, 21 May 1964, *A. Molina & A. Molina* 13850 (EAP). Santa Bárbara: 1000 m, 9 Apr. 1951, *L. Williams & A. Molina* 17695 (EAP).

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