

A new species and three hybrids in the ferns from Cocos Island, Puntarenas, Costa Rica

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Resumen

Una nueva especie y tres híbridos en helechos para la Isla del Coco, Puntarenas, Costa Rica

Una especie nueva y tres híbridos de helechos para la Isla del Coco (Costa Rica) son descritos e ilustrados aquí: *Nephrolepis cocosensis* A. Rojas, *Cyathea* × *robusta* A. Rojas, *Elaphoglossum* × *intermedium* A. Rojas y *Tectaria* × *epilithica* A. Rojas. La nueva especie difiere de *Nephrolepis rivularis* (Vahl) Mett. ex Krug por su hábitat terrestre, frondas más pequeñas, pinnas más pequeñas and estas perpendicular al raquis, pinnas marginalmente lobuladas a bilobuladas distalmente, escamas del raquis pardo pálido con el punto de inserción pardo oscuro, escamas de la lámina 0.2–0.4 mm en diámetro, algunas veces reducidas a puntos resinosos, soros submarginales, muchas veces en los lóbulos internos de cada segmento, indusios cordiformes and basalmente adheridos, estos pardo pálidos con el punto de inserción pardo oscuro. El primer híbrido es intermedio entre *Cyathea alfonsiana* L.D. Gómez y *C. notabilis* Domin, en tamaño del tronco, tamaño y forma de las escamas del rizoma y base del estípote, tamaño de las frondas, pares de venas por segmento and grado de división de estas and y tamaño de los parafisos, pero tiene frondas más grandes que ambos progenitores, por esta razón el nombre del epíteto. *Elaphoglossum* × *intermedium* es un híbrido entre *E. alvaradoanum* A. Rojas y *E. crinitum* (L.) Christ, el cual es caracterizado por escamas del estípote y lámina pardos, lámina con base cuneada and ápice obtuso, y venas parcial e irregularmente anastomosadas. *Tectaria* × *epilithica* tiene caracteres intermedios entre *T. incisa* Cav. y *T. mexicana* (Fée) C.V. Morton, y es fácil de reconocer porque tiene lámina 1-pinnado-pinnatífida y tamaño intermedio entre las escamas del rizoma.

Palabras clave: *Cyathea*, *Elaphoglossum*, especie nueva, híbridos nuevos, *Nephrolepis*, *Tectaria*.

Abstract

A new species and three new hybrids of ferns from the Cocos Island (Costa Rica) are described here: *Cyathea* × *robusta* A. Rojas, *Elaphoglossum* × *intermedium* A. Rojas, *Nephrolepis cocosensis* A. Rojas and *Tectaria* × *epilithica* A. Rojas. The new species differs from *Nephrolepis rivularis* (Vahl) Mett. ex Krug by its terrestrial habitat, smaller fronds, smaller pinnae that are perpendicular to rachis and lobed to bilobed distally, pale brown rachis scales with dark brown insertion points, blade scales 0.2–0.4 mm in diameter, sometimes reduced to a resinous dots, sori submarginal, frequently in the internal lobe of each segments, and indusia cordiform and basally attached, pale brown with dark brown point of attachment. The first hybrid is intermediate between *Cyathea alfonsiana* L.D. Gómez and *C. notabilis* Domin, in trunk tall, size and form of rhizome and stipe scales, fronds size, pairs per segment and division degree of veins and paraphyses size, but has bigger fronds that both progenitors, this character is the basis for its specific epithet. *Elaphoglossum* × *intermedium* is a hybrid between *E. alvaradoanum* A. Rojas and *E. crinitum*

(L.) Christ and is characterized by brown stipe and blade scales, cuneate blade base an obtuse blade apex, and veins partially and irregularly anastomosing. *Tectaria x epilithica* has intermediate characters between *T. incisa* Cav. and *T. mexicana* (Fée) C.V. Morton, this hybrid is easy to recognize because has 1-pinnate-pinnatifid blade and possesses rhizome scales that are intermediate in size compared to those of its parents.

Key words: *Cyathea*, *Elaphoglossum*, *Nephrolepis*, new hybrids, new species, *Tectaria*.

Introduction

Some of flora lists from Cocos Island that include ferns are: Hemsley (1882–1886), Robinson (1902), Stewart (1912), Svenson (1938) y Fosberg & Klawe (1966).

The first list exclusively for ferns from Cocos Island was presented by Gómez (1975a, 1975b) who registered 60 species of ferns and lycophytes and of them only six (10%) are endemic. After that, other authors as: Gómez (1976) described a new species of *Thelypteris* Schmidel and reported three species; Smith & Lellinger (1985) described other new species of *Thelypteris*; Adams (1992) described a new species of *Asplenium* L.; Rojas (1996) described a new species of *Hymenophyllum* Sm. and other in *Terpsichore* A.R. Sm.; Rojas (2001a) described a new species of *Hypolepis* Bernh.; Rojas (2003) described two new species of *Elaphoglossum* Sm.; Rojas (2004) a new variety of *Trichomanes collariatum* Bosch; Rojas & Trusty (2004) described two new varieties of *Asplenium delicatum* C. Presl and *Saccoloma elegans* Kaulf. respectively, also registered 80 infrageneric taxa and of them eighteen (22.5%) are endemic. Rojas (2009) described a new species of *Elaphoglossum*. Rojas (2011) described four new species and registered six other species. Rojas (2013a) described a new species of *Stenogrammitis* Labiak and Rojas (2013b) described a new species of *Danaea* Sm. Also Gómez (1976) registered three species and Rojas (2001b) validated the name of *Cyathea alfonsiana* L.D. Gómez published by Gómez (1971). In summary, 85 infrageneric taxa have been reported and of them twenty five (29.4%) are endemic.

In this work a new species and three hybrids are described enlarging the diversity to 88 infrageneric taxa and the endemism to 33% of ferns and lycopodioids from Cocos Island.

Materials and methods

The new species and hybrids are the result

of exhaustive sampling in the Cocos Island and the comparison of specimens with the registered species from Costa Rica and deposited in the National Herbarium (CR), and after the revision of related species and keys from the Neotropics as: Gómez & Arbeláez (2009), Moran & Riba (1995), Lellinger (1989). The specimens collected are deposited in Herbario Nacional de Costa Rica (CR), Kew Botanical Garden (K), Missouri Botanical Garden (MO) and Herbario de la Universidad de Costa Rica (USJ).

New species

***Nephrolepis cocosensis* A. Rojas, sp. nov.** (fig. 1).

TYPE. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, sendero a Cerro Iglesias, parte alta, 5°31'45"N, 87°04'50"W, 500–634 m, 23 nov 2007, A. Rojas 8191 (holotype: CR; isotypes: K, MO).

Diagnoses. *Nephrolepis cocosensis* differs from *N. rivularis* (Vahl) Mett. ex Krug because it has terrestrial habitat, smaller fronds, smaller pinnae and they perpendicular to rachis, pinnae marginally lobulate to bilobulate distally, rachis scales pale brown with the insertion points dark brown, blade scales 0.2–0.4 mm in diameter, sometimes reduced to a resinous dots, sori submarginal, a lot of times in the internal lobe of each segments, and indusia cordiform and basally attached, they pale brown with dark brown attached point.

Description. Terrestrial; rhizome 3–5 mm in diameter, ascending, with fimbriate root middle arching (wading estate type); rhizome scales 2–4 x 0.5–1 mm, lanceolate, medium rigid, brown, lustrous, concolorous, marginally denticulate to short-ciliate; tubercles absent; fronds 35–62 cm long, erect or slightly arching, perennial; stipe (7–) 10–18 cm long, pale brown to brown, lustrous, sparsely to moderate scaly, the scales 3–5 x ca. 1 mm, pale brown to sometimes dark in the center,

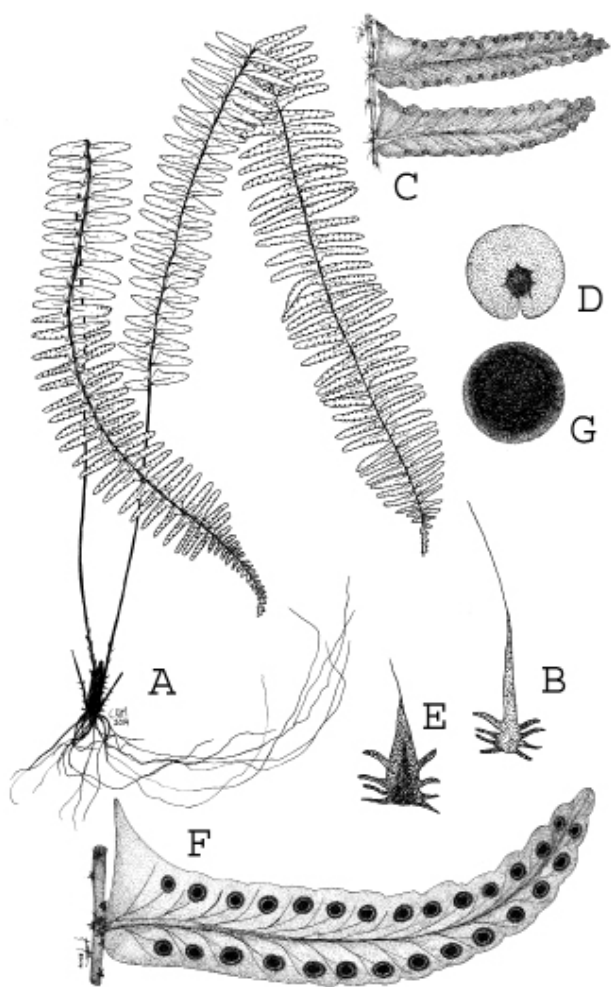


Figure 1. A–D. *Nephrolepis cocosensis* (A. Rojas 8191, CR): **A.** General aspect of type specimen. **B.** Rachis scale. **C.** Pinna detail. **D.** Indusium. E–G. *Nephrolepis rivularis* (A. Rojas et al. 7101, CR): **E.** Rachis scale. **F.** Pinna detail. **G.** Indusium.

marginally entire with erose to short-ciliate base, the scales of medial to distal part to 6 mm long, linear with expanded base; blade 28–56 x 4–6.7 cm, basally gradually reduced to 2 cm broad, apically acuminate; rachis smooth, canaliculated dorsally, without trichomes, moderate to densely scaly at the insertion points of the pinnae and adaxially, sparsely scaly dorsally, the scales 1–3.5 x 0.8–1.5 mm, stellate to linear-lanceolate with expanded base, bicolorous, pale brown with dark brown center, marginally ciliate; medial pinnae 2–3.3 x 0.4–0.7 cm, suprabasal in insertion, oblong to narrowly triangular-oblong, perpendicular to rachis, the base acroscopically rounded in sterile pinnae to cuneate in fertile pinnae, not overlapping to rachis, the acroscopic lobe deltate in sterile pinnae to acute in fertile pinnae, the apex rounded in sterile pinnae and acute in the fertile ones;

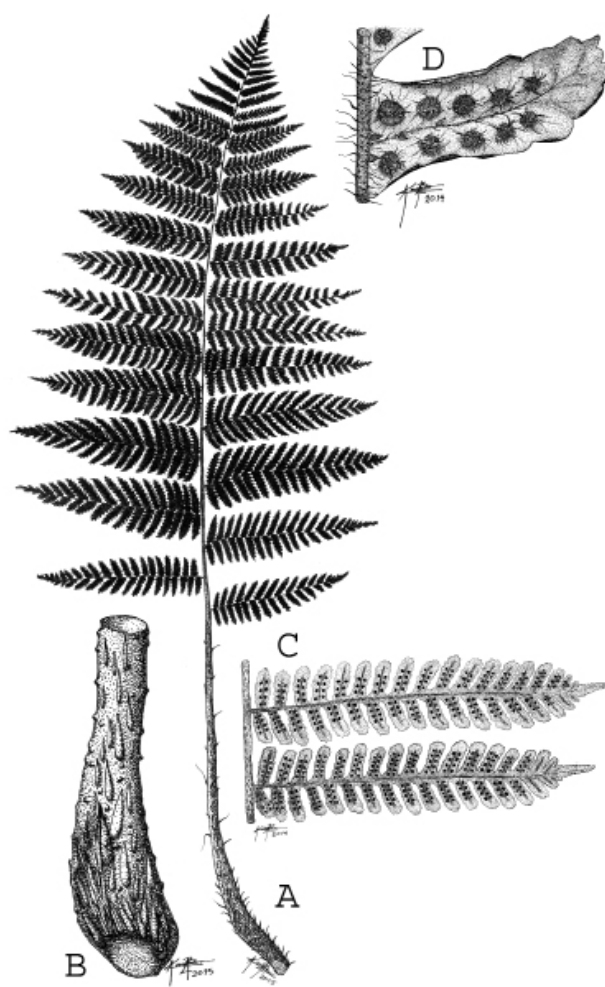


Figure 2. A–D. *Cyathea x robusta* (A. Rojas & J. Chaves 8985, CR). **A.** Frond. **B.** Stipe base. **C.** Pinnae detail. **D.** Segment detail.

blade glabrous dorsally, sparsely hairy abaxially, the hairs 0.2–0.4 mm in diameter, dark brown, stellate (sometimes reduced to resinous dots); sori submarginals, sometimes located in the internal lobes of the margin; indusia 0.6–1.2 mm, circular, markedly cordiform at basal side, inserted basally, marginally entire, the insertion point blackish, the rest brown-reddish and finally with a broad pale brown margin.

Distribution. Known only from Cocos Island in Costa Rica at 500–634 m.

Etymology. The name of the new species make reference to the type locality in Cocos Island.

Additional revised specimens. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, sendero a Cerro Iglesias, en la parte baja entre Cerro Pelón y Cerro Iglesias, 5°31'50"N,

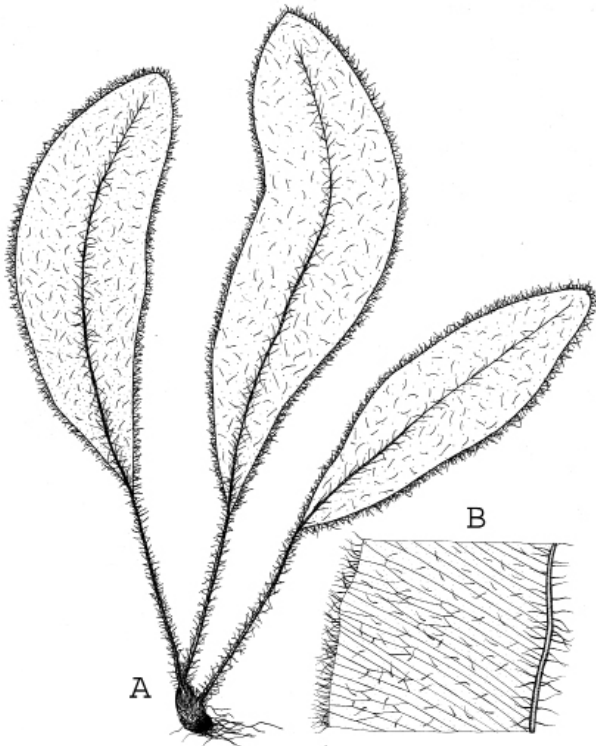


Figure 3. A–B. *Elaphoglossum* × *intermedium* (A. Rojas & C. Herrera 9281, CR). **A.** General aspect of type specimen. **B.** Blade detail.

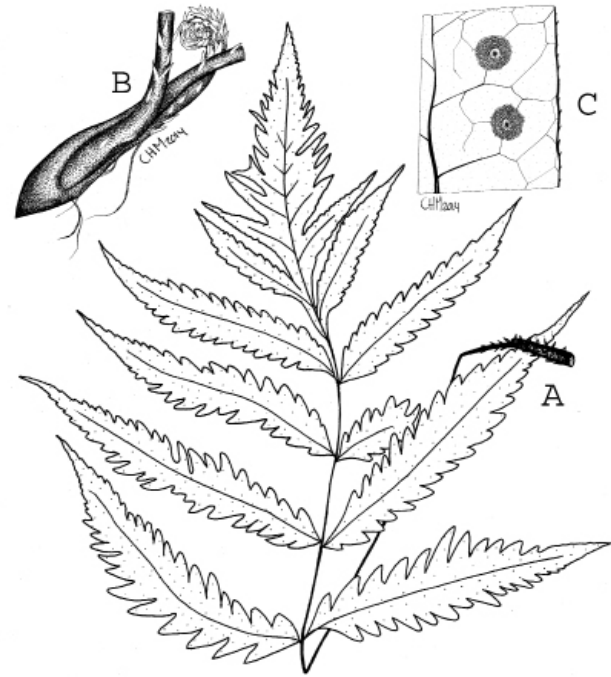


Figure 4. A–C. *Tectaria* × *epilithica* (A. Rojas 8211, CR). **A.** Fronds. **B.** Rhizome detail. **C.** Blade detail.

Character	<i>C. alfonsiana</i>	<i>C. × robusta</i>	<i>C. notabilis</i>
Trunk tall (m)	1.5–2.5–7	2–2.7	1–2.5
Trunk diameter (cm)	6–10	5–7 cm	4–6
Fronds length (m)	1–1.5	1.5–1.7	1–1.7
Size of stipe scales (mm)	3–8 (–12) × 0.8–1.5	8–15 × 1.5–2.5 (–3)	10–20 × 2.5–5
Form of stipe scales	Linear–lanceolate	Narrowly lanceolate to linear–lanceolate	Ovate to lanceolate
Color of central portion of rhizome scales	light brown to brown	Dark brown	Blackish
Medial pinnae size (cm)	25–35 × 7–14	(30–) 42–61 × (9–) 12–22	22–30 × 6–8
Veins per segment	7–10 pairs	6–8 pairs	5–7 pairs
Veins division	1–(2) bifurcate	bifurcate (the basal ones) and single (the end ones)	single
Paraphysis length (relation with respect to sporangia)	1–2 times	1.5–2.5 times	(1.5–) 3–4 times

Table 1. Morphological comparison among *Cyathea* × *robusta* and the putative progenitors: *C. alfonsiana*, and *C. notabilis*.



Figure 5. Living plants of *Nephrolepis cocosensis*

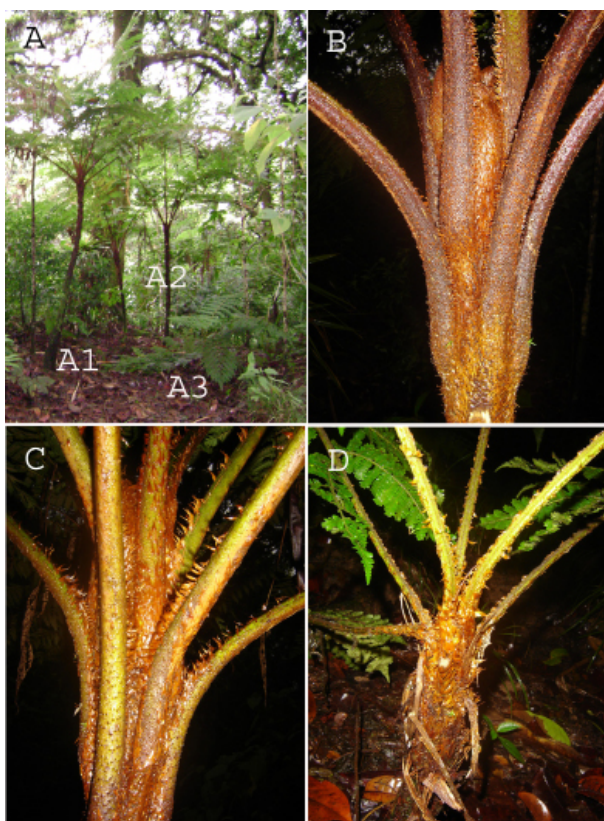


Figure 6. *Cyathea alfonsiana*: A2. Living plant. B. Trunk detail. C. *x robusta*: A1. Living plant. C. Trunk detail. C. *notabilis*: Living plant. D. Trunk detail.

87°04'50"W, 500–520 m, 8 ene 2010, A. Rojas & J.M. Chaves 8950 (CR, K, MO); *ibidem*, sendero a Cerro Iglesias, en la parte baja entre Cerro Pelón y Cerro Iglesias, 5°31'50"N, 87°04'50"W, 500–520 m, 31 dic 2010, A. Rojas & C. Herrera 9279 (CR, MO); Parque Nacional Isla del Coco, 5°31.421'N, 87°04.438'W, 29 Jan 2002, J. Trusty & H. Kesler 275 (CR); Parque Nacional Isla del Coco, 5°31.316'N, 87°04.470'W, 4 feb 2002, J. Trusty & H. Kesler 366 (CR).

Observations. *Nephrolepis cocosensis* differs from *N. rivularis* because it has terrestrial habitat (vs. commonly epiphytic), smaller (35–62 cm long vs. 50–142 (–165) cm) fronds, smaller (2–3.3 cm long vs. 2.8–6.7 cm) pinnae and they perpendicular to rachis (vs. falcate, or at less the distal ones), pinnae marginally lobed to bilobed distally (vs. with entire base and serrate to rarely biserrate apex); rachis scales pale brown, with the insertion points dark brown (vs. rachis scales dark brown to blackish centrally), sometimes with teeth pale (vs. brown); sori submarginal, a lot of times in the internal lobe of each segments (vs. medial); indusia cordiform basally attached (vs. peltate with a slight sinus in the basal side), pale brown with the attached point dark brown (vs. dark brown to blackish with a thin pale brown margin); smaller (0.2–0.4 mm in diameter vs. 0.5–1.2 mm) blade scales, sometimes reduced to a resinous dots (vs. sometimes deciduous) (see fig. 1 and 5).

Cyathea x hybrida A. Rojas, **nothosp. nov.** (fig. 2).

TYPE. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, Los Llanos, en el sendero a Cerro Iglesias, 5°32'05"N, 87°03'40"W, 240–260 m, 23 ene 2010, A. Rojas & J. Chaves 8985 (holotype: CR; isotypes: USJ, MO).

Diagnoses. *Cyathea x robusta* differs from *C. alfonsiana* L.D. Gómez by its relative smaller trunk, longer fronds, bigger rhizome scales, bigger pinnae and relative longer paraphyses with respect to sporangia.

Description. Trunk 2–2.7 m tall, 5–7 cm in diameter, with scar of deciduous fronds; rhizome scales (5–) 10–15 x (1–) 2–3 mm, narrowly lanceolate to linear-lanceolate, appressed ventrally and patent dorsally, marginally entire; fronds 1.5–1.7 m long; stipe 45–62 cm long, stramineous to brown basally, densely muricate, ventrally with squamules 0.2–0.5 mm, stellate to ovate, brown, concolorous, marginally dentate to ciliate; stipe scales 8–15 x 1.5–2.5 (–3) mm, linear-lanceolate, gold to brown, sometimes with dark brown center; blade 90–115 x (60–) 80–120 cm, 2-pinnate-pinnatifid to 3-pinnate-lobulate, apically pinnatifid; rachis stramineous to pale brown, covered by squamules similar to stipe ones; pinnae sessile or pediculate, the pedicel to 1 cm long; medial pinnae (30–) 42–61 cm long; costa squamulose and hairy, the squamules 0.3–0.7 (–1) x 0.2–0.5 mm, ovate, brown-gold, the hairs 0.3–0.7 (–1) mm long, pale yellowish, moderately appressed, antrorse and very dense in the adaxial surface, patent with curved

Character	<i>E. alvaradoanum</i>	<i>E. × intermedium</i>	<i>E. crinitum</i>
Rhizome diameter (mm)	3–5	3–5	4–10
Frond size (cm)	(15–)24–42	30–51	(25–) 35–80
Stipe size (relation with the frond length)	(1/5–)1/10–1/20	ca. 1/4	Ca. 1/2
Blade form	Narrowly oblanceolate	Oblanceolate	Broadly elliptic
Blade broad (cm)	(2.8–)3.5–4.9 cm	(8–) 10–20 cm	6–9 cm
Blade texture	Chartaceous	Chartaceous	Coriaceous
Blade ends	Attenuate at the base, acuminate at the apex	Basally cuneate, apically obtuse	Rounded at both ends
Long of blade scales (mm)	3–5	2–5	4–10
Veins	Free	Partially reticulate	Reticulate

Table 2. Morphological comparison among *Elaphoglossum × intermedium* and the putative progenitors: *E. alvaradoanum* and *E. crinitum*.

apex, retrorse and moderately sparse in abaxial surface, apically sometimes twisted; pinnulae (4.5) 6–11 x (1.3–) 1.7–2.1 cm, sessile; segments of medial pinnae 10–15 pairs, 3–5 mm broad, serrate (at less in the apex) to pinnatifid; costulae scaly and hairy, with squamules in the basal part similar to the costal ones, the scales 1–2 x 0.7–1.5 mm, ovate, gold, flat, entire, the hairs 1–1.5 mm long, similar to the costal ones; central vein of segments scaly and hairy, the scales ca. 1 x 0.5–0.8 mm, ovate, bullate, brown-gold, entire; veins 6–8 pairs per segment, bifurcate (the basal ones) and single (the terminal ones), hairy, the hairs yellowish to whitish; lamina glabrous between the veins; sori medial; paraphyses 1–2 mm long, 1.5–2.5 times longer than the sporangia, conspicuous, colorless to pale yellow; indusia absent.

Distribution. Known only from Cocos Island in Costa Rica at 200–400 m.

Etymology. The name of the new nothospecies refers to its hybrid condition.

Additional revised specimens. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, camino a Cerro Iglesias, Los Llanos, 5°32'00"N, 87°03'50"W, 200–400 m, 19 nov 2007, A. Rojas 8163 (CR, K, MO); *ibidem*, Bahía Chatham, costado E hasta la fila arriba de Quebrada Morgan, 5°33'00"N, 87°02'30"W, 50–200 m, 21 nov 2007, A. Rojas 8175 (CR, K, MO).

Observations. *Cyathea × robusta* differs from *C. alfonsiana* by its relative smaller (2–2.7 m vs.

(1.5–) 2.5–7 m) trunk, longer (1.5–1.7 m long vs. 1–1.5 m); bigger (8–15 x 1.5–2.5 (–3) mm x 3–8 (–12) x 0.8–1.5 mm) rhizome scales, smaller ((30–) 42–61 x (9–) 12–22 cm vs. 25–35 x 7–14 cm) pinnae and relative longer (1.5–2.5 times vs. 1–2 times) paraphysis with respect to sporangia. Also differs from *C. notabilis* by its relative smaller (8–15 x 1.5–2.5 (–3) mm vs. 10–20 x 2.5–5 mm) rhizome scales, smaller ((30–) 42–61 x (9–) 12–22 cm vs. 22–30 x 6–8 cm) pinnae and relative smaller (1.5–2.5 times vs. (1.5–) 3–4 times) paraphysis with respect to sporangia. Additionally, the number of veins pairs per segment and degree of division are intermediate between the putative progenitors (see fig. 2 and 6; tab. 1).

Elaphoglossum × intermedium A. Rojas, **nothosp. nov.** (fig. 3).

TYPE. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, Meseta Occidental, en los nacientes de Quebrada Albatros, 5°31'15"N, 87°04'40"W, 350–400 m, 1 ene 2011, A. Rojas & C. Herrera 9281 (holotype: CR; isotype: MO).

Diagnoses. *Elaphoglossum × intermedium* differs from *E. alvaradoanum* A. Rojas because has proportionately longer stipe, oblanceolate and broader blade, it with cuneate base and obtuse apex and, partially reticulate veins.

Description. Epiphytic; rhizome 3–5 mm in diameter, compact, ascending; rhizome scales 10–15 x ca. 1 mm, linear, orange–brown, opaque,



Figure 7. Living plants of: **A.** *Elaphoglossum alvaradoanum*; **B.** *E. x intermedium*. **C.** *E. crinitum*.

flaccid, marginally dentate; fronds 30–51 cm long, arching; phyllopodium 1–2 cm long, brown, scaly, the scales 5–10 x 0.3–0.8 mm, orange–brown, marginally entire to dentate, flat; stipe 8–13.5 cm long, ca. 1/4 of the frond length, yellowish to stramineous, scaly, the scales 3–8 x 0.2–0.5 mm, subulate, inrolled basally, pale brown to dark brown, dense, marginally entire; blade 22–28 x 6–9 cm, oblanceolate, basally cuneate, apically obtuse; costa stramineous, scaly on both surfaces, more dense abaxially, the scales 3–6 x 0.2–0.4 mm, linear–lanceolate to linear, brown, marginally entire to denticulate basally; margin and both surfaces scales 2–5 x 0.1–0.3 mm, linear–lanceolate, brown, more dense in the margin; veins 1–3–furcate, rarely and irregularly fused forming areoles, 1.5–2 mm distant, in angle of 60–70° with respect to the costa; fertile fronds not seen.

Distribution. Known only from Cocos Island in Costa Rica at 350–400 m elevation.

Etymology. The name of the new nothospecies refers to its intermediate morphology between the putative progenitors.

Observations. *Elaphoglossum x intermedium* differs from *E. alvaradoanum* because it has a longer (ca. 1/4 of the frond length vs. (1/5–) 1/10–1/20) stipe, oblanceolate (vs. narrowly oblanceolate) and broader (6–9 cm vs. (2.8–) 3.5–4.9 cm) blade



Figure 8. Living plants of: **A.** *Tectaria incisa*; **B.** *T. x epilithica*. **C.** *T. mexicana*.

with a cuneate (vs. attenuate) base and obtuse (vs. acuminate) apex and partially reticulate (vs. free) veins. Also is similar to *E. crinitum* (L.) Christ, however the hybrid differs in proportionally shorter (ca. 1/4 of the frond length vs. ca. 1/2) stipe, oblanceolate (vs. broadly elliptic) and narrower (6–9 cm vs. 8–) 10–20 cm) blade, it with cuneate (vs. rounded) base and obtuse (vs. rounded) apex and partially reticulate (vs. completely reticulate) veins. Additionally, the thickness of rhizome, fronds size and blade scale size are intermediate between the putative progenitors (see fig. 3 and 7; Table 2).

Elaphoglossum x intermedium is a hybrid between subsection *Apoda* Mickel & Atehortúa and subsection *Hymenodium* (Fee) Christ, showing that subsections in sect. *Polytrichia* Christ are closely allied, corroborated by Rouhan et al. (2004) in the figure 2 of their phylogenetic analysis; however, Rojas (2003) showing that sect. *Polytrichia* is more diverse and complicated than previously mentioned.

Tectaria x epilithica A. Rojas, **nothosp. nov.** (Fig. 4).

TYPE. COSTA RICA. Puntarenas: Puntarenas, Isla del Coco, Parque Nacional Isla del Coco, cuenca de la Bahía Iglesias, 5°31'00"N, 87°03'55"W, 75–150 m, 26 nov 2007, A. Rojas 8211 (holotype: CR; isotypes: K, US, USJ, MO).

Diagnoses. *Tectaria x epilithica* differs from *T. incisa* Cav. by bigger rhizome scales, relatively

Character	<i>T. incisa</i>	<i>T. × epilithica</i>	<i>T. mexicana</i>
Size of rhizome scales (mm)	0.7–1.5 x 0.5–1	1.5–3.5 x 0.5–1.2	3–7 x 1–2
Blade size (cm)	30–70 (–100) x 30–60	60–85 x 60–75	(20–) 25–50 x 20–50
Blade form	Oblong to ovate–oblong	Deltate	Deltate
Blade division	1–pinnate	1–pinnate–lobulate to 2–pinnate–lobulate basally	2–pinnate–pinnatifid to 3–pinnate basally
Size of basal pinnae (cm)	12–18(–30) x 2–8	30–40 x 10–20	10–30 x 5–20
Blade indument	Glabrous in both surfaces	Glabrous in both surfaces, except sparsely ciliate marginally	Hairy in both surfaces or glabrous abaxially, sparsely ciliate marginally

Table 3. Morphological comparison among *Tectaria × epilithica* and the putative progenitors: *T. incisa*, and *T. mexicana*.

larger, deltate and more dissected blade, bigger basal pinnae and sparsely ciliate blade marginally.

Description. Rhizome 10–20 mm in diameter, erect, ascending; rhizome scales 1.5–3.5 x 0.5–1.2 mm, lanceolate, dark brown, glabrous, marginally erose to ciliate; stipe 50–78 cm long, 2/5–1/2 of the frond size, brown to atropurpureous basally, glabrous to sparsely hairy principally in adaxial side, basally scaly, the scales 2–5 x 1–2 mm, lanceolate, brown, glabrous; blade 60–85 x 60–75 cm, deltate, 1–pinnate–lobulate to 2–pinnate–lobulate basally, without bud; apical segment deltate to lanceolate, basally cuneate, apically acute, pinnatifid; 4–6 pinna pairs, opposite or subopposite, lobed to pinnate–lobed (the basal ones), the other ones decurrent; basal pinnae 30–40 x 10–20 cm, deltate, inequilateral, with the basiscopic side to three times the acroscopic side; pediculate, the pedicle 0.7–1.5 cm long in the acroscopic side and 1.5–3.2 cm in the basiscopic side, the basal basiscopic pinnulae 10–20 cm long, lobulate; medial pinnae 25–40 x 4–10 cm, oblong, basally cuneate, apically acute to acuminate; rachis brown, hairy, the hairs 0.1–0.2 mm long, hyaline to brown, moderate to very dense dorsally, absent to very sparse ventrally; costae stramineous to brown basally, densely hairy dorsally, the hairs pale to dark brown, patent; segments 1–4 cm long, apically acute to obtuse; veins reticulate, with few free veins included; lamina glabrous on both surfaces, except by hairs 0.1–0.2 mm long, patent, marginally sparsely ciliate; sori rounded, medial, in a row at each side of the central vein of each segment; indusia circular, peltate, glabrous, marginally entire.

Distribution. Known only from Cocos Island in Costa Rica at 75–150 m elevation.

Etymology. The name of the new nothospecies refers to its epilithic habitat.

Observations. *Tectaria × epilithica* differs from *T. incisa* by bigger (1.5–3.5 x 0.5–1.2 mm vs. 0.7–1.5 x 0.5–1 mm) rhizome scales, relatively larger (60–85 x 60–75 cm vs. 30–70 (–100) x 30–60 cm), deltate (vs. oblong to ovate–oblong) and more dissected (1–pinnate–lobulate to 2–pinnate–lobulate basally vs. 1–pinnate) blade, bigger (30–40 x 10–20 cm vs. 12–18(–30) x 2–8 cm) basal pinnae and sparsely ciliate (vs. completely glabrous) blade marginally. Also differs from *T. mexicana* by its relative smaller (1.5–3.5 x 0.5–1.2 mm vs. 3–7 x 1–2 mm) rhizome scales, bigger (60–85 x 60–75 cm vs. 20–) 25–50 x 20–50 cm) and less dissected (1–pinnate–lobed to 2–pinnate–lobed basally vs. 2–pinnate–pinnatifid to 3–pinnate basally) blade, bigger (30–40 x 10–20 cm vs. 10–30 x 5–20 cm) basal pinnae and glabrous (vs. hairy) blade surfaces. (see fig. 4 and 8; Table 3).

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