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Lellingeria, a new genus of Grammitidaceae

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Much progress has recently been made in circumscribing natural groups within the vast assemblage of ferns that existed in Neotropical *Grammitis* sensu lato (Bishop 1977, 1978, 1988, 1989). These groups, which have been described as genera, are each held together by combinations of characteristics of their hairs, scales, sori, paraphyses, and hydathodes. This paper describes the characteristics of a new segregate of *Grammitis* s.l., which has previously not been understood to form a natural group.

The distinctness of *Lellingeria* was first recognized by Bishop nearly 15 years ago in an unpublished manuscript restricting the genus (as *Lellingeriella*) to ten species in the "L. *myosuroides* group." Bishop was unable to continue his research. Smith and Moran have expanded the circumscription of the group to include the other species groups mentioned below. Because Smith and Moran have altered Bishop's original circumscription, they take sole responsibility for the description of the genus and new combinations.

Lellingeria A. R. Smith & R. C. Moran, gen. nov.—TYPE: *Polypodium apiculatum* Kunze ex Klotzsch [= *Lellingeria apiculata* (Kunze ex Klotzsch) A. R. Smith & R. C. Moran] (Fig. 1).

Polypodium sect. *Prosechium* T. Moore, Index Filic. lxxi. 1857. SYNTYPES: *Polypodium pendulum* Sw., *P. suspensum* L., the only two species included [= *Lellingeria pendula* (Sw.) A. R. Smith & R. C. Moran, and *L. suspensa* (L.) A. R. Smith & R. C. Moran]

Plantae epiphyticae; squamae rhizomatis clathratae, denigratae, glabrae vel setosae, setis hyalinis marginalibus; phyllopodia absentia; folia plerumque pinnatisecta, interdum integra sinuata vel leviter pinnatifida, raro 1-pinnato-pinnatisecta; petioli et rhachides pubescentes, pilis inaequaliter bifurcatis; hydathodi adaxialiter presentes; venae simplices librae; sori rotundi vel elliptici, superficiales vel immersi; paraphyses absentes. x = 32, 33.

Epiphytes; rhizome radially symmetrical, short-creeping, ascending, or erect, the scales clathrate, usually blackish, glabrous or provided with hyaline marginal setulae, attached across the entire width of the base; phyllopodia absent; petiole absent or much shorter than the lamina, continuous with (not articulate to) the rhizome; laminae shallowly to deeply pinnatisect, but some species (the "L. *myosuroides* group") with the fertile apical portion entire or less divided than the sterile, or (the "L. *suprasculpta* group") 1-pinnate-pinnatifid,

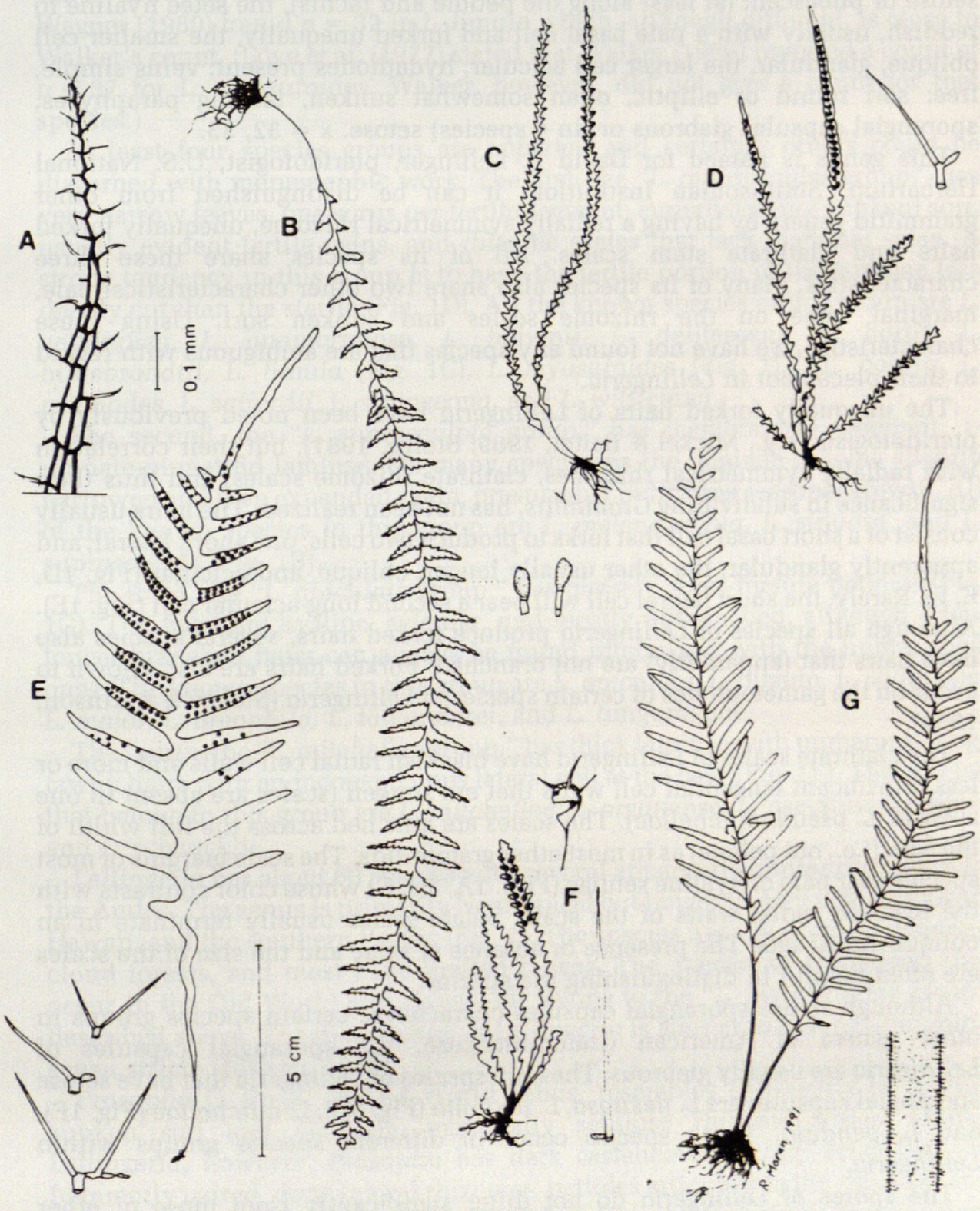

FIG. 1. Diversity of *Lellingeria* species. A. *L. hirsuta* (*Skutch 4361*, MO), apex of stem scale. B. *L. suprasculpta*, pendent leaf (*Grayum 7071*, MO). C. *L. limula* (*Grayum 7006*, MO), leaves. D. *L. myosuroides* (*Davidse & González 22233*, MO), leaves, note dimorphic fertile apex, the branched hairs are from the rachis. E. *L. subsessilis* (*Gómez 19230*, MO), leaf and branched hairs from petiole. F. *L. mitchellae* (*van der Werff & van Hardeveld 6544*, MO), leaves, setose sporangium, and hair from abaxial surface of the leaf. G. *L. hirsuta* (*Skutch 4361*, MO), leaf form and enlargement of hirsute petiole. All hairs and sporangium the same scale as in A. All leaves the same scale as in E.

setose or pubescent (at least along the petiole and rachis), the setae hyaline to reddish, usually with a pale basal cell and forked unequally, the smaller cell oblique, glandular, the larger cell acicular; hydathodes present; veins simple, free; sori round or elliptic, often somewhat sunken, lacking paraphyses; sporangial capsules glabrous or (in 4 species) setose. $x = 32, 33$.

This genus is named for David B. Lellinger, pteridologist, U.S. National Herbarium, Smithsonian Institution. It can be distinguished from other grammitid genera by having a radially symmetrical rhizome, unequally forked hairs and clathrate stem scales. All of its species share these three characteristics. Many of its species also share two other characteristics: pale, marginal setae on the rhizome scales and sunken sori. Using these characteristics, we have not found any species that are ambiguous with regard to their placement in *Lellingeria*.

The unequally forked hairs of *Lellingeria* have been noted previously by pteridologists (e.g., Mickel & Beitel, 1989; Stolze, 1981), but their correlation with radially symmetrical rhizomes, clathrate rhizome scales, and thus their significance in subdividing *Grammitis*, has not been realized. The hairs usually consist of a short basal cell that forks to produce two cells: one short, lateral, and apparently glandular, the other usually longer, oblique, and acicular (Fig. 1D, E, F). Rarely, the short lateral cell will bear a second long-acicular cell (Fig. 1E). Although all species of *Lellingeria* produce forked hairs, several species also have hairs that (apparently) are not branched. Forked hairs are also known to occur on the gametophytes of certain species of *Lellingeria* (Stokey & Atkinson, 1958).

The clathrate scales of *Lellingeria* have blackish radial cell walls and more or less translucent tangential cell walls that are sunken (scales are absent in one species: *L. pseudomitchellae*). The scales are attached across the full width of the base (i.e., not peltate) as in most other grammitids. The scale margins of most species bear pale or hyaline setulae (Figs. 1A, 3D, G) whose color contrasts with the blackish radial walls of the scale. Setate scales usually terminate in an oblique apical seta. The presence or absence of setae and the size of the scales are often helpful in distinguishing the species.

Although setose sporangial capsules characterize certain species groups in other genera of American Grammitidaceae, the sporangial capsules of *Lellingeria* are usually glabrous. The only species of *Lellingeria* that have setose sporangial capsules are *L. flexuosa*, *L. laxifolia* (Fig. 3C), *L. mitchellae* (Fig. 1F), and *L. pendula*. These species occur in different species groups within *Lellingeria*.

The spores of *Lellingeria* do not differ significantly from those of other Grammitidaceae. Tryon & Lugardon (1991, pp. 363–365) show SEM photomicrographs of spores from *L. delitescens* and *L. mitchellae* along with other species of Grammitidaceae. All have papillate (or rarely tuberculate), trilete, green spores.

The few chromosome counts that exist suggest that *Lellingeria* has a lower base number than other grammitids, most of which have $n = 37$. Walker (1966) found $n = 33$ in *L. hartiii*. For *L. delitescens*, he obtained preparations showing

about 132–138 univalents, which could indicate a tetraploid based on 33. Wagner (1980) found $n = 32$ in *L. limula* which, although different, is close to Walker's count. (Löve et al. (1977) stated that Walker (1966) reported a count of $n = 37$ for *L. myosuroides*. Walker, however, did not give a count for that species.)

At least four species groups are apparent and certainly others could be discerned with monographic work. The first, the "*L. myosuroides* group," has very narrow leaves, one sorus per fertile segment, superficial (not sunken) sori, usually evident fertile veins, and rhizome scales that lack marginal setae. A strong tendency in this group is to have the fertile portion of the laminae less deeply cut than the sterile (Fig. 1D). All the known species of this group are *L. aethiopica*, *L. anamorphosa*, *L. boivinii*, *L. delitescens*, *L. hartii*, *L. hildebrandtii*, *L. limula* (Fig. 1C), *L. myosuroides* (Fig. 1D), *L. oosora*, *L. prionodes*, *L. saffordii*, *L. strangeana*, and *L. wittigiana*.

The second, the "*L. suprasculpta* group," has membranous, pendent, 1-pinnate-pinnatifid laminae. On many specimens the laminae become slightly narrowed and then expanded again, presumably indicating seasonal growth. All of the known species in this group are *L. melanotrichia*, *L. sinuosa*, and *L. suprasculpta* (Fig. 1B).

The third, the "*L. apiculata* group," has densely short-hirsute petioles (Fig. 1G). The hairs are hyaline, acicular, and mostly unbranched, although a few longer branched hairs can always be found intermixed with the unbranched ones. The known species in this group are *L. apiculata*, *L. hirsuta*, *L. isidrensis*, *L. major*, *L. oreophila*, *L. tamandarei*, and *L. tunguraguae*.

The fourth, the "*L. mitchellae* group," has thick laminae with numerous, long, tawny hairs with an inconspicuous lateral cell at the base (Fig. 1F). The species that belong to this group are *L. mitchellae*, *L. organense*, *L. pseudomitchellae*, and *L. schenckii*.

Lellingeria has about 60 species with several apparently undescribed ones in the Andes. The genus is primarily Neotropical but ranges to Africa, Madagascar, Hawaii, and the southern Pacific (Fig. 2). The species usually occur in montane cloud forests, and most have limited ranges. The species of *Lellingeria* that occur in the Old World and Hawaii all belong to the "*L. myosuroides* group" described above. The distribution of *Lellingeria* is similar to that of *Grammitis* sensu stricto (Bishop, 1977).

Prosaptia C. Presl, an Old World genus, resembles *Lellingeria* by having sunken sori and clathrate, marginally setulose rhizome scales. Unlike *Lellingeria*, however, *Prosaptia* has dark castaneous laminar setae that are frequently paired, dorsiventral rhizomes, petioles articulate to the rhizome, and marginal or submarginal sori. It also differs from *Lellingeria* in less constant characters such as more deeply sunken sori (often the majority of sporangia are hidden), thick laminae with the veins not visible, and the presence of numerous circumsoral setae. *Prosaptia* apparently also differs from *Lellingeria* in chromosome number. Only one species of *Prosaptia* (*P. contigua* (G. Forst.) C. Presl) has had a chromosome count and it was found that $n = 74$ (Manton & Sledge, 1954), clearly based on $x = 37$.

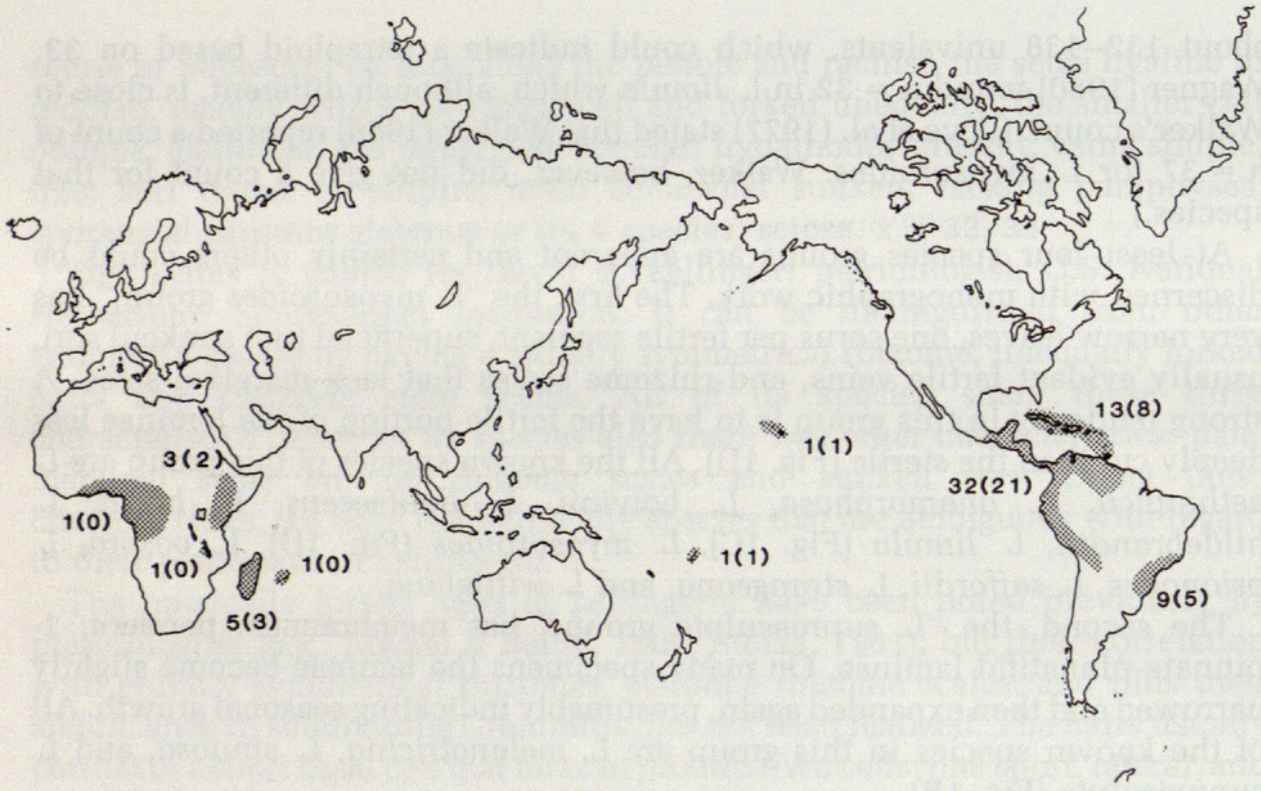

FIG. 2. Worldwide distribution of *Lellingeria*. The number on the left is the total number of species in each region; the number in parentheses is the number of those species in the region that are endemic.

Below are descriptions of three new species and new combinations for those species that Smith and Moran have found to belong to *Lellingeria*. The synonyms are listed alphabetically by genus, then species, regardless of basionym. As mentioned previously, several apparently new species occur in the Andes, but these would be best treated in a monographic context.

NEW SPECIES

Lellingeria hirsuta A. R. Smith & R. C. Moran, sp. nov.—TYPE: Costa Rica. San José: vicinity of El General, 700 m, June 1939, *Skutch 4361* (holotype, MO). Figure 1A, G.

Squamae rhizomatis 1.5–3 mm longae anguste lanceolatae denigratae setosae, setis hyalinis; petioli 2–5 cm longi dense hirsuti, pilis c. 0.1 mm longis, erectis, hyalinis; laminae 10–15 × 2–4 cm pinnatisectae, segmentis c. 2 mm latis, ascendentibus; rhachides glabrae; costae atrae glabrae; venae non visibiles; sori 6–18 in quoque segmento rotundi parum immersi; sporangia glabra.

Rhizome scales 1.5–3 mm long, narrowly lanceate, blackish, setose; petioles 2–5 cm long, densely and evenly hirsute, the hairs c. 0.1 mm long, erect, hyaline, unbranched basally; laminae 10–15 × 2–4 cm, narrowly oblong to narrowly

elliptic, slightly reduced basally, pinnatisect throughout, glabrous; segments ca. 2 mm wide, ascending; rachises straight (not flexuose), glabrescent to sparsely pubescent, the hairs ca. 0.1 mm long, appressed, inconspicuous; fertile veins not visible; hydathodes 6–18 per fertile segment; sori round, shallowly sunken; sporangial capsules glabrous.

Lellingeria hirsuta is endemic to Costa Rica where it grows on mossy tree trunks in wet forests. It is characterized by narrow ascending segments, glabrescent rachises, and hirsute petioles. It appears most closely related to *L. apiculata* by its pubescent petiole, truncate lamina, and apiculate lamina apex. It differs, however, by its ascending segments, pubescence on the rachis abaxially, and occurrence at generally higher elevations. *Lellingeria isidrensis*, another Costa Rican endemic, is also similar but differs by its shorter rhizome scales (0.3–0.8 mm long), narrower lamina (0.8–2.2 cm wide), and wider segments (3–4 mm wide).

Paratypes: COSTA RICA: **San José:** vicinity of El General, 915 m, *Skutch 2163* (MO); San Isidro de El General, ca. 800 m, *Stork 3082* (UC); 5 km ENE of San Isidro de El General, 750 m, *Stork 4553* (UC).

14726 **Lellingeria laxifolia** A. R. Smith & R. C. Moran, sp. nov.—TYPE: Venezuela. Mérida: Dtto. Andres Bello, La Carbonera, ca. 13 mi NNW of Jají along Hwy 4, ca. 2000 m, 20 Nov 1982, *A. R. Smith et al. 1429* (holotype, UC; isotypes MO, PORT, VEN). Figure 3A–D.

A *L. subsessili* (Baker) A. R. Smith & R. C. Moran sporangiis setulosis minus impressis, textura laminae tenui differt.

Rhizome ascending, with blackish, narrowly lanceolate, setose scales 2–2.5 mm, the setae hyaline, 0.15–0.25 mm long; leaves clustered, lax or pendent; petioles up to ca. 5 cm × 0.3–0.6 mm, sparsely hairy with simple and bifurcate, hyaline setulae 0.15–0.25 mm long; laminae chartaceous, narrowed at the base to a sinuate wing, 8–40 × 1.5–4 cm, pinnatisect; rachises brown-black, abaxially glabrous or sparsely hairy, adaxially glabrous, greenish; segments ca. 2–3 mm wide, narrowly lanceolate, abruptly surcurrent and decurrent at their base, ascending 60–80°, up to 1 cm apart in the middle of the leaf; veins up to 15 pairs per segment, visible adaxially but not abaxially; sori up to ca. 25 per segment, slightly immersed; sporangia with 1–many reddish setulae 0.1–0.15 mm long.

Paratypes: VENEZUELA: **Aragua:** Parque Nacional Henry Pittier, above Guamitas to summit of La Mesa, above El Limón, 1600–1900 m, 22 Oct 1961, *Steyermark 89828* (US); **Portuguesa:** Dtto. Guanare, ESE of Paraíso de Chabasquén, along road to Cordoba, 1500 m, 7 Nov 1982, *Smith et al. 1115* (UC, PORT). COLOMBIA: **Cundinamarca:** Hato Grande, E side of Río Muchindote, 12 km ESE of Gachetá, 2580 m, 12 Jun 1944, *Grant 9390* (US); **Norte de Santander:** Región del Sanare, Alto de Santo Inés, 2150–2250 m, 19 Oct 1941, *Cuatrecasas et al. 12438* (US).

14727 **Lellingeria pendulina** A. R. Smith & R. C. Moran, sp. nov.—TYPE: Venezuela. Trujillo: Road to Guaramacál from Boconó, E side of mountian, on overhung rock, 9000 ft., 26 Dec 1986, *Fay 1614* (holotype, UC). Figure 3E–G.

A *L. barbensi* (Lellinger) A. R. Smith & R. C. Moran rhachidis pilis appressis glandulosis, segmentis subcrenatis differt.

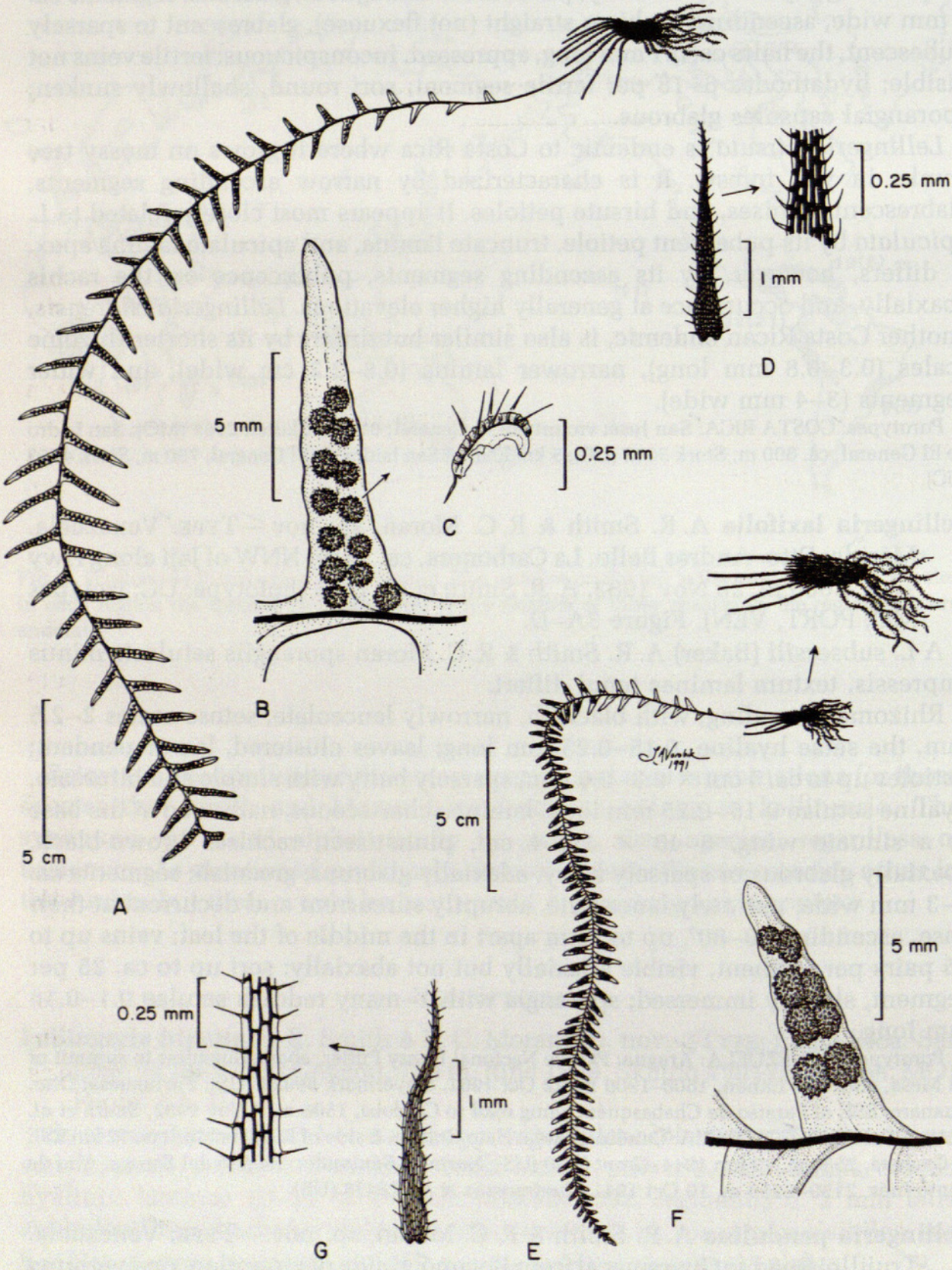

FIG. 3. *Lellingeria* spp. A–D. *L. laxifolia* (*A. R. Smith et al. 1429*, UC), A. Habit. B. segment. C. sporangium. D. rhizome scale, with detail. E–G. *L. pendulina* (*Fay 1614*, UC), E. habit. F. segment. G. rhizome scale, with detail.

Rhizome ascending, with blackish, lanceolate, setose scales 3–4 mm long, the setae hyaline, 0.2–0.3 mm long; leaves clustered, pendent; petioles 2–4 × 0.3–0.5 mm, sparsely hairy with simple and bifurcate, hyaline setulae 0.2–0.3 mm; laminae chartaceous or slightly thickened, narrowed at the base, 12–25 × 1.5–3 cm, pinnatisect; rachis abaxially blackish with scattered appressed, glandular hairs 0.2–0.3 mm long, adaxially dark brown and with a few similar hairs; segments 2–3 mm wide, lanceolate, ascending 45–75°, decurrent basiscopically, mostly 2–4 mm apart in the middle of the leaf, lowermost segments gradually reduced to small lobes or a narrow wing; veins up to 12 pairs per segment, not visible; sori up to 10 per segment, moderately immersed; sporangia glabrous.

Paratypes: VENEZUELA: **Trujillo:** 14–17 km SE of Boconó on road to Guaramacál, near summit, pendent from overhanging road bank, 2700–2800 m, *Smith et al. 1562* (PORT, UC); same locality, *Ortega & van der Werff 2262* (MO).

This species and *L. barbensis* from Costa Rica and Panama appear to have a very gradually dwindling, tardily determinate apex, features found in some other genera of Grammitidaceae, particularly some *Ceradenia* species with pendent fronds. Also, the fronds show signs of periodic growth flushes (Fig. 3E).

New Combinations

Lellingeria aethiopica (Pichi-Serm.) A. R. Smith & R. C. Moran, comb. nov.—*Xiphopteris aethiopica* Pichi-Serm., Webbia 27: 450. "1972" [actually 1973]. [Ethiopia]

Lellingeria anamorphosa (Proctor) A. R. Smith & R. C. Moran, comb. nov.—*Grammitis anamorphosa* Proctor, Bull. Inst. Jamaica, Sci. Ser. 5: 31, t. 2, figs. 1, 2. 1953. [Jamaica]

Lellingeria antillensis (Proctor) A. R. Smith & R. C. Moran, comb. & stat. nov.—*Grammitis phlegmaria* var. *antillensis* Proctor, Rhodora 68: 467. 1966. [Guadeloupe, Dominica, Martinique, St. Vincent, Grenada]

Lellingeria apiculata (Kunze ex Klotzsch) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium apiculatum* Kunze ex Klotzsch, Linnaea 20: 378. 1847. *Ctenopteris apiculata* (Kunze ex Klotzsch) Copel., *Grammitis apiculata* (Kunze ex Klotzsch) F. Seymour, *Polypodium pecten* Fée, *Xiphopteris apiculata* (Kunze) Copel. [S. Mexico, Honduras, Costa Rica to Guyana and Peru, SE. Brazil]

Lellingeria barbensis (Lellinger) A. R. Smith & R. C. Moran, comb. nov.—*Grammitis barbensis* Lellinger, Proc. Biol. Soc. Wash. 98: 379. 1985. [Costa Rica, Panama]

Lellingeria boivinii (Mett. ex Kuhn) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium boivinii* Mett. ex Kuhn, Filic. Afr. 146. 1868. [Madagascar]

Lellingeria brevistipes (Mett.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium brevistipes* Mett. ex Kuhn, Linnaea 36: 131. 1869. *Ctenopteris*

brevistipes (Mett. ex Kuhn) Copel., ?*P. brevistipes* var. *sebastianopolitanum* Baker, ?*P. brevistipes* var. *subintegrum* Rosenstock [SE. Brazil]

Lellingeria delitescens (Maxon) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium delitescens* Maxon, Bull. Torrey Bot. Club 32: 74. 1905. *Grammitis delitescens* (Maxon) Proctor, *G. myosuroides* Schkuhr, non Sw., *Xiphopteris delitescens* (Maxon) Copel. [S. Mexico to Panama, Cuba, Jamaica]

Lellingeria depressa (C. Chr.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium depressum* C. Chr., Index Filic. 522. 1906. *Polypodium immersum* Fée [SE. Brazil]

Lellingeria epiphytica (Copel.) A. R. Smith & R. C. Moran, comb. nov.—*Ctenopteris epiphytica* Copel., Philipp. J. Sci. 84: 436. 1956. [Colombia]

Lellingeria flexuosa (Maxon) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium flexuosum* Maxon, Contr. U.S. Natl. Herb. 17: 597, t. 42. 1916. *Grammitis maxoniana* Lellinger [Cuba]

Lellingeria hartii (Jenman) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium hartii* Jenman, J. Bot. 24: 272. 1886. *Grammitis hartii* (Jenman) Proctor, *Xiphopteris hartii* (Jenman) Copel. [Jamaica, Puerto Rico, Lesser Antilles]

Lellingeria hellwigii (Mickel & Beitel) A. R. Smith & R. C. Moran, comb. nov.—*Grammitis hellwigii* Mickel & Beitel, Mem. New York Bot. Gard. 46: 199. 1988. [S. Mexico]

Lellingeria hildebrandtii (Hieron.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium hildebrandtii* Hieron., Hedwigia 44: 91. 1905. *Xiphopteris hildebrandtii* (Hieron.) Tard. [Madagascar]

Lellingeria humilis (Mett. in Triana & Planch.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium humile* Mett. in Triana & Planch., Ann. Sci. Nat. Bot. sér. 5, 251. 1864. *Grammitis humilis* (Mett. in Triana & Planch.) Lellinger 1984, non *G. humilis* Hombron & Jacquinot in Urv., 1853. [Colombia]

Lellingeria isidrensis (Copel.) A. R. Smith & R. C. Moran, comb. nov.—*Ctenopteris isidrensis* Copel., Philipp. J. Sci. 84: 441. 1956. *Grammitis isidrensis* (Copel.) F. Seymour [Costa Rica]

Lellingeria itatimensis (C. Chr.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium itatimense* C. Chr., Index Filic. Suppl. 3:151. 1934. *Ctenopteris itatimensis* (C. Chr.) Copel., *Polypodium saxicola* Rosenstock, non Sw. [SE. Brazil]

Lellingeria limula (Christ) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium limulum* Christ, Bull. Soc. Bot. Genève, sér. 2, 1: 218. 1909. *Grammitis limula* (Christ) L.D. Gómez, *Xiphopteris limula* (Christ) Pichi-Serm. [Guatemala to Venezuela, Colombia, and Ecuador]

Lellingeria major (Copel.) A. R. Smith & R. C. Moran, comb. nov.—*Ctenopteris major* Copel., Philipp. J. Sci. 84: 455. 1955. *Grammitis major* (Copel.) C.

Morton, *Polypodium tenuiculum* var. *acrosorum* Hieron. [Venezuela to Peru]

Lellingeria melanotrichia (Baker) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium melanotrichium* Baker in im Thurn, Timehri 5: 216. 1886. *Ctenopteris melanotrichia* (Baker) Copel., *Grammitis melanotrichia* (Baker) Lellinger, *Grammitis micula* Lellinger [Costa Rica, Surinam, Venezuela, Ecuador]

Lellingeria micropecten (C. Chr.) A. R. Smith & R. C. Moran, comb. & stat. nov.—*Polypodium oosorum* var. *micropecten* C. Chr., Dansk Bot. Ark. [= Pterid. Madagasc.] 153. 1932. [Madagascar]

Lellingeria militaris (Maxon) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium militare* Maxon, Contr. Gray Herb. 165: 71, t. 6. 1947. *Ctenopteris militaris* (Maxon) Copel. [Colombia]

Lellingeria mitchellae (Baker ex Hemsl.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium mitchellae* Baker ex Hemsl., Biol. Centr.-Amer., Bot. 3: 664. 1885. *Grammitis mitchellae* (Baker ex Hemsl.) F. Seymour, *Xiphopteris mitchellae* (Baker ex Hemsl.) Copel. [Chiapas, Belize, Guatemala, Nicaragua, Costa Rica, Panama]

Lellingeria myosuroides (Sw.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium myosuroides* Sw., Prodr. 131. 1788. *Grammitis jamesonii* (Jenman) C. Morton, *G. myosuroides* (Sw.) Sw., *G. skutchii* (Maxon) F. Seymour, *Polypodium jamesonii* (Hook.) Jenman, *P. serrulatum* var. *jamesonii* (Hook.) Krug, *P. serrulatum* var. *majus* Mett., *P. serrulatum* var. *strictissimum* Hook., *P. skutchii* Maxon, *P. strictissimum* (Hook.) Hieron., *Xiphopteris jamesonii* Hook., *X. myosuroides* (Sw.) Kaulf., *X. skutchii* (Maxon) Copel., *Xiphopteris strictissima* (Hook.) Vareschi [Costa Rica, Panama, Venezuela, Colombia, Ecuador, Cuba, Jamaica, Puerto Rico; reports from Madagascar and Réunion are possibly *L. strangeana*]

Lellingeria nutata (Jenman) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium nutatum* Jenman, J. Bot. 24: 272. 1908. *Grammitis nutata* (Jenman) Proctor [Jamaica, St. Vincent]

Lellingeria obovata (Copel.) A. R. Smith & R. C. Moran, comb. nov.—*Ctenopteris obovata* Copel., Philipp. J. Sci. 84:442. 1956. *Polypodium pendulum* Sw. var. *boliviense* Rosenstock [Bolivia]

Lellingeria oosora (Baker) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium oosorum* Baker, Bol. Soc. Brot. 4: 154, t. 2, fig. A. 1887. *Xiphopteris oosora* (Baker) Alston, *Polypodium newtonii* Baker. [São Tomé, Bioko, Gabon, Sierra Leone, Cameroon, Tanzania, Malawi, Madagascar]

Lellingeria oreophila (Maxon) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium oreophilum* Maxon, Contr. Gray Herb. 165: 72. 1947. *Ctenopteris oreophila* (Maxon) Copel. [Colombia]

Lellingeria organesis (Gardner in Hook.) A. R. Smith & R. C. Moran, comb. nov.—*Grammitis organensis* Gardner in Hook., Ic. Pl. t. 509. 1843. *Polypodium organense* (Gardner) Mett., *Xiphopteris organensis* (Gardner) Copel. [SE. Brazil]

Lellingeria pendula (Sw.) A. R. Smith & R. C. Moran, comb. nov.—*Polypodium pendulum* Sw., Prodr. 131. 1788. *Ctenopteris pendula* (Sw.) J. Smith, *Grammitis pendula* (Sw.) Proctor [Jamaica, Cuba, Hispaniola, Guadeloupe]

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