

Additions to the Bolivian Bryophyte Flora

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Abstract: Eleven hepatics and seven mosses are newly recorded for Bolivia. New generic records include *Cronisia*, *Nowellia*, *Pleurozia* (hepatics), and *Meiothecium* (mosses). Additional records for 21 bryophytes that were previously little known in Bolivia, including several from the isolated Chiquitano low mountain ranges, are given. *Papillaria tenella* Herzog and the name *Papillaria diversifolia* Herzog nom. nud. are identical to *Toloxis imponderosa* (Taylor) W.R. Buck

Key words. Bryophytes, *Cronisia*, *Nowellia*, *Pleurozia*, *Meiothecium*, Bolivia.

Introduction

Continuing field work and herbarium studies of Bolivian bryophytes has resulted in additional country and departmental records. The assessment made by Gradstein *et al.* (2003) with regard to the state of liverwort knowledge in Bolivia is relevant - "The Bolivian liverwort flora is still very incompletely known and needs much more work"; the same can be said of the mosses.

Eleven new country and 16 additional hepatic species are listed, of the latter only a portion of the rather numerous departmental or distributional records are highlighted. Seven mosses reported here represent new country records and five other little known species are documented. Several species newly recorded for Bolivia, for example, among hepatics *Pleurozia paradoxa* (Jack) Schiffn. and among mosses *Dicranum peruvianum* H. Rob., could be interpreted as "remarkable disjuncts" for the tropical Andes. It is, however, highly probable that such records simply reflect a very incomplete systematic inventory for Bolivia, and the same can surely be inferred for the entire Andean region.

Species are listed in alphabetical order under hepatics and mosses; family placement is given in brackets, followed by specimen citation information beginning with the Bolivian department. Substrate and associated vegetation for each species are given separately, and in some cases additional comments are given. New country records are denoted with an asterisk (*). All collections have been data based in the Missouri Botanical Garden system TROPICOS in

W³MOST (<http://mobot.mobot.org/W3T/Search/most.html>), There are now 15,801 Bolivian bryophyte records, available to the scientific community, in the data base. The first set of collections is deposited in one or more Bolivian herbaria (HSB, LPB, USZ); in most cases the second set (duplicate) is deposited at MO.

Hepatics

* *Calypogeia amazonica* (Spruce) Steph. [Calypogeiaceae] Pando: Candelaria, 5–6 km NE of Puerto Gonzalo Moreno, 11°03'S, 066°13'W, 160 m, *Rocabado & Cordero 719* (MO, USZ). On soil of termite mound, in Amazon forest. This collection matches the morphological features discussed and illustrated by Schuster (2000: 499–501). This taxon has been considered a synonym of *Calypogeia miquelii* Mont. (cf. Gradstein & Costa 2003); in either case this record is new for Bolivia.

Cephalozia crossii Spruce [Cephalozaceae] Chuquisaca: on road to Maragua, 34 km W of Sucre, 18°59'26"S, 065°23'48"W, 3595 m, *Churchill et al. 24629-B* (LPB, MO, USZ), Chirimolle, ca. 30 km SE of Azurduy, 20°09'09"S, 064°19'54"W, 2627 m, *Lozano et al. 2519* (HSB, MO); Cochabamba: 11 km W of El Churo, Serranía de Siberia, 2740 m, 17°45'S, 064°48'W, *Churchill et al. 22582* (BOLV, MO, USZ); Potosi: near Sacanta, Río Ravelo basin, 18°52'47"S, 065°27'58"W, 3100 m, *Churchill et al. 24712-A* (LPB, MO); Santa Cruz: Laguna Movedora, Serranía de Siberia, 17°50'26"S, 064°43'08"W, 2750 m, *Rocabado 517-B* (MO, USZ). On soil, leaf litter, in

Yungas and Tucuman montane forest, and humid sites in puna. This species was previously recorded from Gran Poder (Gradstein et al. 2003), a locality unknown but likely in the Department of La Paz.

Cephaloziopsis intertexta (Gottsche) R.M. Schust. [Cephaloziellaceae] Santa Cruz: near Aguas Claras, between Samaipata and Santa Cruz, 18°11'S, 063°46'W, 1375, *Churchill 20485* (LPB, MO, USZ), road from Las Pozas to Santuario de Chochis (Chiquitos Province), 18°08'11"S, 060°02'36"W, 533 m, *Sanjines 3031B* (LPB, MO, USZ). On soil and rocks, in Chiquitano to Amazon forest flanking the Andes to low montane forest. This species was previously known from Cochabamba and La Paz (Gradstein et al. 2003). The *Sanjines* record represents a significant extension of its range eastward.

Chiloscyphus breutelii (Gottsche) J.J. Engel & R.M. Schust. (*Lophocolea trapezoides* Mont. non *L. trapezoides* Sande Lac.) [Lophocoleaceae] Beni: Serrania del Pilon Lajas west of summit, 650 m, 15°11'S, 067°02'W, *Gradstein 7203* (LPB); Cochabamba: Km 112 on Villa Tunari-Cochabamba road, 1850 m, 17°09'S, 065°44'W, *Gradstein 7567* (LPB), *Mogro & Altamirano 397-A* (BOLV, MO); La Paz: Mina San Luis, 3500–3700 m, 16°18'57"S, 067°56'00"W, *Churchill et al. 22769* (HSB, LPB, MO, USZ). On rocks, logs, base of trees, from premontane to high Yungas montane forest. This species was previously only recorded for Santa Cruz and another unknown locality in Bolivia (Gradstein et al. 2003).

Chiloscyphus muricatus (Lehm.) J.J. Engel & R.M. Schust. (*Lophocolea muricata* (Lehm.) Nees) [Lophocoleaceae] Chuquisaca: Nuevo Mundo, 24 km from Villa Serrano, 19°00'20"S, 064°19'54"W, 2450–2500 m, *Churchill et al. 22927-A* (HSB, MO, USZ), Vallecitos, 20°12'43"S, 064°17'58"W, 2342 m, *Apaza et al. 179A* (HSB, MO); Cochabamba: El Palmar, Carrasco National Park, 17°06'28"S, 065°34'06"W, 1505 m, *Mogro et al. 674-A* (BOLV, MO); Santa Cruz: 5 km from Paredones on trail to Barrientos, 18°06'32"S, 063°48'01"W, 2060–2110 m, *Churchill et al. 23197* (MO, USZ), 18 km NE of Mairana, 18°03'42"S, 063°55'05"W, 2180 m, *Churchill et al. 23776* (MO, USZ). On logs and tree trunks including tree ferns in Tucuman-Bolivian and Yungas montane forest. This species was previously recorded from the "Yungas" (this can be referred to the department of La Paz) based on a collection by Rusby. *Chiloscyphus muricatus* is likely common throughout the montane forest of Bolivia but readily overlooked due to its small size and occurrence often intermingled with other bryophytes.

* *Cronisia fimbriata* (Nees) Whittm. & Bischl. [Corsiaceae] Santa Cruz: Perforación Station, 19°55'S, 062°33'W, 400 m, *Fuentes 2841* (BOLV,

GOET, LPB, MO, USZ). On soil, in depression along trail, in Chaco forest dominated by *Acacia emilioana* Fortunato & Ciald. *Schinopsis cornuta* Loes. ex Herzog. This species is known from Mexico, northwest Argentina and eastern Brazil (Bischler-Causse et al. 2005).

Dumortiera hirsuta (Sw.) Nees [Marchantiaceae] Select specimens. Chuquisaca: SE of San Lorenzo, 19°57'33"S, 064°14'21"W, 1530–1620 m, *Lozano & Ortiz 2719* (HSB, MO); Cochabamba: along Río Fatima, Villa Fatima, 16°28'37"S, 065°54'25"W, 280 m, *Lozano et al. 2141* (HSB, LPB, MO, USZ); Santa Cruz: Río Pajarillo, ca. 2 km from Chochis (Chiquitos Province), 18°08'33"S, 060°01'58"W, 454 m, *Sanjines 3044* (LPB, MO). On wet rocks and soil along streams and seeps; throughout the premontane and montane. This species has been previously recorded from Beni, La Paz, Santa Cruz and Tarija (Bischler-Causse et al. 2005). The *Sanjines* record represents a notable extension of the species ca. 300 km eastward from the eastern sub-Andean range to the Chiquitano low mountain ranges.

Frullania cuencensis Taylor [Frullaniaceae] Tarija: below Cerro Aliso, Tariquia National Park, 22°00'00"S, 64°36'00"W, 2700–2900 m, *Churchill et al. 23538-A* (MO, USZ; dup. verif. Y. Yuzawa). On branches of *Schinus*, with *Cryphaea* and *Fabronia*, in Tucuman-Bolivian montane forest. Previously reported from the Yungas montane forest in the departments of Cochabamba and La Paz (Gradstein et al. 2003).

Kurzia capillaris (Sw.) Grolle [Lepidoziaceae] Santa Cruz: on road to La Cueva de Miserandino (Santiago de Chiquitos Province), 18°20'26"S, 059°34'23"W, 740 m, *Sanjines 3093* (LPB, MO, USZ). On thin soil over rocks of waterfall, in Chiquitano forest. As with *Dumortiera*, this present record is a notable range extension of ca. 300 km eastward from the western sub-Andean range.

* *Kurzia flagellifera* (Steph.) Grolle [Lepidoziaceae] Cochabamba: Tables Monte, 2600 m, 17°09'30"S, 065°54'17"W, *Churchill et al. 24820* (LPB, MO, RB, USZ). On trunk of tree fern, in Yungas montane forest.

* *Isotachis multiceps* (Lindenb. & Gottsche) Gottsche [Balantiopsaceae] Selected specimens. Chuquisaca: between Maragua and Sucre, 18°59'26"S, 065°23'48"W, 3595 m, *Churchill et al. 24628-A* (LPB, MO, USZ); La Paz: Cotapata National Park, 3417 m, 16°10'55"S, 067°54'24"W, *Sanjines 486* (LPB, MO); Santa Cruz: 21–23 kms NE of Mairana, Amboró Integrated Managed Natural Area. 18°03'32"S, 063°54'33"W, 2100–2300 m, *Churchill 23919* (HSB, LPB, MO, USZ). On wet, humic soil

and over sandstone rock, in open forested montane and prepuña.

Jungermannia decolor Schiffn. [Jungermanniaceae] Cochabamba: along Río Fatima, Villa Fatima, 16°28'59"S, 065°55'18"W, 173 m, *Lozano et al.* 2156, 2163 (HSB, LPB, MO, PRC, USZ; det. J. Vana). On rocks in streams; in Amazon forest adjacent to the sub-Andean range. Previously reported by Fuentes & Churchill (2005) for the lowlands of Madidi National Park in La Paz.

Lejeunea phyllobola Nees & Mont. ex Mont. [Lejeuneaceae] Beni: Las Palmeras, 6 km from Riberalta, 10°59'48"S, 065°59'39"W, 120 m, *Calzadilla & Rocabado* 312 (GOET, MO, USZ); Chuquisaca: Entierillos, Serranía del Ñaño, 19°30'23"S, 063°54'23"W, 1716 m, *Lozano & Mogro* 142 (HSB, MO, USZ); Pando: Las Ruinas, 2 km from Las Piedras, 11°01'12"S, 066°06'49"W, 135 m, *Rocabado & Calzadilla* 1013 (GOET, MO, USZ). Shaded sites on trunk of trees (Lauraceae) and logs, from Amazon to premontane and low montane (Yungas and Tucuman-Bolivian) forest. Previously recorded for La Paz (Acebey *et al.* 2003).

Lejeunea trinitensis Lindenb. [Lejeuneaceae] Santa Cruz: Agua Blanca, between San José and La Guardia, from the old Santa Cruz-Cochabamba road, 17°56'S, 063°44'W, 540 m, *Linneo et al.* 82 (GOET, MO, USZ). On logs, in transitional Amazon-premontane forest. This species was previously recorded from La Paz by Acebey *et al.* (2003); based on Acebey & Krömer 1040, 1041 (LPB).

Lethocolea glossophylla (Spruce) Grolle [Acrobolbaceae] Santa Cruz: Santa Ana, near Vallegrande, 18°35'S, 064°07'W, 2380 m, *Churchill* 22308 (MO, USZ). On rocks along stream bank, in remnant Tucuman-Bolivian montane forest. Previous records, at higher elevations (3500–4500 m), from Cochabamba and La Paz (Gradstein *et al.* 2003).

* *Metzgeria hegewaldii* Kuwah. [Metzgeriaceae] Chuquisaca: canyon northeast of Orocote, 20°46'27"S, 064°14'06"W, 1184 m, *Lozano et al.* 2958 (HSB, MO, RB, USZ; det. D.P. Costa). On trunk of tree in Tucuman-Bolivian montane forest. This species was previously known from northern Peru (*Hegewald* 7354, MO).

Micropterygium lechleri Reimers [Lepidoziaceae] La Paz: near Huaji hydroelectric plant, Río Zongo valley, 16°02'22"S, 067°58'05"W, 930 m, *Fuentes & Maldonado* 6772 (LPB, MO, USZ). On rocky soil, in premontane (Yungas) vegetation. Previously reported from the Madidi region (Fuentes & Churchill 2005)

Mytilopsis albifrons Spruce [Lepidoziaceae] La Paz: Caranavi-San Borja road, 30–40 km beyond Caranavi,

15°49'S, 67°32'W, 500 m, *Gradstein* 7081, 7098 (LPB). On sandstone rock, in submontane. Although *Mytilopsis* was listed under the "Synopsis of the Genera and Families" in Gradstein *et al.* (2003), the species was inadvertently left out of the species list.

Noteroclada confluens Taylor ex Hook.f. & Wilson [Pelliaceae] Selected specimens: Chuquisaca: Cajamarca, 18°57'00"S, 065°23'28"W, 3269 m, *Lozano* 2450 (HSB, MO, USZ); Cochabamba: Serranía Siberia, 17°48'40"S, 064°46'44"W, 2720 m, *Churchill et al.* 22638 (BOLV, HSB, LPB, MO, USZ); Potosí: Río Ravelo basin, 18°52'47"S, 065°27'58"W, 3100 m, *Churchill et al.* 24713 (HSB, LPB, MO); Santa Cruz: Mairana, 18°03'54"S, 063°54'55"W, 2400 m, *Churchill* 23024 (MO, USZ); Tarija: Serranía Huacayoj, 21°25'S, 064°19'W, 2300 m, *Churchill* 20802 (LPB, MO, USZ). On soil and rocks in shaded or exposed wet sites along streams or associated with springs. This species was recorded for Bolivia with no precise locality information (Gradstein *et al.* 2003). *Noteroclada confluens* is rather common in wet sites throughout the open montane and the humid to semi-humid puna of Bolivia.

* *Nowellia curvifolia* (Dicks.) Mitt. [Cephaloziaceae] La Paz: Cerro Homuni, Cotapata National Park, 16°10'55"S, 067°54'24"W, 3420 m, *Sanjines* 482, 523, 558 (LPB, MO). On soil, in transitional humid puna (páramo) and high montane forest. This species is now recorded for most tropical Andean countries.

* *Odontoschisma denudatum* (Nees) Dumort. [Cephaloziaceae] Chuquisaca: Cerro Bufetes, 6 km west of El Palmar, 20°51'18"S, 064°22'50"W, 2001–2250 m, *Lozano et al.* 2852 (HSB, LPB, MO, USZ). La Paz: Santa Teresa east of Apolo, Madidi Managed Natural Area, 14°38'33"S, 068°22'40"W, 1757 m, *Fuentes & Aldana* 6461, 6580 (LPB, MO, USZ), Río Zongo valley, near the Huaji hydroelectric station, 16°02'22"S, 067°58'05"W, 930 m, *Fuentes & Maldonado* 6777 (LPB, MO, USZ); Santa Cruz: Serranía Siberia, ca. 4 km E of Siberia, 17°50'S, 064°45'W, 2900 m, *Churchill et al.* 22372 (MO, USZ). On banks, rocks, humus and soil covered rocks, in premontane Yungas and Tucuman-Bolivian montane forest, at elevations from 832–2900 m. Although the name is new for Bolivia, this may be, however, the same taxon described by Stephani as *Jamesoniella latifolia*.

* *Plagiochila corrugata* (Nees) Nees & Mont. [Plagiochilaceae] Select specimens: Chuquisaca: Agua Hedionda canyon NE of Taperillas, 19°45'30"S, 063°51'40"W, 1150–1241 m, *Lozano & Villalobos* 2255 (HSB, MO), Cerro Bufetes, 6 km W of El Palmar, 20°51'18"S, 064°22'50"W, 2001–2250 m, *Lozano et al.* 2851 (HSB, MO, USZ); Tarija: Bolsa Chica, 6 km SE of Nazareno, 21°38'41"S,

063°39'26"W, 1165 m, *Apaza et al. 67* (HSB, LPB, MO, USZ); 7 km NE of Entre Rios, 21°28'S, 064°09'W, 1400 m, *Churchill 20757* (GOET, MO, USZ; det. J. Heinrichs). On rocks, logs, trunk and branches of trees in Tucuman-Bolivian montane forest. Apparently wide spread in tropical America (Gradstein & Costa 2003).

* *Pleurozia paradoxa* (Jack) Schiffn. [Pleuroziaceae] La Paz: Cotapata National Park, 16°10'55"S, 067°54'24"W, 3417 m, *Sanjines 484, 492, 493* (LPB, MO). On rocks, in transitional humid puna and high montane forest (= Yungas Páramos or Páramo Yungueño). This species is also known from the tropical Andean countries of Venezuela, Colombia and Ecuador, and will be found in time in Peru.

* *Radula cubensis* K. Yamada [Radulaceae] Chuquisaca: along Río Alisos, Nuevo Mundo, 19°00'26"S, 064°18'53"W, 2420 m, *Churchill et al. 23086* (MO, USZ; det. K. Yamada). On tree trunk, in Tucuman-Bolivian montane forest.

Radula mexicana Lindenb. & Gottsche ex Gottsche [Radulaceae] Santa Cruz: vicinity of Barrientos, Amboró National Park, 18°06'S, 063°48'W, 2020 m, *Churchill & Vásquez Ch. 21778* (MO, USZ). On base of tree, in Yungas montane forest. Previously recorded for La Paz as "Yungas" (Gradstein *et al.* 2003).

Xylolejeunea crenata (Nees & Mont.) X.-L. He & Grolle [Lejeuneaceae] Pando: near Nareuda, 11°18'S, 068°46'W, 180 m, *Catari et al. 356* (MO, USZ). On logs and tree branches; from Amazon to premontane forest. Previously recorded for La Paz as *Trachylejeunea buchtienii* Herzog (cf. Gradstein *et al.* 2003).

* *Zoopsisidella cynosurandra* (Spruce ex Steph.) R.M. Schust. [Lepidoziaceae] Santa Cruz: Santiago de Chiquitos, road to La Cueva de Miserandino, 18°20'26"S, 059°34'23"W, 740 m, *Sanjines 3098A* (LPB, MO, USZ). On humus covered rock associated with water falls, in Chiquitano forest.

Mosses

Brachymenium klotzschii (Schwägr.) Paris [Bryaceae] Select specimens. Chuquisaca: trail to Verde Canyon, near Las Abras, 1100 m, 21°00'33"S, 064°16'21"W, *Lozano & Cardoso 1648* (HSB, LPB, MO, USZ); Santa Cruz: La Mina, Chochis, 650 m, 18°10'S, 060°04'W, *Wood & Landivar 17547* (USZ); Tarija: 7 km NE of Entre Rios, 1400 m, 21°28'S, 064°09'W, *Churchill 20766* (BOLV, LPB, MO, USZ). On trunk and branches of trees, in Chiquitano forest, Tucuman-Bolivian and Yungas montane forest. The *Wood & Landivar* collection represents an extension of ca. 300

km east of the Andean range of this species. Previously reported by Ochi (1980) for two localities made in the early 20th century, from the departments of La Paz (incorrectly cited as Cochabamba; Mapiri is in La Paz) and Santa Cruz (Florida de San Mateo).

* *Brachythecium rivularoides* (Müll. Hal.) Paris [Brachytheciaceae] Chuquisaca: Punilla, ca. 27 km from Sucre on road to Ravelo, 18°56'07"S, 65°23'08"W, 3130 m, *Churchill et al. 22996* (BOLV, HSB, LPB, MO, USZ). On rocks along stream; in prepuna shrubby vegetation. This species is known from Cordoba in north-central Argentina (McFarland 1988).

* *Dicranum peruvianum* H. Rob. [Dicranaceae] La Paz: between Quimsa Cruz and Chunkani, Madidi National Park, 14°39'06"S, 068°57'27"W, 3041 m, *Fuentes 11917* (LPB, MO, USZ). On soil and humus, in high montane Yungas forest. This species is known in Central America from Costa Rica and Panama (Allen 1994), and from the tropical Andes, Colombia, Ecuador and Peru (Churchill *et al.* 2000).

Entosthodon lindigii (Hampe) Mitt. [Funariaceae] Chuquisaca: Nuevo Mundo, ca. 24 km NE from Villa Serrano, 19°00'19"S, 064°19'08"W, 2150–2700 m, *Lozano 979* (HSB, MO). On soil, in Tucuman-Bolivian montane forest. This species was previously known in Bolivia from two collections made in the late 19th century and early 20th century.

Epipterygium immarginatum Mitt. [Bryaceae] Selected specimens: Chuquisaca: Nuevo Mundo, 19°00'20"S, 064°19'54"W, 2450 m, *Churchill et al. 22960* (HSB, MO, USZ); Cochabamba: ca. 55 km SW of Villa Tunari, 17°10'S, 065°44'W, 1680 m, *Churchill & Ortiz-Gentry 21733* (BOLV, MO); La Paz: Santo Domingo, 14°47'11"S, 068°34'59"W, 1400 m, *Fuentes et al. 11173* (LPB, MO); Santa Cruz: Guapural, 18°40'S, 064°01'W, 2150 m, *Churchill & Arroyo P. 21192-A* (MO, USZ); Tarija: Tariquia National Park, 22°10'39"S, 064°25'40"W, 1236 m, *Huaylla et al. 1744* (HSB, MO). On soil, in shaded sites, often associated with various liverworts (*Dumortiera*, *Lunularia*, *Plagiochasma*, *Symphyogyna*), in Yungas and Tucuman-Bolivian montane forest. Previously known from one locality in Cochabamba (as *Epipterygium pellucens* Herzog, a synonym fide Shaw 1984). The status of *Epipterygium mandonii* (Müll. Hal.) Paris (*Bryum mandonii* Müll. Hal.) recorded from La Paz, however, has not been resolved; presumably this is *E. immarginatum*.

* *Fabronia macroblepharis* Schwägr. [Fabroniaceae] La Paz: Laguna Viscachani, 2 km from Botijlaca, 16°12'36"S, 068°03'46"W, 3722 m, *Aldana 277-A* (LPB, MO). Santa Cruz: Aguas Calientes, 18°26'58"S, 059°30'51"W, 193 m, *Sanjines 3126* (LPB, MO, USZ,

BOLV, HBS). On tree trunk in Chiquitano forest and on rocks in *Polylepis pepeii* forest in high Yungas transitional puna forest.

* *Holomitrium olfersianum* Hornsch. [Dicranaceae]: Santa Cruz: Quebrada San Luis, on road to Robore, 18°15'50" S, 059°45'37"W, 363 m, *Sanjines 3009* (LPB, MO). On humus covered rocks in Chiquitano gallery forest of Rubiaceae and Melastomataceae.

* *Lepidopilum cubense* (Sull.) Mitt. [Pilotrichaceae] Cochabamba: between Avispas and Campovia, 600 m, 17°35'S, 065°38'W, *Churchill et al. 22210* (LPB, MO, USZ), *22223* (MO, USZ). On branches of treelet and liana, in premontane transitional Amazon forest.

* *Meiothecium revolubile* Mitt. [Sematophyllaceae] Cochabamba: Río San Mateo, Carrasco National Park, 17°06'08"S, 65°30'46"W, 615 m, *Churchill et al. 24860* (LPB, MO); Santa Ana, 16°38'40"S, 65°47'24"W, 305 m, *Lozano et al. 2194* (HSB, MO, NY, USZ). Epiphytic in transitional Amazon and premontane forest. This species is rare (or rarely collected) throughout the transitional Amazon and premontane forests of the tropical Andes.

Philonotis cernua (Wilson) D.G. Griffin & W.R. Buck [Bartramiaceae] Cochabamba: near Sehuencas, Serranía de Siberia, 2100 m, 17°26'08"S, 065°18'51"W, *Decker 573-A* (BOLV, HSB, LPB, MO, USZ). On soil, in open Yungas montane forest. First reported for Bolivia by Churchill *et al.* (2000) from La Paz.

* *Schoenobryum rubricaula* (Mitt.) Manuel [Cryphaeaceae] La Paz: Santo Domingo, 14°47'25"S, 068°34'19"W, 1400 m, *Fuentes 11307* (LPB, MO, USZ). Epiphytic in lower Yungas montane bamboo forest. This species is apparently rare throughout the eastern slopes of the tropical Andes.

Streptotrichum ramicola Herzog [Pottiaceae] Cochabamba: trail to El Limbo, Cordillera El Ronco, 17°11'45"S, 065°41'16"W, 3400 m, *Churchill et al. 24773* (LPB, MO, MUB, USZ). The original collection of *S. ramicola* was made by Herzog in May 1911 in the vicinity of Tablas, and the second report of this species was by Churchill & Fuentes (2005). This third collection, from the upper Chapare region, was also made in high, open montane forest. The relevance of this record confirms previous information on this endemic genus: occurring in high montane forest at elevations between 3300 and 3400, and found exclusively on the nodes of bamboo (*Chusquea*). Furthermore this collection is the first to be made within the limits of a protected area, Carrasco National Park.

Toloxis imponderosa (Taylor) W.R. Buck [Meteoriaceae]

Papillaria tenella Herzog, Beih. Bot. Centralbl. 26(2): 78. 1909, *syn. nov.* Type: Bolivia. Im Bergurwalde bei Incacorral an Bäumen (Prov. Cochabamba), ca. 2200 m, Januar 1908, *Herzog s.n.* (JE!).

Papillaria diversifolia Herzog, Biblioth. Bot. 88: 19. 1920, *nom. nud.* Based on: [Santa Cruz, Bolivia] Comarapa, 2600 m, *Herzog 4208 'a'* (JE!).

Both collections are identical to *T. imponderosa* (Taylor) W.R. Buck, exhibiting the characteristic twisted leaf apex, strongly auriculate leaf base, and pluripapillose laminal cells with papillae in a single row, centered over the cell lumen.

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