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A new species and significant range extension for the genus *Fractipes* Bechyně (Coleoptera: Chrysomelidae: Eumolpinae: Eumolpini)

R Wills Flowers

Center for Biological Control
Florida A&M University
Tallahassee, FL 32307, USA

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A new species and significant range extension for the genus *Fractipes* Bechyně (Coleoptera: Chrysomelidae: Eumolpinae: Eumolpini)

R Wills Flowers

Center for Biological Control
Florida A&M University
Tallahassee, FL 32307, USA
rflowers7@earthlink.net

Abstract. *Fractipes tayrona* **new species** (Coleoptera: Chrysomelidae: Eumolpinae: Eumolpini) is described from a dry forest on the Caribbean coast of Colombia. This locality is very distant from the localities in southeast Brazil, where the other two known species of *Fractipes* Bechyně were described. Male and female genitalia are described for the first time in this genus, and *F. tayrona* is compared with holotype photographs of *F. rhabdopteroides* Bechyně and *F. secundus* Bechyně and Springlová de Bechyně.

Key words. Colombia, Brazil, taxonomy, leaf beetle.

Resumen. Se describe *Fractipes tayrona* **especie nueva** (Coleoptera: Chrysomelidae: Eumolpinae: Eumolpini) de la costa Caribe de Colombia. La especie fue recolectada en un bosque seco, en un lugar muy lejos del hábitat de los otros dos especies conocidas de *Fractipes* Bechyně, los cuales están conocidas del sureste de Brasil. Se describe los genitales de los machos y hembras por la primera vez en este género, y se compara *F. tayrona* a las fotos de los holotipos de *F. rhabdopteroides* Bechyně and *F. secundus* Bechyně and Springlová de Bechyně.

Palabras clave. Colombia, Brasil, taxonomía, escarabajos fitófagos.

ZooBank registration. urn:lsid:zoobank.org:pub:6CE2B3FE-4415-4ACA-99D5-8C25FF2CAE3B

Introduction

Bechyně (1950) described *Fractipes rhabdopteroides* as a new genus and species of eumolpine (Coleoptera: Chrysomelidae: Eumolpinae: Eumolpini) leaf beetle from southeastern Brazil. He described the species as resembling the genus *Rhabdopterus* Lefèvre, except for a very large ventral lobe on the hind femur of the male. Later, Bechyně and Springlová de Bechyně (1961) described a second species, *Fractipes secundus* Bechyně and Bechyně, also from southeastern Brazil, which is distinguished by a very large ventral tooth on the male metafemur. Inspection of a collection of Eumolpinae from a protected area on the Caribbean coast in Colombia has revealed a third species with a very large armament on the male metafemur. This paper describes *Fractipes tayrona* **new species**, and compares it with photos of holotypes of the other two known species. The locality of the new species represents a range extension for the genus of approximately 5,100 km; about as far from the other two species as is possible to get and still be on continental South America.

Materials and Methods

Specimens examined are in the following institutions:

FSCA Florida State Collection of Arthropods, Gainesville, FL, USA
IAVH Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Bogotá, Colombia
USNM National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

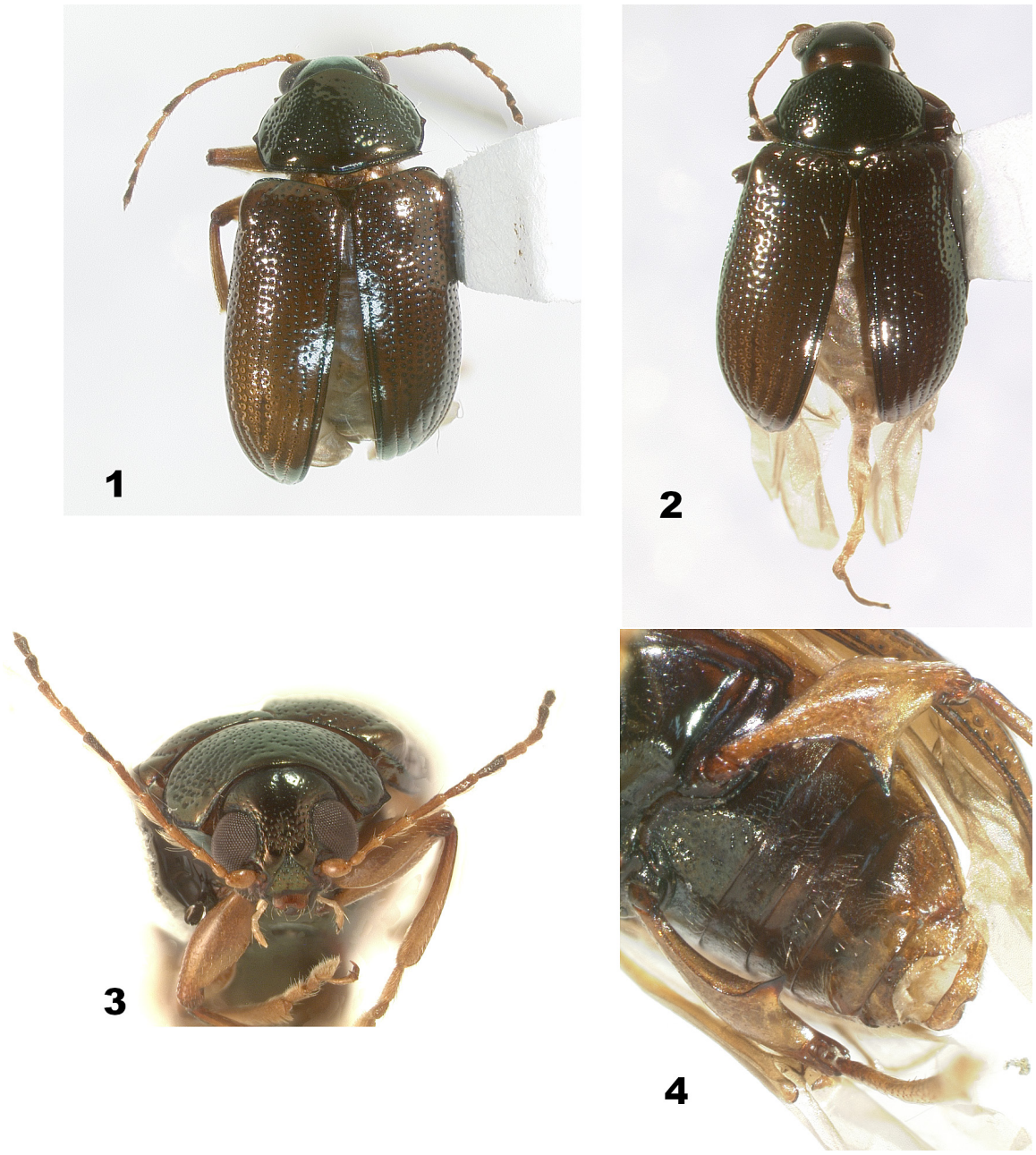
Specimens were examined under a Nikon stereomicroscope. Genitalia dissections were placed in glycerin in polyethylene micro vials and pinned below their respective specimens. Whole specimens were photographed with Auto-Montage software at the Florida State Collection of Arthropods. Genitalia photographs were taken with a Nikon Coolpix 995 through a stereomicroscope, and photos were converted to line drawings with Gimp®. Terminology of the genitalia follows Flowers (1995, 1999), Askevold and Flowers (1994), and Riley and Barney (2015). Label data for holotype, allotype, and paratypes are reproduced verbatim.

Systematics

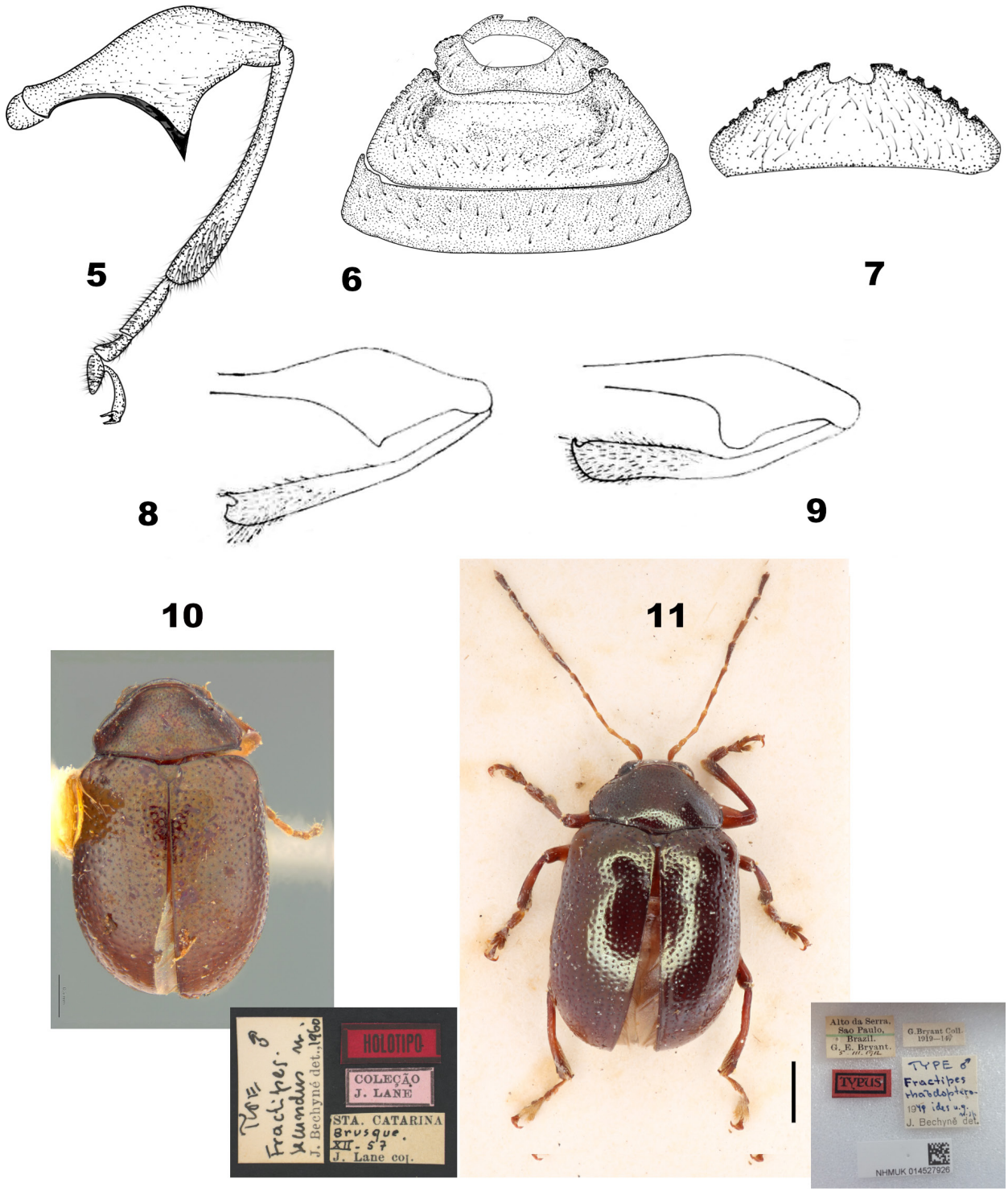
Fractipes tayrona Flowers, new species

Figures 1–7, 12–17

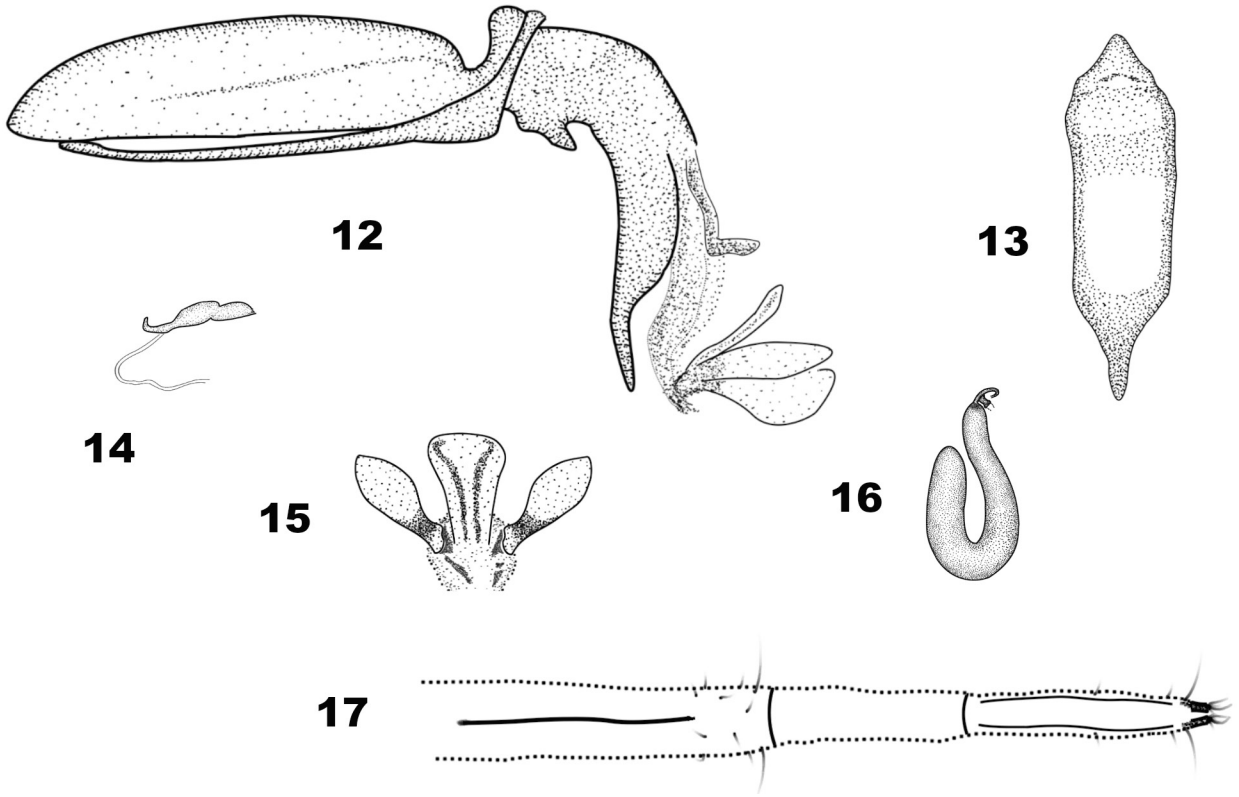
Description. HOLOTYPE MALE (Fig. 1). Body elongate oval; length 4.7 mm (male range: 4.4–5.3 mm; mean = 4.9 mm; *n* = 6). Upper side strongly shining. Head and pronotum piceous with bronze reflex, elytra dark brown with weak green reflex, labrum reddish brown, maxillary palpi yellow, antennomeres 1–6 and 8–9 reddish brown, 7 and 10–11 darker. Underside dark piceous brown with metallic bronze reflex, apex of sternum VI and sternum



Figures 1–4. *Fractipes tayrona*. **1)** Holotype male, dorsal habitus. **2)** Allotype female, dorsal habitus. **3)** Head of male. **4)** Underside of male showing femoral spur, and terminal abdominal segments plus pygidium.



Figures 5–11. Structures of *Fractipes*. **5)** Male hind leg of *F. tayrona*. **6)** Male sterna V–VIII of *F. tayrona* with tip of pygidium above. **7)** Female sternum VII of *F. tayrona*. **8)** Male hind leg of *F. secundus*. **9)** Male hind leg of *F. rhabdopteroides* (Figures 8 and 9 are from Bechyně and Springlová de Bechyně [1961]; captions are reversed in the original figure). **10)** Holotype and labels of *F. secundus*. **11)** Holotype and labels of *F. rhabdopteroides*.



Figures 12–17. *Fractipes tayrona*, genitalia. **12)** Lateral view of median lobe and partially everted endophallus. **13)** En-face view of median lobe. **14)** Apical sclerite. **15)** En-face view of endophallus at endophallic lateral digits. **16)** Spermatheca. **17)** Ovipositor.

VII reddish brown. Legs reddish brown, joint of femur–tibia darker. *Head.* Clypeus and frons punctate, punctures separated by distance slightly greater than their diameters. Vertex finely, sparsely punctate with punctures separated by distance greater than their diameters; surface between punctures smooth, shining; antennal calli smooth. Antennomeres 4–6 dorsoventrally compressed and densely setose ventrally (Fig. 3). *Thorax.* Prothorax distinctly wider than long, L/W = 0.67; anterior and posterior widths subequal; lateral margins rounded with an obtuse tooth at midlength; anterior and posterior angles prominent, directed laterally. Disc strongly punctate, with punctures separated by a distance equal or slightly less than their own diameters; surface between punctures shining, smooth. Prosternum with scattered pale setae, and with posterior margin of intercoxal process truncate, width of intercoxal process 0.5× diameter of procoxa. Mesosternum surface alutaceous with scattered pale setae, flat between mesocoxae. Metasternum smooth and shining; metepisternum surface finely alutaceous. *Legs.* Basitarsi of fore and middle legs enlarged, elongate, rectangular. Hind femur with a ventral carina in basal two-thirds, ending in a very large ventral tooth slightly curved inwardly (Fig. 4); carina and apex of tooth black. Apical fourth of hind tibia setose; apex asymmetrically rounded with fine carina on margin (Fig. 5). *Elytra.* Evenly punctate basally, punctate-striate in apical third; punctures separated by distance greater than their diameters; surface between punctures smooth, shining; humeri prominent, subquadrate, width across humeri 1.3× width across pronotum; basal calli weakly developed; postbasal depression shallow. *Abdomen.* Sterna with numerous short setae and a transverse band of long setae in middle third at apical margins; surface of segments alutaceous. Male sternum VI (Fig. 6) with lateral margins crenulate on apical half, a pair of blunt swellings at posterolateral corners, and a weak depression in center; sternum VII with a deep U-shaped emargination for reception of the apex of the pygidium. Pygidium with a deep longitudinal groove and shallow oval depressions laterally. Terga heavily sclerotized, spicules on terga II and III small and inconspicuous. *Genitalia.* Median lobe in lateral view

Figure 18. Dry forest habitat at Parque Nacional Natural Tayrona, Colombia.

(Fig. 12) bent downward at slightly greater than right angle to the basal hood; in en-face view apical margin drawn out into a long acute projection (Fig. 13). Endophallus with a pair of short sclerotized basal lateral digits (Fig. 15) and large, paddle-shaped endophallic lateral digits, sclerotized at their base; a large membranous T-shaped dorsal lobe between the digits, lobe with a pair of lyre-shaped sclerites (Fig. 15). Apical sclerite small, distinctly longer than wide (Fig. 14). Sperm gland elongate and very slender, a very small non-sclerotized cap at the junction of the duct.

ALLOTYPE FEMALE (Fig. 2). Body oval; length 5.0 mm (female range: 4.5–5.2 mm; mean = 4.8 mm; *n* = 8); color similar to male but with elytra darker brown. *Head.* With labrum, frons, eyes similar to male; mouthparts similar to male. Antenna filiform, segments 4–6 not flattened and lacking ventral setae. *Thorax.* Prothorax distinctly wider than long, L/W = 0.6; shape of pronotum as in male; prosternum similar to male but with setae longer. Meso- and metathoracic sterna as in male. Legs with hind femur slender, unmodified; basitarsi unmodified. *Elytra.* Similar to male but with posthumeral depression deeper. *Abdomen.* Sterna evenly covered with long yellowish setae. Sternum VII with large apical emargination, strongly crenulate laterally (Fig. 7). *Genitalia.* Segments VIII–XI forming very long, thin ovipositor (L/W = 24.8; Fig. 17). Sternum VIII with long linear basal apodeme; segment IX covered with minute setae; hemisternites with long basal rods; baculum distinct, apical, slightly shorter than gonocoxae. Gonocoxae longer than wide. Spermatheca (Fig. 16) with receptacle small, scarcely differentiated from the pump.

Specimens examined. (6♂♂, 8♀♀). Male HOLOTYPE labeled: COLOMBIA, Magdalena, PNN Tayrona Palangana, 11°20′N 72°2′W, 30 m, Malaise, 05/03–21/03/2001, R. Henriquez Leg. M1483. Female ALLOTYPE labeled: COLOMBIA, Magdalena, PNN Tayrona Palangana, 11°20′N 72°2′W, 30 m, Malaise, 4–17.i.2002, M2756. Holotype and allotype deposited in IAVH. PARATYPES: COLOMBIA, Magdalena: (3♂♂; 2 IAVH, 1 FSCA) same locality, date, and collector as holotype; (1♂, USNM) same locality, date, and collector as allotype; (1♂, 1♀) same locality and collector as holotype, 16.xii.2001–4.i.2002, M2756; (6♀♀; 4 IAVH, 1 FSCA, 1 USNM) PNN Tayrona Gairaca, 11°20′N 74°2′W, 5 m, Malaise, 05/03–21/03/2001, R. Henriquez Leg. M1479.

Etymology. This species is named for Parque Nacional Natural Tayrona, where all individuals of this species were collected; name to be treated as a noun.

Diagnosis. *Fractipes* differs from all other genera of Neotropical Eumolpinae by the very large size of the male metafemoral projection. *Fractipes tayrona* differs from the two other described species in this genus by the lack of a notch or emargination at the apex of the male hind tibia, by the shape of the projection on the ventral side of the metafemur (Fig. 5, 8–9), and by the dense short setae on the ventral side of male antennomeres 4–6.

Discussion

In addition to the characters listed above in the diagnosis, *F. tayrona* differs from both *F. rhabdopteroides* (Fig. 9, 11) and *F. secundus* (Fig. 8, 10) in having blunt teeth on the pronotal margins, and a more slender body shape (and consequently a narrower prosternum). All three species share an extreme development in the metafemora of the males, and elongate rectangular basitarsi in the male fore and middle legs. Additionally, *F. tayrona* and *F. rhabdopteroides* share a deeply incised male sternum VII, noted in Bechyně's (1950) description of *F. rhabdopteroides*.

Parque Nacional Natural Tayrona is located on the Caribbean coast of northwestern Colombia. Its dominant vegetation is tropical dry forest (Fig. 18). The photo was taken by the author during the dry season in 2016, 15 years after the specimens were collected and, according to park personnel, after two years of unusually low rainfall. However, the abundant presence of cacti and characteristic dry forest vegetation in the Tayrona forest indicates that *F. tayrona* is well adapted to a seasonally dry climate. This is in contrast to the known habitats of the two Brazilian species, both of which were collected in Brazil's Atlantic Forest.

Fractipes tayrona substantially extends the known range of its genus. While the disjunction is striking, it is not unprecedented and perhaps to be expected as more large biodiversity collections are analyzed. For example, a survey of aquatic insects in the Madre de Dios watershed in Peru revealed several mayfly genera formerly considered endemic to southeast Brazil (Sweeney et al. 2009). Even in the older eumolpine literature, there are similar disjunctions, such as Lefèvre's genus *Eurysarcus* in which he included four species from southeast Brazil and one from Manizales, Colombia (Lefèvre 1876, 1878).

Acknowledgments

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