TWO NEW SPECIES OF THE *ELEUTHERODACTYLUS CONSPICILLATUS* GROUP (AMPHIBIA: LEPTODACTYLIDAE) FROM THE CORDILLERA ORIENTAL OF COLOMBIA

by

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Resumen

Lynch, J.D.: Two new species of the *Eleutherodactylus conspicillatus* group (Amphibia: Leptodactylidae) from the Cordillera Oriental of Colombia. Rev. Acad. Colomb. Cienc. **19** (72): 187 - 193. 1994. ISSN 0370-3908.

Se describe *Eleutherodactylus carranguerorum* de los flancos orientales de la Cordillera Oriental de Boyacá. La especie tiene parentesco con *E. savagei*. Se describe *E. medemi* del piedemonte de Cundinamarca y Meta. La especie parece tener parentescos con *E. vilarsi*.

Abstract

Eleutherodactylus carranguerorum is described from the eastern slopes of the Cordillera Oriental in Boyacá. It is allied to *E. savagei*. *Eleutherodactylus medemi* is described from the piedmont in Cundinamarca and Meta, Colombia. It appears to be most closely related to *E. vilarsi*.

The frogs of the *Eleutherodactylus conspicillatus* Group were long confused with the superficially similar frogs of the Subgenus *Craugastor* (mostly the *E. fitzingeri* Group) until **Lynch** (1986a) pointed out that his (**Lynch**, 1976) *fitzingeri* group was a composite. At present the *conspicillatus* and *fitzingeri* groups differ in karyology (**DeWeese**, 1976) and jaw muscle formulae (**Lynch**, 1986a). The two groups may also be distinguished, even in newly hatched individuals, using a very superficial feature. Frogs of the *conspicillatus* group have the fifth toe longer than the third when each toe is adpressed against the fourth whereas frogs of the *fitzingeri* group have a more rudimentary fifth toe which is shorter than the third (Fig. 1).

At present, 17 species of the *conspicillatus* group are known from Colombia. *Eleutherodactylus conspicillatus*, *E. lanthanites*, *E. malkini*, *E. peruvianus*, *E. vilarsi*, and *E. zeuctotylus* are found in the lowlands of eastern Colombia (**Lynch**, 1980), *E. achatinus* and *E. caprifer* occur in lowlands of western Colombia (**Lynch** and **Myers**, 1983), and *E. gaigei* is found in the lowlands of northern Colombia, western Colombia, and the interandean vallys (**Lynch**, 1986b). Eight species are known from cloudforests: *Eleutherodactylus carmelitae* and *E. insignitus* in the Sierra Nevada de Santa Marta (**Lynch** and **Ruiz**, 1985), *E. johannesdei*, *E. thectopternus*, and *E. viridicans* in the western cordilleras (**Lynch**, 1975, **Rivero** and **Serna**, 1987), *E. w-nigrum* in all three cordilleras (**Lynch**, 1979), and *E. bacchus* (however, see discussion) and *E. savagei* in the Cordillera Oriental (**Lynch**, 1984, **Pyburn** and **Lynch**, 1981)

Fieldwork on the eastern face of the Cordillera Oriental during the 1980s revealed that more than one (*E. savagei)* species occurred there. The additional species differ from *E. savagei* in size and in head shape. In 1989, during fieldwork in eastern Cundinamarca, two species were taken sympatrically but the ecological distinctions seemed elusive.

On the eastern flanks of the Cordillera Oriental, in the piedmont, the Serranía de la Macarena, and in the forests of the Amazonian-Orinoquian ecotone in Colombia, one finds four species of the *Eleutherodactylus*

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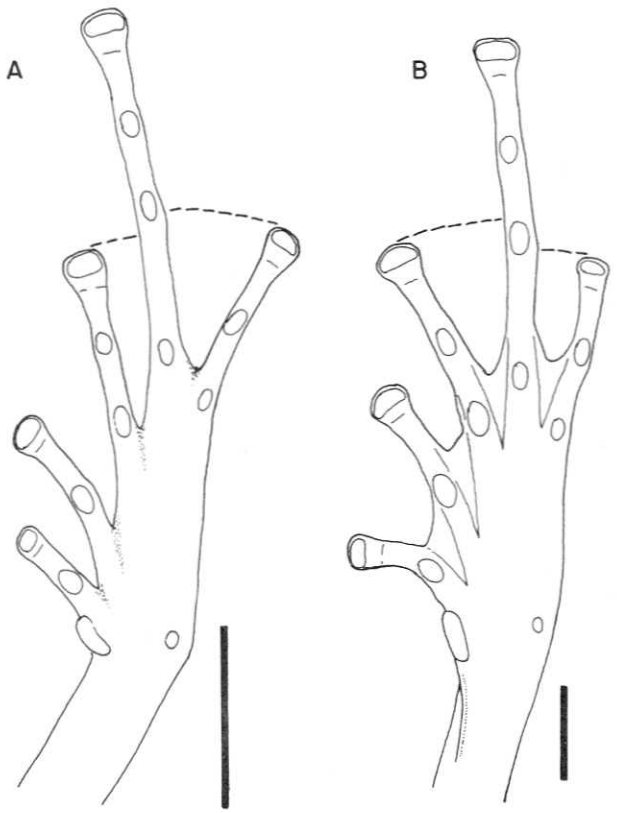

Figure 1. Plantar views of feet of *Eleutherodactylus* showing differences in lengths of third and fifth toes. (A) *E. thectopternus* (*conspicillatus* group), ICN (JDL 11331); (B) *E. raniformis* (*fitzingeri* group), ICN (JDL 11333). Scales equal 5 mm.

conspicillatus group having uniformly brown (in alcohol) posterior surfaces of the thighs. Superficially, the four are quite similar. The lowland species is *E. vilarsi* and is most easily distinguished from the other three in having a large tympanum (Fig. 2) and shorter hind limbs.

Materials and Methods

Specimens were measured to the nearest 0.1 mm under a dissecting microscope. Means are reported below as ± one standard error of the mean. Terminology follows **Lynch** and **Duellman** (1980).

Taxonomic Accounts

Eleutherodactylus savagei Pyburn & Lynch

This species is most easily distinguished from the new species by size. Calling males of *E. savagei* are 19.2-23.9 ($\bar{x}$ = 22.2 ± 0.2) mm SVL and adult females are 29.0-37.2 ($\bar{x}$ = 32.4 ± 0.5) mm SVL. All females of the two undescribed species less than 39 mm SVL are immature and calling males of these frogs are as large as adult females of *E. savagei*. The frogs are readily distinguished by head shape (reflected in the narrow heads of *E. medemi*, broader heads in *E. carranguerorum* and *E. savagei*) and by the presence of a small but obvious (Fig. 2) tubercle on the upper eyelid in *E. savagei* (absent in the undescribed frogs).

Pyburn and **Lynch** (1981) reported the species from the Serranía de la Macarena and Buenavista (Depto. Meta). During fieldwork in the 1980s, *E. savagei* was collected at elevations between 1000 and 2400 m in Cundinamarca (Municipio de Quetame) and Meta (municipios Acacias and Restrepo).

Specimens examined. CUNDINAMARCA, Mpio. Quetame, vereda Chirajara, Quebrada Chirajara, 1230-1240 m (ICN 21393-400); finca Las Brisas, Km 22 carr. Guayabetal-Alto de Tigre, 2360 m (ICN 9881); arriba de Hda. Monteredondo, 2200-2400 m (ICN 5047, 5049); vereda Portachuelo, carr. a Manzanares (ICN 26970-72). META, Mpio. Acacias, Portachuelo, 1560-1600 m (ICN 5045-46, 5051-73, 5095-96, 5118-23, 12900); Portachuelo, Quebrada Aguapanela (ICN 9911-18), Km 7 carr. Guayabetal-Manzanares, 1550 m (ICN 9904), Km 11 carr. Guayabetal-Manzanares, 1700 m (ICN 9882-96, 9899-9903), KM 13 carr. Guayabetal-Manzanares, Quebrada El Engaño, 1470 m (ICN 9905, 9907-10); Mpio. Restrepo, Alto Río Canay, ca 4 km arriba de Restrepo, 1000-1040 m (ICN 21360-92); Mpio. Villavicencio, Buenavista (ICN 2358); Mpio. Vista Hermosa, La Macarena, al sureste (ICN 2982-84).

Eleutherodactylus vilarsi (Melin)

This is a lowland species found primarily in the ecotone between Amazonia and Orinoquia. **Lynch** (1975) reported specimens from western Meta but at least one of those (UMMZ 132816) is one of the new species reported below. *Eleutherodactylus vilarsi* is a short-legged frog (tibia/SVL in males 49.8-55.1%, $\bar{x}$ = 52.6 ± 0.5, n = 9, in females 47.0-55.2%, $\bar{x}$ = 50.2 ± 0.8, n = 12) with a large tympanum (tympanum/eye in males 54.0-65.6%, $\bar{x}$ = 60.6 ± 1.4, n = 9, in females 53.5-61.4%, $\bar{x}$ = 57.5 ± 0.7, n = 12). In life, the posterior surfaces of the thighs of *E. vilarsi* are red.

Specimens examined. AMAZONAS: Araracuara, 250 m (ICN 4842, 11885-89, 11901, 11903-08, 11938, 32417-20); Parque Nacional Natural Chiribiquete (INDAN 5464-65, VR 3795, 3813, 3823, 3826, 3834, 3839). VAUPES: boca del Río Ariari (ICN 589, 603); Mitú (ICN 13534, 13536, 13539-40, 13552-54). META, Vista Hermosa: La Macarena, al sureste (ICN 2960-61, 2977, 2980-81).

Eleutherodactylus carranguerorum sp. nov.

Holotype. Adult female deposited in the amphibian collection of the Instituto de Ciencias Naturales-Museo de Historia Natural, Universidad Nacional de Colombia, number 5345 collected by *María Cristina Ardila, Pablo Bernal*, y *José Vicente Rueda* 27 October 1979.

Paratopotypes. Adult and subadult females, two adult males, ICN 5346-47, 5349, 5251-60, collected with the holotype.

Type-locality. COLOMBIA, Boyacá, vertiente oriental de la Cordillera Oriental, municipio de Pajarito, Inspección de Policía de Corinto, Quebrada La Rochita, 1600 m alt.

Paratypes. Departamento de Boyacá, municipio de

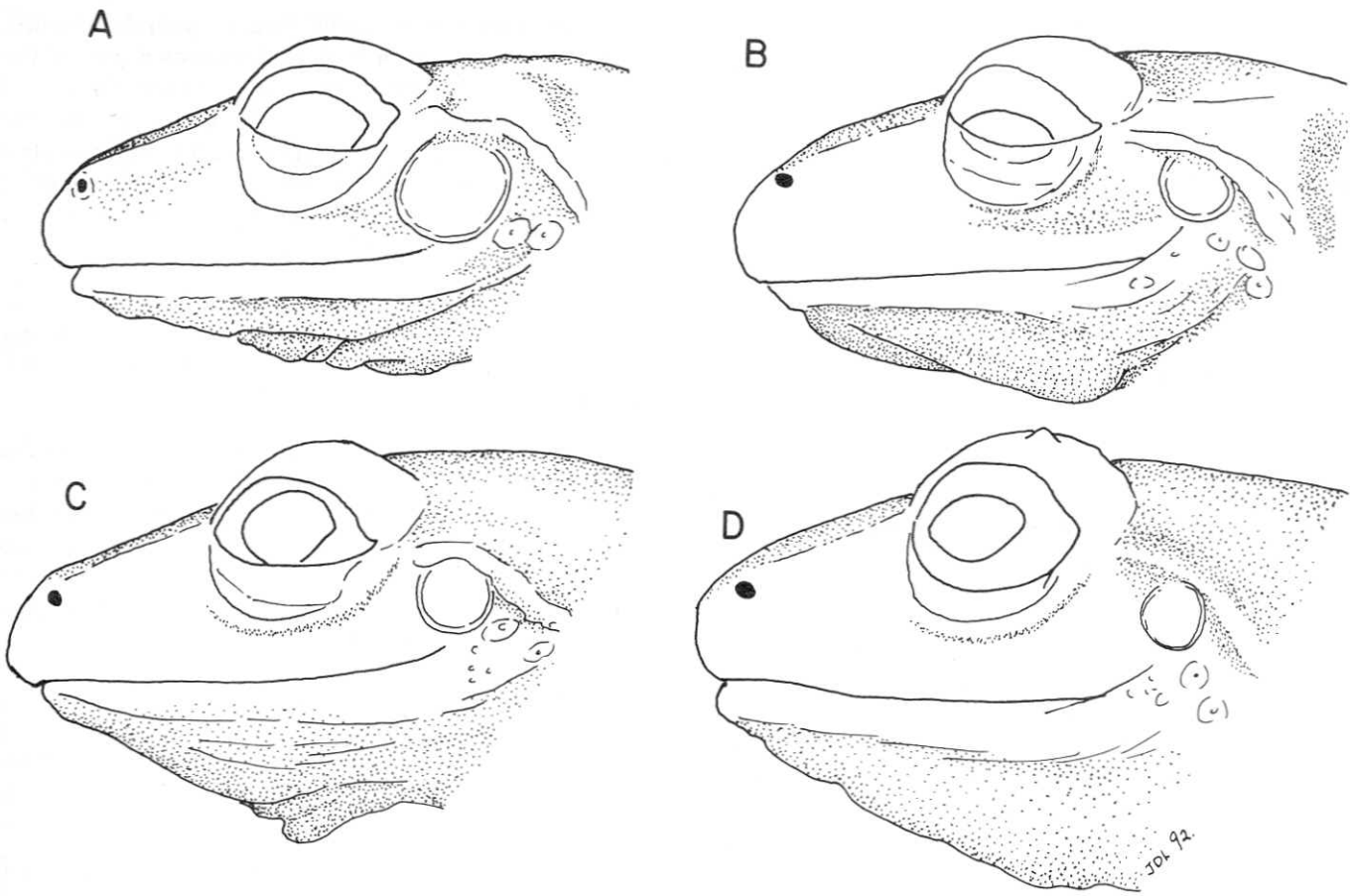

Figure 2. Lateral views of head of *Eleutherodactylus* (A) *E. vilarsi*, ICN 13540; (B) *E. carranguerorum*, ICN 9410; (C) *E. medemi*, ICN 21220; and (D) *E. savagei*, ICN 21383.

Pajarito, Inspección de Policía de Corinto, Hacienda Comejoque, 2015 m, ICN 7166-70, cols. *G. Chavarro* y *V. Rueda*, Enero 6-10, 1981, ICN 9471, 2060 m, col. *Pedro M. Ruiz*, Sept. 7, 1981; ICN 9402-11, 9413, 9422, 9424-25, 9439-44, finca El Descanso, Quebrada La Limonita, 1600-1650 m, cols. *P. Ruiz et al*, Sept. 2-6, 1981; ICN 9434-36, camino de Corinto a "La Cascada", Quebrada La Colonera, 1600 m, cols. *P. Ruiz et al*, Sept. 4, 1981.

Etymology. The new species takes the collective name of the members of the folkloric groups (Los Carrangueros de Ráquira, Jorge Velosa y Los Carrangueros, y Jorge Velosa y Los Hermanos Torres) of *Jorge Velosa Ruiz* and is given to honor the ten: Javier Apráez, Francisco Aristizábal, Javier Moreno, José Luis Posada, Jairo Rincón Gomez, Argemiro Torres Ariza, Delio Torres Ariza, Juan Torres Camacho, Ramiro Zambrano, and el Carranguero Mayor, Jorge Velosa Ruiz.

Referred specimens. BOYACÁ, Mpio. Pajarito, Inspección de Policía de Corinto: Quebrada Las Jotas, 1600 m (ICN 5128-30, 5132-45, Quebrada La Rochita, 1600 m (ICN 5348, 5361-63), Hda. Comejoque, ca 2000 m (ICN 5601-03, 7171), finca El Descanso, Qda. La Limonita, 1600-50 m (ICN 9412, 9414-21, 9423, 9426-32, 9445-68), camino de Corinto a "La Cascada" Qda. La Colonera, 1600 m (ICN 9433, 9437), below Corinto, Qda. Conjutá, 1350 m (ICN 9470).

Diagnosis. (1) skin of dorsum shagreen, short dorsolateral folds in scapular region, skin of venter weakly areolate; (2) tympanum prominent, superficial, its length 1/4 - 2/5 eye length; (3) snout obtuse in dorsal view, rounded in lateral profile; canthus rostralis distinct, straight or weakly sinuous; (4) upper eyelid narrower than IOD, bearing small tubercles; no cranial crests; (5) vomerine odontophores triangular, prominent, narrowly separated medially; (6) males with vocal slits, subgular vocal sac, glandular nuptial pads; (7) first finger slightly shorter than second; fingers bearing enlarged discs on fingers *III-IV*; (8) fingers bearing fleshy lateral keels; (9) no ulnar tubercles; (10) small, non-conical tubercle on heel; short inner tarsal fold (or tubercle) on distal 1/3 of tarsus; (11) two metatarsal tubercles, inner oval, four times size of elongate outer; supernumerary tubercles at bases of toes *II-IV*; (12) toes bearing fleshy lateral keels, no webbing; toe discs smaller than those of outer fingers; (13) dorsum brown with darker markings (interorbital bar, occipital W, chevrons) and pale dorsolateral lines; throat heavily marbled with brown, venter cream; posterior surfaces of thighs uniformly brown; (14) adults large, males to 32.7 mm SVL, females 41.7-50.7 ($x = 45.4 \pm 0.8$, $n = 10$) mm SVL.

Eleutherodactylus carranguerorum is most similar to *E. savagei* but differs from that species in being larger, in lacking enlarged tubercles on the upper eyelid and heel, and in having a less acuminate snout (Fig. 3).

Description. See Table 1 for proportions; head as broad as body (not as broad as body in gravid females), broader than long; snout obtuse in dorsal view, rounded in lateral profile; nostrils protuberant, directed

dorsolaterally; canthus rostralis prominent, straight or weakly sinuous; loreal region concave, sloping to lips; lips flared in large females, flaring most pronounced posteriorly; small tubercles on upper eyelids; no cranial crests; supratympanic fold distinct, obscuring upper edge of tympanum; tympanum higher than long, well separated from margin of lip, separated from eye by distance greater than its horizontal length; tympanum superficial, annulus prominent except dorsally and posterodorsally; low tubercles anterior to tympanum; postrictal tubercles small, non-conical; choanae round, not concealed by palatal shelf of maxillary arch when roof of mouth viewed from directly above, smaller than an odontophore; vomerine odontophores median and posterior to choanae, separated medially by distance less than an odontophore width, triangular in outline with a transverse trow of 3-8 teeth; tongue longer than wide, posterior 1/4 - 1/3 not adherent to floor of mouth, posterior edge not notched; short vocal slits lateral; vocal sac subgular.

Dorsum shagreen with faint traces of dorsolateral folds in shoulder regions; flanks and venter weakly areolate; discoidal folds well anteriad to groin; no anal sheath; no ulnar tubercles; palmar tubercle bifid, larger than oval thenar tubercle; supernumerary palmar tubercles low; subarticular tubercles round, elevated; fingers bearing fleshy lateral keels (almost fringes); large round discs on fingers *III-IV* (2-2 1/2 times width of digit below disc), discs of *II* intermediate in size between thaose of *I* and *III*, disc of *I* is obvious but small; discs of *III-IV* larger than tympanum; thumb of male swollen, bearing glandular nuptial pad; when fingers *I* and *II* adpressed equally, *II* is slightly longer than *I*.

Small, non-conical tubercle on dorsolateral portion of heel; short inner tarsal fold on distal 1/3 of tarsus or a low tubercle near midpoint of this fold; inner metatarsal tubercle 2 1/2 times as long as wide; outer metatarsal tubercle elongate, about 1/4 size of inner; indefinite tubercles on plantar surface and prominent tubercles at bases of toes *II-IV* (in some individuals, there appear to be tubercles at base of toe *I*); subarticular tubercles round to slightly longer than wide; toes bearing lateral keels (almost fringes) but no webbing; toe discs 1 1/4 - 2 times width of digit below discs, smaller than discs of fingers; fifth toe longer than third when each is adpressed against *IV*; when flexed hind limbs are held perpendicular to sagittal plane, heels overlapping.

Dorsum pale brown to gray with dark brown interorbital bar, occipital W, scapular and sacral chevrons, and pale lines along canthus, upper eyelid, and dorsolateral region to level of sacrum; pale lines edged below by dark brown (no pale stripes in ICN 5601 but dark marks are present); anal triangle prominent; limb bars oblique, narrower than interspaces; canthal-supratympanic stripe and labial bars dark brown; tympanum brown; vague slanted bars on flanks; throat heavily stippled with brown, venter nearly immaculate; undersides of limbs not spotted; groin, anterior and posterior surfaces of thighs and shanks uniformly brown.

In life, *E. carranguerorum* is brown above with dark brown interorbital bar, scapular and sacral chevrons, and transverse bars on limbs; loreal region dark brown, labial bars dark brown over pinkish-brown ground color; canthal and supratympanic stripe black; flanks, anterior and posterior surfaces of thighs dark reddish-brown; throat yellow-brown with cream flecks, other ventral surfaces pinkish-brown; iris copper with black reticulum and reddish-brown horizontal streak. Dorsolateral stripes are burnt yellow or pale carmel with black edges.

Measurements of holotype in mm. SVL 46.1, shank 25.2, HW 18.6, head length 17.3, chord of head length 18.8, upper eyelid width 3.9, IOD 6.1, tympanum length 2.0, eye length 5.5, E-N 5.7.

Distribution. Known only from the vicinity of the type-locality (1350-2060 m). Although failure to collect the animal is not evidence, my failure to encounter this species in the vicinity of finca El Vergel (Mpio. Miraflores) 30-50 km to the SW is suggestive that the species' distribution is on the eastern slopes of the Cordillera Oriental to the north.

***Eleutherodactylus medemi* sp. nov.**

Holotype. ICN 21213 (field number JDL 17213), gravid female, one of a series collected 14 June 1989 by *John D. Lynch.*

Paratopotypes. ICN 5037-38, cols. *J. Lynch* and *Pedro M. Ruiz,* 7 June 1979, ICN 21214-16, cols. *Miguel Barrera* y *J. Lynch,* 14 June 1989.

Type-locality. Quebrada Salinas, Las Salinas de Upín, Municipio de Restrepo, Departamento de Meta, Colombia, 750-760 m alt.

Paratypes. CUNDINAMARCA, Mpio. Medina, vereda Choapal, 6-7 km NNE Medina, carretera Medina a Gachalá, 580-620 m, ICN 14574-75, 14583-87, 14588 (cleared and stained skeleton), 14596-601, cols. *María Cristina Ardila* et al, 27 July-2 August 1986. META, Mpio. Acacias, Portachuelo, 1400 m, ICN 5039, cols. *J. Lynch* and *P. Ruiz,* 9 June 1979; Mpio. Restrepo, vereda Río Canay, 740 m, ICN 4777, cols. *J. Lynch* and *P. Ruiz,* 15 June 1979, Alto Río Canay, ca 4 km arriba estación biologico Univ. Llanos, 1000-1040 m, ICN 21217-20, cols. *J. Lynch* and *P. Ruiz,* 12 June 1989. Mpio. Villavicencio. Quebrada Pozo Azul, Km 8 carretera Villavicencio a Restrepo, ICN 17400, col. *P. Ruiz,* 30 Abril 1988, 21313-15, cols. *M. Ardila* and *Olga Castaño,* 15 November 1981.

Etymology. The specific name honors the late **Federico Medem** who worked on the Colombian herpetofauna for more than thirty years and who lived within the distribution of the species. Although he preferred scaly amniotes, Federico assisted many herpetologists who prefer frogs, including me in 1967, when they visited Colombia.

Referred specimens. CUNDINAMARCA, Mpio. Medina: 6-7 km NNW Medina, 580-630 m, ICN 14576-82, 14589-95, 14602-17; Mpio. Quetame: Alto de Tigre, carr. Guayabetal-El Calvario, 1800-2000 m, ICN 5114; vereda Chirajara, Qda. Chirajara, 1230-1240 m, ICN

21401; arriba de Hda. Monteredondo, 2200-2400 m, ICN 5048. META Mpio. Acacias: Portachuelo, km 11 carr. Guayabetal-Manzanares, 1700 m, ICN 9897, km 13 carr. Guayabetal-Manzanares, Qda. El Engaño, 1470 m, ICN 9898, 9906; Mpio. Guamal: Hda. Avichure, Km 7 carr. campo Castilla, ICN 23088; Mpio. Villavicencio: Pozo Azul, Km 8 carr. Villavicencio-Restrepo, ICN 21316, 26275-76, 28882; 5 km NE Villavicencio, 450 m, UMMZ 132816.

Diagnosis. (1) skin of dorsum finely tuberculate with scattered larger tubercles, no dorsolateral folds, venter weakly areolate; (2) tympanum prominent, superficial, usually round, its length 1/3 - 1/2 eye length; (3) snout subacuminate in dorsal view, rounded in lateral profile; canthus rostralis prominent, straight; (4) upper eyelid not as wide as IOD, bearing only small tubercles; no cranial crests; (5) vomerine odontophores triangular in outline, prominent; (6) males with vocal slits, vocal sac, and glandular nuptial pads; (7) first finger slightly longer than second; fingers bearing expanded discs, those on outer fingers as wide as tympanum; (8) fingers bearing lateral keels; (9) no ulnar tubercles; (10) no tubercles on heel or outer edge of tarsus, low tubercles on inner edge of tarsus; (11) two metatarsal tubercles, inner oval, about three times size of round outer; supernumerary plantar tubercles at bases of toes; (12) toes bearing lateral keels, no webbing; discs smaller than those of lateral fingers; (13) dorsum brown with darker brown markings; posterior surfaces of thighs uniform brown; throat of males darker than of females; venter white to cream with brown spotting or mottling; (14) adults moderate-sized, males 29.4-32.9 (x = 30.4 $\pm$ 0.3, n = 19) mm, females 39.8-43.1 (x = 41.1, n = 6) mm SVL.

Eleutherodactylus medemi may be the sister species of *E. vilarsi* but is easily distinguished from it by its longer legs, smaller tympana, and because the posterior surfaces of the thighs are brown, not red, in life. *Eleutherodactylus medemi* is superficially similar to *E. savagei* but differs in lacking the enlarged tubercles on the upper eyelid and heel, in being larger, in having a larger tympanum (Fig. 2), and longer snout (Figs. 2-3).

Description. See Table 1 for proportions; head as wide as body in males, narrower than body in females, as long as wide; snout subacuminate in dorsal view, rounded in lateral profile; snout long; nostrils protuberant, directed laterally; canthus rostralis prominent, straight to weakly sinuous; loreal region concave, sloping abruptly to lips; no flaring of lips (Fig. 3); no cranial crests; upper eyelid bearing many small tubercles, none subconical or conical; supratympanic fold well-defined, obscuring upper edge of tympanum; tympanum round or slightly higher than long, well separated from margin of lip, separated from eye by less than its length; tympanum superficial, annulus distinct except dorsally and posterodorsally; postrictal tubercles subconical, not prominent; choanae longer than wide, not concealed by palatal shelf of maxillary arch when roof of mouth is viewed from directly above; odontophores median and posterior to choanae, triangular in outline, separated medially by distance slightly less than width of an odontophore, each about the size of a choana, bearing an arched row of 5-6 teeth in adult females, 3-4 in smaller individuals; tongue longer than wide, posterior edge notched, posterior 1/2 - 2/5 not adherent to floor of mouth; males with short vocal slits lateral to tongue, single external, subgular vocal sac.

Dorsum finely tuberculate with occasional scattered larger tubercles (occipital W, lower back); no

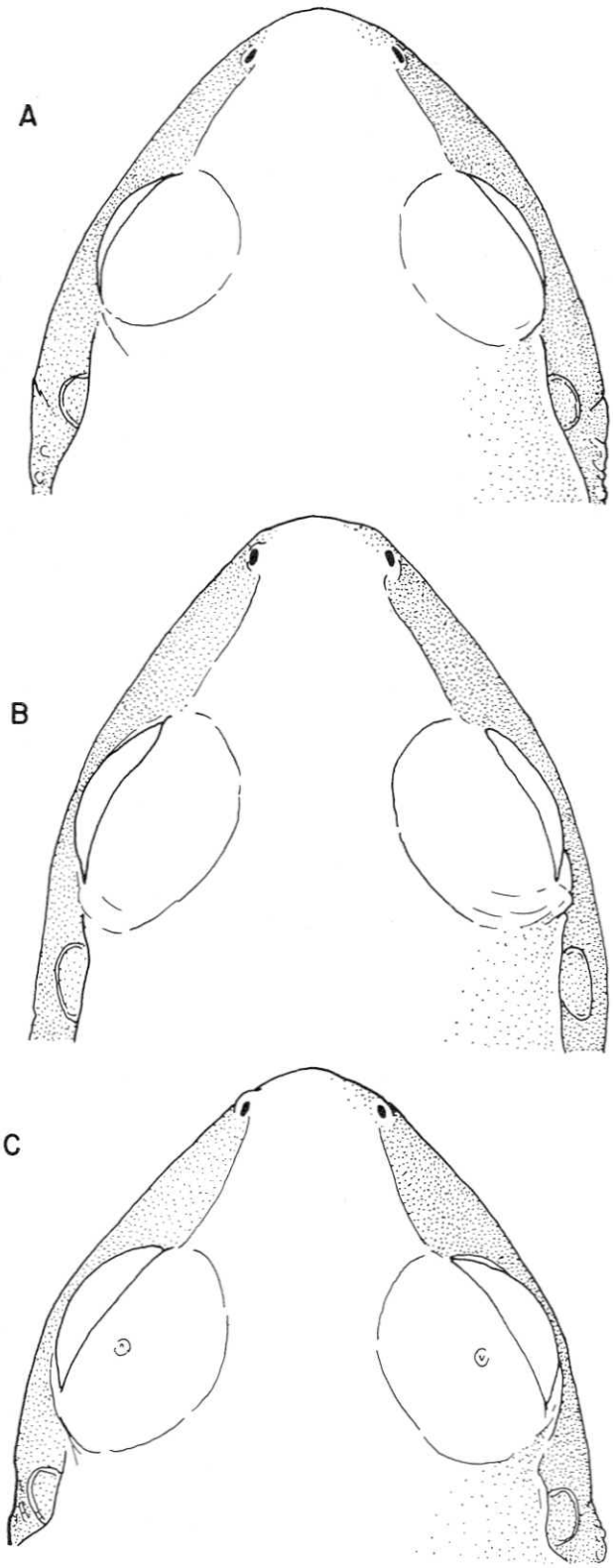

Figure 3. Dorsal views of heads of *Eleutherodactylus*. (A) *E. carranguerorum*, ICN 9410; (B) *E. medemi*, ICN 21220; and (C) *E. savagei*, ICN 21383.

dorsolateral folds; flanks areolate; venter weakly areolate (least obvious in adult females); discoidal folds well anteriad to groin; no anal sheath.

No ulnar tubercles; palmar tubercle bifid, much larger than oval thenar tubercle; supernumerary palmar tubercles large, flat; subarticular tubercles elevated, round; fingers bearing lateral keels; discs expanded, widths of *III-IV* 2 1/2 - 3 times width of digit below disc, not emarginate; discs on finger *II* intermediate in size between *I* and *III*, of *III-IV* as large as tympanum; discs bear pads on ventral surfaces, pads defined by complete circumferential grooves; when adpressed equally, first finger slightly longer than second; males with swollen thumbs and glandular nuptial pads.

No tubercle on heel or outer edge of tarsus; small, low tubercles along inner edge of tarsus; inner metatarsal tubercle twice as long as wide; outer metatarsal tubercle ill-defined, about 1/3 size of inner; supernumerary tubercles at bases of toes *I-IV*, that at base of toe *I* small, crowded by subarticular and inner metatarsal tubercles; toes bearing lateral fringes which coalesce at base but webbing not reaching basal subarticular tubercles except *IV-V*; third toe obviously shorter than fifth; discs not so large as those of outer fingers, discs nearly twice as broad as digit below disc; when flexed hind limbs are held perpendicular to sagittal plane, heels overlapping considerably.

Dorsum brown to gray with brown to dark brown interorbital bar, occipital W, sacral chevron, limb bars (narrower than interspaces, but latter divided by thin brown bars, weakly oblique on shanks); brown canthal-supratympanic stripe, labial bars; tympanum pale brown; flanks barred with slanted stripes; groin and concealed limb surfaces uniform brown; anal triangle brown to black; venter white to cream with little (males) to moderate brown spotting or mottling; venter less dark than throat in females (in males a light stipple on vocal sac); undersides of limbs more heavily flecked with brown than venter, at extreme, they are brown with cream spots.

Four individuals (ICN 4777, 14574, 14597, and 14611) have a median raphe from the snout tip to the anus. The pale stripe is edged with black or dark brown and disrupts the dorsal pattern. The first three of these are adult males and the last is a juvenile female.

In life, *E. medemi* is pale to dark brown or reddish brown above with darker brown markings; throat is pale yellow to gray in males; in females and juveniles, throat is dark gray with white (or cream) flecks; ventral surfaces dirty cream with brown or gray reticulum to pale yellow with gray-brown flecks; groin, anterior and posterior surfaces of thighs brown with slightly paler area behind knee (pale orange in juveniles); iris bright copper with black flecks and reddish-brown streak (sometimes lower part of iris gray).

Measurements of holotype in mm. SVL 40.2, shank 23.7, HW 15.3, upper eyelid width 3.6, IOD 4.6, tympanum length 2.1, eye length 5.0, E-N 5.3.

Distribution. Known from the forests in the piedmont and onto the slopes of the Cordillera Oriental

TABLE 1. Proportions, expressed as percents, of three species of the *Eleutherodactylus conspicillatus* group. Values given are Range (N), mean ± 1 standard error.

Species	Sex	Tibia/SVL	HW/SVL	Eyelid/IOD	Tymp/Eye	E-N/Eye
carranguerorum	Males	52.6-59.9(9)	38.1-42.2(9)	67.6-100.0(8)	30.0-35.7(9)	82.6-90.0(9)
		56.2±0.86	39.7±0.36	84.6±3.61	33.1±0.55	86.6±0.86
	Females	53.5-63.0(22)	39.0-43.8(22)	56.0-79.5(22)	25.5-44.2(22)	87.0-115.4(22)
		58.9±0.60	41.8±0.22	65.8±1.16	36.3±0.81	100.0±1.67
medemi	Males	50.8-58.4(19)	34.9-39.9(19)	75.8-100.0(19)	32.6-45.9(19)	81.8-105.1(19)
		54.5±0.51	37.4±0.27	93.1±2.08	39.6±0.83	93.5±1.61
	Females	55.4-59.9(8)	37.2-39.3(8)	70.0-92.7(8)	38.3-46.0(8)	100.0-113.0(8)
		57.6±0.63	38.2±0.26	82.5±2.94	41.7±0.80	106.6±1.45
savagei	Males	49.1-58.3(15)	37.7-41.9(15)	77.8-108.3(15)	30.3-40.0(15)	72.2-90.6(15)
		54.2±0.73	40.1±0.32	93.0±2.29	34.2±0.68	82.2±1.22
	Females	53.6-57.4(10)	39.0-42.1(10)	70.0-83.3(10)	32.5-38.4(10)	85.4-100.0(10)
		55.9±0.41	40.9±0.30	76.7±1.37	34.9±0.55	91.9±1.71

in departamentos Cundinamarca and Meta (450-1800 m). Some referred specimens come from slightly higher elevations (2200-2400 m) but those localities should be re-inventoried before the species' distribution is recorded as reaching 2400 m.

Discussion

With the description of *E. carranguerorum*, Lynch's (1984) suggestion that *E. bacchus* (western flanks, Cord. Oriental) is the sister species of *E. savagei* (eastern flanks, Cord. Oriental) must be revised. *Eleutherodactylus bacchus* is the only species currently assigned to the *conspicillatus* group which has a very long fifth toe (tip of fifth toe reaches to distal edge of distal subarticular tubercle of toe *IV*). That condition is a frequent one in the *unistrigatus* Series (some 180 species) but is not found outside of that series. On the strength of that character, E. *bacchus* is here removed from the *conspicillatus* group and assigned to the *unistrigatus* Series. At present, *E. w-nigrum* is the only species of the *conspicillatus* known from the western flanks of the Cordillera Oriental.

On the eastern slopes, *E.carranguerorum* and *E. savagei* appear to replace one another. Fieldwork during the past decade has resulted in a much more secure base of knowledge of distributions and I am confident that no species of this small assemblage occurs on the western flanks of the Cordillera Oriental in Cundinamarca or southern Boyacá. Our failure to find a representative of the assemblage during our fieldwork in Santander in 1986 and 1992 is likewise suggestive that the group is not represented to the north of Boyacá on the western flanks of the Cordillera Oriental. The eastern flanks of the Cordillera Oriental are much less well collected. To date, there are no collections from areas to the north of the type-locality of *E. carranguerorum*. Only a few exploratory trips to the Cordillera Oriental south of the macizo de Sumapaz have been made but the *Eleutherodactylus* of the *conspicillatus* group encountered there appear to be allied to *E. lanthanites*, a species of the upper Amazon Basin (**Lynch,** 1975, 1980).

Acknowledgments. This paper was written during my tenure as Profesor Visitante in the Instituto de Ciencias Naturales at the Universidad Nacional de Colombia. There I benefitted from discussions with **María Cristina Ardila** and **Pedro M. Ruiz** who also made available material and working space. I am grateful to **M. C. Ardila, Douglas Lynch,** and **P. M. Ruiz** for assistance in the field. My work in Colombia in 1992 was supported by a Faculty Development Leave from the University of Nebraska.

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