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A NEW SPECIES OF THE *ELEUTHERODACTYLUS DISCOIDALIS* GROUP (ANURA: BRACHYCEPHALIDAE) FROM CLOUD FORESTS OF PERU

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ABSTRACT: We describe a new species of the *Eleutherodactylus discoidalis* group from cloud forests of the Apurimac and Kosñipata valleys, southern Peru. The new species differs from other species of the group mainly by having a coarsely shagreen dorsum, long and slender hind legs, very long feet, Finger I equal in length to Finger II and fingertips not expanded. The species also lacks supernumerary tubercles on the feet.

Key words: Anura; Brachycephalidae; *Eleutherodactylus discoidalis* group; new species; Peru

LYNCH (1976) defined the *Eleutherodactylus discoidalis* Group and recognized five species: *E. cruralis, E. discoidalis, E. elassodiscus, E. granulosus* and *E. nigrovittatus*. Subsequently, Lynch, (1989) considered *E. granulosus* to be a junior synonym of *E. cruralis*, and split the former *E. discoidalis* Group, leaving it with only the two southern species: *E. discoidalis* (Argentina and Bolivia) and *E. cruralis* (southern Peru and Bolivia) (De la Riva, 1993). Recent studies in poorly surveyed areas of Bolivia revealed three new species of *Eleutherodactylus* belonging to this group: *E. zongoensis, E. ibischi* and *E. madidi* (Padial et al., 2005; Reichle and Köhler, 1997; Reichle et al., 2001). Members of the *E. discoidalis* Group are terrestrial and inhabit different ecoregions: the Tucumanian and Yungas Forest (*E. discoidalis*), the Andean Montane Rainforest (*E. cruralis, E. madidi, E. zongoensis*), the Amazonian Lowland Rainforest (*E. cruralis*), and the Inner Andean Dry Forest (*E. ibischi* and *E. cruralis*) (De la Riva et al., 2000; Köhler, 2000; Padial et al., 2005). In Peru, only *E. cruralis* occurs, and it is found in the lowland rainforest and adjacent foothills of the Andes. Nevertheless, examination of some specimens from the Apurimac River Valley and the Kosñipata Valley (Peru) identified as *E. cruralis* in the collection of the National Museum of Natural History (Washington DC) and the American Museum of Natural History (New York), led us to think that there was one undescribed species. After the study of the latter and additional specimens recently collected in the Kosñipata Valley, and comparisons with all types of currently recognized and synonymized species of the group and most species of the putatively related genus *Oreobates* (sensu Caramaschi and Canedo, 2006), we concluded that these specimens represent an unknown species, which is described herein.

MATERIAL AND METHODS

For morphological and color characteristics used in the diagnosis and description, we followed Lynch (1989) and Lynch and Duellman (1997). In the Appendix, we include a list of specimens examined. We took measurements with a digital caliper to the nearest 0.01 mm, but we rounded all measurements to only one decimal to avoid pseudo-precision (Hayek et al., 2001). Measurements taken are: snout–vent length, SVL; head length (from posterior margin of lower jaw to tip of snout); head width (measured at level of rictus); eye length (measured horizontally); eye to nostril distance (from the anterior corner of the eye to the centre of the nostril); internarial distance; eye–eye distance (between the anterior margins of the eyes); tympanic membrane height; tympanic membrane length; arm length (from posterior margin of thenar tubercle to elbow); tibia length; thigh length (from vent to knee); and foot length (from proximal border of inner metatarsal

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FIG. 1.—*Eleutherodactylus lehri* sp. nov. (MHNC 4564) from Esperanza, Kosñipata Valley, Department Cusco, Peru.

tubercle to tip of fourth toe). Museum abbreviations other than cited by Leviton et al., (1985) are: Centro de Biodiversidad y Genética, Universidad Mayor de San Simón, Cochabamba, Bolivia (CBG); Colección Boliviana de Fauna, La Paz, Bolivia (CBF); Museo de Historia Natural Noel Kempff Mercado, Santa Cruz de la Sierra, Bolivia (MNK–A [Amphibian Collection]); Museo de Historia Natural de la Universidad Mayor de San Marcos, Lima, Peru (MHNSM), Museo de Historia Natural, Universidad Nacional de San Antonio Abad del Cusco, Peru (MHNC).

SYSTEMATICS

Eleutherodactylus **lehri** *sp. nov.*
(Figs. 1, 2, 3 and 4)

Holotype.—USNM 537848, an adult female from the Apurimac River Valley, Camisea Natural Gas Pipeline, Wayrapata Camp, 2445 m asl, (12°50′10″ S, 73°29′43″ W), Department Cusco, Peru, collected by E. Solezer on 31 July 1998 (field number, F 50066).

Paratypes.—USNM 537846–57 are paratopotypes: USNM 537846–7, two subadult males, collected by H. Gutiérrez on 30 July 1998 (field number, F50062, F50065); USNM 537849, a gravid female, collected by H. Gutiérrez on 3 August 1998 (field number, F50069); USNM 537850, a subadult male, collected by A. Portilla on 5 August 1998 (field number, F50096); USNM 537851, juvenile, collected by J. Icochea on 5 August 1998 (field number, F50097); USNM 537852, a subadult male, collected by A. Portilla on 7 August 1998 (field number, F50114); USNM 537853, juvenile, collected by J. Amanzo on 9 August 1998 (field number, F50135); USNM 537854–5, subadult male and female respectively, collected by J. Icochea on 11 August 1998 (field numbers, F50139–40); USNM 537856, juvenile, collected by A. Portilla on 11 August 1998 (field number, F50143); USNM 537857, a subadult male, collected by J. Icochea on 12 August 1998 (field number, F50147). AMNH 11831, an adult male from Pillahuata between Puente Kosñipata and road, 2430 m asl, (13°09′52″S, 71°35′46″W), Department Cusco, Peru, collected by L. O. Rodríguez on 15 January 1998. MHNC 4557, 4564–7, 4583–6, 4601–2, 4682–3 and MNCN 43740–1, Esperanza, Kosñipata Valley, 2600–2800 m asl, (13°10′56″S, 71°36′14″W), Department Cusco, Peru, collected by Juan C. Chaparro and A. Mendoza on 26 January to 23 February 2003 (MHNC 4557, 4564, 4602, 4683 and MNCN 43741, adult males; MHNC 4682 and MNCN 43740, adult females; MHNC 4565, 4601, subadult females; MHNC 4566–7, 4583–6, juveniles).

Diagnosis.—A member of the *Eleutherodactylus discoidalis* Group, as defined by Lynch (1989), characterized by: (1) skin on dorsum coarsely shagreen, granules regular in size, small, round, only some of them slightly enlarged; granules on flanks slightly larger than those of dorsum; venter smooth; posterior surfaces of limbs smooth to shagreen; discoidal fold present; no dorsolateral folds; postrictal glands weak or absent; (2) tympanic membrane and annulus distinct, their length about half eye length; supratympanic fold weak, short; (3) head large, slightly longer than wide or subequal; snout round in dorsal and lateral views; canthus rostralis sinuous in dorsal view, round in profile; (4) cranial crests absent; upper eyelid covered by small granules; (5) vomerine odontophores large, situated posteromedial to choanae; (6) males with vocal slits; (7) hands with long and slender fingers, first finger about same length as second; subarticular tubercles round to conical, well developed; supernumerary tubercles low, not prominent, round to conical, smaller than subarticular tubercles; terminal discs of

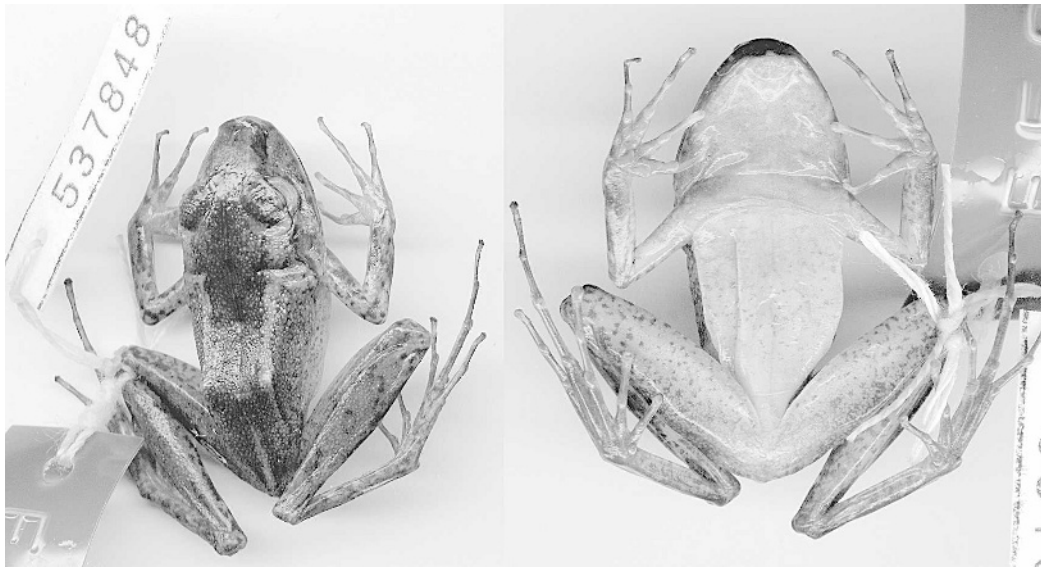

FIG. 2.—Dorsal and ventral views of the holotype of *Eleutherodactylus lehri* sp. nov. (USNM 537848) from Apurimac River Valley, Department Cusco, Peru.

fingers truncate to round, not enlarged, lacking circumferential grooves and ungual flap (Fig. 3); lateral fringes and keels on fingers absent; (8) ulnar tubercles absent; (9) no tubercles on heel and tarsus; (10) inner metatarsal tubercle ovate to round, prominent, outer smaller, round, prominent; supernumerary tubercles absent; (11) toes long and slender (foot length 60–70% SVL), lacking lateral fringes or keels (or very weak at the base of Toe III), webbing absent; fifth and third toes reaching midpoint of second subarticular tubercle of Toe IV; tips of toes moderately enlarged, rounded, with ungual flap not indented (Fig. 3); (12) dorsal coloration pale brown to dark brown or grayish brown with darker marks and bold spots, a pair of cream dorsolateral stripes and a short longitudinal sacral stripe present in some specimens; snout dark brown with darker bars; throat and chest light grey to dark brown; belly cream with brown mottling or reticulations on anterior margin.

Eleutherodactylus lehri can be distinguished from all other species of the group by its long feet, Fingers I, II, IV of the same length, absence of supernumerary tubercles on the feet, and coarsely shagreen dorsal skin. In all the species assigned to the *E. discoidalis* Group and species now placed in the genus *Oreobates* (except some individuals of *O. quixensis*), foot length ≤50% SVL, whereas in *E. lehri* foot length ≥60% SVL. Additionally, some qualitative characters distinguish this species as follows (character of the other species in parentheses). It differs from *E. cruralis* by having not expanded finger discs (truncate and enlarged on Fingers III and IV), larger females, Finger I equal to II (I > II), dorsal skin coarsely shagreen homogeneously (smooth to finely shagreen with enlarged warts), and no fringes (fringes well developed in fingers and toes). *E. lehri* can be distinguished from *E. discoidalis* as follows: vomerine odontophores posterior to choanae (between choanae), Finger I equal to II (I > II), tips of Fingers III and IV not expanded (truncate and expanded), tympanic membrane smaller or equal to half of eye diameter (larger), and dorsal skin coarsely shagreen (finely shagreen). *E. lehri* differs from *E. granulosus* by having longer feet and slender fingers and toes (shorter and more robust), low supernumerary tublercles on hands (very prominent), dorsal skin coarsely shagreen homogeneously (granular with some enlarged warts), slender extremities (robust), head slightly longer than wide or equal (wider than long), and smaller size of both males and females. *E. lehri* differs from *E. ibischi* by

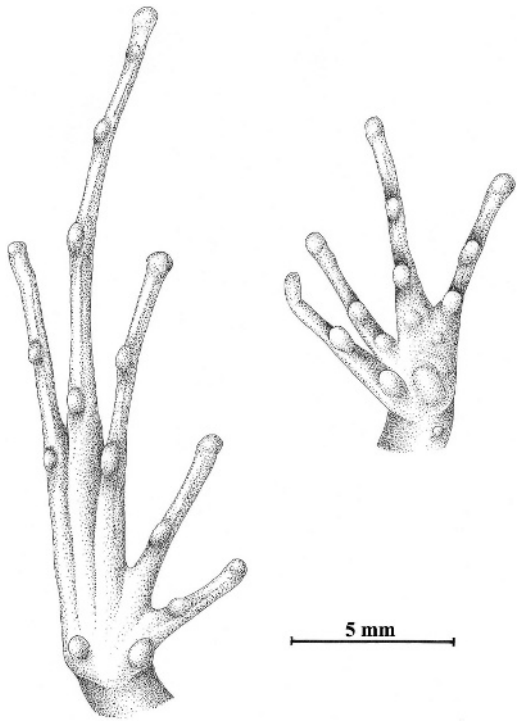

FIG. 3.—Right palm of the specimen USNM 537855 and plantar surface of the left foot of the holotype (USNM 537848) of *Eleutherodactylus lehri* sp. nov.

having tympanic membrane smaller or equal to half of eye diameter (larger), finger discs not expanded (discs on Fingers III and IV two times wider than the digits proximal to the disc), and dark brown dorsal coloration with cream stripes (light brown to beige with darker blotches). The new species can be distinguished from *E. madidi* by lacking enlarged fingertips (slightly enlarged), having Finger I equal to II (I > II), dorsal skin coarsely shagreen (homogeneously warty), and larger females. *E. lehri* can be distinguished from *E. zongoensis* by its shagreen dorsum (dorsum and extremities tuberculate in *E. zongoensis*), head longer than wide (wider than long), tympanic membrane smaller or equal to half of eye diameter (larger), labial bars present (absent), and ventral region cream with fine mottling (uniformly dark pinkish–brown).

Species of the genus *Oreobates* share many morphological characters with species of the *Eleutherodactylus discoidalis* Group (e. g., warty skin and absence of T–shaped digital tips). *E. lehri* can be distinguished from *O. saxatilis* by having dorsal skin coarsely shagreen (irregularly warty and tuberculate), Finger I equal to II (longer), and a different coloration; additionally, *E. lehri* is less robust and smaller (SVL of *O. saxatilis* to 63.0 mm). *E. lehri* has slender body and extremities than *O. sanctaecrucis*, possess shagreen skin (tuberculate in *O. sanctaecrucis*), lacks scarlet marks on dorsum (present), and lacks toe and finger fringes (present). *E. lehri* differs from *O. sanderi* by having Finger I longer than II, no finger fringes, and homogenously-sized granules on dorsum. *E. lehri* differs from *O. choristolemma* by having shagreen dorsum (tuberculate dorsal skin), smaller size, ungual flap not indented (indented on pedal digits II–V), and Finger I equal to II (longer). Moreover, all these species of *Oreobates* except *O. simmonsi* differ from *E. lehri* by having relatively shorter feet with prominent supernumerary tubercles; *O. simmonsi* has long feet. *Eleutherodactylus lehri* differs from *O. simmonsi* by having dorsal skin shagreen (skin of dorsum and limbs covered with uniformly-sized, spicule-like warts), Finger I equal to II (longer), and supratympanic fold present (absent). Additionally, *E. lehri* lacks finger and toe fringes and supernumerary tubercles on the feet.

Description of the holotype.—Head slightly longer than wide (head width/head length = 0.95); snout round in dorsal view and lateral profile; nostrils slightly protuberant, oriented laterally; canthus rostralis sinuous in dorsal view, round to slightly sharp in frontal profile; loreal region slightly concave, sloping gradually to the lips; lips not flared; upper eyelid without tubercles but covered by small granules; no cranial crests. Supratympanic fold distinct, thin; tympanic membrane and its annulus distinct; tympanic membrane nearly round, its length about half of eye length; postrictal glands absent. Choanae not concealed by palatal shelf of the maxillary arch when roof of mouth is viewed from below; choanae large, round, medial, separated by distance equal to 6–7 times diameter of choana; vomerine odontophores large, prominent, triangular in shape, situated posteromedial to choanae (posterior margin at level of choanae), their width about 1.5 times di-

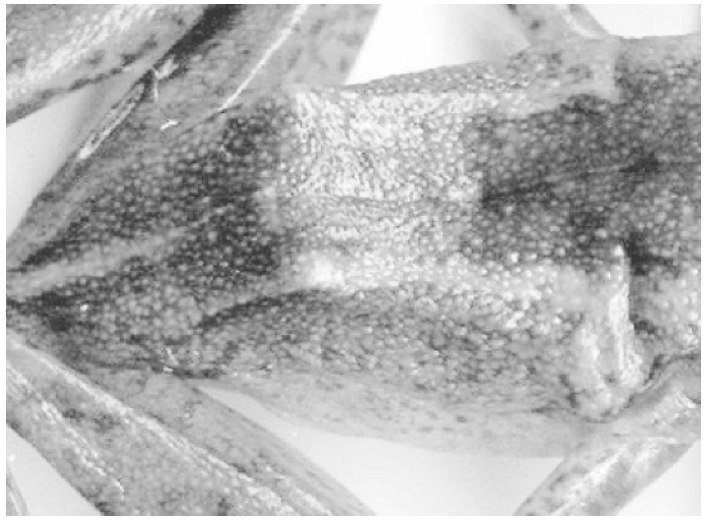

FIG. 4.—Detail of the dorsum of the holotype (USNM 537848) of *Eleutherodactylus lehri* sp. nov.

ameter of choanae, bearing 4–5 vomerine teeth; vocal slits short, placed posterolaterally. Skin of dorsal surfaces and posterior parts of hind limbs coarsely shagreen (Fig. 4); ventral surfaces smooth; no occipital folds; no dorsolateral folds; discoidal fold weak.

Ulnar tubercles or white spots present; palmar tubercle oval, flat, prominent, divided in two subunits, one larger, ovate, equal to elongate thenar tubercle, and one smaller, round, flat and prominent; supernumerary tubercles low, round, small, 4–5 on each hand; subarticular tubercles round to subconical, larger than supernumerary tubercles; finger tips truncate to round, not enlarged, of same width as corresponding digits; fingers lacking lateral fringes and keels; relative length of fingers: I = II = IV < III (Fig. 3).

Toes very long and slender (foot length 63% of SVL); heel and tarsus lacking tubercles or folds; inner metatarsal tubercle oval to round, prominent, slightly larger than outer metatarsal tubercle; metatarsal tubercle round, conical; supernumerary tubercles absent; subarticular tubercles prominent, subconical to conical, inclined; toes without lateral fringes and keels, except thin, short keel at the base of internal side of Toe III; toe tips rounded, slightly enlarged, about 1.3 times width of corresponding digit; ungual flap not indented; relative length of toes IV > III > V = II > I (Fig. 3); Toe III and V reaching penultimate subarticular tubercle of Toe IV.

Color.—In preservative, dorsal surfaces brown, with two dorsolateral light brown stripes from posterior margin of eyelid to groin; granules of dorsum cream on brown background; short cream stripe on sacrum; flanks dark brown with lighter granules; canthus dark brown, almost black; dorsal and loreal regions of snout lighter than rest of head; two subocular dark brown stripes; tympanic membrane dark brown; tympanic fold darker than membrane, almost black. Limbs light brown with irregular darker blotches, hands and feet slightly lighter; plantar surfaces dark brown with grey tubercles. Throat grayish-brown with cream mottling; belly cream with fine brown mottling; groin with reddish-brown mottling; posterior and anterior surfaces of hind limbs cream with dense brown mottling.

Measurements of the holotype.—SVL, 24.4; head length, 9.8; head width, 9.3; eye length, 3.6; eye to nostril distance, 3.3; internarial distance, 2.4; eye–eye distance, 4.1; tympanic membrane height, 2.0; tympanic membrane length, 2.0; arm length, 6.5; tibia length, 15.7; thigh length, 14.3; foot length, 15.1.

Variation.—Despite the sexual dimorphism in size (males are smaller than females), the proportions of males and females are almost

TABLE 1.—Morphometrics of *Eleutherodactylus lehri*. Mean ± standard deviation in parentheses follow ranges (in mm).

	Females (n = 4)	Males (n = 6)
SVL	31.0–39.9 (35.1 ± 3.9)	28.5–34.3 (32.1 ± 2.1)
Head length	12.8–16.0 (14.1 ± 1.5)	10.7–13.6 (12.5 ± 1.0)
Head width	12.4–15.2 (13.6 ± 1.4)	10.0–12.9 (11.9 ± 1.1)
Eye length	4.1–4.8 (4.5 ± 0.3)	4.0–5.1 (4.6 ± 0.5)
Eye–nostril	3.7–4.8 (4.2 ± 0.4)	3.0–4.1 (3.7 ± 0.4)
Inter-narial	3.3–4.4 (3.8 ± 0.5)	3.0–3.9 (3.4 ± 0.3)
Eye–eye	5.1–6.3 (5.7 ± 0.6)	3.2–5.3 (4.7 ± 0.8)
Tympanum height	2.1–2.6 (2.3 ± 0.2)	1.9–5.7 (3.1 ± 1.4)
Tympanum length	2.0–2.7 (2.3 ± 0.3)	1.9–5.7 (3.1 ± 1.4)
Arm length	8.1–8.7 (8.4 ± 0.3)	2.4–7.6 (6.1 ± 2.1)
Tibia length	18.9–25.4 (22.0 ± 3.0)	17.5–20.8 (19.7 ± 1.2)
Thigh length	18.4–21.7 (20.1 ± 1.6)	15.4–19.1 (17.9 ± 1.4)
Foot length	19.6–24.3 (21.8 ± 2.4)	18.2–20.2 (19.5 ± 0.7)
Tibia length/SVL	0.6–0.7 (0.6 ± 0.0)	0.6–0.6 (0.6 ± 0.0)
Foot length/SVL	0.6–0.7 (0.6 ± 0.0)	0.6–0.6 (0.6 ± 0.0)
Head length/SVL	0.4–0.4 (0.4 ± 0.0)	0.4–0.4 (0.4 ± 0.0)
Head width/SVL	0.4–0.4 (0.4 ± 0.0)	0.4–0.4 (0.4 ± 0.0)
Head width/Head length	1.0–1.0 (1.0 ± 0.0)	0.9–1.0 (1.0 ± 0.0)
Eye–nostril/Eye length	0.9–1.0 (0.9 ± 0.1)	0.7–0.9 (0.8 ± 0.1)
Eye diameter/ Head width	0.3–0.3 (0.3 ± 0.0)	0.3–0.4 (0.4 ± 0.0)
Tympanum length/height	0.8–1.2 (1.0 ± 0.2)	0.9–1.0 (1.0 ± 0.1)

identical (Table 1). Males bear posterolateral vocal slits but no nuptial pads. Vocal slits are present in some juveniles and subadult males, although not completely open. Skin texture is very homogeneous (as in Fig. 4), although there are slightly enlarged granules in some specimens. Some males have a more developed discoidal fold, which seems to be an artifact of preservation. A faint mid-dorsal fold is present in some individuals. Both a W-shaped occipital fold and a) (-shaped mid-dorsal fold are present in some specimens, although degree of development varies.

Dorsal coloration varies from dark brown with some irregular bold marks to light reddish-brown with irregular brown marks sometimes outlined of cream. Common dorsal marks are an occipital W-shaped mark, an arrow-shaped mid-dorsal mark and a transversal irregular ellipse in presacral region. A vertical light sacral stripe is present in all but some specimens. Some specimens bear a pair of dorsolateral cream stripes from posterior margin of eye to the level of mid-dorsum or to groin. Bold spots and lines usually outline the W-shaped occipital fold, the supratympanic fold, the ") (-shaped" mid-dorsal fold, and the border of the flanks. Labial bars also vary, with darker individuals having less conspicuous bars. The tympanic membrane and annulus are always brown. The throat pattern varies from light grey to dark brown. Some specimens have a fine light line in the middle of the dark throat. One specimen (USNM 537850) has an inverted cream "V" on brown background on the anterior part of the throat. The chest is usually mottled, with mottling diminishing to the belly. The belly varies from white to cream and usually have scarce fine brown mottling on the sides and anterior margin. Limbs are usually pigmented with transversal irregular bars, or transversal irregular ellipses. Arms are spotted with brown irregular marks. Plantar surfaces vary from dark grey to dark brown with grey or cream plantar tubercles.

In life (based on MHNC 4564 from Esperanza, Kosñipata Valley) the dorsum is pale brown with irregular dark brown or black spots and marks surrounded by beige, and some small red or orange spots. Some of the dorsolateral warts are bold, and the flanks are mostly pale brown with two or three oblique rows of dark brown spots. The lips have three bold bars separated by cream spots. The tympanic membrane is fleshy brown. The belly is white, and the throat has brown mottling. The inner surfaces of limbs are red to orange. Limbs and arms are brown with dark brown irregular bars. The iris is golden

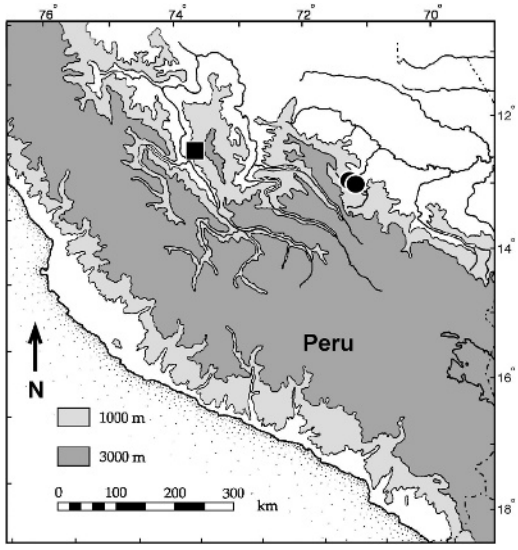

FIG. 5.—Map of southern Peru showing with a bold square the type locality of *Eleutherodactylus lehri* sp. nov. in the Apurimac River Valley and with bold circles the localities in the Kosñipata Valley.

dorsally and ventrally, with a metallic orange transversal stripe.

Distribution and ecology.—*Eleutherodactylus lehri* is known from the type locality in the Apurimac River Valley and from two localities in the Kosñipata Valley (Fig. 5). Both localities lie in cloud forests and are separated by an airline distance of approximately 200 km. Nothing is known about its natural history.

Etymology.—The name is a patronym for Edgar Lehr, German herpetologist and friend, who has contributed greatly to the knowledge of the Peruvian herpetofauna.

DISCUSSION

We conclude that the new species belongs to the *Eleutherodactylus discoidalis* Group sensu Lynch (1989). He proposed two putative synapomorphies for the two species (*E. cruralis* and *E. discoidalis*) then comprising the group: (1) conical subarticular tubercles, and (2) supernumerary plantar tubercles. In general appearance, the new species is very similar to members of the *E. discoidalis* Group although it lacks supernumerary tubercles on the feet (but they are present on the hands). Nevertheless, development of plantar tubercles varies between species. Moreover, validity of this character as a synapormophy for the group and, further, the monophyly of the group remain uncertain. With *E. lehri*, the *E. discoidalis* Group contains six species from southern Peru to northern Argentina. Five occur in Bolivia (*E. discoidalis, E. cruralis, E. ibischi, E. madidi* and *E. zongoensis*), one in Argentina (*E. discoidalis*) and two in Peru (*E. cruralis* and *E. lehri*) (Padial et al., 2005; Reichle and Köhler, 1997; Reichle et al., 2001). Lynch (1989) synonymized *E. granulosus* with *E. cruralis*, a likely unfounded taxonomic decision (J. M. Padial, personal observations). Boulenger (1903) described *E. granulosus* from Santo Domingo de Carabaya (SE Peru), a locality 200 km apart from the closest populations of *E. lehri*. Thus, there was the possibility of *E. granulosus* and *E. lehri* to be conspecific. Nevertheless, after the examination of the holotype of *E.* granulosus, we discard this possibility (see diagnosis for *E. lehri*).

Lynch (1989) considered the *E. discoidalis* Group to be more advanced than its putative sister taxa, the *E. binotatus* species group, that would be more closely related to the genus *Oreobates* (= *Ischnocnema*). Indeed, Lynch (1989) considered *Oreobates* as the putative ancestor of all *Eleutherodactylus*. Frost et al.'s (2006) phylogeny supports this scenario, since it places *O. quixensis* as basal to other *Eleutherodactylus* and *E. binotatus* as its sister group. Nevertheless, the placement of *O. quixensis* between other *Eleutherodactylus* in the phylogeny of hyloid frogs (Darst and Cannatella, 2004) lead us to think that the phylogenetic hypotheses of basal *Eleutherodactylus* are still inconclusive.

RESUMEN

Se describe una nueva especie del grupo *Eleutherodactylus discoidalis* de los bosques nublados de los valles Apurimac y Kosñipata, en el sur de Perú. La nueva especie difiere del resto principalmente por tener piel dorsal regularmente granular, extremidades traseras largas y delgadas, pies muy largos, el dedo I de la mano igual de largo que el II, las puntas de los dedos de la mano no dilatadas, y carecer de tubérculos supernumerarios en la planta de los pies.

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Appendix: Material Examined

Eleutherodactylus cruralis

BOLIVIA: Departamento La Paz: Boquerón, Pilón Lajas, CBG 792–93; Camino maderero El Chaval, Arroyo Mikai, Reserva Pilón Lajas, MNK A 3759–61; La Paz (locality in error), BM 1947.2.15.70 (holotype); Puerto Linares, 360 m, USNM 281100–30; 5 km W of San Buenaventura, USNM 280617; Departamento Cochabamba: Valle de Sajta, MNK A 3633; Villa Tunari, MNK A 1492; Los Guácharos MNK A 6617–19; Entre Paractito y El Palmar, ZFMK 72541; Departamento Pando: Florida, Reserva Manuripi, MNK A 5086; Lago Bay, Reserva Manuripi, MNK A 6120–21; Departamento Beni: Asunción, Pilón Lajas, MNK A 4074; Laguna Azul, Reserva Pilón Lajas, MNK A 3975–76, 3979, 3985–87, 4003; San Luis Chico, MNK A 4027; Serranía del Pilón, MNK A 4182–83, 4209–13. PERU: Departamento Madre de Dios: Puerto Maldonado, 30 km SSW of Tambopata, USNM 284267, 343240, 342989–92; Colpa de Guacamayos, Zona Reservada Tambopata-Candamo, USNM 332436–37. Department Puno: Santo Domingo, Carabaya, 6000 ft, BM 1947.2.15.72 (holotype of *Hylodes granulosus*).

Eleutherodactylus discoidalis

ARGENTINA: Province Tucumán: "13 km W Tucumán", Horco Molle, Sierra de San Javier, ca. 1200 m, BM

1947.2.15.63–65 (paralectotypes); Horco Molle, MCZ 35583; without locality, MCZ 117097; Province Jujuy: San Lorenzo, BM 98.7.7.19.20. BOLIVIA: Departamento Tarija: 12.3 km NW of Entre Ríos on the road to Tarija, MNK A 3877–97; 12.3 km NW of Entre Ríos on the road to Tarija, UTA 45645, 45648–50, 45652, 45658–62.

Eleutherodactylus ibischi

BOLIVIA: Departamento Santa Cruz: Km 68.5 on Santa Cruz de la Sierra-Samaipata road, 750 m elevation, CBF 3341 (holotype); Km 60 on Santa Cruz de la Sierra-Samaipata road, MNK A 6612; Samaipata, ZFMK 60402 (paratype).

Eleutherodactylus madidi

BOLIVIA: Departamento La Paz: Arroyo Huacataya, Serranía Eslabón, Área Natural de Manejo Integrado Madidi, MNK A 7856 (holotype), 7197 (paratype), MNCN 42014–15 (paratype); La Cascada, Biosphere Reserve Pilón Lajas, MNK A 4137–38 (paratypes).

Eleutherodactylus verrucosus

BRAZIL: "Byen [= city] Juiz de Fora i Minas Geraes" ZMUC 51 (R 1180) (holotype).

Eleutherodactylus zongoensis

BOLIVIA: Departamento La Paz: Valle de Zongo, 1250 m, CBF 2503 (holotype).

Oreobates quixensis

BOLIVIA: Departamento Pando, CBF 2528–29; Río Negro, MNK A 6525–27.

Oreobates sanctaecrucis

BOLIVIA: Departamento Santa Cruz: El Chapé, 2060 m elevation, MNK A 1198 (holotype), MNCN 42010–13.

Oreobates sanderi

BOLIVIA: Department La Paz: Arroyo Bilunto, Chunirumi Valley, Bilunto Mountains, Area Natural de Manejo Integrado Madidi, near Santa Cruz de Valle Ameno, CBF 5385 (holotype), MNCN 42016–7 (paratypes), CBF 5383–4 (paratypes); Bajo Hornuni, CBF 4119–22, 4218–19, 4223 (paratypes); Colonia Eduardo Avaroa, ca. 30 km north of Caranavi on the road from Caranavi to Yucumo, ZFMK 80600–1 (paratypes), MNK A 6563 (paratypes); Road from Apolo to Sarayo, MNK A 6695–6 (paratypes).

Oreobates saxatilis

PERU: Departamento San Martín: Pongo de Shilcayo, about 4 km NNW of Tarapoto, 470 m, MHNSM 8431 (paratype).

Oreobates simmonsi

ECUADOR: Morona-Santiago: Río Piuntza, 1830 m, KU 147068 (holotype).