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SIX NEW BATRACHIANS FROM THE DOMINICAN REPUBLIC

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Through the generosity of Museum friends, the donors of the "Angelo Heilprin Exploring Fund," an expedition was sent during the past summer to study the reptiles and amphibians of the Dominican Republic.

Although the primary purpose of the expedition was to secure exhibition material, a large amount of scientific data was brought together at the same time. The present paper deals briefly with the new species of Salientia secured by the expedition. In a subsequent paper, now in preparation, these species will be more fully discussed. This second paper will deal with the habits and life histories of most of the Dominican Amphibia. The species described below will be figured in that paper and a comparison of their voices and habits made. It may be stated here that all the species described below have a distinctive voice and coloration in life. Never in the field did the slightest confusion arise in recognizing the species. In the following descriptions the distinctive features of only preserved material have been indicated. Each species is represented in our collections by a large series of specimens.

Hyla heilprini,¹ new species

DIAGNOSIS.—A medium-sized *Hyla* differing remarkably from any other Greater Antillean species in possessing a dagger-shaped prepollex visible in both sexes but enormously developed and with exposed point in the male; fingers two-thirds, toes completely webbed; vomerine teeth in two straight series on a level with the posterior border of the choanae. Coloration in preserved material largely dependent on fixation; a series of transverse bars of a dark color and a scattering of white specks usually present on the dorsal surface and readily distinguishing the species from other Dominican forms.

TYPE.—A. M. N. H. No. 11401; adult, ♂; among stones in ravine of mountain torrent, Lo Bracita, Prov. Pacificador; August 20, 1922; G. K. Noble.

DESCRIPTION OF TYPE.—Tongue broader than long, emarginate behind; vomerine teeth in two groups in contact and forming almost a continuous series between the choanae on a level with their posterior margin; head much broader than long; nostrils near the end of the snout, the distance from the extreme tip (midpoint) of

¹Named in honor of the late Professor Angelo Heilprin, geologist, artist, philosopher; student of natural phenomena in the West Indian region.

snout to nostril contained more than two times in the distance between nostril and eye; snout rounded; interorbital width greater than the greatest diameter of the eye; no indication of ossification in the derm of head; canthus rostralis rounded, the loreal region sloping gradually; tympanum distinct, slightly more than half the greatest diameter of the eye. Hind limb being adpressed, the tibio-tarsal articulation reaches nearly to the nostril; digits with large discs, of the same diameter as the tympanum; fingers two-thirds webbed, toes completely webbed (but the web does not reach the disc of the fourth toe); a large, recurved prepollex with an exposed spine directed inward. Skin finely glandular above, almost smooth; skin of abdomen and ventral surfaces of the thighs coarsely granular; a supra-tympanic fold but no dorso-lateral one; a subgular vocal sac present.

Ground tone (of preserved specimen) pale grayish blue above, suffused with a darker tone; some indication of nine transverse bars of a dark brown on the back; a more distinct series of five or six bars on the thighs; upper surface sprinkled with about thirty small white spots; ventral surfaces straw-color to yellowish; axilla a bright orange; groin and inner side of arms and part of the gular region a bluish tone; posterior surfaces of thighs of the same pale tone as the ventral surfaces.

MEASUREMENTS

Tip of Snout to Vent.....	48.0 mm.
Tip of Snout to Posterior Border of Tympanum.....	17.0
Greatest Breadth of Head.....	18.5
Distance from Axilla to Tip of Longest Finger.....	31.0
Distance from Vent to Tip of Longest Toe.....	81.0
Tibia.....	26.0

Eleutherodactylus flavescens,¹ new species

DIAGNOSIS.—A medium sized *Eleutherodactylus*, with broad head and depressed body. Readily distinguished from all other Dominican frogs by its notched digital expansions, warty skin, and distinctive coloration.

TYPE.—A. M. N. H. No. 11402; adult, ♀; bushes along stream bank, Lo Bracita, Prov. Pacificador, Dominican Republic; August 8, 1922; G. K. Noble.

DESCRIPTION OF TYPE.—Head slightly broader than long, broader than the body; distance between anterior corner of eye and nostril equals the interorbital width, two and a half times as great as the distance between nostril and tip of snout; canthus rostralis sharp, but the loreal region not concave; tympanum very distinct, one-half the greatest diameter of the eye, separated from the eye by a trifle less than half its own diameter. Tibio-tarsal joints of either side overlap when the legs are placed at right angles to the body; tibio-tarsal articulation reaches midway between eye and nostril. Discs of fingers and toes very pronounced, more or less distinctly notched anteriorly, the outer fingers appearing heart-shaped; digits slender; a rudiment of a web between the two outer toes, other digits free; a slight indication of a tarsal fold. Vomerine teeth in two arched series extending outward slightly beyond the inner edge of the choanæ, the two series separated from each other by a space equal to half the length of one series; vomerine teeth well behind the choanæ, separated from them

¹Named in reference to its yellowish coloration in life.

by a space equal to the distance between the two series of vomerine teeth; tongue large, slightly nicked behind. Skin warty above, the warts of various sizes and tending to form longitudinal series. The largest warts form a row on each side of the body, the next largest form a dorso-lateral row on each side and a medial row; between these five rows smaller warts tend to form one or more regular rows; ventral surfaces of abdomen and thighs granular.

Ground tone (in alcohol) pale grayish to straw-color; dorsum marked with an irregular pattern of dark brownish or black markings. Of these the most conspicuous is a wedge-shaped mark between the eyes, an irregular W on the shoulders and an irregular figure on the sacrum; the dark tone forming a canthal stripe, a tympanic ring, three or four cross stripes on the fore arm, and a few irregular bars on the tibia.

MEASUREMENTS

Tip of Snout to Vent.....	36.0 mm.
Tip of Snout to Posterior Border of Tympanum.....	12.5
Greatest Breadth of Head.....	13.8
Distance from Axilla to Tip of Longest Finger.....	23.0
Distance from Vent to Tip of Longest Toe.....	60.0
Tibia.....	20.0

Eleutherodactylus auriculatoides, new species

DIAGNOSIS.—Closely allied to *E. flavescens* and *E. auriculatus*; distinguished from the latter by its smaller size, broader head, shorter leg and different coloration.

TYPE.—A. M. N. H. No. 11403; adult, ♀; bromeliads near Constanza-Jarabacoa Trail, Paso Bajito, Dominican Republic; September 4, 1922; G. K. Noble.

DESCRIPTION OF TYPE.—Head broader than long, broader than body; distance between anterior corner of eye and nostril equals the greatest diameter of the eye, a trifle less than the interorbital width; distance between nostril and tip of snout contained a trifle over two times in the distance between nostril and eye; canthus rostralis distinct, although the loreal region slopes gradually; tympanum distinct, its greatest diameter equal to a trifle less than half the greatest diameter of the eye; separated from the eye by a space equal to its diameter. Tibio-tarsal joints of either side overlap when the legs are placed at right angles to the body; tibio-tarsal articulation reaches the posterior corner of the eye. Disks of fingers and toes pronounced, rounded; digits free; second toe (measured with dividers from distal side of its base) longer than first; no tarsal fold. Vomerine teeth in two oblique series well behind choanæ, extending outward not beyond the inner edge of the choanæ; the two series separated from each other by less distance than that which separates them from the choanæ; tongue thick, slightly nicked behind. Skin finely granular above; the granules forming more or less regular rows on the sides; belly, and thighs (except flash surfaces) coarsely granular.

Ground tone (in alcohol) a pale gray or flesh-color; tip of snout and parietal region with adjacent parts of eyelids dark reddish brown, this giving the appearance of a light band across the head in front of the parietal region; a canthal and supra-tympanic streak of dark reddish brown; back and upper surfaces of limbs diffused with brown, leaving only an indistinct W on the occiput and a) (mark anterior to the pelvis of the pale ground tone; ventral surfaces straw-color, slightly diffused with brown on the sides.

MEASUREMENTS

Tip of Snout to Vent.....	33.0 mm.
Tip of Snout to Posterior Border of Tympanum.....	12.0
Greatest Breadth of Head.....	14.0
Distance from Axilla to Tip of Longest Finger.....	18.5
Distance from Vent to Tip of Longest Toe.....	51.5
Tibia	16.0

***Eleutherodactylus minutus*, new species**

DIAGNOSIS.—Closely allied to “Abbott’s Macito,”¹ preserved specimens distinguished from that species by their smaller size, more distinct dorso-lateral fold, their narrower head and blunter snout; the coloration alone is distinctive; side of the body below dorso-lateral fold mottled or spotted with dark brown, while in “Abbott’s Macito” the mottling is indefinite or at least does not form a dark dorso-lateral stripe posteriorly.

TYPE.—A. M. N. H. No. 11404; adult ♀; on ferns in dense palm thicket near Paso Bajito, Jarabacoa-Constanza Trail, Dominican Republic; September 4, 1922; G. K. Noble.

DESCRIPTION OF TYPE.—Head as long as broad, slightly narrower than body; distance between anterior corner of the eye and nostril less than the greatest diameter of the eye, about equal to the interorbital width; distance between the nostril and tip of the snout contained two times in the distance between nostril and eye; canthus rostralis very sharp, the loreal region concave; tympanum distinct; its diameter contained a little over two times in the diameter of the eye; separated from the eye by a space equal to three-fourths of its diameter. Tibio-tarsal joints of either side overlapping slightly when the legs are placed at right angles to the body; tibio-tarsal joint reaches the posterior border of the tympanum. Digital dilations very small, the discs equal to a third or a fourth the greatest diameter of the tympanum; digits free, second toe slightly longer than the first; no tarsal fold; vomerine teeth in two small, oblique groups far behind the choanæ and separated from each other by a wide space; tongue elliptical, unemarginate behind. Skin smooth above and below; a glandular dorso-lateral fold extending from the eye to lumbar region.

Ground tone above flesh-color to pale gray, ventral surfaces slightly paler; a stripe of dark brown extending from the nostrils along the canthus rostralis to eye, broadening out behind the eye to form a conspicuous supra-tympanic crescent, another stripe of dark brown extending along the dorso-lateral fold to anus, the stripe interrupted at a number of points; sides of the body immediately below the dorso-lateral fold mottled or spotted with dark brown; the lower half of the sides feebly stippled with brown, posterior surfaces of the thighs dark brown, a narrow white line running obliquely across each thigh and meeting its mate of the opposite side above the anus; posterior surfaces of the tibia washed with dark brown; two or three feebly indicated bars across the dorsal surfaces of the tibia.

¹This species was recently sent me through the kindness of Dr. W. L. Abbott, the collector. It is the commonest form of *Eleutherodactylus* in Santo Domingo. Dr. Abbott’s material is being described by Miss D. Cochran, of the U. S. National Museum, and it will not be long before a scientific name is available for the species.

MEASUREMENTS

Tip of Snout to Vent.....	17.5 mm.
Tip of Snout to Posterior Border of Tympanum.....	6.5
Greatest Breadth of Head.....	6.2
Distance from Axilla to Tip of Longest Finger.....	9.5
Distance from Vent to Tip of Longest Toe.....	25.0
Tibia.....	8.2

Eleutherodactylus schmidtii¹ new species

DIAGNOSIS.—Allied to *E. weinlandi* and *E. lentus* of the Dominican Republic and to *E. richmondi* of Porto Rico, but readily distinguished from these species by its coloration. Tibio-tarsal articulation marking anterior corner of eye or slightly beyond; discs of digits small; dorsal surface grayish brown, heavily marbled with dark brown; a light interorbital streak; two pale dorso-lateral stripes rarely present; under-surfaces of hind limbs bright salmon to pink.

TYPE.—A. M. N. H. No. 11405; adult ♀; among stones along stream bed, Lo Bracita, Prov. Pacificador, Dominican Republic; August 9, 1922; G. K. Noble.

DESCRIPTION OF TYPE.—Head as long as broad, slightly narrower than body; distance between anterior corner of eye and nostril slightly less than the greatest diameter of the eye, slightly greater than the interorbital width; distance between nostril and the tip of snout contained once and four-fifths times in the distance between nostril and eye; canthus rostralis rounded; loreal region moderately abrupt; tympanum distinct, its greatest diameter contained a trifle over two times in the greatest diameter of the eye, separated from the eye by a space equal to two-thirds its diameter. Tibio-tarsal joints of either side overlap slightly when the legs are placed at right angles to the body; tibio-tarsal joint reaches the anterior corner of the eye. Digital dilations small, the discs not greater than half the diameter of the eye; digits free; second toe much greater than the first; no tarsal fold. Vomerine teeth in two oblique series extending outward to the outer edge of the choanæ; vomerine teeth very close to choanæ, separated from them by less distance than separates the two vomerine series from each other; tongue large, slightly nicked behind. Skin finely granular above, the granules not forming distinct rows, ventral surfaces smooth.

Ground tone above pale brownish gray, heavily spotted and marbled with dark brown, the dark tone forming cross-bars on the limbs a pale interorbital stripe present and some indication of a semicircle above the anus. Ventral surface of body flesh-color, under surfaces of hind limbs salmon-color; throat, chest and sides of abdomen stippled and suffused with dark brown.

MEASUREMENTS

Tip of Snout to Vent.....	43.5 mm.
Tip of Snout to Posterior Border of Tympanum.....	16.0
Greatest Breadth of Head.....	16.0
Distance from Axilla to Tip of Longest Finger.....	26.0
Distance from Vent to Tip of Longest Toe.....	71.0
Tibia.....	22.0

¹Named in honor of Mr. Karl Patterson Schmidt, formerly associated with the American Museum but now in charge of Herpetology at the Field Museum of Natural History, Chicago.

***Eleutherodactylus ruthae*¹ new species**

DIAGNOSIS.—Closely allied to *E. inoptatus* but readily distinguished from that species and all other West Indian frogs by its shovel-shaped snout; it further differs from *E. inoptatus* in its shorter head, shorter leg and more spotted dorsum.

TYPE.—A. M. N. H. No. 11406, adult ♂; Samaná, Dominican Republic; November 8, 1922; John King.

DESCRIPTION OF TYPE.—Head broader than long, slightly narrower than body; distance between nostril and eye slightly greater than the greatest diameter of the eye, equal to the interorbital width; distance between nostril and tip of snout contained less than twice in the distance between eye and nostril; snout pointed, produced into a shovel, the latter one-third the diameter of the eye; the shovel in profile forming a step with the rostrum proper; canthus rostralis sharp, loreal region concave and sloping gradually; tympanum distinct, its greatest diameter contained once and two-thirds in the greatest diameter of the eye, separated from the eye by a space equal to one-half its diameter. Tibio-tarsal joints of either side slightly overlap when the legs are folded at right angles to the body; tibio-tarsal joint reaches midway between eye and nostril. Digital dilations moderate, those of the manus about half the diameter of the tympanum, distinctly larger than those of the pes; digits free except for a slight indication of a web between the two outer toes; second toe slightly longer than the first, no tarsal fold. Vomerine teeth in two oblique series extending outward to the outer edge of the choanæ, separated from the choanæ by a short distance, which is about equal to the space separating the two series of vomerine teeth from each other; tongue large, slightly emarginate behind. Skin glandular and finely warty above, a dorso-lateral glandular fold, a supra-tympanic fold and an oblique fold on the side of the body; warts best developed on sides of body; periphery of the abdomen, and posterior faces of the thighs highly glandular.

Ground tone (in alcohol) a pale purplish gray or clay-color; a canthal stripe, an interorbital stripe, a supra-tympanic spot and two rows of large irregular spots on the back of a dark purplish brown; two cross-bars on the forearm, six on the thighs and three or four on the lower leg of the same color; upper surfaces suffused with a dark tone leaving pale rings of ground tone around many of the dark spots and bars; posterior surfaces of the thighs purplish brown spotted with gray or white; ventral surfaces whitish, throat, sides of abdomen, and thighs stippled with purplish brown.

MEASUREMENTS

Tip of Snout to Vent.....	49.0 mm.
Tip of Snout to Posterior Border of Tympanum.....	18.5
Greatest Breadth of Head.....	20.0
Distance from Axilla to Tip of Longest Finger.....	32.0
Distance from Vent to Tip of Longest Toe.....	79.0
Tibia.....	27.5

¹Named in honor of my wife, Mrs. Ruth Crosby Noble, who discovered this species and collected the first series of specimens, all now living in the "moss gardens" of The American Museum of Natural History.