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A Revision of the South American Gekkonid Lizard Genus *Homonota* Gray

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SYNOPSIS

The relationships of the South American gekkonid lizard genus *Homonota* Gray cannot be determined with any degree of certainty on the basis of the external characters used in the present study. A distributional list and artificial key to all the New World gekkonoid genera are presented as possible aids to future intergeneric studies. The genus *Homonota* is redefined, and *Cubina* Gray and *Wallsaurus* Underwood are considered synonyms. A detailed description of each recognized species is presented, based on external meristic and measurable characters. A new species is described from San Juan Province, Argentina. The nine recognized species appear to form three natural groups on the basis of the arrangement and form of the scales that cover the dorsal body surfaces.

INTRODUCTION

The genus *Homonota* Gray (1845) occupies a unique position among gekkonoid lizards in that it ranges farther into the Southern Hemisphere than any other known group. The geographic range of the genus extends from Brazil, approximately latitude 15° S., in the north, to Argentina, latitude 48° S., in the south, and is represented by species both east and

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west of the Andes. One species in fact, *H. dorbignii*, occurs on both east and west sides (fig. 1).

The generic limits of *Homonota* have not been well defined. The apparent rarity of specimens in collections and the general confusion regarding the generic limits of other "straight-toed" geckos in the New World, *Gymnodactylus* Spix and *Gonatodes* Fitzinger, have heretofore made a revision of the genus *Homonota* impractical. The accumulation of specimens of most of the species of *Homonota* at the Museum of Comparative Zoölogy at Harvard College by Ernest E. Williams, and the recent review of *Gymnodactylus* by Vanzolini (1954), prompted the present study. Dr. Garth L. Underwood generously offered to examine the type specimens, as well as other important examples that were involved in the complex, in European museums, to encourage the project further.

ACKNOWLEDGMENTS

I wish particularly to thank Dr. Ernest E. Williams of the Museum of Comparative Zoölogy at Harvard College for his insight into the present problem and for obtaining many valuable specimens for my examination. Also, I am greatly indebted to Dr. Garth L. Underwood of the University College of the West Indies, Trinidad, for his effort in my behalf in examining important specimens in European museums.

I also wish to thank Mr. J. C. Battersby of the British Museum (Natural History) for furnishing me with a great deal of information pertaining to the study. I extend my appreciation to Mr. Charles M. Bogert and Dr. Richard G. Zweifel of the American Museum of Natural History; Dr. Robert Inger and Mr. Hyman Marx of the Chicago Natural History Museum; Dr. Jean Guibé of the Museum National d'Histoire Naturelle, Paris; Drs. Charles Walker and Norman Hartweg of the University of Michigan Museum of Zoology; Dr. Doris Cochran of the United States National Museum of the Smithsonian Institution; Miss Teresa Hasselrot of the Universidad Nacional de Tucuman; and Dr. J. O. Hüsing of the Halle Museum for lending me important specimens under their care. My thanks also go to Dr. Jay M. Savage for reading the manuscript and making many valuable suggestions.

For catalogued specimens, the following abbreviations are used:

A.M.N.H., the American Museum of Natural History
B.M.(N.H.), British Museum (Natural History)
C.N.H.M., Chicago Natural History Museum
M.C.Z., Museum of Comparative Zoölogy at Harvard College
P.M.N.H., Museum National d'Histoire Naturelle, Paris

U.M.M.Z., the University of Michigan Museum of Zoology
U.S.N.M., United States National Museum, Smithsonian Institution
U.T., Universidad Nacional de Tucuman

MATERIALS AND METHODS

I have personally examined representatives of all species presently known to belong to the genus, including the holotypes of *Homonota fasciata* and *H. dorbignii*. All other type specimens, except those of *H. borelli* and *H. uruguayensis*, were examined by Garth L. Underwood and found to be conspecific with material under my personal study.

To insure correct interpretation and to facilitate species characterizations, the less well-known terms used in the study are defined as follows:

ROSTRAL CREASE: Indentation in dorsomedian margin of rostral shield.

SUPRALABIALS: Scales bordering upper lip from rostral shield to immediately below slitlike pupil.

INTERORBITAL SCALES: Enlarged scales between centrolateral margins of eyelids, excluding supraciliary granules.

INFRALABIALS: Scales bordering lower lip from mental plate to angle of jaw or to where replaced by granules.

ANTERIOR GULARS: Scales immediately posterior to postmentals.

PRIMARY PARAVERTEBRAL KEELED SCALE ROW: Longitudinal row of enlarged keeled scales immediately adjacent to middorsal body line.

SECONDARY KEELED SCALE ROW: Longitudinal row of enlarged keeled scales lateral to primary row.

TERTIARY KEELED SCALE ROW: Longitudinal row of enlarged keeled scales lateral to secondary row.

QUATERNARY KEELED SCALE ROW: Longitudinal row of enlarged keeled scales lateral to tertiary row.

PALMAR SCALE OR SCALES: Enlarged scale or scales at lateroposterior margin of palm.

CLOACAL SCALES: Diagonal row or rows of enlarged scales lying immediately posterior to thigh on side of tail.

SNOUT-TO-VENT LENGTH: From tip of snout to anterior margin of vent.

HEAD LENGTH: From tip of snout to posterior extreme of mandible (retroarticular process).

HEAD WIDTH: Greatest width of head.

SNOUT LENGTH: From tip of snout to anteroventral margin of orbit.

DISTANCE FROM EYE TO EAR: Shortest distance between eye and ear.

HEIGHT OF EYE: Midvertical height of eyeball.

DIAMETER OF ORBIT: Taken at midhorizontal extreme of orbit.

LENGTH OF DIGITS: From base of digit to base of claw.

The mean of a meristic character is placed in parentheses following the range of variation. When scale counts are given for both sides, they are indicated thus: 00/00 (left and right, respectively). All measurements are

given in millimeters and are followed by their respective percentages, in parentheses, of the snout-to-vent length.

GENERIC RELATIONSHIPS

Underwood (1954) divided the Gekkonidae into two subfamilies, the Gekkoninae and the Diplodactylinae, on the basis of differences in the shape of the pupil. I have recently examined a large number of live and freshly preserved specimens from the Australian region that represent both subfamilies. Some variation in the shape of the pupil was encountered in almost all the species when examined under both subdued and intense light. A greater degree of variation in the shape of the pupil was found after the specimens had been killed with Nembutal or by freezing. A still greater degree of variation was found when the same material was preserved in alcohol, or in formalin and later transferred to alcohol. In a number of cases the variation in the shape of the pupil in a single species encompassed the conditions supposed to be representative of both subfamilies. Underwood's division of the Gekkonidae into two subfamilies has also recently been shown to be inconsistent with osteological information (Stephenson, 1960), and it appears that a re-evaluation of the shape of the pupil as a taxonomic character used in defining the two groups is greatly needed. Underwood's subfamilial categories are not recognized in the present paper.

The endemic New World gekkonid genera exhibit extreme external diversity, and it appears that the intergeneric relationships can be completely elucidated only through comparative osteological and myological studies. The present lack of material for such studies greatly inhibits an accurate interpretation of the position of *Homonota*. Superficially *Homonota* appears to be most closely related to *Gymnodactylus* (although included in a different subfamily by Underwood). The similarities in general meristic and measurable characters are obvious; however, a number of features can be used to separate the two genera. The mental is much larger and has an enlarged postmental on each side in *Gymnodactylus*. Also in *Gymnodactylus* the ventral body scales are much larger and the digits are more angulate, with large, swollen, proximal lamellae. The difference in the shape of the pupil must be restudied in living material before its use can be justified. From a preliminary osteological investigation of the two genera, there appear to be some general similarities; however, a number of significant differences in the skull and pectoral girdle suggest that the two genera, if actually related, have been isolated for some time.

It is hoped that the following list of gekkonoid genera and summariza-

tion of their ranges in the New World and the artificial key will facilitate future intergeneric studies.

LIST OF NEW WORLD GEKKONOID GENERA[1]

EUBLEPHARIDAE

Coleonyx Gray; southern United States to Central America. E

SPHAERODACTYLIDAE

Sphaerodactylus Wagler; southern United States to northern South America and Antilles. E

Coleodactylus Parker; Brazil. E

Gonatodes Fitzinger; southern United States to South America (as far south as Bolivia) and Antilles. E

Lepidoblepharis Peracca; Central America and northern South America. E

Pseudogonatodes Ruthven; northern South America. E

GEKKONIDAE

Aristelliger Cope; Antilles and insular and mainland Central America. E

Thecadactylus Cuvier; southern North America to northern South America and Antilles. E

Bogertia Loveridge; Brazil. E

Briba Amaral; Brazil. E

Phyllopezus Peters; central South America. E

Gymnodactylus Spix; central South America (south of the Amazon Basin). E

Homonota Gray; southern South America. E

Phyllodactylus Gray; North to South America and Antilles. X

Tarentola Gray; Bahama Islands and Cuba. X

Hemidactylus Cuvier; North to South America. O

Gehyra Gray; Mexico. I

Lepidodactylus Fitzinger; Panamá. I

Lygodactylus Gray; Brazil. I

KEY TO THE GENERA OF NEW WORLD GEKKONOID LIZARDS

1. Both dorsal and ventral eyelids well developed..... *Coleonyx*
   Both dorsal and ventral eyelids rudimentary..... 2
2. Digits not dilated, slender throughout their length..... 3
   Digits dilated, at least partially..... 7
3. Digits straight..... *Homonota*
   Digits not straight, distal phalanges angulated..... 4
4. Claw between two scales, a small superior and a large lateroinferior..... 5
   Claw between five or more scales..... 6
5. Scales of dorsum homogeneous..... *Gonatodes*
   Scales of dorsum heterogeneous..... *Gymnodactylus*

[1] The significance of the letters in this list is: E, genus endemic to the New World; I, in the New World, known only from introduced species; O, in the New World, known from both endemic and introduced species; X, in the New World, all species endemic although considered congeneric with Old World forms.

6. Supralateral scales of claw sheath in contact throughout their length..... *Pseudogonatodes*
Supralateral scales of claw sheath separated by single scale.... *Lepidoblepharis*
7. Dilation restricted to basal phalanges or throughout entire digit..... 8
Dilation restricted to distalmost part of digit..... 16
8. Claw in contact with or only slightly beyond dilation of basal phalanges.... 9
Claw much beyond dilation of basal phalanges..... 10
9. Infradigital lamellae single..... *Tarentola*
Infradigital lamellae double..... *Thecadactylus*
10. Distal infradigital lamellae single..... 11
Distal infradigital lamellae double..... 13
11. Pollex well developed..... 12
Pollex extremely reduced or absent..... *Bogertia*
12. Claw of fifth finger retractile laterally..... *Aristelliger*
Claw of fifth finger not retractile laterally..... *Phyllopezus*
13. Pollex clawed..... *Hemidactylus*
Pollex not clawed (extremely minute if present)..... 14
14. Enlarged dorsal body tubercles present..... *Briba*
Enlarged dorsal body tubercles not present..... 15
15. Free distal joint arises from margin of digital expansion..... *Lepidodactylus*
Free distal joint arises from within digital expansion..... *Gehyra*
16. Pollex extremely reduced..... *Lygodactylus*
Pollex not reduced..... 17
17. Distal phalanges symmetrically dilated, with two ventral terminal plates.... *Phyllodactylus*
Distal phalanges asymmetrical..... 18
18. Supraciliary spine present, terminal phalanges distinctly asymmetrical..... *Sphaerodactylus*
Supraciliary spine absent, terminal phalanges only slightly asymmetrical.... *Coleodactylus*

GENUS *HOMONOTA* GRAY

Homonota GRAY, 1845, p. 171. Type species, by monotypy, *gaudichaudii*.
Cubina GRAY, 1845, p. 174. Type species, by subsequent designation, *fasciata*.
Wallsaurus UNDERWOOD, 1954, p. 475. Type species, by original designation, *horridus*.

REFERRED SPECIES: *Homonota borelli*, *uruguayensis*, *horrida*, *fasciata*, *darwinii*, *underwoodi*, *whitii*, *gaudichaudii*, and *dorbignii*.

RANGE: Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay (fig. 1).

DIAGNOSIS: *Homonota* can be distinguished from all other recognized genera of the Gekkonidae by a combination of the following characters: (1) digits long and straight (slightly angulated in *H. gaudichaudii*); not dilated; without lateral fringe or serration; covered below with quadrangular, non-swollen, smooth, subdigital lamellae, gradually decreasing in size distally (in some specimens of *H. gaudichaudii* the proximal sub-

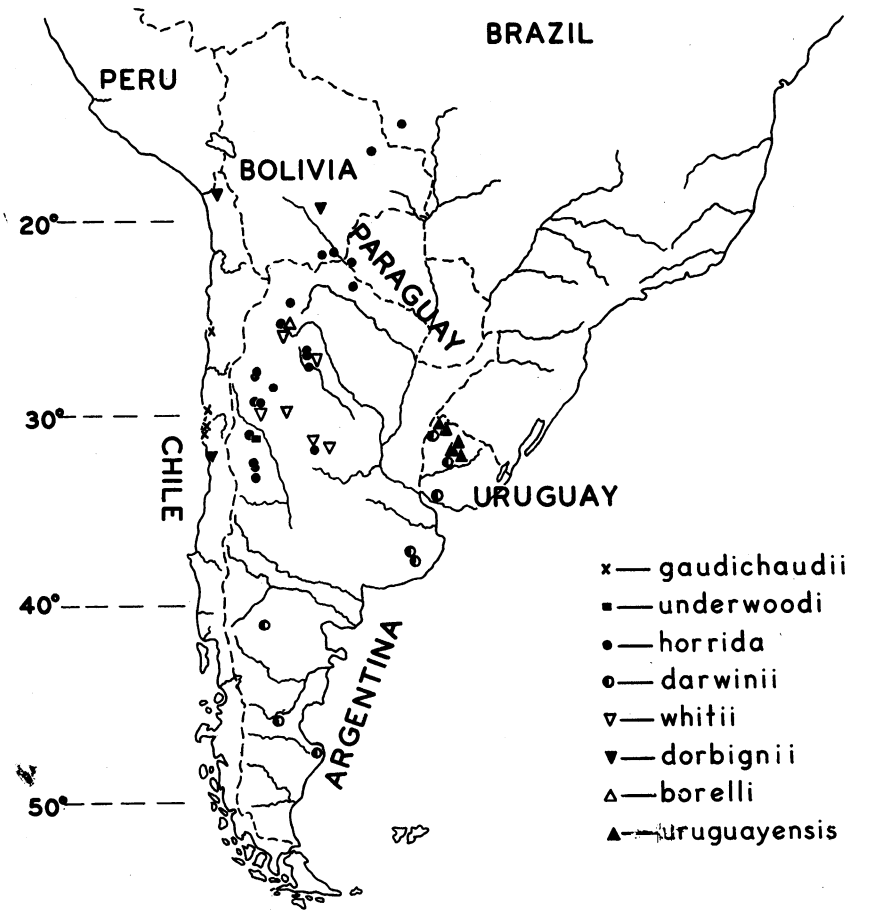

FIG. 1. Map of southern South America, showing localities for *Homonota*.

digital lamellae are slightly swollen), (2) all digits strongly clawed, (3) body moderately depressed, (4) tail long, slender, round in cross section, (5) preanal and femoral pores absent, and (6) cloacal sacs and bones present. The digital conditions found in *Narudasia* Methuen and Hewitt of South Africa, *Tropicolotes* Peters of North Africa and Asia Minor, and *Alsophylax* Fitzinger of southwest Asia and Turkestan are superficially similar to those in *Homonota*. *Homonota* can be distinguished from the first two genera by the absence of greatly enlarged proximal subdigital lamellae and from the last two by the absence of minute tubercles on the subdigital lamellae. These intergeneric differences appear to be trivial, and obviously

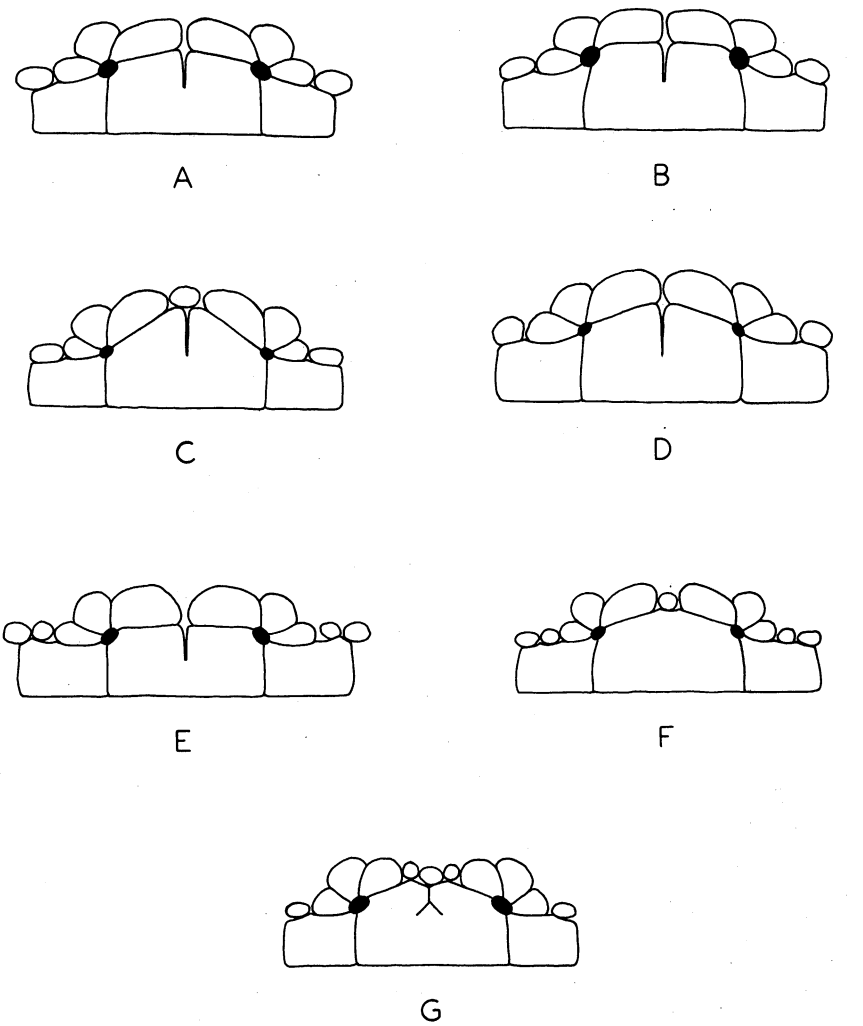

FIG. 2. Shape of rostral shield, nostril size, form of rostral crease, and associated scalation in *Homonota*. A. *H. borelli*. B. *H. uruguayensis*, *horrida*, and *fasciata*. C. *H. darwinii*. D. *H. underwoodi*. E. *H. whitii*. F. *H. gaudichaudii*. G. *H. dorbignii*.

extensive osteological characterizations of tne genera are needed. It has become apparent from portions of osteological studies already completed that the external similarity of the digits cannot always be considered indicators of relationships.

DESCRIPTION: Snout short and blunt to long and relatively pointed;

head slightly to greatly convex dorsally; eye moderate to very large; pupil of typical gecko shape as defined by Underwood (1954); height of rostral slightly less to much greater than one-half of its width (fig. 2A–G); rostral crease a simple vertical slit, ⅄-shaped or absent, slightly less to much more than one-half of height of rostral; dorsolateral margins of rostral almost horizontal to greatly angulated dorsomedially; internasals one or three or absent; supranasals large, meeting or separated on midline; nostril very small to large, surrounded by rostral, supranasal, two postnasals, and first supralabial (the last may be excluded); five to eight supralabials; four to nine enlarged scales between postnasals and preocular granules; 10 to 22 enlarged interorbital scales; mental as broad as or much broader than long; postmentals not enlarged to greatly enlarged, two to four bordering mental; five to eight infralabials; two to four scales bordering first infralabial; external ear opening small to large, varying from being perfectly round to an angular slit, dorsal border slightly below to above angle of jaw, margins with or without denticulation; dorsal body scutellation (figs. 3–10) homogeneous, consisting of small to large, slightly conical to cycloid, imbricate scales, or heterogeneous, consisting of small to very large, imbricate or non-imbricate, smooth to strongly keeled, cycloid or lenticular scales, with small to rather large granules separating them; venter covered with large, smooth, imbricate, cycloid scales, which may or may not form regular longitudinal rows; appendages with small to large, smooth or keeled, conical to cycloid, imbricate scales; palmar scale present or absent; digits long, straight or slightly angulate, slightly compressed to round in cross section; claws short and strongly curved to long and almost straight; subdigital lamellae quadrangular, not greatly enlarged proximally; distal margin of terminal subdigital plate slightly to greatly indented or terminal plate completely divided into two lateral scales; fourth finger with nine to 18 subdigital lamellae; fourth toe with 11 to 23 subdigital lamellae; dorsal surface of tail covered with enlarged, smooth or keeled, imbricate scales, as much as four times as large as dorsal body scales, in some specimens forming somewhat regular annuli; subcaudals undifferentiated to greatly enlarged (fig. 11A, B), bordered laterally by one or two scales; no femoral or preanal pores; cloacal sacs and bones present (the latter only in males); one or two diagonal rows of from two to five slightly to greatly enlarged cloacal scales (larger in males) immediately posterior to thigh on side of tail below or above dorsolateral extreme of vent crease.

Maximum snout-to-vent length, 32.5 mm. to 51.5 mm.; (the following figures are given as percentages of the snout-to-vent length) head length, 21.0 to 28.8; head width, 17.3 to 21.1; snout length, 7.8 to 11.2; distance

from eye to ear, 7.9 to 10.1; height of eye, 4.2 to 7.4; diameter of orbit, 5.1 to 9.5; distance from axilla to groin, 41.2 to 49.5; length of forelimb, 28.6 to 38.8; length of fourth finger, 5.8 to 11.1; length of hind limb, 38.6 to 48.9; length of fourth toe, 9.1 to 13.0.

General dorsal coloration and pattern consisting of irregular brown or black reticulation or regular brownish rectangles superimposed on either a yellowish brown or grayish black ground color; brown or black bar on snout anterior to eye always present, in some cases very obscure; ventral surfaces immaculate to densely covered with chromatophores.

Homonota borelli (Peracca)

Gymnodactylus borelli PERACCA, 1897, p. 2. Type locality: Salta, Salta Province, Argentina.

RANGE: Known from Salta and the Chaco region of Argentina.

DIAGNOSIS: *Homonota borelli* differs from all other members of the genus in possessing slightly enlarged, keeled, non-imbricate, dorsal body scales that form regular longitudinal rows.

DESCRIPTION: (Based primarily on A.M.N.H. No. 17002). Snout short, relatively blunt; head convex; eye very large; height of rostral slightly more than one-half of its width; rostral crease simple, deep, length slightly less than one-half of height of rostral (fig. 2A); dorsolateral margins of rostral slightly angulated dorsomedially; internasal absent, supranasals meeting on midline; nostril large; six supralabials, gradually decreasing in size posteriorly, first borders nostril; five enlarged scales between postnasals and preocular granules; 16 enlarged interorbital scales; mental much broader than long; postmentals slightly enlarged, two bordering mental; five infralabials; two to three scales bordering first infralabial; occipital, temporal, and dorsal and lateral neck regions covered with large, conical granules; external ear opening small, perfectly round, even with angle of jaw, margins devoid of denticulation; dorsal body scutellation heterogeneous (fig. 3), consisting of (a) small, moderately keeled, non-imbricate scales, forming three pairs of obscure but regular, longitudinal rows and (b) small, conical granules; two to three granules separating primary paravertebral keeled scale rows, one to two slightly larger granules separating primary and secondary rows and two to three moderately large granules separating secondary and tertiary rows; body surface lateral to tertiary keeled scale row covered with slightly keeled, imbricate, cycloid scales, quaternary row obscure; enlarged, keeled dorsal body scales at least one-half of size of ventrals; 36 enlarged, keeled scales in primary paravertebral row between axilla and groin; 45 enlarged scales around midbody (excluding seven dorsal granules); venter covered

with large, imbricate, cycloid scales forming regular longitudinal rows; throat covered with small, conical granules; dorsal surface of arm covered with large, smooth, imbricate, cycloid scales; ventral surface of arm covered with large, conical granules; palmar scale large, slightly swollen; digits long, straight, slightly laterally compressed, claws short, moderately curved; subdigital lamellae quadrangular, not greatly enlarged proximally; terminal subdigital plate greatly indented or completely divided into two lateral scales; fourth finger with 13 subdigital lamellae; dorsal surface of leg covered with large, imbricate, cycloid scales, some very slightly keeled; posterior surface of thigh covered with large, conical granules; fourth toe with 18 subdigital lamellae; tail covered dorsally

FIG. 3. *Homonota borelli* (A.M.N.H. No. 17002). Scale equals 10 mm.

with enlarged, slightly keeled, imbricate, cycloid scales, slightly larger than enlarged, keeled, dorsal body scales; series of enlarged subcaudals, bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); single diagonal row of two greatly enlarged cloacal scales lying below dorsolateral extreme of vent crease.

Snout-to-vent length, 33.0; head length, 9.2 (27.9); head width, 6.5 (19.7); snout length, 3.7 (11.2); distance from eye to ear, 3.3 (10.0); height of eye, 2.0 (6.1); diameter of orbit, 2.5 (7.6); distance from axilla to groin, 14.2 (43.0); length of forelimb, 11.7 (35.4); length of fourth finger, 3.1 (9.4); length of hind limb, 15.9 (48.2); length of fourth toe, 4.4 (13.3).

Ground color of dorsum yellowish brown; distinct brown bar beginning at tip of snout, passing through center of eye; labials, rostral and mental

TABLE 1

DISTRIBUTION OF THE SPECIES OF *Homonota* IN THE PHYTOGEOGRAPHIC ZONES AS OUTLINED BY SMITH AND JOHNSTON (1945)

Species of *Homonota*	Phytogeographic Zones								
	Supralittoral	Pacific Coastal Deserts	Pacific Coastal Desert-Subantarctic Beech Transition	Andes	Tropical Deciduous Forest	Desert Scrub	Uruguayan Savanna	Pampean Grassland	Patagonian-Fuegian Steppe
borelli	—	—	—		?	x	—	—	—
uruguayensis	—	—	—		—	—	x	—	—
horrida	—	—	—		x	x	—	—	—
fasciata[a]									
darwinii	—	—	—		—	—	x	x	x
underwoodi	—	—	—		—	x	—	—	—
whitii	—	—	—		x	x	—	—	—
gaudichaudii	x	?	—		—	—	—	—	—
dorbignii	—	x	x		x	—	—	—	—

[a] Unknown.

plates with heavy concentrations of brown chromatophores; all dorsal surfaces covered with irregular, dark brown reticulation; ground color of venter brownish white, covered with finely scattered brown chromatophores.

SPECIMENS EXAMINED: Argentina: Chaco (A.M.N.H. No. 17002).

ADDITIONAL RECORDS: Argentina: Salta Province, Salta (type locality).

REMARKS: The holotype, in the Museum of Turin, was not examined, but an accurate translation of the original description (Peracca, 1897) compared with a specimen from the Chaco of Argentina (A.M.N.H. No. 17002) leaves little doubt as to their conspecifity. Apparently, *Homonota borelli* is known only from these two specimens.

The type locality appears to fall within the Desert Scrub Zone as outlined by Smith and Johnston (1945). The Chaco record can probably be referred to the Tropical Deciduous Forest (see table 1). The lack of detailed habitat information for all the species in the genus precluded an extensive discussion of the subject; table 1 is presented only as a general summarization.

Homonota uruguayensis (Vaz-Ferreira and Sierra de Soriano)

Wallsaurus uruguayensis VAZ-FERREIRA AND SIERRA DE SORIANO, 1961, p. 2, fig. 1, pls. 1–2. Type locality: vicinity of Arroyo de la Invernada, Artigas Province, Uruguay.

RANGE: Known from Artigas, Rivera, and Tacuarembó provinces, Uruguay.

DIAGNOSIS: The almost uniform grayish black coloration of *Homonota uruguayensis* is unique within the genus; all other species are of contrasting tones of brown and white. *Homonota uruguayensis* further differs from all other members of the genus in possessing strongly keeled, imbricate, dorsal body scales. The dorsal body scutellations of *H. borelli*, *H. horrida*, and *H. fasciata* approach this condition; however, the enlarged scales are juxtaposed and never imbricate.

DESCRIPTION: Snout moderately long, slightly angulate; head convex; eye moderately large; height of rostral one-half of its width; dorsal margin of rostral almost horizontal (fig. 2B); rostral crease simple, deep, one-half to slightly more than one-half of height of rostral; single internasal, supranasals not meeting on midline; nostril very large; five to six (5.5) supralabials, first bordering nostril; five to seven (6.0) enlarged scales between postnasals and preocular granules; 14 to 15 (14.3) enlarged interorbital scales; mental slightly broader than long; postmentals slightly to greatly enlarged, two bordering mental; five to six (5.1) infralabials; two to three (2.1) scales bordering first infralabial; occipital and temporal

regions with some keeled scales; dorsal neck region covered with anterior extremes of keeled dorsal body scale rows and small granules; lateral area of neck covered with large, keeled scales and scattered granules; external ear opening oval, with its axis at approximately a 60-degree angle, its dorsal border reaching level of angle of jaw, all margins devoid of denticulation; dorsal body scutellation heterogeneous (fig. 4), consisting of (a) enlarged, keeled, imbricate scales, slightly smaller than ventrals, forming eight (four per side) regular, longitudinal rows, and (b) smaller, keeled and smooth, imbricate scales of irregular form and

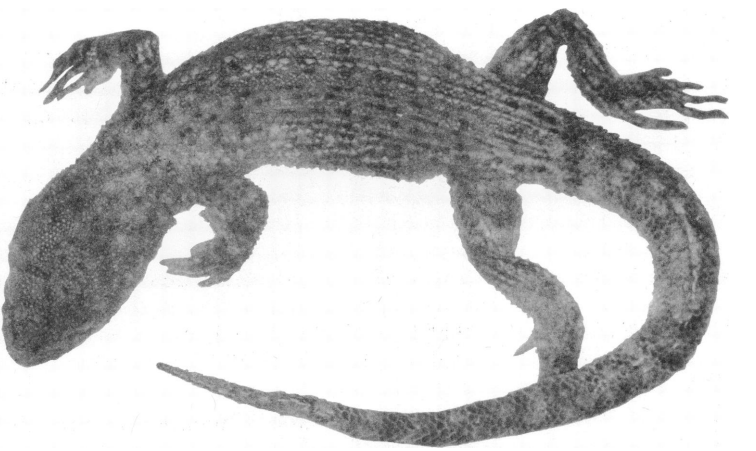

FIG. 4. *Homonota uruguayensis* [B.M.(N.H.) No. 1961.6]. Scale equals 10 mm.

variable size separating enlarged, longitudinal rows of scales; two to three small, smooth scales on vertebral line separating primary paravertebral rows, one to two keeled or smooth scales of variable size separating primary and secondary rows, one to two moderately large, flat, imbricate scales separating secondary and tertiary rows, one moderately large, flat, imbricate scale separating tertiary and quaternary rows (the latter scale in some cases entirely absent); 23 to 28 (24.8) enlarged, keeled scales in primary paravertebral row between axilla and groin; 49 to 52 (49.8) scales around midbody; 19 to 23 (21.0) enlarged, keeled dorsals, eight to 11 (9.5) smaller, keeled or smooth dorsals separating enlarged rows and 17 to 21 (19.3) ventrals; ventral body surface covered with moderately large, cycloid, imbricate scales in regular or irregular longi-

tudinal rows; dorsal surface of arm covered with large, keeled, imbricate, cycloid scales, ventral parts with small, smooth, only slightly imbricate scales; digits long, straight, slightly laterally compressed; claws short, strongly curved, not projecting much beyond claw sheath; subdigital lamellae quadrangular, gradually decreasing in size distally; distal margin of terminal subdigital plate greatly indented; fourth finger with 12 to 14 (13.0) subdigital lamellae; dorsal, anterior, and ventral surfaces of hind limb covered with large, imbricate, cycloid scales, those of dorsal and anterior surfaces keeled, ventral smooth; posterior surface of hind limb covered with large, conical granules; ventral, posterior, and dorsal and anterior regions of hind limb sharply defined; fourth toe with 15 to 17 (15.7) subdigital lamellae; tail cylindrical, tapering to fine point, covered dorsally with enlarged, keeled, imbricate scales, slightly larger than largest dorsal body scale; series of enlarged subcaudals bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); single diagonal row of two to three enlarged cloacal scales lying below dorsolateral extreme of vent crease.

The measurements of B.M.(N.H.) Nos. 1961.6–1961.9 are as follows: snout-to-vent length, 34.5, 33.0, 42.0, 42.1; head length, 9.0 (26.1), 9.2 (27.9), 10.5 (25.0), 9.9 (23.5); head width, 7.0 (20.3), 6.5 (19.7), 8.0 (19.0), 7.6 (18.1); snout length, 3.6 (10.4), 3.7 (11.2), 4.1 (9.8), 3.9 (9.3); distance from eye to ear, 3.1 (9.0), 3.3 (10.0), 3.9 (9.3), 3.5 (8.3); height of eye, 2.0 (5.8), 2.0 (6.1), 2.1 (5.0), 2.0 (4.8); diameter of orbit, 2.2 (6.4), 2.5 (7.6), 2.5 (5.9), 2.5 (5.9); distance from axilla to groin, 14.2 (41.2), 14.2 (43.0), 18.2 (43.4), 17.9 (42.5); length of forelimb, 12.0 (34.8), 11.7 (35.4), 12.0 (28.6), 13.7 (32.6); length of fourth finger, 2.9 (8.4), 3.1 (9.4), 3.0 (7.1), 3.4 (8.1); length of hind limb, 16.6 (48.1), 15.9 (48.2), 17.1 (40.8), 19.2 (45.6); length of fourth toe, 4.5 (13.0), 4.4 (13.3), 4.1 (9.8), 4.7 (11.2).

Dorsal ground color dark gray; all dorsal surfaces with irregular black reticulation, some scales entirely black; supralabials with moderate concentrations of black chromatophores, rostral almost completely covered, infralabials and mental only sparsely so; central areas of throat and venter immaculate, all other ventral surfaces covered with finely scattered black chromatophores, those of limbs and tail with heaviest concentrations.

Specimens Examined: Uruguay: Artigas Province: Los Catalanes, *estancia* of Becker [B.M.(N.H.) Nos. 1961.6–1961.9].

Additional Records: Uruguay: Artigas Province: Vicinity of Arroyo de la Invernada (type locality), vicinity of Barra del Yacaré, Grutas del Chiflero, Arroyo de la Invernada, Puntas Tres Cruces Grande, Los

Catalanes, and between Artigas and Puntas del Cuaró Chico. Tacuarembó Province: Rincón de la Basura, Puntas del Arroyo Laureles, Pozo Hondo, Tambores, and Costas Arroyo Laureles. Rivera Province: No specific locality. ? Province: Región de Sepulturas, *estancia* of Bravo.

REMARKS: All the locality records for *Homonota uruguayensis* are from the Uruguayan Savanna (Smith and Johnston, 1945; see table 1 of the present paper). Vaz-Ferreira and Sierra de Soriano (1961) stated that their large series were almost invariably obtained in "rocky zones." The specimens were collected during the day from crevices or under rocks.

Homonota horrida (Burmeister)

Gymnodactylus horridus BURMEISTER, 1861, p. 309. Type locality: near Mendoza (in a gorge near Challao), Mendoza Province, Argentina.

Gymnodactylus mattogrossensis BERG, 1895, p. 192. Type locality: Mato Grosso, Brazil.

Wallsaurus horridus: UNDERWOOD, 1954, p. 475.

RANGE: Southern parts of Bolivia and Brazil, Paraguay, and the northwestern section of Argentina.

DIAGNOSIS: *Homonota horrida* differs from all other members of the genus, except *H. fasciata*, in possessing (a) longitudinal rows of greatly enlarged, strongly keeled, non-imbricate, dorsal body scales, and (b) a dorsal body color pattern of four to six pairs of dark brown squares. It differs from *H. fasciata*, to which it is most closely related, in having a smaller number of interorbital scales, 10 to 14 (11.0), all margins of the external ear opening strongly denticulate, moderately enlarged postmentals, and large and platelike anterior gular scales. In *H. fasciata* there are 16 interorbital scales, only the anterior margin of the ear has a slight denticulation, the postmentals are greatly enlarged, and the anterior gular scales are small and granular.

DESCRIPTION: Snout moderately long, relatively angulate; head not greatly convex; eye large; height of rostral slightly more than one-half of its width; rostral crease deep, one-half to slightly more than one-half of height of rostral; dorsolateral margins of rostral almost horizontal (fig. 2B); internasal present in 17 per cent of specimens, absent in 83 per cent, accordingly supranasals may or may not meet on midline; nostril large; six to eight (6.7) supralabials, first bordering nostril, first four almost equal in height; six to nine (7.1) enlarged scales between postnasals and preocular granules; 10 to 14 (11.0) enlarged interorbital scales; mental broader than long; postmentals enlarged, two bordering mental; anterior gular scales large, platelike; five to seven (5.8) infralabials; two to three (2.1) scales bordering first infralabial; external ear opening a diagonal

slit, with its axis at approximately a 45-degree angle, its dorsal border reaching above angle of jaw, all margins with strong denticulation frequently completely obscuring aperture; dorsal body scutellation heterogeneous (fig. 5), consisting of (a) 10 to 14 (11.8) regular longitudinal rows of greatly enlarged, strongly keeled, non-imbricate scales equaling size of ventrals (primary vertebral rows slightly smaller than secondary and tertiary) and (b) very small, almost flat granules separating longitudinal rows; one to four granules separating adjacent enlarged scales, vertebral granules normally one more than those paravertebrally; 14 to 20 (17.0) enlarged, keeled scales in primary paravertebral row between axilla and groin; 57 to 85 (71.6) scales around midbody, 15 to 21 (17.5) enlarged,

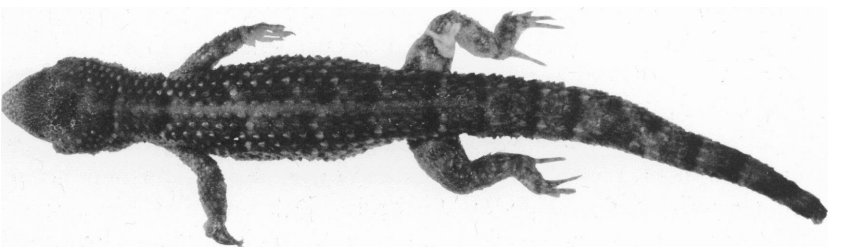

FIG. 5. *Homonota horrida* (M.C.Z. No. 49517). Scale equals 10 mm.

keeled scales, 10 to 25 (19.3) granules separating enlarged rows and 32 to 39 (34.8) ventrals; venter covered with large, imbricate, cycloid scales in regular longitudinal rows; scales of throat region small, almost granular, only slightly imbricate; dorsal surface of forelimb covered with large, keeled, slightly imbricate, cycloid scales; ventral surface of arm covered with flattened, smooth, imbricate, cycloid scales as well as large, convex granules; palmar tubercle absent to enlarged and swollen, in some specimens represented by three slightly enlarged scales; digits long, straight, almost round in cross section; claws short, greatly curved; subdigital lamellae quadrangular, gradually decreasing in size distally; distal margin of terminal subdigital plate greatly indented; fourth finger with 13 to 16 (14.4) subdigital lamellae; dorsal and ventral surfaces of hind limb covered with enlarged, imbricate, cycloid scales, former surface covered with keeled scales, latter smooth; posterior surface of hind limb covered with small granules; fourth toe with 16 to 20 (17.8) subdigital lamellae; tail cylindrical, tapering to fine point, covered dorsally with enlarged (slightly larger than those of dorsal body surface), keeled, imbricate scales forming definite annuli which are separated from one an-

other by two to three smaller scales (this pattern fades out on distal one-half of tail); series of enlarged subcaudals bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); single diagonal row of three moderately enlarged cloacal scales lying below dorsolateral extreme of vent crease.

The measurements of M.C.Z. Nos. 49517 and 15904, and of C.N.H.M. No. 9957, are as follows: snout-to-vent length, 51.0, 32.3, 44.8; head length, 13.3 (26.1), 8.8 (27.4), 12.0 (28.8); head width, 10.0 (19.6), 6.8 (21.1), 9.2 (20.5); snout length, 4.6 (9.0), 3.4 (10.5), 4.3 (9.6); distance from eye to ear, 4.5 (8.8), 3.0 (9.3), 4.1 (9.2); height of eye, 3.4 (6.7), 2.4 (7.4), 2.5 (5.6); diameter of orbit, 3.9 (7.6), 2.6 (8.5), 3.3 (7.4); distance from axilla to groin, 23.4 (45.9), 13.6 (42.2), 20.4 (45.4); length of forelimb, 17.0 (33.3), 11.4 (35.1), 15.5 (34.6); length of fourth finger, 4.1 (8.5), 2.6 (8.5), 3.4 (7.6); length of hind limb, 24.4 (47.8), 14.9 (46.2), 21.5 (48.0); length of fourth toe, 5.2 (10.2), 3.5 (10.8), 5.6 (12.5).

Dorsal ground color yellowish brown; distinct brown bar beginning at tip of snout, passing through center of eye, and may or may not meet counterpart on dorsal midline; irregular dark brown marbling may be present on dorsal surface of head; normally a light vertebral line running from nuchal region to pelvic area; light spaces continuing laterally at regular intervals from vertebral light line, enclosing four to six darker squares on each side of midline; tail with nine to 12 dark brown bands, incomplete ventrally; all ventral surfaces covered with variably scattered dark brown chromatophores; dorsolateral dark brown squares and tail bands very distinct in subadults.

Specimens Examined: Argentina: Catamarca Province: Arid section in the Department of Belén (C.N.H.M. Nos. 10833, 10834) and Mennonite colonies in Chaco [B.M.(N.H.) No. 1956.1.16.17]. Córdoba Province: Totaralejos (U.T. No. 00228). Jujuy Province: San Lorenzo [B.M.(N.H.) No. 98.7.72]. Mendoza Province: Near Mendoza (in a gorge near Challao) (Halle type series) and Mendoza (M.C.Z. Nos. 15903, 15904, U.S.N.M. No. 52597), Godoy Cruz (C.N.H.M. No. 9990), and Quebrada del Cerro Divisadero Largo (U.T. No. 00280). Santiago del Estero Province: No specific locality (M.C.Z. No. 45802). Tucuman Province: "The forests" near Tucuman [B.M.(N.H.) No. 1904.6.30.21], Villa Norges, 1200 meters [B.M.(N.H.) No. 1902.7.29.63], and Tucuman, 400 meters [B.M.(N.H.) No. 1908.5.29.25]. Bolivia: Cochabamba Department: No specific locality (U.M.M.Z. No. 68109). Tarija Department: Caiza [B.M.(N.H.) No. 98.7.7.1]. Paraguay: Chaco Department: Fortin Guachalla, Pilcomay River, 580 kilometers west-northwest of Asuncion (C.N.H.M. Nos. 44127–44132, M.C.Z. Nos. 49514–49518).

ADDITIONAL RECORDS: Argentina: Catamarca Province: Catamarca, Corrizal de Belén, 2000 meters, and Corral Quemado, west of Hualtia. Chaco Territory: Venturi. La Rioja Province: Chilecito and La Rioja. Salta Province: Salta. San Juan Province: San Juan. Bolivia: Santa Cruz Department: Llanos de Chiquitos, Concepcion. Tarija Department: Villa Montes. Brazil: State of Mato Grosso: Mato Grosso?

REMARKS: I have not examined the holotype of *Gymnodactylus mattogrossensis*. From the type description alone, there can be little doubt that *mattogrossensis* is conspecific with *Homonota horrida*. In describing *mattogrossensis*, Berg (1895) apparently did not have comparative material at hand and was forced to use the redescription of *horrida* by Boulenger (1889). Berg stated that in coloration and general aspects his species was very similar to Boulenger's figure of *horrida* (pl. 15, fig. 1); however, it differed in having a longer head, in the structure and configuration of the scales, and in the number and form of the labials. Boulenger's redescription of the "holotype" (the type series actually consists of three specimens) of *horrida* did not indicate the range of variation now known to occur in most of the meristic and measurable characters of this species, and it was probably for this reason that Berg was led to believe that his specimen was sufficiently different to be described as new. The locality of *mattogrossensis* was given as Mato Grosso, Brazil. There was no indication whether Mato Grosso referred to the town or only to the large state known by the same name. As *H. horrida* appears to be restricted to the Desert Scrub and Tropical Deciduous Forest Zones of Smith and Johnston (1945), it is possible to limit the area from which Berg's specimen might have been collected (see table 1). The northern extreme of the tropical deciduous forest reaches the southern part of Brazil in the State of Mato Grosso. Included in this very limited area in the state is the town of Mato Grosso. Even with our limited knowledge of the distribution and habitat preference of *H. horrida*, I believe it is reasonable to assume that it is from the tropical deciduous forest of the southwestern part of the State of Mato Grosso that Berg's specimen was obtained and, with some assurance, from the town of Mato Grosso.

Two typical specimens of *Homonota horrida* (C.N.H.M. Nos. 9951, 9957) have the following locality data: Tolhuaca, Cautin Province, Chile. They were presented on exchange to the Chicago Natural History Museum by Flaminio Ruiz Pereira of the Museo de Historia Natural de San Pedro Nolasco, Santiago, Chile. This record from the Pacific side of the Andes is far outside the known range of *H. horrida* (all other records are eastern Andean, north of latitude 36° S.), and its validity must be questioned.

Homonota fasciata (Duméril and Bibron)

Gymnodactylus fasciatus DUMÉRIL AND BIBRON, 1836, p. 420. Type locality: "Martinique."

Cubina fasciata: GRAY, 1845, p. 175.

[*Non*] *Homonota fasciata:* Jerdon, 1853, p. 468.

RANGE: Unknown.

DIAGNOSIS: *Homonota fasciata* differs from all other members of the genus except *H. horrida* in possessing regular longitudinal rows of greatly enlarged, strongly keeled, non-imbricate, dorsal body scales. It differs from *H. horrida*, to which it is most closely related, in having a larger number of interorbital scales (16), only the anterior margin of the ear with a slight denticulation, greatly enlarged postmentals, and small, granular, anterior gular scales. *Homonota horrida* has 10 to 14 (11.0) interorbital scales, all margins of the external ear opening strongly denticulate, the postmentals only moderately enlarged, and the anterior gulars large and platelike.

DESCRIPTION: (Based primarily on the holotype, P.M.N.H. No. 6756). Snout moderately long, relatively angulate; head not greatly convex; eye large; height of rostral slightly more than one-half of its width; rostral crease deep, one-half of height of rostral; margin of rostral horizontal (fig. 2B); internasal absent, supranasals meeting on midline; nostril large; 6/6 supralabials, first bordering nostril, first four almost equal in height; 8/9 enlarged scales between postnasals and preocular granules; 16 enlarged interorbital scales; mental broader than long; postmentals greatly enlarged, two bordering mental; anterior gular scales small, granular; 7/6 infralabials; 2/2 scales bordering first infralabial; external ear opening a diagonal slit, with its axis at approximately a 45-degree angle, its dorsal border extending above angle of jaw, only slight denticulation on anterior margin; dorsal body scutellation heterogeneous, consisting of (a) 12 regular longitudinal rows of greatly enlarged, strongly keeled, non-imbricate scales, equal to or slightly larger than ventrals (primary vertebral rows slightly smaller than secondary and tertiary), and (b) very small, almost flat, granules separating longitudinal rows; one to four granules separating adjacent enlarged scales, vertebral granules one to two more than those in primary paravertebral row between axilla and groin; 36 scales around midbody, 14 enlarged, keeled scales, 21 granules separating enlarged rows, and 31 ventrals; venter covered with large, imbricate, cycloid scales forming regular longitudinal rows; scales of throat region small, almost granular, slightly imbricate; dorsal surface of forelimb covered with large, keeled, slightly imbricate, cycloid scales, ventral surfaces with smooth, flattened, im-

bricate, cycloid scales and large convex granules; palmar tubercle large and swollen; digits long, straight, almost round in cross section; claws short, greatly curved; subdigital lamellae quadrangular, gradually decreasing in size distally; distal margin of terminal subdigital plate greatly indented; fourth finger with 13/13 subdigital lamellae; dorsal and ventral surfaces of hind limb covered with enlarged, imbricate, cycloid scales, former surface covered with keeled scales, latter smooth; posterior surface of hind limb covered with small granules; fourth toe with 16/18 subdigital lamellae; tail incomplete, covered dorsally with enlarged (slightly larger than those of dorsal body surface), keeled, imbricate scales forming definite annuli which are separated from one another by two to three smaller scales; series of enlarged subcaudals bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); single diagonal row of three moderately enlarged cloacal scales lying below dorsolateral extreme of vent crease.

Snout-to-vent length, 45.0; head length, 12.1 (26.9); head width, 8.9 (19.8); snout length, 4.8 (10.7); distance from eye to ear, 4.5 (10.0); height of eye, 2.4 (5.6); diameter of orbit, 3.8 (8.4); distance from axilla to groin, 20.5 (45.6); length of forelimb, 14.9 (33.1); length of fourth finger, 3.4 (7.6); length of hind limb, 22.0 (48.9); length of fourth toe, 4.6 (10.2).

The holotype is in a very poor state of preservation and devoid of both color and pattern. The brief color description of *fasciata* given by Duméril and Bibron (1836) appears to be similar to that of typical *horrida*.

SPECIMENS EXAMINED: "Martinique" [P.M.N.H. No. 6756, holotype, and B.M.(N.H.) No. 53.2.4.69].

REMARKS: *Homonota fasciata* was described by Duméril and Bibron (1836) from a single specimen (P.M.N.H. No. 6756) from the Plee collection and was alleged to have come from Martinique. The only other known specimen [B.M.(N.H.) No. 53.2.4.69] was purchased from M. Braconnig and was also said to have been collected on Martinique. The latter specimen probably had its origin in the Plee collection as did the holotype. In view of the distribution of the other species in the genus (all are from the mainland of southern South America), the spurious localities for so many of the other species described from the Plee collections, some supposedly from "Martinique" (Stejneger, 1902; Barbour and Ramsden, 1919; and Underwood, 1962), and the fact that *H. fasciata* has never been re-collected on the Island of Martinique, I am inclined to consider the type locality and range of the species as unknown.

The differences between *Homonota fasciata* and *H. horrida* are mainly of degree, so that they could be considered subspecies. Although the colora-

tion and the general state of preservation of the two known species of *H. fasciata* are poor, and the locality is probably incorrect, it is retained as a full species on the basis of its smaller head scales (greater number of interorbital scales), greatly enlarged postmentals, and denticulation that is only on the anterior margin of the external ear opening. Also, in such situations, in which the available material exhibits some distinctive characters and all localities are questionable, I believe it is advantageous to continue to recognize the species so that the name will be at once available when new material is collected.

Homonota darwinii Boulenger

Gymnodactylus gaudichaudii: BELL, 1843, p. 26, pl. 16, fig. 1.

Homonota guidichaudi: GRAY, 1845, p. 171. *Lapsus calami* for *gaudichaudii.*

[*Non*] *Cubinia darwinii* Gray, 1845, p. 274. *Cubinia* is considered a *lapsus calami* for *Cubina.*

Homonota darwinii BOULENGER, 1885, p. 21, pl. 3, fig. 7. Type locality: Puerto Deseado (Port Desire), approximately latitude 48° S., Santa Cruz Province, Argentina.

RANGE: Southern and eastern Argentina and Uruguay.

DIAGNOSIS: *Homonota darwinii* differs from all other members of the genus in possessing a short blunt head, 21.0 to 23.4 per cent of the snout-to-vent length. It also differs from all other species, except *H. underwoodi*, in having a larger axilla-to-groin length, 46.6 to 48.4 per cent of the snout-to-vent length, and the dorsolateral margins of the rostral greatly angulated dorsomedially (fig. 2C). It can be distinguished from *H. underwoodi* by its smaller number of interorbital scales, 14 to 16 (15.1), 18 to 20 (19.0) in *H. underwoodi*, and densely pigmented venter (immaculate in *H. underwoodi*).

DESCRIPTION: Snout short and blunt; head very deep and convex; eye large; height of rostral much more than one-half of its width; rostral crease slightly less to much more than one-half of height of rostral; dorsolateral margins of rostral greatly angulated dorsomedially (fig. 2C); single internasal of variable size and shape, supranasals not meeting on midline; nostril very small; five to seven (6.2) supralabials, first bordering nostril, gradually decreasing in height posteriorly; four to seven (5.5) enlarged scales between postnasals and preocular granules; 14 to 16 (15.1) enlarged interorbital scales; mental as broad as or slightly broader than long; postmentals enlarged, two to three (2.7) bordering mental; five to six (5.2) infralabials; three scales bordering first infralabial; occipital, temporal, and dorsal and lateral regions of neck covered with very granular scales; external ear opening an obscure diagonal slit with its

axis at a 45- to 60-degree angle, its dorsal border above angle of jaw, strong denticulation on all margins; all scales smooth except for a few indistinctly keeled on dorsum above pelvic region; dorsal surfaces of body covered with moderately large, imbricate, cycloid scales, slightly less than one-half as large as ventrals (fig. 6); vertebral series of scales slightly smaller than those paravertebrally; 70 to 76 (73.0) scales paravertebrally between axilla and groin; 58 to 64 (60.8) scales around midbody; ventral

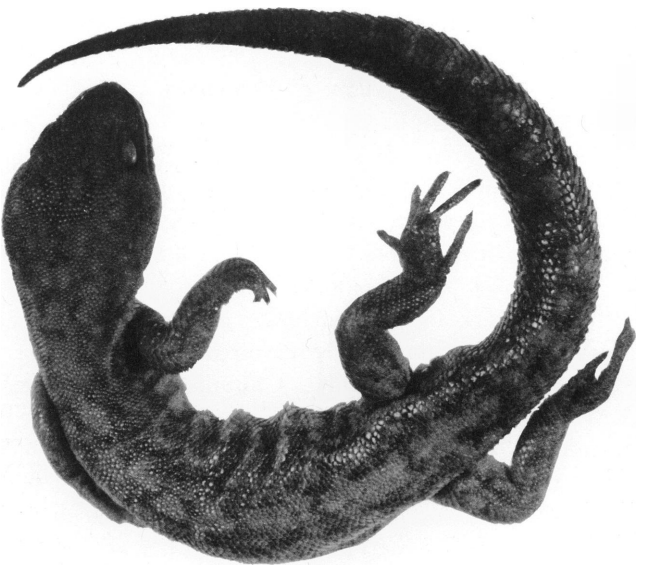

FIG. 6. *Homonota darwinii* (A.M.N.H. No. 17001). Scale equals 10 mm.

body scales in somewhat regular longitudinal rows; dorsal surface of arm covered with very large, imbricate, cycloid scales, those of ventral surface slightly granular; palmar tubercle large, slightly swollen; digits short, straight, round in cross section; claws moderately long, slightly curved; subdigital lamellae quadrangular, not greatly enlarged; distal margin of terminal subdigital plate greatly indented; fourth finger with 12 to 14 (12.8) subdigital lamellae; posterior surface of thigh covered with granular scales, all other surfaces with enlarged, imbricate, cycloid scales; fourth toe with 16 to 19 (17.0) subdigital lamellae; tail cylindrical, tapering to very fine point, covered dorsally with imbricate, cycloid scales, twice as large as those of dorsal body surface; series of enlarged subcaudals,

bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); single diagonal row of three enlarged cloacal scales lying above dorsolateral extreme of vent crease.

The measurements of C.N.H.M. No. 6559 and A.M.N.H. Nos. 46430 and 17001 are as follows: snout-to-vent length, 51.5, 50.0, 45.0; head length, 11.6 (21.4), 10.5 (21.0), 10.5 (23.4); head width, 9.5 (18.4), 9.8 (19.6), 8.6 (19.1); snout length, 5.0 (9.6), 4.0 (8.0), 3.5 (7.8); distance from eye to ear, 5.0 (9.6), 4.5 (9.0), 4.4 (9.8); height of eye, 2.8 (5.4), 2.8 (5.6), 1.9 (4.2); diameter of orbit, 3.3 (6.4), 3.0 (6.0), 2.3 (5.1); distance from axilla to groin, 24.0 (46.6), 23.9 (47.8), 21.8 (48.4); length of forelimb, 16.1 (31.3), 15.6 (31.2), 13.9 (30.9); length of fourth finger, 4.1 (8.0), 4.2 (8.4), 3.5 (7.8); length of hind limb, 21.9 (42.5), 20.8 (41.6), 19.4 (43.1); length of fourth toe, 4.9 (9.5), 4.9 (9.8), 4.5 (10.0).

Dorsal ground color light chocolate brown; all labials, rostral, and mental covered with dense brown chromatophores; brown eye bar very faint; irregular dark brown spots scattered over dorsal parts of head and dorsal and lateral neck regions; dorsal surfaces of body, legs, and tail covered with very dark brown marbling, arms somewhat lighter; all ventral surfaces covered with sparsely scattered chromatophores.

Specimens Examined: Argentina: Chubut Province: No specific locality (A.M.N.H. Nos. 17001, 46430). Comodoro Rivadavia Province: Colonia Sarmiento, San Bernardo Hills (C.N.H.M. No. 6559). Rio Negro Province: *Estancia* Huanu Luan, 3000 feet (U.M.M.Z. No. 89654). Santa Cruz Province: Puerto Deseado (Port Desire), approximately latitude 48° S. [B.M.(N.H.) Nos. 1961.10–1961.13, syntypes)]. Uruguay: Montevideo Province: Montevideo [B.M.(N.H.) No. 52.11.22.21].

Additional Records: Argentina: Buenos Aires Province: Balcarce, mountains of La Ventana and Tandil. Uruguay: Artigas Province: Ao Cuaró. Tacuarembó Province: Rincón de la Basura.

Remarks: The syntypes of *Homonota darwinii* are not labeled as such but are quite clearly the original material described by Boulenger (1885). The series consists of the following: (1) four specimens from Puerto Deseado (Port Desire), Argentina, collected by Charles Darwin [B.M.-(N.H.) No. 1961.10, male with complete tail; B.M.(N.H.) No. 1961.11, male without tail; B.M.(N.H.) Nos. 1961.12, 1961.13, two females with regenerated tails], (2) a single male specimen [B.M.(N.H.) No. 52.11.-22.21] from Montevideo, Uruguay, collected by M. Parzudaki, and (3) a male [B.M.(N.H.) No. 1961.15] without locality data, presented by Thomas Bell. The last specimen was previously included under *Goniodactylus timorensis* by Gray (1845, p. 172). The four Puerto Deseado specimens were considered by Gray (1845) to be conspecific with *Gym-*

nodactylus gaudichaudii and were used as the basis for his new genus *Homonota*. The localities given by Gray were "Chili," for three specimens and "America" for the fourth. The label "Chili" found in the bottle of the syntypes is thus explained.

In the original description of *Homonota darwinii*, Boulenger utilized a single specimen from the type series for his measurements. The measurements of B.M.(N.H.) No. 1961.10 fit very closely those given by Boulenger, and it is therefore designated the lectotype, with the type locality Puerto Deseado.

Werner (1898) examined five specimens of typical *Homonota darwinii* from the Plate collection. The locality given for these specimens was Santiago, Chile. As Santiago is on the western slopes of the Andes, and all other *H. darwinii* localities are in eastern Argentina, the Werner record is questionable.

Freiberg (1939) listed *Homonota darwinii* from Paraná, Entre Rios Province, Argentina, and in a later publication (1954) he presented a photograph of his specimen. The photograph is definitely not that of *H. darwinii*, and Freiberg's material must be re-examined before a correct identification can be made.

Homonota darwinii appears to be restricted to the Uruguayan Savanna, Pampean Grassland, and Patagonian-Fuegian Steppe Zones of Smith and Johnston (1945; see table 1 of the present paper). The Desert Scrub reaches the eastern coast of Argentina and separates the Pampean and Patagonian-Fuegian zones. To my knowledge *H. darwinii* has not been collected from the Desert Scrub.

Homonota underwoodi, new species

TYPE MATERIAL: Holotype, M.C.Z. No. 58140; paratypes, M.C.Z. Nos. 58141, 58142; collected at Agua de la Pena, Hoyada de Ischigualasto, 82 kilometers northwest of San Augustin de Valle Fertil, Valle Fertil Department, San Juan Province, Argentina, by Bryan Patterson of the Museum of Comparative Zoölogy at Harvard College.

RANGE: Known only from the type locality.

DIAGNOSIS: *Homonota underwoodi* differs from all other members of the genus in having the ventral surfaces of limbs, throat, and body devoid of all dark pigmentation. This condition is unique, since all other species have at least a fine covering of brown or black chromatophores. *Homonota underwoodi* further differs from *H. borelli*, *H. uruguayensis*, *H. horrida*, *H. fasciata*, and *H. dorbignii* in having all dorsal surfaces, except the surface immediately above the pelvic region, covered with smooth scales (regular

longitudinal rows of enlarged keeled scales cover the dorsal body surface in *H. borelli*, *H. uruguayensis*, *H. horrida*, and *H. fasciata*; enlarged irregularly placed lenticular scales are present in *H. dorbignii*). *Homonota underwoodi* can be distinguished from *H. darwinii*, to which it is most closely related, in the possession of a larger number of interorbital scales, 18 to 20 (19.0) as against 14 to 16 (15.1) in *H. darwinii*, and an external ear opening without denticulation (all margins are strongly denticulate in *H. darwinii*). *Homonota underwoodi* differs from *H. whitii* in possessing a larger number of interorbital scales, 18 to 20 (19.0) as against 13 to 14 (13.5) in *H. whitii*, and only slightly enlarged subcaudals (greatly enlarged and rectangular in *H. whitii*). *Homonota underwoodi* differs from *H. gaudichaudii* in possessing a rostral crease (absent in *H. gaudichaudii*) and larger numbers of fourth finger and toe subdigital lamellae, 14 to 18 (16.2) and 18 to 23 (20.8), respectively, as against nine to 10 (9.8) and 11 to 15 (12.8) in *H. gaudichaudii*.

DESCRIPTION OF HOLOTYPE (M.C.Z. No. 58140): Snout short and blunt; head convex; eye large; height of rostral much more than one-half of its width; rostral crease deep, slightly longer than one-half of height of rostral; dorsolateral margins of rostral slightly angulated dorsomedially (fig. 2D); internasal absent, supranasals meeting on midline; nostril very small; 6/6 supranasals, very gradually decreasing in height posteriorly, first bordering nostril; 7/7 enlarged scales between postnasals and preocular granules; 20 enlarged interorbital scales; mental as broad as long; postmentals not greatly enlarged, three bordering first infralabial; 6/6 infralabials; 2/3 scales bordering first infralabial; occipital and lateral neck region covered with granular scales, dorsal neck scales small, almost flat; external ear opening a diagonal slit, with its axis at approximately a 60-degree angle, its dorsal border below level of angle of jaw, all margins without denticulation; all scales smooth except for a few indistinctly keeled on dorsolateral area above pelvic region; dorsal surface of body covered with moderately large, imbricate, cycloid scales, one-half as large as ventrals (fig. 7); vertebral series of scales slightly smaller than those paravertebrally; 76 scales paravertebrally between axilla and groin; 69 scales around midbody, 38 dorsal pigmented and 31 ventral non-pigmented scales; ventral surface of body covered with large, imbricate, cycloid scales forming irregular longitudinal rows; dorsal surface of arm covered with very large, imbricate, cycloid scales, ventral surface with slightly granular scales; palmar tubercle absent; digits long, straight, slightly compressed; claws relatively long, straight, protruding much beyond claw sheath; subdigital lamellae quadrangular, gradually decreasing in size distally; distal margin of terminal subdigital plate

slightly indented; fourth finger with 15/14 subdigital lamellae; posterior surface of thigh covered with granular scales; all other surfaces with enlarged, imbricate, cycloid scales; fourth toe with 21/18 subdigital lamellae; tail cyclindrical, tapering to a fine point, covered dorsally with smooth, imbricate, cycloid scales almost three times as large as dorsal body scales; series of enlarged subcaudals bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); sex, female; two diagonal rows of enlarged cloacal scales, three scales per row, lying above dorsolateral extreme of vent crease.

Snout-to-vent length, 47.3; head length, 12.4 (26.2); head width, 8.9

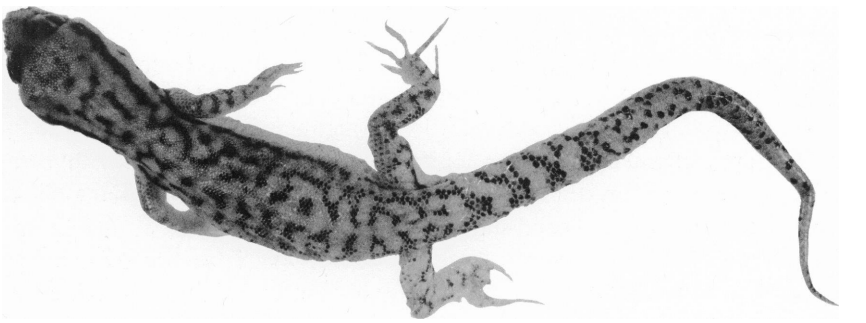

FIG. 7. *Homonota underwoodi* (M.C.Z. No. 58140, holotype). Scale equals 10 mm.

(18.8); snout length, 4.0 (8.5); distance from eye to ear, 4.5 (9.5); height of eye, 2.8 (5.9); diameter of orbit, 3.0 (6.3); distance from axilla to groin, 22.0 (46.5); length of forelimb, 16.0 (33.8); length of fourth finger, 3.7 (7.8); length of hind limb, 21.5 (45.5); length of fourth toe, 5.1 (10.8).

Dorsal ground color yellowish white; rostral and first two supralabials covered with dense brown chromatophores, remaining supralabials with limited pigmentation along dorsal margins; distinct brown bar originating at tip of snout, passing through center of eye, with a postocular width of six to seven scales, and becoming discontinuous immediately above arm; very faint, brown, V-shaped mark on dorsal surface of snout; dorsal body coloration consisting of irregular brown blotches, in some areas joining to form a reticulation; lateralmost body blotches continuous from axilla to groin to form a somewhat solid streak which originates anterior to and immediately above arm insertion; dorsal surface of arm with faint indication of brown reticulation; unregenerated part of tail covered with

brown blotches forming irregular dorsal bands; mental and first four infralabials with brown chromatophores; palms, soles, and terminal two-thirds of tail with very sparse brown pigmentation, all other ventral surfaces immaculate white.

VARIATION: The paratypes (M.C.Z. Nos. 58141, 58142) agree with the holotype in all respects except the following: rostral crease slightly longer to less than one-half of rostral height; dorsolateral margins of rostral slightly to greatly angulated dorsomedially; internasal present or absent; six to seven (6.5) enlarged scales between postnasals and preocular granules; 18 to 19 (18.5) enlarged interorbital scales; mental as broad as or broader than long; postmentals slightly enlarged, two to four (3.0) bordering mental; five to six (5.5) infralabials; marginal denticulation surrounding ear aperture absent to very faint on posterior border; 70 to 74 (72.0) scales paravertebrally between axilla and groin; 59 to 63 (61.0) scales around midbody, 33 dorsal pigmented and 26 to 30 (28.0) ventral non-pigmented scales; fourth finger with 15 to 18 (17.0) subdigital lamellae; fourth toe with 20 to 23 (21.5) subdigital lamellae; single diagonal row of three enlarged cloacal scales.

Snout-to-vent length, 29.0, 50.9; head length, 7.9 (27.2), 13.0 (25.6); head width, 6.0 (20.7), 9.6 (18.9); snout length, 3.0 (10.4), 4.6 (9.0); distance from eye to ear, 2.5 (8.6), 4.4 (8.6); height of eye, 1.5 (5.2), 2.9 (5.7); diameter of orbit, 2.1 (7.2), 3.2 (6.3); distance from axilla to groin, 12.2 (42.1), 23.9 (47.0); length of forelimb, 9.0 (31.0), 16.0 (31.4); length of fourth finger, 2.3 (7.9), 3.8 (7.5); length of hind limb, 14.0 (48.3), 23.3 (45.7); length of fourth toe, 3.3 (11.4), 5.4 (10.6).

Postocular width of brown eye bar three to seven scales; V-shaped brown mark on snout absent to very obscure; lateral body streak present or absent.

SPECIMENS EXAMINED: Argentina: San Juan Province: Valle Fertil Department, Agua de la Pena, Hoyada de Ischigualasto (M.C.Z. No. 58140, holotype; M.C.Z. Nos. 58141, 58142, paratypes).

REMARKS: *Homonota underwoodi* is known only from the very arid Desert Scrub Zone as outlined by Smith and Johnston (1945; see table 1 of the present paper). Although there is very little rainfall in this zone, at least in the vicinity of the type locality, some moisture is received from the fogs that descend from higher elevations during the nights.

The three known specimens were collected from the root systems of low stunted bushes.

Homonota underwoodi is named in honor of Garth L. Underwood for his assistance in the accumulation of data for the present paper and his contributions to our knowledge of gecko phylogeny.

Homonota whitii Boulenger

Homonota whitii BOULENGER, 1885, p. 22, pl. 3, fig. 6. Type locality: Cosquín, Córdoba Province, Argentina.

RANGE: Catamarca, Córdoba, La Rioja, Mendoza, Salta, and Tucumán provinces of Argentina.

DIAGNOSIS: *Homonota whitii* differs from all other members of the genus in possessing a shorter rostral (height slightly less than one-half of its width) and greatly enlarged, rectangular subcaudals (fig. 11B).

DESCRIPTION: Snout moderately long, somewhat depressed; eye large; height of rostral slightly less than one-half of its width; rostral crease deep, longer than one-half of height of rostral; dorsolateral margins of rostral only slightly angulated dorsomedially, almost horizontal (fig. 2E); internasal absent, supranasals meeting on midline; nostril moderately large; five to eight (6.8) supralabials, very gradually decreasing in height posteriorly, first bordering nostril; five to seven (6.0) enlarged scales between postnasals and preocular granules; 13 to 14 (13.5) interorbital scales; mental broader than long; postmentals enlarged, two bordering mental; five to six (5.5) infralabials; occipital and neck scales small, almost flat; external ear opening a diagonal slit, with its axis at a 45-degree angle, its dorsal border above angle of jaw, with slight denticulation more obvious on posterior margin; all scales smooth; dorsal body surface covered with moderately large, imbricate, cycloid scales, one-half as large as ventrals (fig. 8); vertebral series of scales slightly smaller than those paravertebrally, scales on anterior part of body uniform in size; 50 to 56 (53.0) scales paravertebrally between axilla and groin; 55 to 58 (57.0) scales around midbody; ventral body scales not forming regular longitudinal rows; dorsal surface of arm covered with very large, imbricate, cycloid scales, those below almost granular; palmar tubercle moderately enlarged; digits long, straight, distal portions round in cross section; proximal subdigital lamellae quadrangular, distally becoming square and then quadrangular again; claws moderately long and curved; distal margin of terminal subdigital plate greatly indented or completely divided into two lateral scales; fourth finger with 13 to 15 (13.8) subdigital lamellae; posterior surface of thigh covered with granular scales, all other surfaces with enlarged, imbricate, cycloid scales; fourth toe with 16 to 17 (16.5) subdigital lamellae; tail cylindrical, covered dorsally with smooth, imbricate, cycloid scales almost twice as large as those of dorsal body region; subcaudals greatly enlarged and rectangular (fig. 11B), bordered by single scale; single diagonal row of two enlarged cloacal scales lying slightly below dorsolateral extreme of vent crease.

The following measurements were taken from A.M.N.H. No. 65176: snout-to-vent length, 32.5; head length, 8.6 (26.4); head width, 6.0 (18.5); snout length, 3.3 (10.1); distance from eye to ear, 2.8 (8.6); height of eye, 1.6 (4.9); diameter of orbit, 2.3 (7.1); distance from axilla to groin, 14.8 (45.5); length of forelimb, 10.2 (31.4); length of fourth finger, 3.6 (11.1); length of hind limb, 13.7 (42.2); length of fourth toe, 4.1 (12.6).

Dorsal ground color brownish white; all labials, rostral and mental with heavy concentrations of brown chromatophores; dorsal surface of head with sparse brown marbling; faint indication of brown eye bar

FIG. 8. *Homonota whitii* (A.M.N.H. No. 65176). Scale equals 10 mm.

originating at tip of snout and passing through center of eye; vertebral area, two to four scales in width, devoid of dense brown chromatophores, all other dorsal surfaces with irregular dark brown marbling; heaviest concentrations of pigment along free margins of dorsal body scales, centers much lighter; all ventral surfaces covered with brown smudges and sparsely scattered brown chromatophores.

SPECIMENS EXAMINED: Argentina: Córdoba Province: Achiras (A.M.-N.H. No. 65176), Cosquín [holotype, B.M.(N.H.) No. 1946.8.23.40], and Cruz del Eja, 600 meters [B.M.(N.H.) No. 1902.5.22.3]. Mendoza Province: Outer valleys of Andes, 2500 meters [B.M.(N.H.) Nos. 1903.-12.21.1, 1903.12.21.2].

ADDITIONAL RECORDS: Argentina: Catamarca Province: Catamarca. Córdoba Province: Córdoba. La Rioja Province: Chilecito and La

Rioja. Salta Province: Salta. Tucumán Province: Lillo.

REMARKS: *Homonota whitii* is known from the Tropical Deciduous Forest and Desert Scrub Zones as outlined by Smith and Johnston, (1945; see table 1 of the present paper).

Homonota gaudichaudii (Duméril and Bibron)

Gymnodactylus gaudichaudii DUMÉRIL AND BIBRON, 1836, p. 413. Type locality: Coquimbo, Coquimbo Province, Chile.

Gonatodes gaudichaudii: WERNER, 1898, p. 247.

RANGE: West coast of Chile between latitudes 25° and 30° S.

DIAGNOSIS: *Homonota gaudichaudii* differs from all other members of the genus in the absence of a rostral crease and in possessing fewer than 12 subdigital lamellae on the fourth finger.

DESCRIPTION: Snout long, slightly pointed; head somewhat depressed; eye large; height of rostral one-half or slightly more than one-half of its width; rostral crease absent; dorsolateral margins of rostral almost horizontal, only slightly angulated dorsomedially (fig. 2F); single internasal present, supranasals not meeting on midline (M.C.Z. No. 56248 lacks an internasal and the supranasals meet on the midline, apparently an anomalous condition); nostril moderately large; five to six (5.7) supralabials, very gradually decreasing in height posteriorly, first may be excluded from nostril; seven to 10 (8.7) enlarged scales between postnasals and preocular granules; 20 to 22 (21.5) enlarged interorbital scales; mental broader than long; postmentals greatly enlarged, two bordering mental; five to six (5.8) infralabials; three to four (3.1) scales bordering first infralabial; occipital, temporal, and neck regions covered with large granular scales; external ear opening small, perfectly round, at level of angle of jaw, marginal denticulation variable, in some specimens completely obscuring aperture; all scales smooth; dorsal body scutellation homogeneous (fig. 9), consisting of small, slightly conical, imbricate scales, three to four times smaller than ventrals; 80 to 86 (83.6) scales paravertebrally between axilla and groin; 63 to 64 (63.3) scales around midbody; ventral surfaces of body covered with very large, imbricate, cycloid scales, forming regular longitudinal rows; change from small, conical dorsal scales to large, cycloid ventrals very abrupt along ventrolateral margin of body; dorsal surface of arm covered with large, imbricate, cycloid scales, ventral surfaces almost granular; palmar tubercle greatly enlarged and swollen; digits moderately long, straight, round in cross section; proximal subdigital lamellae large and quadrangular, immediately becoming smaller distally; claws short, strongly curved, not projecting much beyond claw sheath; terminal subdigital plate com-

pletely divided into two lateral scales; fourth finger with nine to 10 (9.8) subdigital lamellae; posterior surface of thigh covered with granular scales, all other surfaces with enlarged, imbricate, cycloid scales; fourth toe with 11 to 15 (12.8) subdigital lamellae; tail cyclindrical, covered dorsally with smooth, imbricate, cycloid scales, three to four times as large as those covering middorsal body surface; series of slightly enlarged subcaudals, bordered laterally by one large or two small scales, regularly alternating this sequence (fig. 11A); two to three enlarged irregularly placed cloacal scales lying below dorsolateral extreme of vent crease.

The measurements of M.C.Z. Nos. 56248, 56246, and 21922 are as

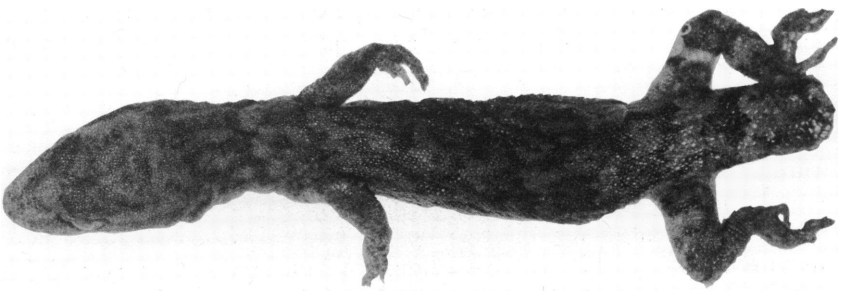

FIG. 9. *Homonota gaudichaudii* (M.C.Z. No. 56248). Scale equals 10 mm.

follows: snout-to-vent length, 34.0, 25.7, 35.1; head length, 8.4 (24.7), 6.9 (26.8), 8.9 (26.4); head width, 5.9 (17.3), 5.0 (19.5), 6.5 (18.5); snout length, 3.0 (8.8), 2.7 (10.5), 3.4 (9.7); distance from eye to ear, 3.1 (9.1), 2.4 (9.3), 3.2 (9.1); height of eye, 1.9 (5.6), 1.5 (5.8), 2.0 (5.7); diameter of orbit, 2.2 (6.5), 1.9 (7.4), 2.2 (6.3); distance from axilla to groin, 14.0 (41.3), 11.2 (43.6), 15.7 (44.7); length of forelimb, 9.9 (29.1), 8.4 (32.7), 11.2 (31.9); length of fourth finger, 2.0 (5.8), 2.0 (7.8), 2.3 (6.5); length of hind limb, 13.1 (38.6), 11.3 (43.9), 14.5 (41.3); length of fourth toe, 3.1 (9.1), 2.8 (10.9), 3.7 (10.5).

Dorsal ground color brown; amount of brown chromatophores on rostral, labials, and mental variable; indistinct bar passing through center of eye; dorsal surfaces covered with very dense, dark brown marbling, becoming concentrated into rather regular, ventrally incomplete, brownish black bands on tail; tail bands one to two scales wide, each separated by interspaces of six to nine light brown scales; all ventral

surfaces brownish white, with rather densely scattered brown chromatophores, some ventral scales, particularly those of palms and soles, completely grayish brown.

SPECIMENS EXAMINED: Chile: Coquimbo Province: Coquimbo (P.M.-N.H. No. 2327, holotype; M.C.Z. Nos. 21920–21922), near Coquimbo (M.C.Z. Nos. 56246, 56248), and Punta Tacho, south of Coquimbo (A.M.N.H. No. 64617).

ADDITIONAL RECORDS: Chile: Antofagasta Province: Taltal Beach, between Taltal and Paposo. Coquimbo Province: El Tofo, 60 kilometers north of Coquimbo, island in harbor of Totoralillo (north of Coquimbo), and Peninsula of Totoralillo, a few kilometers south of Coquimbo.

REMARKS: Primarily on the basis of foot and digit type and general habitus, Werner (1898) placed the diminutive *gaudichaudii* in the sphaerodactylid genus *Gonatodes*. Werner's action was probably prompted by Boulenger (1885, p. 63) who hesitated in referring *gaudichaudii* to *Gymnodactylus* and remarked that it was similar to *Gonatodes*. An osteological examination reveals that *gaudichaudii* is strikingly different from the members of the Sphaerodactylidae in possessing a splenial in the lower jaw and cloacal bones (and associated sacs).

Capurro and Codoceo (1950) reported that *Homonota gaudichaudii* occupies a supralittoral habitat. It is possible that it extends into the Pacific Coastal Desert (Smith and Johnston, 1945; see table 1 of the present paper).

Homonota dorbignii (Duméril and Bibron)

Gymnodactylus dorbignii DUMÉRIL AND BIBRON, 1836, p. 418. Type locality: along the Rio Grandé, at Pampa Ruiz (between Vallé Grandé and Pescado), Chuquisaca Department, Bolivia.
Cubina d'orbignii: GRAY, 1845, p. 175.
Gymnodactylus orbignyi: D'ORBIGNY, 1847, p. 7.
Gymnodactylus d'orbignyi: D'ORBIGNY, 1847 (atlas), pl. 2, figs. 1–5.
Gymnodactylus dorbignyi: BOULENGER, 1885, p. 33.

RANGE: Known from central and northern Chile and south-central Bolivia.

DIAGNOSIS: *Homonota dorbignii* differs from all other members of the genus in possessing a ⅄-shaped rostral crease, three internasals, enlarged lenticular scales irregularly placed on the dorsum, and undifferentiated subcaudals.

DESCRIPTION: Snout long, relatively pointed; head slightly convex; eye large; height of rostral one-half of its width, rostral crease shallow, ⅄-shaped, slightly less than one-half of rostral height; dorsolateral

margins of rostral slightly angulated dorsomedially (fig. 2G); three internasals, supranasals not meeting on midline; nostril large; seven supralabials, gradually decreasing in size posteriorly, first bordering nostril; seven to nine (8.3) scales between postnasals and preocular granules; 16 to 18 (17.0) enlarged interorbital scales; mental as broad as long; postmentals greatly enlarged, two bordering mental; seven to eight (7.7) infralabials; two scales bordering first infralabial; temporal and dorsal and lateral neck regions covered with moderately small, conical granules; external ear opening a small oval slit, with its axis at approximately a

FIG. 10. *Homonota dorbignii* (P.M.N.H. No. 2330a). Scale equals 10 mm.

60-degree angle, its dorsal border extending above angle of jaw, all margins without denticulation; dorsal body scutellation heterogeneous (fig. 10), consisting of (a) small, smooth, flattened scales with a slight tendency toward imbrication and (b) irregularly scattered, enlarged, smooth, imbricate, lenticular scales; lenticular scales absent from midline, conspicuously larger laterally and separated by one to three small, flattened scales; lenticular scales as large as or slightly smaller than ventrals; 72 to 79 (74.6) scales immediately adjacent to midline between axilla and groin; 75 to 84 (80.7) scales around midbody 26 to 30 (28.0) ventrals, 35 to 43 (40.3) small dorsal scales, and 11 to 14 (12.3) enlarged lenticular dorsal scales; venter covered with moderately large, imbricate, cycloid scales, forming slightly irregular longitudinal rows; throat covered with small, conical granules; dorsal surface of arm covered with small, conical granules; posterior surface of arm covered with large, smooth,

imbricate, cycloid scales, ventral surfaces with slightly smaller, almost conical scales; palmar scales absent; digits long and straight; claws very long and straight; subdigital lamellae quadrangular, not greatly enlarged proximally; terminal subdigital plate divided into two lateral scales; fourth finger with 13 to 15 (14.2) subdigital lamellae; dorsal surface of leg covered with large, smooth, imbricate, cycloid scales; posterior surface of thigh covered with moderately large, conical granules; fourth toe with 15 to 17 (15.8) subdigital lamellae; tail covered dorsally with large, imbricate, cycloid scales, equaling size of enlarged dorsals; subcaudals undifferentiated, only slightly larger than those laterally; single diagonal row of two to five enlarged cloacal scales lying above dorsolateral extreme of vent crease.

The measurements of P.M.N.H. Nos. 6755, 2330a, 2330b are as follows: snout-to-vent length, 34.2, 44.5, 34.8; head length, 9.0 (26.0), 11.2 (25.2), 9.6 (27.6); head width, 6.8 (19.9), 7.8 (17.5), 7.0 (20.5); snout length, 3.7 (10.8), 4.5 (10.1), 3.9 (11.2); distance from eye to ear, 3.0 (8.8), 3.5 (7.9), 2.9 (8.3); height of eye, 2.5 (7.3), 2.8 (6.3), 2.4 (6.9); diameter of orbit, 3.1 (9.1), 3.5 (7.8), 3.3 (9.5); distance from axilla to groin, 15.9 (46.5), 22.0 (49.5), 15.0 (43.0); length of forelimb, 12.2 (35.7), 16.0 (36.0), 13.5 (38.8); length of fourth finger, 3.6 (10.5), 3.2 (7.2), 3.5 (10.5); length of hind limb, 15.3 (44.7), 19.1 (43.0), 15.9 (45.6); length of fourth toe, 3.8 (11.1), 4.8 (10.8), 4.1 (11.8).

All the original specimens of Duméril and Bibron (1836) are nearly uniform whitish gray, with the exception of very faint brownish blotches on the dorsum. These blotches, although obscure, are in contrast to the yellow vertebral stripe and grayish black dorsum shown by d'Orbigny (1847, pl. 2, fig. 1). There is no suggestion of striping in any of the specimens at hand. Boulenger (1885) stated that the border of the eyelid was pure white and the ventral surfaces were grayish white.

Specimens Examined: Bolivia: Chuquisaca Department: Along the Rio Grandé, at Pampa Ruiz (between Vallé Grandé and Pescado) (P.M.N.H. No. 6755, lectotype). Chile: Tarapaca Province: Sables de Arica (P.M.N.H. No. G304/2). Valparaiso Province: Valparaiso (P.M.N.H. Nos. 2330a, 2330b).

Remarks: The original series of specimens used by Duméril and Bibron (1836) in the description of *Homonota dorbignii* were from La Laguna Province (P.M.N.H. No. 6755, collected by Alcide d'Orbigny) and Valparaiso (P.M.N.H. Nos. 2330a–2330c, collected by Gaudichaud), Chile. It is now understood that La Laguna Province did not refer to Chile as Duméril and Bibron suggested, but to the then recognized political unit of Bolivia. Duméril and Bibron did not designate a holotype

from the original series of specimens; however, Duméril (1851) restricted the type locality to the Rio Grandé (at Pampa Ruiz) between Vallé Grandé and Pescado, Bolivia (=La Laguna Province), and thus P.M.-N.H. No. 6755 follows as the lectotype. If it were not for the detailed description of the Bolivian locality given by d'Orbigny (1847), one might suspect it to be erroneous, as all other records are west of the Andes.

The original Valparaiso series consisted of three specimens (P.M.N.H. Nos. 2330a–2330c). The smallest of the three (P.M.N.H. No. 2330c) clearly belongs to *Phyllodactylus*.

The Pampa Ruiz and Valparaiso specimens are in a very poor state of preservation. The dorsal squamation is difficult to differentiate because of the general softness of the body parts. Although the characters associated with the digits are obscured by extreme desiccation, it appears that the anterior borders of the subdigital lamellae are not emarginate as figured by d'Orbigny (1847, pl. 2, figs. 4–5).

Homonota dorbignii is known from the Pacific Coastal Desert and the transition area with the Subantarctic Beech Zone as outlined by Smith and Johnston (1945). The Bolivian record is from the Tropical Deciduous Forest. (See table 1.)

INTERSPECIFIC RELATIONSHIPS

Within *Homonota* the interspecific relationships are not easily interpreted owing to the great diversity of types of scutellation and general body proportions. Only the arrangement and form of the scales that cover the dorsal body surfaces appear to indicate natural affinities and are used as the sole criteria for establishing the following three intrageneric groups (fig. 12): (Group I) *H. borelli*, *H. uruguayensis*, *H. horrida*, and *H. fasciata*, characterized by a heterogeneous dorsal body scutellation of enlarged, keeled scales forming regular longitudinal rows and separated by smaller, keeled or smooth scales; (Group II) *H. darwinii*, *H. underwoodi*, *H. whitii*, and *H. gaudichaudii*, characterized by a homogeneous dorsal body scutellation of smooth scales; and (Group III) *H. dorbignii*, characterized by a heterogeneous dorsal body scutellation of small granules and enlarged, smooth, irregularly placed, lenticular scales.

The species of Group I agree rather closely with one another in all general body proportions and meristic characters except in the size and imbrication of the enlarged, keeled scales that form the regular longitudinal rows and in the size, shape, and amount of denticulation that surrounds the margins of the external ear opening. The various conditions of the enlarged keeled scales of the longitudinal rows can be divided into

three types: (1) scales very large and non-imbricate, *H. horrida* and *H. fasciata;* (2) scales very small and non-imbricate, *H. borelli;* and (3) scales very large and imbricate, *H. uruguayensis*. In *H. borelli* the external ear opening is extremely different from that of the other members of Group I. The opening is small, perfectly round, and devoid of marginal denticulation. In *H. uruguayensis*, *H. horrida*, and *H. fasciata* the opening is large and oval. All margins are heavily denticulate in *H. horrida* and in many cases completely obscure the aperture or reduce it to a vertical slit. Denticulation is found only on the anterior margin in *H. fasciata* and

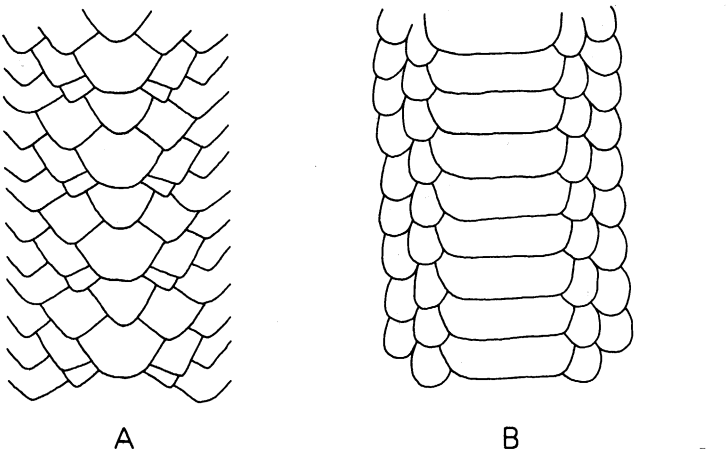

FIG. 11. Arrangement and shape of subcaudals in *Homonota*. A. Condition found in *borelli*, *uruguayensis*, *horrida*, *fasciata*, *darwinii*, *underwoodi*, and *gaudichaudii*. B. Condition found in *whitii*.

is completely absent in *H. uruguayensis*. The differences between *H. horrida* and *H. fasciata* are mainly of degree, and the species clearly represent recent departures within Group I. *Homonota uruguayensis* and *H. borelli* appear to be early offshoots from the evolutionary line leading to H. *horrida* and *H. fasciata*. The general scalation of *H. borelli* is more similar to that of *H. horrida* and that of *H. fasciata* than to that of *H. uruguayensis* and suggests a somewhat closer relationship.

Within Group II *Homonota darwinii*, *H. underwoodi*, and *H. whitii* exhibit many similarities in general structure and form other than the homogeneous dorsal body scalation. *Homonota whitii* appears to have been the earliest derivative from the evolutionary line that led to the *darwinii-underwoodi* complex by reason of its far greater number of morphological differences. The differences in the shape and height of the rostral shield,

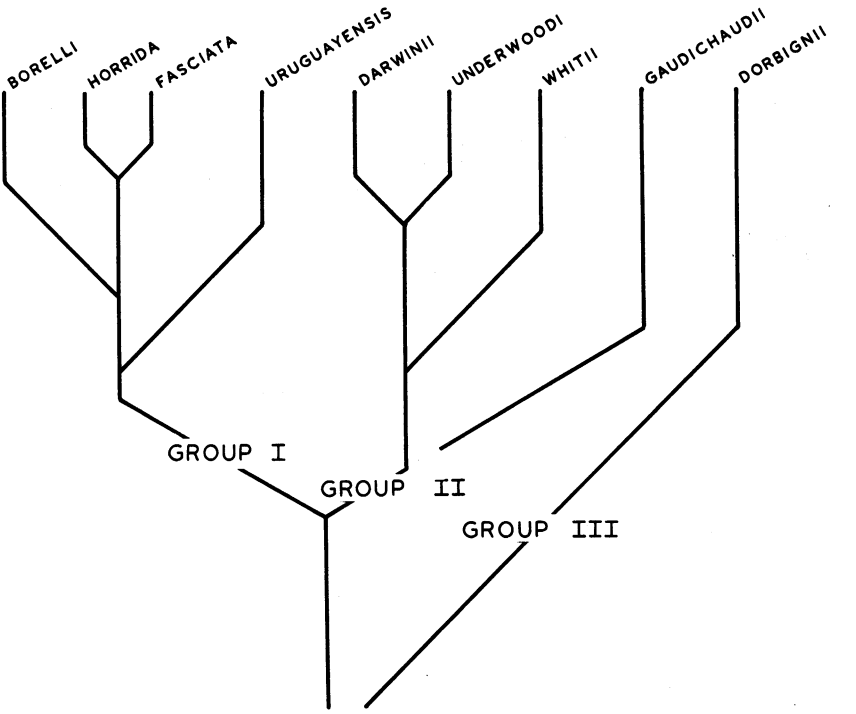

FIG. 12. A dendrogram of the genus *Homonota*.

the length of the fourth finger and toe, the number of interorbital scales and scales paravertebrally between the axilla and groin, and the size and shape of the subcaudals serve to distinguish it from both *H. darwinii* and *H. underwoodi*. A character by character comparison of *H. whitii* to *H. darwinii* and *H. underwoodi* reveals that no specific relationship can be made, as it exhibits almost equal measurable and meristic similarities to both species. As is noted in the species descriptions, *H. darwinii* and *H. underwoodi* exhibit a small number of obscurely keeled, cycloid scales on the dorsum above the pelvic region. These patches of scales, although not forming regular longitudinal rows, appear to represent remnants of the primitive condition as exemplified by Group I, more specifically that of *H. uruguayensis*. If Groups I and II represent natural assemblages of species, and the imbrication of the keeled scales has not been arrived at in parallel, we must consider that *H. uruguayensis* lies closer to the ancestral stock of *H. darwinii* and *H. underwoodi* than do the other members of Group I. In *H. darwinii* and *H. underwoodi* the similarities in the size of the

dorsal body scales, rostral height, and shape and number of granules that border the postmentals appear to indicate a close relationship and probably a common origin.

Superficially, the dorsal body scutellation of *Homonota gaudichaudii* resembles that of Group II; however, the scales are much smaller and approach an almost granular condition. In addition to the small scales that cover the dorsum, *H. gaudichaudii* exhibits other peculiar morphological features unique to the genus, such as the absence of a rostral crease and greatly reduced numbers of subdigital lamellae which are somewhat swollen proximally. In view of these marked deviations from the general morphological composition of the genus, *H. gaudichaudii* is only tentatively placed in Group II, and even its generic status must remain a somewhat questionable matter until more detailed studies can be undertaken. It is interesting to note that the peculiar supralittoral habitat of *H. gaudichaudii* (Capurro and Codoceo, 1950) complements the unique combination of morphological features which it exhibits.

The placing of *Homonota dorbignii* in a separate group quite apart from the other members of the genus appears to be fully justified. In addition to its unique dorsal body scalation, it also exhibits a 人-shaped rostral crease, a larger number of scales between the nasals and around the midbody, undifferentiated subcaudals, and a longer forelimb. It is the variability of these same characters in the other species, although not approaching the extremes found in *H. dorbignii*, that reduces their significance and precludes the erection of a separate taxon. The relationships of *H. dorbignii* to the other members of the genus is obscure, and its final position must remain in doubt until detailed osteological comparisons can be made.

KEY TO THE SPECIES OF *HOMONOTA*

1. Rostral crease 人-shaped; subcaudals undifferentiated..... *dorbignii*
   Rostral crease not 人-shaped; subcaudals enlarged..... 2
2. Dorsal body surfaces covered with regular longitudinal rows of keeled scales 3
   Dorsal body surfaces not covered with regular longitudinal rows of keeled scales 6
3. Enlarged keeled scales of longitudinal rows imbricate; general coloration grayish black ..... *uruguayensis*
   Enlarged keeled scales of longitudinal rows not imbricate; general coloration brownish yellow 4
4. External ear opening small, round; keeled scales of longitudinal body rows poorly developed; 25 or more scales in primary paravertebral row between axilla and groin ..... *borelli*

External ear opening large, oval; keeled scales of longitudinal body rows strongly developed; fewer than 25 scales in primary paravertebral row between axilla and groin 5

5. Fifteen or more enlarged interorbital scales; denticulation of external ear opening not on all margins; anterior gular scales small, granular.... *fasciata*

Fewer than 15 enlarged interorbital scales; all margins of external ear opening denticulate; anterior gular scales large, platelike..... *horrida*

6. Subcaudals greatly enlarged, rectangular, lateral margins in every case bordered by only one scale..... *whitii*

Subcaudals not greatly enlarged, triangular or round, lateral margins bordered by one large or two small scales, regularly alternating this sequence.. 7

7. Dorsal body scales small, almost granular, 78 or more between axilla and groin, three to four times smaller than ventrals; rostral crease absent ..... *gaudichaudii*

Dorsal body scales large, flat, fewer than 78 between axilla and groin, less than three times smaller than ventrals; rostral crease present..... 8

8. Belly immaculate (devoid of all chromatophores); 17 or more enlarged interorbital scales..... *underwoodi*, new species

Belly covered with sparsely scattered chromatophores; fewer than 17 enlarged interorbital scales..... *darwinii*

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