

The Journal of the Department of Agriculture OF PORTO RICO

Published Quarterly: January, April, July and October of each year.

MELVILLE T. COOK, EDITOR

VOL. XV

JULY 1931

No. 3.

THE SPHAERODACTYLS OF PORTO RICO, CULEBRA AND MONA ISLANDS

CHAPMAN GRANT, MAJOR, U. S. ARMY *

INTRODUCTION

The Sphaerodactyl is little known to many collectors. He is hard to find, harder to catch and still harder to classify. That is, unless you enjoy working in the open and turning over innumerable rocks or scraping seeming acres of dead leaves. Hard to catch unless you can make up your mind to grab a fraction of a second sooner than the uncovered prize makes up his mind to dart; and he is a creature of quick decision and action. Hard to classify unless you have a large series to work with, thus avoiding the confusion of growth phases and sexual dichromatism. I know of no genus that more amply repays finding, catching and classifying than the sprightly little Sphaerodactyl.

The most valuable specific characters of these lizards at this place, using large series are:

1. Sexual dichromatism.
2. Keels or absence thereof on scales of underside.
3. Form and size of scales of snout.
4. Average adult size.
5. Color, pattern and proportions.
6. Color and pattern of newly hatched young.
7. Geographical and environmental distribution.

The male of all species has an escutcheon about five to seven scales long by ten wide, of very smooth, unkeeled scales on the lower belly, but not reaching the vent by five or six rows. It extends onto the thighs. It is obvious in even the smooth bellied species and makes sex determination easy. See Plate XX.

The egg is laid in loose dirt under or near the edge of a rock or under trash. Apparently only one is deposited at one place. The

* Major Grant has brought together a large herpetological collection while on foreign duty with the 65th Infantry in Porto Rico.

egg is nearly the size of the head so I believe a considerable time elapses between deposits. It is elliptical in outline. The shell is brittle in contrast to other lizard eggs of the vicinity. The unlaidd egg can be clearly seen through the abdominal wall. The incubation period is about eight weeks.

The local name for the *Sphaerodactyl* is "Santa Lucia". Other names are too local to be considered.

I find no specific differences in the scale rows or labials which I have omitted in the descriptions. I have followed Barbour's "standard distance", i.e. the number of dorsal scales contained in the distance, snout to center of eye. I find the snout scales more specific and count the first row of large scales in front of eyes across snout and from this line to rostral.

Most of the species have circumscribed distribution. I believe that fortuitous distribution is exceptional. The forms are plastic and I believe that almost every island has a specific form.

I have drawn up two keys to supplement one another for the easy classification of the Porto Rican species and another one for interpolation in Dr. Thomas Barbour's key in his "*Sphaerodactylus*", Mem. Mus. Comp. Zoo., 1921.

It will be noted that the five new species of *Sphaerodactyls* herein described fall into a small subdivision of Dr. Barbour's key. This might suggest that a large series might show intergrades and that I have described variants of one or two species. I have large series and the lines of demarcation are definite and abrupt. There is no close similarity between the species and no great variation within the various species, as is more clearly shown in my keys than in the interpolation into Dr. Barbour's key. Furthermore, there is no close approximation to forms from other islands. Some writers have mistaken sexual dichromatism for variation.

BIBLIOGRAPHY

1904. Stejneger, Leonhard. The Herpetology of Porto Rico. U. S. Nation. Mus. No. 129. pp 602-607. Figs. 46-52.
1921. Barbour, Thomas. *Sphaerodactylus*. Mem. Mus. Comp. Zoo. Vol. XLVII No. 3.
1928. Schmidt, Carl Patterson. Amphibians and Land Reptiles of Porto Rico. . . N. Y. Acad. Sci. Scientific Survey of Porto Rico and the Virgin Islands.
1930. Barobur, Thomas. A list of Antillean Reptiles and Amphibians. Zoologica. Soc., The Zoo. Park., N. Y., Vol. XI No. 4.

SQUAMATION KEY TO THE SPHAERODACTYLS OF PORTO RICO

- A. Belly scales strongly keeled and pointed-----*S. klauberi*
 AA. Belly scales smooth and rounded.
 B. Scales on snout even in size, elongate and
 keeled-----*S. macrolepis*
 BB. Scales on snout, except first two rows, elon-
 gate, even in size and keeled.
 C. Scales on head strongly keeled---*S. danforthi*
 CC. Scales on head weakly keeled ---*S. monensis*
 BBB. Scales on snout hexagonal, not elongate.
 C. Scales on snout keeled-----*S. nicholsi*
 CC. Scales on snout smooth.
 D. Scales on snout wider
 than long; twice as
 wide as those on head,
 uneven -----*S. townsendi*
 DD. Scales on snout hexa-
 gonal, regular-----*S. roosevelti*

COLOR, SIZE, MARKING AND LOCALITY KEY OF SPHAERODACTYLS
 OF PORTO RICO

- A. Scapular pattern prominent.
 (a) Scapular "mask" pattern vivid. Perfect tail tipped with white. Female with "target" head pattern; head of male plain. Sacral pattern on female only, if present, and greatly subordinated to scapular pattern. Body usually evenly spotted with brown scales in broken lines, more pronounced and larger in female. Adult average 60 mm. Not found in exceptionally dry or very humid situation. Porto Rico---*S. macrolepis*
 (b) Scapular "mask" pattern less pronounced. Never pronounced white tip to tail. Female more pronounced head pattern and larger body marks than in *S. macrolepis*. Males speckled or red head; not plain as in *S. macrolepis*. Under side of head except in red-head males, black and white speckled ending abruptly at throat. Adult averages 50 mm. Culebra Island-----*S. danforthi*

(c) Scapular pattern large, but dull, tending to assume "spectacle" shape. Above gray; below white. No sexual dichromatism. Rows of brown dots on back. Males have swollen heads and necks. Male escutcheon reduced in size. Adult averages 50 mm.

Mona Island-----*S. monensis*

AA. Scapular pattern reduced or wanting.

B. Very dark brown. Seldom any scapular pattern and then merely two light dots. Underside of tail yellow or orange, seldom brown. Belly brown or lemon. Adult averages 60 mm. Found in humid mountain situations-----

S. klauberi

BB. Above gray or light brown. Underside white or gray.

C. Above light gray. Females with longitudinal dark and white stripes. Belly white. Adult averages 70 mm. Head large, heavy, obtuse. Found on SW corner of Porto Rico-----

S. roosevelti

CC. Brown above, belly gray. Adult averages not over 50 mm.

D. White dots of scapular pattern usually present. Sacral pattern usually very clear. Tail usually lighter color than body. Adult averages 40 mm. Found on SW corner of Porto Rico-----

S. nicholsi

DD. No trace of scapular pattern. Sacral pattern usually indicated. Practically no markings. Adult average 50 mm. Found on NE corner of Porto Rico and Caja de Muertos island-----

S. townsendi

KEY FOR INTERPOLATION IN "SPHAERODACTYLUS", BARBOUR, 1921,
Page 226, line 14.

- c 2. Dorsals keeled and larger, no differentiated mid-dorsal zone.
 - * * * * *
 - e 2. Five to seven scales "*1."
 - * * * * *
 - f 1½. Five to 5½ scales, species large (70 mm.), striped lengthwise or plain-----*S. roosevelti*
 - f 2. More than 5 scales.
 - g-1. Scales of belly keeled-----*S. klauberi*
 - g-2. Scales of belly and chest smooth-----*S. nicholsi*
 - g 1. Scales of chest keeled, belly smooth.
 - x 1. Scales on snout hexagonal and smooth-----*S. townsendi*
 - x 2. Scales on snout elongate, even in size and keeled -----*S. macrolepis*
 - y 1. Scales on head strongly keeled--*S. danforthi*
 - y 2. Scales on head weakly keeled ---*S. monensis*

*1. "... scales" refers to the number of dorsal scales contained in length from snout to center of eye.

NOTE. A letter from Dr. Loveridge dated April 9, 1931, in answer to my query, states that *S. notatus* has chest smooth. It is therefore not close to any of the new species described herein and does not belong where shown in Dr. Barbour's key.

***Sphaerodactylus roosevelti* sp. nov.**

TYPE: No. 864, male. Chapman Grant Collection. Near Pariguera, Porto Rico; 29 Dec., 1930; collector, Chapman Grant.

DIAGNOSIS: The largest species of the region. Marked sexual dichromatism. Gray above, white beneath. Head heavy, salamander-like. Dorsals strongly keeled, belly smooth, feebly keeled collar.

HABITAT: The extreme southwestern corner of Porto Rico where I have found it only in dry, rotten logs. Vegetation scant.

PROPORTIONS: About 10 mm. longer than *S. macrolepis* or *S. klauberi*, and much heavier. The head blunt, almost salamander-like. Body thick and heavy, in which it differs from all the other species of Porto Rico. About 70 mm. in length.

SQUAMATION: Scales 5 in distance from snout to center of eye.

UPPER SIDE: Scales on snout smooth, hexagonal, changing between the eyes to slightly elongate and keeled, which continue to the head, all very even in size, changing suddenly at nape to large, very pointed, keeled, imbricated scales. Scales across snout in front of eye 16. This line to snout 9.

LOWER SIDE: Scales at point of jaw large, regular, followed by smaller rounded scales which suddenly enlarge into imbricated, round scales at neck, where there is occasionally a feebly keeled collar, then large, smooth, rounded belly scales.

ORBITAL SPINE: Prominent but not as long as head scales. Gray with a black tip.

COLOR AND MARKINGS: FEMALES: Above three white stripes, beginning, one between eyes and one behind each eye. Another beginning below each eye and all extending full length of body and tail. On head, stripes bordered with black. Brown between black stripes. On body and tail alternate gray and darker stripes each about three scales wide. Below white.

MALES: Above clear gray. Beginning at neck 5 faint yellowish stripes extend length of body and onto tail. Below white.

Newly hatched young not observed.

RELATIONSHIP: This species stands alone, due to its heavy proportions and lack of color. It differs greatly from *S. macrolepis*, *S. vincenti* and *S. monilifer*, the only heretofore described species with keeled chest scales.

REMARKS: Specimens taken, 4. Named in honor of Theodore Roosevelt, Jr., Governor of Porto Rico.

***Sphaerodactylus nicholsi* sp. nov.**

TYPE: No. 912, male. Chapman Grant Collection. Near Ensenada, Porto Rico, 31 Dec., 1930; collector, Chapman Grant.

DIAGNOSIS: The smallest species, averages 40 mm. Scapular pattern reduced to white dots. Scales on snout hexagonal, keeled. All underside smooth. No sexual dichromatism. Brown above with irregular lines of brown dots. "V" shaped pattern at root of tail.

HABITAT: Found in the extreme southwestern corner of Porto Rico under stones in very dry, exposed localities. Vegetation scant.

PROPORTIONS: This is the smallest of the Porto Rico Sphaerodactyls, averaging 40 mm. The general proportions are similar to *S. macrolepis*.

SQUAMATION: Scales 6 in distance snout to center of eye.

UPPER SIDE: Scales at snout large, uneven, hexagonal, keeled (except those in contact with rostral), twice the size of head scales. On head, feebly keeled, small, regular, changing abruptly at neck to large, imbricated, keeled scales with posterior margins pointed. Scales across snout in front of eye 10. This line to snout 5.

LOWER SIDE: At point of chin a group of large, hexagonal, bead-like, smooth scales, followed by very even, hexagonal small ones changing into imbricated smooth scales near neck and then suddenly into large, imbricated, smooth scales which continue several rows beyond vent, all with posterior margins rounded.

ORBITAL SPINE: About one-half the length of head scales.

COLOR AND MARKINGS: Brown above with 2 or 4 irregular broken lines of dark brown dots. Scapular pattern reduced to 2 light spots, each completely encircled by a narrow, dark ring. Sacral pattern almost always very clear, formed by 2 black lines joining at base of tail, bordered on the outside by a white "V". Tail frequently yellowish. Throat clear or dotted, belly clear gray, under side of tail usually light orange, sometimes gray speckled. Newly hatched young brown above without any markings. Lighter beneath, no markings. No sexual dichromatism in this species.

RELATIONSHIP: This species is unique because of its small size. It resembles *S. townsendi* in having large, coarse scales on the snout, but they are keeled in this species.

REMARKS: Specimens taken 57. Some contained mature eggs. Named in honor of John Treadwell Nichols. The nearest approach in appearance to heretofore described species is *S. vincenti*, Barbour, 1921, Plate 9 Fig. 3, which has scales half the size of *S. nicholsi* and a keeled collar.

Sphaerodactylus danforthi sp. nov.

TYPE: No. 1725, male, Chapman Grant Collection. 16 April, 1931, Culebra Island, Porto Rico; collector, Chapman Grant.

DIAGNOSIS: Pronounced sexual dichromatism. Adult averages 50 mm. Squamation as in *S. macrolepis*. Males less marked and females more than in *S. macrolepis*. The outstanding character is

the vividly speckled throat, black and white, stopping abruptly at neck.

HABITAT: Culebra Island and Louis Pena Key, Porto Rico.

PROPORTIONS: Similar to *S. macrolepis*, but averages 50 mm. *S. macrolepis* averages 60 mm.

SQUAMATION: Similar to *S. macrolepis*.

COLOR AND MARKINGS: MALES, RED-HEAD PHASE: Top and sides of head brick red, no markings. The red fades to brown in alcohol in a few days. Back, light brown with broken lines of fine dots extending on to tail. Underside nearly white to vent. Tail tinged with yellow and speckled with brown. 16 out of 67, or 22 per cent of the males were of this phase. These embrace males of from medium to adult size. The red head is not an exclusive adult coloration.

MALES, SPECKLED-HEAD PHASE: 49 of 65 males, or 78 per cent had heads speckled above but without target pattern. Under side of head black and white speckled, half and half, ending abruptly at throat. Rest of body as in red-head phase.

FEMALES: The 60 females have a large target pattern on head, usually a round black spot near occiput with a longitudinal black oval around it. A scapular pattern, less pronounced than in *S. macrolepis*, is followed by a series of black blotches along the back, or more frequently by five lines of large brown dots. Throat speckled as in speckled headed males. Remainder of body as in males.

YOUNG: 62 young are olive brown above with pattern clearly indicated. Lighter beneath. A trace of white tail tip and faint scapular dots which in *S. macrolepis* are decidedly white.

RELATIONSHIP: In general proportions this species is closest to *S. macrolepis* from which it differs in smaller size; coarser, darker pattern; males of two color phases; the greater degree of sexual dichromatism and the usually vividly speckled throat with the speckling stopping abruptly at neck. It differs greatly from *S. vincenti* and *S. monilifer*, the only other heretofore described species with keeled collar.

REMARKS: Barbour, "Sphaerodactylus", 1921, Plate 6, Fig. 2 shows a good representation of a female *S. danforthi*. His Fig. 3 resembles a female *S. macrolepis*. I gathered about 30 eggs in loose dirt under heaps of dead vegetation. The incubation period is about 8 weeks. The young are very active. Specimens taken 157. I believe that further study will show that two species are included in the above, as the red head males have larger scales than the others

and there are large scaled females, but I have not as yet definitely separated them. The *Sphaerodactyl* on Culebrita Island does not agree with those described above. A large series may prove of interest. Named in honor of Dr. Stuart T. Danforth.

***Sphaerodactylus klauberi* sp. nov.**

TYPE: No. 975, Male. Chapman Grant Collection. 11 Jan. 1931, El Yunque, Porto Rico; collector, Chapman Grant.

DIAGNOSIS: The only species in this region with keeled belly scales. Very dark brown above. Below dark brown or some shade of orange or yellow.

HABITAT: This species is found in the moist canyons of the higher mountains where the ground is saturated. It hides under stones or logs or is found within rotten logs.

PROPORTIONS: Similar in size and proportions to *S. macrolepis*, from which it differs in keeled belly scales and color.

SQUAMATION: Scales 6 in distance snout to center of eye.

UPPER SIDE: Scales at snout larger than on head, all pointed, elongated, keeled (except those bordering rostral), gradually enlarging at nape to the larger dorsals. Scales across snout in front of eyes 14, this line to snout 6.

LOWER SIDE: At point of chin, group of larger, even elongate, pointed, keeled (except those touching mental) scales, followed by similar smaller ones which gradually become larger towards belly. All elongated, keeled, imbricated and pointed, continuing for 5 or 6 scales below base of tail.

ORBITAL SPINE: One-half length of head scales. Not much larger than preceding prominent scales.

COLOR AND MARKINGS: Almost black above. Scapular pattern, if present, rudimentary and not obscured by dark back but reduced to two light, not white, dots. Under side dark, frequently tinted with a shade of lemon or orange. Under side of tail usually a deep orange but sometimes brown. Newly hatched young not observed. No sexual dichromatism in this species.

RELATIONSHIP: In general proportions this species is closest to *S. macrolepis*, from which it is easily distinguished by its keeled belly scales, absence of a distinct scapular pattern and by its very dark color.

REMARKS: Specimens taken 24. Differs widely from *S. goniorhynchus*, *S. fantasticus* and *S. microlepis*, the only other species with keeled bellies. Named in honor of Laurence M. Klauber.

Sphaerodactylus townsendi sp. nov.

TYPE: No. 1080, female. Chapman Grant Collection. 25 Jan., 1931, Cape San Juan, Porto Rico; collector, Chapman Grant.

DIAGNOSIS: No trace of scapular pattern. Sacral pattern usually indicated. Practically no markings. Average adult 50 mm. Scales on snout hexagonal, smooth, wider than long, uneven.

HABITAT: The promontories that jut out at the northeast extremity of Porto Rico and Caja de Muertos island. Vegetation, scant grass and cactus.

PROPORTIONS: Between the heavy *S. roosevelti* and the slender *S. macrolepis*. General proportions closest to *S. monensis* from which it differs in squamation and pattern.

SQUAMATION: Scales 6 in distance snout to center of eye.

UPPER SIDE: Scales at snout very large, uneven, smooth, hexagonal, wider than long, twice the diameter of those on head. On head, small, regular, elongated, keeled, gradually changing at neck to large, imbricated, keeled, pointed scales. Scales across snout in front of eyes 10. This line to snout 5.

LOWER SIDE: Scales at point of chin large, hexagonal, smooth, bead-like, followed by very even, hexagonal small ones, changing into imbricated scales near neck where there is occasionally a collar of feebly keeled scales, suddenly changing into large, imbricated, smooth scales which continue several rows below the vent. All imbricated scales with posterior margins rounded.

ORBITAL SPINE: Small, shorter than head scales, but prominent, since not preceded by large scales.

COLOR AND MARKINGS: Upper surface brown, lead gray in alcohol. Head minutely speckled but without pattern. No scapular pattern. Back uniform, or with a few broken rows of brown dots, frequently becoming distinct in the sacral region and joining at the base of the tail, forming a sacral pattern. Frequently a faint light line from the eye to the pelvis making the sacral pattern more distinct. Tail frequently with faint tinge of yellow. Chin faintly speckled, belly light gray or with a suggestion of orange. Newly hatched young solid brown above, lighter beneath. No sexual dichromatism in this species.

RELATIONSHIP: Closest to *S. monensis* from which it is clearly distinguishable by pattern and squamation. Differs greatly from the other keeled collar species.

Seventeen specimens from Caja de Muertos island averaged lighter underneath and fewer markings above. A large series may prove it to be a sub species.

REMARKS: Specimens taken 340. Named in honor of Charles Haskins Townsend.

Sphaerodactylus macrolepis Gunther

Synonymy omitted

DIAGNOSIS: Scales above strongly keeled; on snout, elongate, even, keeled. Below, smooth except for keeled collar. Scapular pattern vivid. Tail tipped with white. Sexual dichromatism. Average adult 60 mm.

HABITAT: Distributed in foci throughout Porto Rico except in localities of extreme drought or moisture. It is found under stones or piles of rubbish.

PROPORTIONS: Head small and pointed. Tail equal to length of head and body. Slender. About 60 mm. in length.

SQUAMATION: Scales 5 or 6 in distance, snout to center of eye.

UPPER SIDE: Scales at snout even, keeled (except those bordering rostral), elongate similar in shape and size to those on top of head which change suddenly at nape to the pointed, keeled, imbricated dorsals. Scales across snout in front of eyes 16, this line to snout, 7.

LOWER SIDE: At chin, a group of large, elongated scales followed by smaller ones, all feebly keeled to neck, where a collar of rounded keeled scales is followed by smooth, rounded belly scales.

ORBITAL SPINE: As long as head scale. Preceded by one or two prominent scales.

COLOR AND MARKINGS: Varies slightly, but is best known by its scapular pattern of a black blotch containing two livid white spots. Resembles a black mask. Back brown with six broken lines of dark brown scales to the tail, where they usually continue as irregular dark spots. The tip of a perfect tail is white, sometimes preceded by a black ring, but this marking is never regenerated and hence is rarely found in adults. Throat clear or dotted. Belly clear gray or yellowish. Underside of tail gray, brown or some shade of orange.

NEWLY HATCHED YOUNG: Black above, lighter beneath, with tip of tail white and two scapular white dots.

SEXUAL DICHROMATISM: Males: Head above, clear brown or finely speckled. Very rarely a faint trace of pattern. Spots on body smaller than on female. No sacral pattern. Speckled chin more frequent than in female.

FEMALES: Pronounced target pattern of a black spot near occiput surrounded by a longitudinal black oval. Rarely a female is seen without head pattern. Spots on body larger than on male. Some have sacral pattern. A few have finely speckled chins.

The dichromatism is not as pronounced as in *S. roosevelti* or *S. danforthi*. There is only a small percentage however, that might confuse a person unused to handling the species. After a short acquaintance the division into sexes can readily be made by color pattern without checking on the male escutcheon, which is, of course, clear and definite.

RELATIONSHIP: In general proportions this species is closest to *S. klauberi* and *S. danforthi*. The keeled belly scales and dark color of the former and the smaller size and different markings of the latter, make it very distinct.

REMARKS: Specimens taken 140. This species is best described and figured by Stejneger, 1904, Figs. 46-50. Schmidt, 1928 shows a female in his Fig. 26 A and a male in Fig. 26 B. He did not note the significance of the markings, attributing it to variation. Barbour, 1921, shows a female in Plate 6 Fig. 3. Fig. 2 resembles a female *S. danforthi*. Stejneger, 1904 shows a male in Fig. 51 and a female in Fig. 52. On Page 605 we find: "In the specimens collected in the white clay hills about three miles east of Ponce on April 16 (Nos. 27306-12) two similar types of coloration are also easily distinguishable, namely, those with uniform yellow heads without dusky markings but with the tail spotted like the back, and those with an unspotted ochraceous tail but a drab-colored head with a pattern, like Fig. 52, and longitudinal dusky marks on the back." Stejneger did not note that the two types of coloration corresponded with the sexes.

I believe that the above form is really *S. grandisquamis*, Stejneger, 1904, and that *S. macrolepis* is confined to St. Thomas and possibly other Islands. I hope to be able to prove this at a later date.

Sphaerodactylus monensis (Meerwarth)

- 1901 *Sphaerodactylus macrolepis a monensis* Meerwarth, Mitth. Naturh. Mus. Hamburg, XVIII, p. 20. Type locality, Mona Island; types, Hamburg Mus., Nos. 1207 a-b.
- 1904 *Sphaerodactylus monensis* (Meerwarth) Stejneger, U. S. Nat. Mus. p. 607.
- 1921 *Sphaerodactylus macrolepis* Gunther, Barbour, Mem. Mus. Comp. Zoo. p. 253.
- 1928 *Sphaerodactylus macrolepis* Gunther, Schmidt, N. Y. Acad. of Sci. Vol. X. Part I., p. 70-74.

1930 *Sphaerodactylus macrolepis* Gunther, Barbour. Zoologica, Vol. XI No. 4.

DIAGNOSIS: Medium size, 50 mm. Back gray, belly white. Scapular pattern distinct but pale. Sacral pattern crescent shaped. Belly smooth, chest feebly keeled. Male escutcheon much reduced. No sexual dichromatism. All scales on upper side of head are feebly keeled except for a patch between eyes which is strongly keeled.

HABITAT: Mona Island, Porto Rico.

PROPORTIONS: Similar to *S. townsendi* except large males have distended cheeks and necks. Differs in pattern and squamation.

SQUAMATION: More feebly keeled throughout than any other species in this region. Belly smooth, chest feebly keeled. Male escutcheon much reduced. First two rows of scales on snout hexagonal, smooth, wide, followed by elongated, keeled scales between eyes, followed by small, bead-like, feebly keeled scales on head which change abruptly at nape (beginning of scapular pattern) to pointed, imbricated, keeled dorsals. First row of large scales across snout in front of eyes averages $11\frac{1}{2}$, this line to snout averages $4\frac{1}{2}$.

ORBITAL SPINE: Short. Followed by one or two enlarged scales.

COLOR AND MARKINGS: Gray above; white beneath. Head pattern very faint olive markings on tan background. Dusky line forward from eye. Broken lines of brown scales on back. Scapular pattern with a distinct tendency to "spectacle shape" with neither the white nor black distinct; a very subdued pattern. Sacral pattern present, in form of a transverse crescent, points forward, dark line anteriorly bordered by light line posteriorly. More prominent than in any species of this region. Throat not dotted. No yellow under side of tail, except in specimens shrivelled in alcohol which turns many specimens brown. No sexual dichromatism. No young or eggs observed.

RELATIONSHIP: Unique in markings and keeling. Large males have the swollen neck shown by Barbour, 1921, Pl. 6, Fig. 1, *S. gilvitorques* Cope. It has no other similarity however. It differs from *S. macrolepis* in not having sexual dichromatism and in markings and color and specially in squamation of head which does not approximate *S. macrolepis*. It differs from *S. townsendi* in squamation and pattern. It is not close to any other species of this region. In a series it is unlikely to be confused with any other form.

REMARKS: Specimens taken, 51. This species is found under trash or objects on the ground. It is extremely active. I believe there may be two species on Mona Island.

EXPLANATION OF PLATES XX-XXIV

- Fig. 1. *Sphaerodactylus klauberi*, sp. nov.
Ventral aspect of male to illustrate escutcheon.
The escutcheon is found only on the males and makes sex determination easy. Note shape and position. The keeled belly scales of this unique species makes the escutcheon very prominent, but it is discernible in all species. This figure also illustrates the patch of fine scales in front of the hind leg. There is another patch behind the front leg. Common to all species.
6 × natural size.
- Fig. 2. *Sphaerodactylus macrolepis* Gunther. Female. Note "target" pattern on head and prominent scapular "mask" pattern; coarse dots on dorsum and indication of sacral pattern.
- Fig. 3. Same species. Male. Note plain head, lack of sacral pattern and finer dots on dorsum than on female.
- Fig. 4. *Sphaerodactylus roosevelti* sp. nov. Female. Note shape of head and vivid unique markings.
- Fig. 5. Same species. Male. No markings.
- Figs. 2-5 all $1\frac{1}{3}$ × natural size.
- Fig. 6. *Sphaerodactylus danforthi* sp. nov. Underside of speckle-head male. Note prominent escutcheon scales on this smooth-bellied species. Note speckled throat and immaculate belly which are the same in female.
- Fig. 7. Same species. Female. Note "target" pattern on head and coarse black spots on dorsum. Underside same as Fig. 6 except that there is no escutcheon on female.
- Fig. 8. Same species. Male. Speckle-head phase. Note fine speckles and absence of head pattern; dorsal dots finer than on female.
- Fig. 9. Same species. Red-head male. Note plain head, speckled back and absence of pattern.
- Fig. 10. Same species. Red-head male. Underside. Note plain chin. The escutcheon can be plainly seen. Note larger scales on Figs. 9 and 10. This may prove to be a separate species, but to date I am unable to distinguish between the females.
- Figs. 6-10 all $1\frac{3}{4}$ × natural size.
- Fig. 11. *Sphaerodactylus nicholsi* sp. nov. Note comparative size; no head pattern; scapular pattern reduced, but sacral pattern prominent. No sexual dichromatism.
- Fig. 12. *Sphaerodactylus townsendi* sp. nov. Note comparative size and absence of all save sacral pattern. No sexual dichromatism.
- Fig. 13. *Sphaerodactylus klauberi* sp. nov. Note comparative size, dark color and absence of markings. No sexual dichromatism.
- Figs. 11-13 all $1\frac{2}{3}$ × natural size. Specimens are average.

PLATE XX.

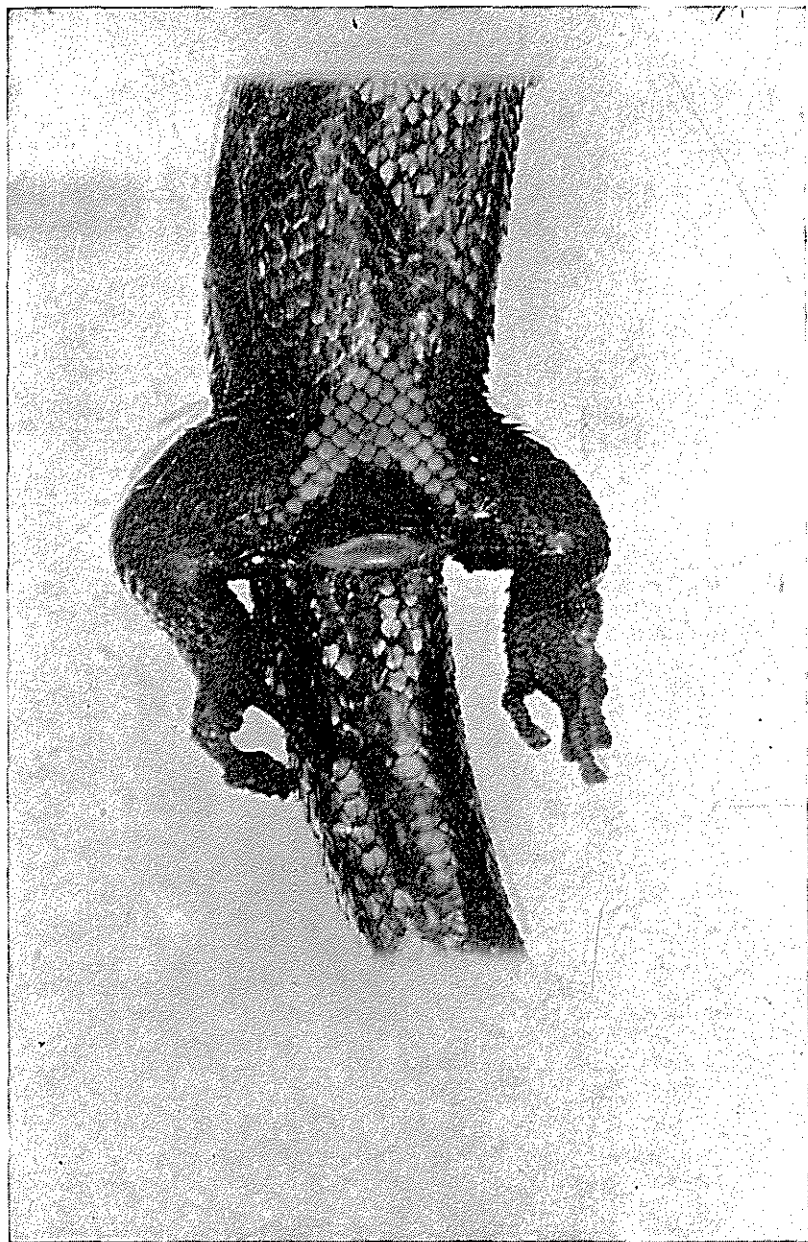
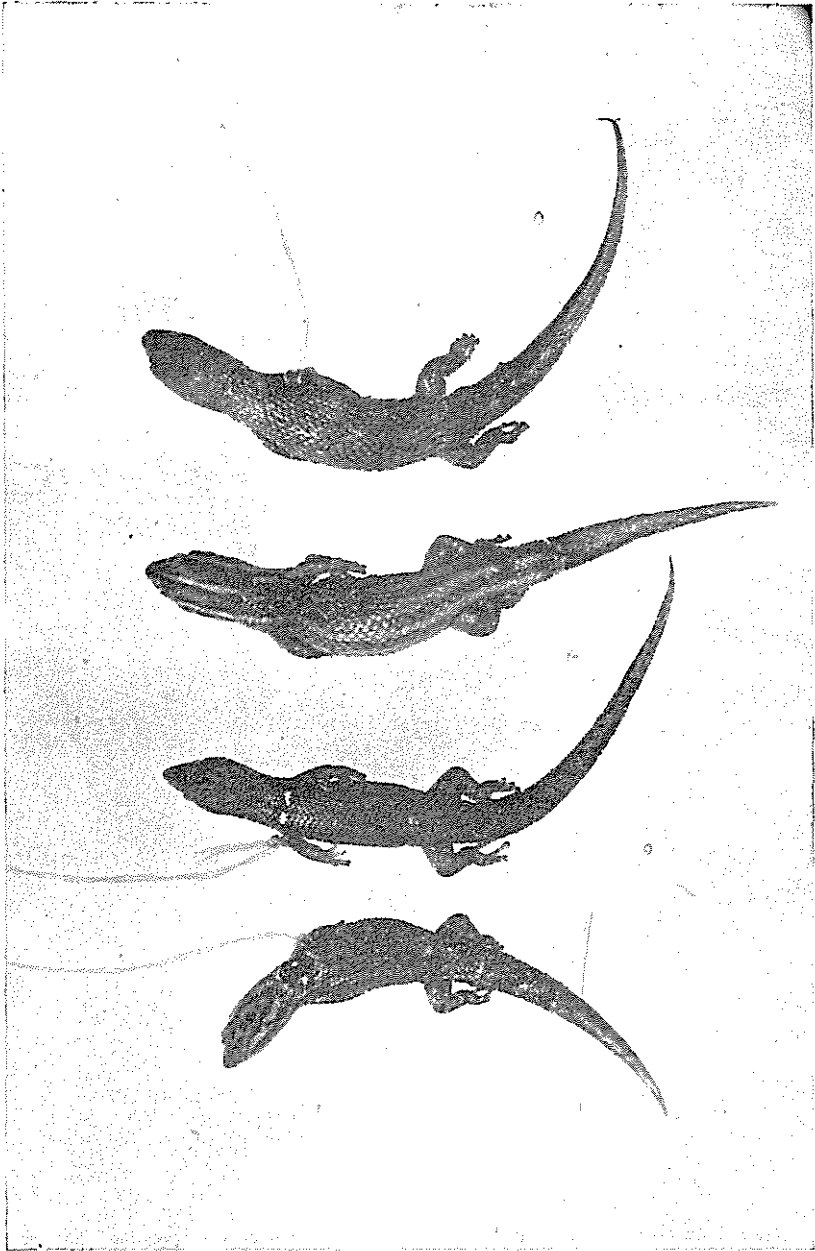


PLATE XXI.

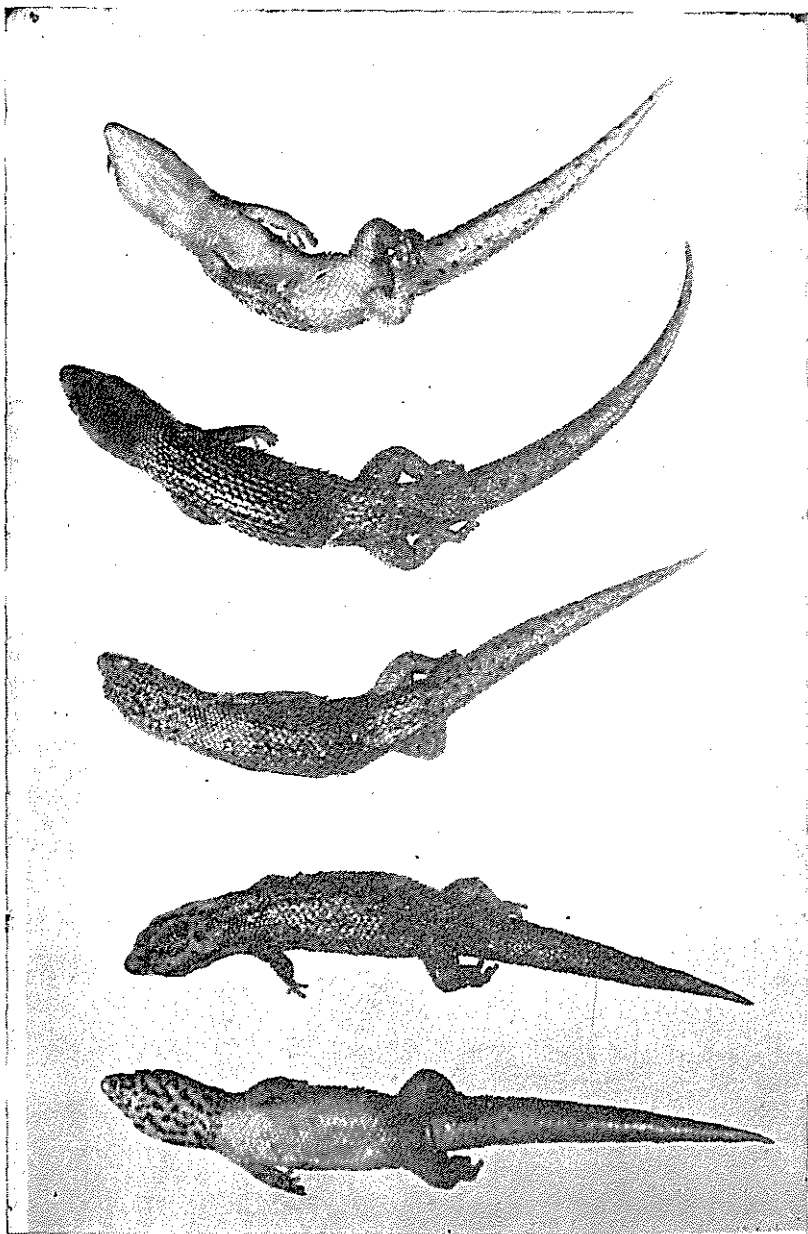


5

4

3

2



10

9

8

7

6

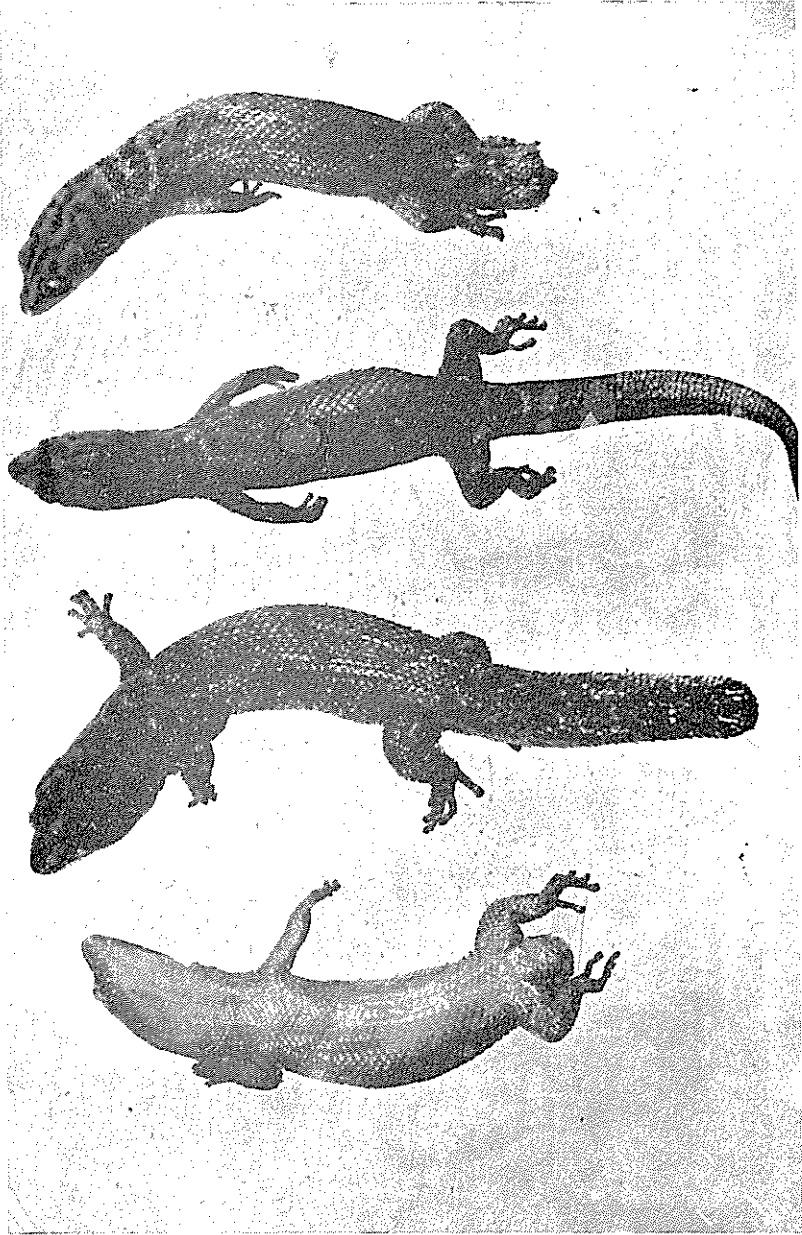


13

12

11

PLATE XXIV.



17

16

15

14

- Fig. 14. *Sphaerodactylus monensis* (Meerwarth) Male. Note greatly reduced escutcheon and pure white color. Both sexes are white underneath.
- Fig. 15. Same species. Male. Showing greatly enlarged head and neck. Note scapular pattern is not vivid and is in form of "spectacles".
- Figs. 16-17. Same species. Females. Note no sexual dichromatism. Note sacral pattern peculiar to this species.
- Figs. 14-17 all $2\frac{1}{2} \times$ natural size.