59.81,1 (72.2)

Article X.—DIAGNOSES OF TWENTY-THREE NEW SPECIES AND A NEW GENUS OF LIZARDS FROM LOWER CALIFORNIA

By M. C. Dickerson

This preliminary statement of diagnoses of new species precedes a larger preliminary paper on the lizard fauna of Lower California and the Southwest, which will include descriptions and discussions, illustrations, reviews of various genera, with maps and keys.

The twenty-three species presented here are based on material collected by the Albatross Expedition to Lower California in 1911, under the auspices of the United States Bureau of Fisheries and The American Museum of Natural History. The types are to be deposited in the United States National Museum.

Among the forms represented, some are species of great distinctness, more or less remote from all other known forms, such as the two species of *Sauromalus* from San Esteban and La Paz; others, like the two Ctenosauras from San Esteban and Cerralvo, are species by island isolation, restricted to their type localities, and showing relatively close relationship with well-known mainland forms. The two species introducing the new genus *Sator* are primitive forms of considerable interest in the phylogenetic history of the Iguanidæ.

1. **Ctenosaura conspicuosa,**[1] new species

Type.—A. M. N. H. No. 5027, ♂. Collector, C. H. Townsend, Albatross Expedition, April 13, 1911.

Paratypes.—A. M. N. H. Nos. 5640 ♀, 2278, 2693, 2695, 5639.

Type Locality.—San Esteban Island, Gulf of California, Mexico.

Diagnosis.—Closely related as shown by scutellation to *Ctenosaura hemilopha* Cope, of the Cape Region. Size extremely large, total length exceeding 650 mm. in the large males, for which the following characters are diagnostic: series of high scales of the crest ending more or less abruptly at a point opposite the middle of the adpressed upper arm, the small keeled scales which continue along the vertebral line traceable to various points beyond the middle of the body and anterior to the rump; scales of dorsal tibia with strong sharp keels and spines, of dorsal foot with strong spines; tail spinous dorsally and laterally throughout its length; enlarged scales in the posterior rows of the caudal whorls (first half of tail) only moderate in size, length

[1]Because of its yellowish white color, this giant lizard is very conspicuous on the rocks of San Esteban, as is also the big yellow *Sauromalus* (*S. varius*, new species).

of largest equal to 9 dorsal scales, often exceeded by tallest spines of dorsal crest; width of the widest whorl (2 rows dorsally) very much less than distance from nostril to anterior orbit; base of 5th to end of 4th toe equal to distance from anterior border of ear to end of muzzle. Color light yellowish; black or intensely dark brown on gular region and fold, breast and thoracic region to the line of the wrists (when arms adpressed), also axilla and lateral area as high as the dorsolateral line; a short lenticular black spot crosses the back between the points of insertion of the arms (its middle corresponding with line of axillas), connected at its narrowed ends with somewhat irregular, longidutinal lines of black which, with the lenticular spot, mark out a rectangle containing a central black spot, while a smaller black spot anteriorly on the spines of the crest indicates the middle of the anterior boundary of the rectangle; also a straight band of black crosses the back on a line with the elbows, curving abruptly at the sides to join the black below the dorsolateral line.

MEASUREMENTS OF THE TYPE.—Total length, 668 mm.; tip of muzzle to anus, 286; tail, 382; tip of muzzle to fold, 102; tip of muzzle to posterior border of ear, 71; head width, 60; hind leg, 170; base of 5th to end of 4th toe, 64.

The largest females in the collection are only about two-thirds the size of the large males; the crest is very low, all trace of it ending at about the middle of the body, the foot has a proportionate length as in the males, but the head is much smaller and shorter, so that from base of 5th to end of 4th toe considerably exceeds length of head from anterior ear to end of muzzle; the enlarged scales of the caudal whorls are relatively smaller, and the coloration is darker, with 7 narrow light bands between rump and axilla more or less conspicuous.

MEASUREMENTS OF No. 5640 ♀.—Total length, 552 mm.; tip of muzzle to anus, 207; tail, 345; tip of muzzle to fold, 66; shielded part of head, 43; head width, 35; head width across middle of orbits, 23; axilla to nostril, 81; axilla to anterior border of ear, 46; width of widest caudal whorl, 8.5; hind leg, 125; base of 5th to end of 4th toe, 49.

Comparison of the measurements of *Ctenosaura townsendi*, new species, and *Ctenosaura conspicuosa* shows that the *Ctenosaura* on Cerralvo Island is a species of considerably stouter build, with greater breadth of head and shorter neck than the San Esteban form.

2. **Ctenosaura insulana**, new species

TYPE.—A. M. N. H. No. 2694, ♂. Collector, C. H. Townsend, Albatross Expedition, April 19, 1911.

PARATYPES.—A. M. N. H. Nos. 5641 ♀, 5568–5569, immature.

TYPE LOCALITY.—Cerralvo Island, Gulf of California, Mexico.

DIAGNOSIS.—With close resemblance in scutellation to *Ctenosaura hemilopha* Cope, of the Cape Region. Total length often exceeding 600 mm. in the large males, for which the following characters are diagnostic: high scales of the crest graduated to a point on a line just posterior to the elbows, small keeled crest scales traceable about two-thirds the distance to the rump; scales on dorsal tibia smooth or very weakly keeled, dorsal scales on foot without spines or very shortly mucronate; tail spinous to the end; scales in posterior rows of the caudal whorls very large on first half of tail, length of largest equal to 14 dorsal scales, not exceeded by length of tallest scales in

crest; width of the whorl (2 rows dorsally) equal to distance between nostril and anterior angle of orbit; base of 5th to end of 4th toe equal to distance from anterior ear to nostril; femoral pores, 5–6. Color light yellowish, with gular region, breast, and arms black; short transverse bar of black posterior to points of arm insertion (its anterior margin about on line of axillas), connected at ends with narrow longitudinal straight lines of black forming a square open on anterior side, containing black spot at center on crest; a second black bar crosses back posterior to this, curving downward and backward to meet black of breast.

MEASUREMENTS OF THE TYPE.—Total length, 608 mm. +; tip of muzzle to anus, 295; tail, 313 + (reproduced); tip of muzzle to fold, 113; tip of muzzle to posterior border of ear, 84; anterior border of ear to nostril, 62; head width, 74; hind leg, 166; base of 5th to end of 4th toe, 62.

The largest females in the collection measure only two-thirds the length of the large males; the crest is very low, ending about the middle of the body, the foot has a proportionate length as in the large males but the head is smaller and shorter (so that length from base of 5th to end of 4th toe greatly exceeds distance from anterior ear to nostril); the enlarged scales of the caudal whorls are smaller; the general coloration is darker and the color pattern retains the transverse light bands, or series of spots (7 between rump and axilla) of the immature.

MEASUREMENTS OF No. 5641 ♀.—Total length, 471; tip of muzzle to anus, 191; tail, 280; tip of muzzle to fold, 62; shielded part of head, 43; head width, 38; head width across middle of orbits, 25; axilla to nostril, 74; axilla to anterior border of ear, 42; width of widest caudal whorl, 10; hind leg, 120; base of 5th to end of 4th toe, 47.

3. **Sauromalus interbrachialis,**[1] new species

TYPE.—A. M. N. H. No. 6809. Collector, C. H. Townsend, Albatross Expedition, March 27, 1911.

PARATYPE.—A. M. N. H. No. 6808 (immature).

TYPE LOCALITY.—La Paz, Lower California, Mexico.

DIAGNOSIS.—Size medium, 280 mm. total length of largest specimen known (U. S. N. M. No. 12633); nuchal scales smooth, not as large as the largest head scales, scarcely larger than the supraoculars; very much smaller than the largest preauricular scale; scales on postauricular folds tubercular, not greatly enlarged; dorsal scales relatively smooth, small, from 26 to 30 in a head length; ventral scales from gular fold to anus, 133; femoral pores, 14. Color tawny brown sprinkled evenly with small dark spots everywhere dorsally and laterally between nape and tail, less conspicuously on dorsal surfaces of legs, on the breast and gular region, and below the lateral fold to the groin; a double dark bar over the back between the arms, with faint indications of a similar double bar anteriorly and three posteriorly.

MEASUREMENTS OF THE TYPE.—Total length, 250 mm.; length of head and body to anus, 129; tail length, 130; tip of muzzle to posterior border of ear, 30, to gular fold, 46; head width, 27; hind leg, 74; hind foot, 31; base of 5th to end of 4th toe, 23.

The medium-sized chuckwalla collected in 1882 by L. Belding on the island of Espiritu Santo is *Sauromalus interbrachialis* (U. S. N. M.

[1]With reference to the double dorsal bar between the arms.

No. 12633; Belding, 1887, West American Scientist, III, p. 97; Stejneger, 1891, Proc. U. S. Nat. Mus., XIV, p. 409). It is a somewhat larger, older specimen than the type from La Paz.

Belding's specimen from Espiritu Santo, examined through the courtesy of Dr. Stejneger, measures 280 mm., total length; 183, tail length; it has 139 ventral scales from gular fold to anus, and 26 dorsal scales in a head length; femoral pores, 15.

4. **Sauromalus townsendi,**[1] new species

TYPE.—A. M. N. H. No. 5643, ♂ Collector, C. H. Townsend, Albatross Expedition, April 12, 1911.

TYPE LOCALITY.—Tiburon Island, Gulf of California, Mexico.

DIAGNOSIS.—General resemblance to *S. ater* Duméril but with coarser scutellation throughout, especially on extremities. Size medium, length of type (adult, but probably not full-grown; also tail reproduced) 302 mm.; dorsal scale rows in head length, 28; ventrals from gular fold to anus, 125; number of scales around thick part of tail, 80–90; femoral pores, 14. Coloration yellowish, with head, shoulders, brachials, gular region, and anterior breast, also lumbar region and hind legs dorsally and ventrally, very dark brown, and an irregular freckling of the same color dorsally and ventrally over the yellow between.

MEASUREMENTS OF THE TYPE.—Total length, 302 mm.; head and body to anus, 166; tail, 125+ (reproduced); tip of muzzle to posterior border of ear, 39, to gular fold, 55; head width, 36; hind leg, 100; hind foot, 46; base of 5th to end of 4th toe, 34.

This is possibly the species reported by L. Belding from Guaymas in 1887 (West American Scientist, III, p. 97). Its resemblance to *S. ater* Duméril may signify connection with that species in Sonora in former times if not to-day.

5. **Sauromalus varius,** new species

TYPE.—A. M. N. H. No. 5633. Collector, C. H. Townsend, Albatross Expedition, April 13, 1911.

PARATYPES.—A. M. N. H. Nos. 2698–2702, 5026, 5610–5632, 5634–5638, 5706–5708.[2]

TYPE LOCALITY.—San Esteban Island, Gulf of California, Mexico.

COMMON NAME.—Piebald Chuckwalla.

DIAGNOSIS.—Size very large, sometimes exceeding 600 mm.; nuchal scales somewhat enlarged medially, smaller than largest head scales and preauricular scales, with only faint tendency to formation of spines posteriorly; postauricular scales small; dorsal scales smooth, median subquadrangular, lateral with tendency to

---

[1]Named in honor of C. H. Townsend, leader of the Albatross Expedition, 1911.

[2]Three additional specimens are mounted and on exhibition in the Lower California Habitat Group of lizards, and A. M. N. H. No. 2701 has been made into a study skeleton.

formation of posterior spine; dorsals small, larger in mid-dorsal region especially anteriorly, rows in head length near median line 28, 15 mm. distant from median line, 37; number of ventral scale rows from gular fold to anus, 143 (average in 15 specimens); scales around thickest part of tail, 72 (average in 15 specimens); femoral pores not variable, averaging 17. General color light yellowish to light reddish brown, with irregular blotching and mottling of dark over all dorsal and lateral surfaces, giving a piebald appearance.

MEASUREMENTS OF THE TYPE.—Total length, 547 mm.; head and body to anus, 250; tail length, 297; tip of muzzle to posterior margin of ear, 58, to gular fold, 84; head width, 58; hind leg, 155; foot, 70; base of 5th to end of 4th toe, 54.

6. **Callisaurus carmenensis,** new species

TYPE.—A. M. N. H. No. 5388, ♂. Collector, C. H. Townsend, Albatross Expedition, April 2, 1911.

PARATYPE.—A. M. N. H. No. 5389, ♀.

TYPE LOCALITY.—Carmen Island, Gulf of California, Mexico.

DIAGNOSIS.—A small *Callisaurus* rather closely related to *C. plasticus*, new species, but with finer scutellation throughout, especially noticeable in dorsals, scales forming denticulated margin of gular fold, on chest posterior to gular fold, inferior shoulder patches of enlarged scales, and tibials; femoral pores variable, averaging 14. Blue lateroventral area very small changing to purplish brown posteriorly; black lateroventral bands obscure, short and narrow, parallel, somewhat curved; tail black-spotted below only.

MEASUREMENTS OF THE TYPE.—Head and body to anus, 62 mm.; tail length, 58+ (reproduced); tip of muzzle to posterior margin of ear, 16, to gular fold, 21; head width, 13; hind leg, 62; hind foot, 30; base of 5th to end of 4th toe, 26.

7. **Callisaurus inusitatus,**[1] new species

TYPE.—A. M. N. H. No. 5324, ♂. Collector, C. H. Townsend, Albatross Expedition, April 13, 1911.

PARATYPES.—A. M. N. H. Nos. 5317–5337, 5339–5341, 5344–5346, 5397.

TYPE LOCALITY.—Tiburon Island, Gulf of California, Mexico.

SYNONYMS.—*Callisaurus draconoides ventralis* (part), Cope, 1898 (1900), Rept. U. S. Nat. Mus., p. 273; *Callisaurus ventralis ventralis* (part), Stejneger and Barbour, 1917, Check List, p. 47.

DIAGNOSIS.—Size large, adults often exceeding 200 mm. total length. Hind leg equal to or longer than distance from snout to anus, reaching beyond muzzle when stretched forward along body; femoral pores, 18 (average of 29 specimens). Black lateral bands, 2; very oblique forward, long but variable in width, irregular in outline; usually obscurely marked, united inferiorly along the margin of the blue area, producing between them a conspicuous U-shaped blue spot below the lateral fold. Blue lateroventral area prominent and extending nearly to groin. Ventral tail white with 6–9 black crossbands; dorsal caudal surface brown with markings brown not black.

---

[1]With reference to the union inferiorly of the black lateroventral bands, unknown in any other species of *Callisaurus* or in *Holbrookia*.

MEASUREMENTS OF THE TYPE.—Length of head and body to anus, 93 mm.; tail length, 109; tip of muzzle to posterior margin of ear, 19, to denticulated gular fold, 27; head width, 15; hind leg, 80; hind foot, 37; base of 5th to end of 4th toe, 32.

I have what seems to be this species (female specimen only) also from Guaymas, Sonora, Mexico, in the W. W. Brown collection loaned for study by the Museum of Comparative Zoology. *C. inusitatus* may possibly intergrade with *C. ventralis ventralis* (Hallowell) somewhere in Sonora.

8. **Callisaurus plasticus,**[1] new species

TYPE.—A. M. N. H. No. 5349, ♂. Collector, C. H. Townsend, Albatross Expedition, April 1, 1911.

PARATYPES.—A. M. N. H. Nos. 5308–5316, San José Island, Nos. 5346–5348, 5350, Aqua Verde Bay, Nos. 5357–5368, Mulege, Nos. 5351–5356, Concepcion Bay (south end), Nos. 5381–5387, San Francisquito Bay, Lower California.

TYPE LOCALITY.—Aqua Verde Bay, Lower California, Mexico.

SYNONYM.—*Callisaurus draconoides* Blainville (part), Cope, 1898 (1900), Rept. U. S. Nat. Mus., p. 269.

DIAGNOSIS.—Total length of adult seldom exceeding 170 mm. Hind leg in male about equal to length from snout to anus, extending considerably beyond the muzzle when stretched forward along body. Tail much longer than distance from snout to anus. Number of femoral pores highly variable, 13–19, averaging 15 (39 specimens). An irregular broad band of blue below the lateral fold from just posterior to axilla nearly to the groin; in this two black bands, straight, oblique forward, extending some distance on to the dorsolateral surface, narrowed where they cross the lateral fold and more or less broadened and rounded at their inferior ends (shape of bands extremely variable, the second may have extension toward groin); dorsal caudal surface in male without black bands.

MEASUREMENTS OF THE TYPE.—Total length, 159 mm.; head and body to anus, 64; tail length, 95; tip of muzzle to posterior margin of ear, 16, to gular fold, 21; head width, 12.5; hind leg, 63; hind foot, 31; base of 5th to end of 4th toe, 25.

This species very possibly, in fact probably, intergrades with *Callisaurus ventralis ventralis* (Hallowell) north of the middle of the length of the Gulf side of the peninsula. I have no specimens, however, from localities where anything more than great variability in the southern species is shown. Heretofore, *Callisaurus plasticus*, new species, has been confused with *Callisaurus draconoides* Blainville. Cope's description is mainly from a specimen of the former, his drawings from a specimen of the latter. *C. draconoides* Blainville is limited to the Cape Region.

---

[1]From *plasticus*, "fit for molding," with reference to the variable character of the species, especially conspicuous in the shape of the black lateroventral bands.

9. **Callisaurus splendidus,** new species

TYPE.—A. M. N. H. No. 5372, ♂. Collector, C. H. Townsend, Albatross Expedition, April 10, 1911.

PARATYPES.—A. M. N. H. Nos. 5338, 5342, 5373–5375, 5396.

TYPE LOCALITY.—Angel de la Guarda, Gulf of California, Lower California, Mexico.

SYNONYMS.—*Callisaurus ventralis*, Townsend, 1890,Proc. U. S. Nat. Mus., VIII, p. 144; *Callisaurus draconoides ventralis* (part), Cope, 1898 (1900), Rept. U. S. Nat. Mus.,p. 273.

DIAGNOSIS.—Size medium, adults averaging between 150 and 160 mm., total length, probably seldom reaching 170. Hind leg in male somewhat shorter than head and body to anus, when folded forward along body little exceeding end of muzzle. Tail in male longer than head and body, never one and one-half times as long. Femoral pores 10–14, averaging 12 (8 specimens). Coloration light to dark, more or less vividly red over the whole dorsal surface as well as on gular region and anteroventral aspect of humerus. The 2 black bands on the lateroventral blue area neither large nor vivid; their position oblique forward with reference to lateral fold, the posterior of the two at its inferior end with tendency to extension backward toward the groin. Tail conspicuously banded below and above with black.

MEASUREMENTS OF THE TYPE.—Total length, 150 mm.; head and body to anus, 65 mm.; tail length, 85; tip of muzzle to posterior margin of ear, 15, to gular fold, 21; head width, 12.5; hind leg, 64; hind foot, 30; base of 5th to end of 4th toe, 24.5.

10. **Sceloporus lineatulus,** new species

TYPE.—A. M. N. H. No. 5478, ♂. Collector, C. H. Townsend, Albatross Expedition, May 16, 1911.

TYPE LOCALITY.—Santa Catalina Island, Gulf of California, Mexico.

DIAGNOSIS.—A robust species of medium size (length of head and body of adult male, 85 mm.), especially bristling with large, long-pointed but not spinous scales; 4–6 preauriculars in oblique row, relatively long and pointed, overlapping at bases; dorsal scales (7 straight longitudinal rows) much larger than ventrals; laterals crowded in oblique rows, graduated in size to meet ventrals, the shape changing through intermediate stages from angular, long-pointed, weakly denticulate scales to the rounded ventrals with their 2–4 equal points or scallops; rump and proximal caudals equal to dorsals; dorsals about 28 from interparietal to base of tail, 5 in head length (muzzle to interparietal); distance from base of 5th toe to end of 4th equal to length from tip of muzzle to anterior border of ear; femoral pores, 20. Coloration of adult male rufous dorsally, blue lateroventrally verging into green above, blue on chest between arms, and on chin; sides prominently marked from above arm to groin with about 11 longitudinal parallel brown lines following the direction of the scales; posterior gular region black, also black more or less as follows: on ventral arm, breast, median abdominal area, groin, ventral femur.

MEASUREMENTS OF THE TYPE.—Total length, 199 mm. +; head and body to anus, 85; tail length, 114 + (reproduced); tip of muzzle to posterior border of interparietal, 21, to posterior border of ear, 25, to base of throat, 25; greatest head width, 23, width at posterior orbital angle, 20, at anterior orbital angle, 13.5; hind leg, 61; base of 5th to end of 4th toe, 24.

This species, while very distinct, shows relationship with the forms known as *S. zosteromus* Cope and *S. magister* Hallowell.

SATOR, new genus

TYPE.—*S grandævus*, new species.

DIAGNOSIS.—Body strongly compressed with high vertebral ridge in the adult; ziphisternal and poststernal ribs at acute angles with the vertebræ forming extremely long lateroventral loops nearly or quite to the groin and recurved to the mid-ventral line; a sternal fontanelle. Nostrils superior; lateral teeth tricuspid, no pterygoid teeth; labials segmental, superciliaries imbricated; head scales large, as in *Sceloporus* and *Uta;* tympanum exposed. Lateral area granular, extending high on shoulder and nape, strongly developed postauricular folds, and a well-developed lateral fold to the groin. Scales on posterior femur granular, also on exterior aspect of tibio-tarsal joint; also imbricated scales on knee and on dorsal aspect of tibia differentiated, smaller and larger respectively. A strong structural gular fold usually present, marked by differentiation of scales, homologous with anterior fold of *Holbrookia* and of the Utas which have two structural folds; a posterior fold possible, in some species indicated at the sides of the neck by a transverse extension of granules and 2 or more enlarged scales of a "denticulated border." Tail compressed, very long; caudal scales verticillate, obliquely keeled, dorsally at least with high sharp keels; long series of femoral pores; hind legs very long; digits with keeled lamellæ inferiorly; enlarged postanals in male.

Cope in 1888 (Proc. U. S. Nat. Mus., p. 397, Pl. XXXVI, figs. 1*a–g*) described a new genus, *Lysoptychus* (type species *lateralis*, from one specimen collected at San Diego, Texas), supposed to be between *Uta* and *Sceloporus*, the distinctive character being a gular fold. But the fold in the specimen in question is not marked structurally; it is similar to the fold in *Callisaurus* and certain Utas resulting from looseness of skin in the gular region, without structural differentiation and disappearing when the head is bent to a horizontal with the body. *Lysoptychus* was not recognized by herpetologists and the specimen has been referred to *Sceloporus couchii* Baird (type, U. S. N. M. No. 2739, from Santa Catarina, Nuevo Leon, Mexico) (Stejneger and Barbour, 1917, Check List, p. 53).

The genus *Sator* represents what is evidently an ancestral form, kept in existence through isolation under favorable conditions in a relatively unchanging habitat. It combines the compressed body and long compressed tail of arboreal types with many of the characters of the primitive terrestrial genus *Sceloporus*, and also with characters, such as the anterior and posterior gular folds, diagnostic of very different terrestrial forms like the Utas and the Holbrookias.

A connection of the new genus with *Sceloporus* exists in a Mexican species, *S. utiformis* Cope, 1864, from Colima (a series of which is at

hand, A. M. N. H. Nos. 12745–12752, Colima, Mexico, 1919). This species has no neck fold of any sort but it has characters—the lateral granulation, lateral fold, and scale differentiation of the posterior extremities—which relate it definitely to *Sator* as well as to *Uta*. Careful study of the skeleton may place this species under *Sator*

11. **Sator angustus,**[1] new species

TYPE.—A. M. N. H. No. 5712, ♂. Collector, C. H. Townsend, Albatross Expedition, April 17, 1911.

PARATYPES.—A. M. N. H. Nos. 5713–5723.

TYPE LOCALITY.—Santa Cruz Island, Gulf of California, Mexico.

DIAGNOSIS.—A striking looking lizard with compressed body in the adult, high along vertebral line, and with very long and strongly compressed slender tail; bears close general resemblance to *Sator grandævus*, new species, but differs in greater size, reaching a total length of 300 mm., in coloration and pattern, in lacking the posterior gular fold at the sides of the throat, in having scales of head and nape in the adult more tubercular; also the tail more strongly compressed, with the 4–6 dorsal caudal rows quite to the end of the tail bearing high, sharp, and spine-tipped scales. Dorsals average 70 from interparietal to base of tail, 14–15 in a head length; femoral pores average 13. General coloration light or dark, brown or olivaceous; color pattern includes dark shoulder patches.

12. **Sator grandævus,** new species

TYPE.—A. M. N. H. No. 5491, ♂. Collector, C. H. Townsend, Albatross Expedition, April 19, 1911.

PARATYPES.—A. M. N. H. Nos. 5492–5496.

TYPE LOCALITY.—Cerralvo Island, Gulf of California, Mexico.

DIAGNOSIS.—A relatively large lizard reaching a total length of 250 mm., more than two-thirds of which is the strongly compressed tail with verticils of strongly keeled mucronate scales; body compressed and with high vertebral ridge in the adult; a strong lateral fold from postauricular region to groin; broad, uninterrupted band of granules along lateral fold, broadest at shoulder, meeting keeled dorsal scales more or less abruptly throughout its length; a strong structural anterior gular fold, marked by differentiation of scales; posterior gular fold visible laterally, marked by an intrusion of granules ventralward and 3 enlarged scales of a "denticulated border"; about 60 scales between interparietal and base of tail, 16 in a head length; femoral pores average 18. General coloration light or dark grayish blue; color pattern includes black shoulder patches (sometimes nuchal collar).

MEASUREMENTS OF THE TYPE.—Head and body, 70 mm.; tail, 137 + (reproduced); head length, 18.5; head width, 15; tip of muzzle to anterior fold, 22; tip of muzzle to posterior fold (at side of head), 25.5; hind leg, 55; base of 5th to end of 4th toe, 22. The measurement of No. 5492 in which the tail has not been reproduced is as follows: total length, 258 mm.; head and body, 75; tail, 183.

[1]With reference to the very narrow, compressed body in the adult.

MEASUREMENTS OF THE TYPE.—Head and body to anus, 89 mm.; tail, 136 + (reproduced; measurement of small specimen with uninjured tail, No. 5719, head and body to anus, 68, tail, 160); total length, 225 (if allowance be made for injured tail, total length, 300 mm.); head length, 22; head width, 19; tip of muzzle to anterior gular fold, 27; hind leg, 65; base of 5th to end of 4th toe, 23.

13. **Uta concinna,** new species

TYPE.—A. M. N. H. No. 5396, ♂. Collector, C. H. Townsend, Albatross Expedition, March 10, 1911.

PARATYPES.—A. M. N. H. Nos. 5399-5413.

TYPE LOCALITY.—Cerros Island, Lower California, Mexico.

SYNONYMS.—*Uta stansburiana* (part), Cope, 1898 (1900), Rept. U. S. Nat. Mus., p. 310; *Uta stansburiana elegans* (part), Richardson, 1915, Proc. U. S. Nat. Mus., XLVIII, p. 413, Stejneger and Barbour, 1917, Check List, p. 52.

DIAGNOSIS.—A small short-tailed *Uta* bearing considerable resemblance in scutellation to *Uta stansburiana hesperis* Richardson; maximum total length, 115 mm., average about 100, tail less than one and one-half times length of lizard from muzzle to anus; dorsal scales very much smaller than brachials, 13–15 rows from median line to lateral granules; brachials weakly keeled, more pointed and slightly larger than scales on rump; dorsals average 85 between interorbital and base of tail, ventrals 60 from collar to anus. The all-over dotted pattern of the Utas is common in adult males; the common color pattern of the female consists of a series of short, oblique, white bands along the dorsolateral line, bordered anteriorly with black; postaxillary spot posterior in position, not concealed by the adpressed elbow, very large and conspicuous in both sexes.

MEASUREMENTS OF THE TYPE.—Total length, 115 mm.; head and body to anus, 48; tail length,67; tip of muzzle to posterior border of ear, 13.5, to gular fold, 16; head width, 10.5; hind leg, 36; hind foot, 17.

14. **Uta mannophorus,**[1] new species

TYPE.—A. M. N. H. No. 5447, ♂. Collector, C. H. Townsend, Albatross Expedidtion, April 5, 1911.

PARATYPES.—A. M. N. H. Nos. 5440–5446, 5448 (6 ♂♂, 2 ♀♀).

TYPE LOCALITY.—Carmen Island, Gulf of California, Mexico.

SYNONYMS.—*Uta stansburiana* (part), Cope, 1898 (1900), Rept. U. S. Nat. Mus., p. 310, *Uta stansburiana elegans* (part), Stejneger and Barbour, 1917, Check List, p. 52.

DIAGNOSIS.—A stout-bodied *Uta* reaching a total length of 150 mm.; dorsal scales small, not so large as brachials, 13–15 rows from median line to lateral granules; brachials thick and weakly keeled, not greatly larger than scales at middle of rump; dorsals 105 (in type) from interparietal to base of tail, ventrals 65 from denticulated collar to anus; femoral pores little variable, averaging 15; a series of juxtaposed black spots across the shoulders forms a scalloped collar; spots (bright blue) of sexually dimorphic dress of male unusually large (5–7 dorsals, 10–15 lateral granuules); males with much dark blue ventrally, postaxillary spot faint, or lacking.

[1]Named from the scalloped collar across the shoulders.

MEASUREMENTS OF THE TYPE.—Total length, 149 mm.; head and body to anus, 54; tail length, 95; tip of muzzle to posterior margin of ear, 14, to gular fold, 18; head width, 11; hind leg, 40; hind foot, 20.

15. **Uta parva,** new species

TYPE.—A. M. N. H. No. 5428, ♂. Collector, C. H. Townsend, Albatross Expedition, March 13, 1911.

PARATYPES.—A. M. N. H. Nos. 5427 ♀, 5429, 5431–5433.

TYPE LOCALITY.—San Bartolome Bay, Lower California, Mexico.

DIAGNOSIS.—A very small, fine and smooth-scaled = *Uta* of the *Stansburiana* group, with tail twice length of head and body. Dorsal scales small, keeled, somewhat tubercular, well differentiated from lateral granules; dorsals average about 100 between interparietal and base of tail, very much smaller than brachials, 13–15 rows from median line to lateral granules; brachials more or less weakly keeled, about equal to scales on rump and very much more pointed. Head brown, dorsal color pattern an all-over arrangement of small blue spots in male, in female transverse series of long and wavy dark lines bordered behind with light, sometimes connected with a series of white transverse lines on the lateroventral blue surface; gular region anterior to collar deep blue in male; postaxillary spot of medium size, largely concealed by adpressed elbow.

MEASUREMENTS OF THE TYPE.—Total length, 101 mm. +; head and body to anus, 43; tail length, 58 + (reproduced, length of tail of No. 5431 of which head and body length is 44, 80); tip of muzzle to posterior border of ear, 11.5, to gular fold, 14.5; head width, 9.5; hind leg, 42; hind foot, 17.

16. **Uta squamata,**[1] new species

TYPE.—A. M. N. H. No. 5424, ♂. Collector, C. H. Townsend, Albatross Expedition, May 16, 1911.

PARATYPES.—A. M. N. H. Nos. 5421–5423, 5425–5426.

TYPE LOCALITY.—Santa Catalina Island, Gulf of California, Mexico.

DIAGNOSIS.—A small lizard not exceeding 135 mm., with the general appearance of the members of the *Uta stansburiana* group, but distinguished at once by the uniformity and large size of the imbricated dorsal scales (everywhere distinctly separable from the lateral granules, about equal to the brachials, 10–11 from median line to lateral granules), coupled with still greater coarseness of the femorals and tibials, and of the caudals on thickest part of the tail. Dorsals 72–76 from the interparietal to the base of the tail, 63 ventrals from denticulated collar to anus; femoral pores 13–16, averaging 15. General coloration olivaceous, males with the typical adult Uta all-over pattern of fine dots; ventral surfaces everywhere blue, no postaxillary spot but wide ventrolateral bluish black band from axilla to groin.

MEASUREMENTS OF THE TYPE.—Total length, 135 mm.; head and body to anus, 52; tail length, 83; tip of muzzle to posterior margin of ear, 14, to denticulated gular fold, 19; head width, 11.5; hind leg, 39; hind foot, 20.

---

[1]With reference to the imbricated dorsal scales of unusually large size and the coarseness of femorals and tibials.

17. **Verticaria cærulea,** new species

TYPE.—A. M. N. H. No. 5517. Collector, C. H. Townsend, Albatross Expedition, April 5, 1911.

PARATYPES.—A. M. N. H. Nos. 5516, 5518–5520.

TYPE LOCALITY.—Carmen Island, Gulf of California, Mexico.

DIAGNOSIS.—Bearing in general close resemblance to *Verticaria sericea* (Van Denburgh), of San José Island, but with longer muzzle, somewhat shorter hind legs, frontal not in complete contact with second supraocular (because of interposition of granules), lighter general and dorsal coloration, and bright blue color not only ventrally but high laterally on head and neck, body, extremities, and tail, as well as on dorsal aspect of tail, at least distally.

MEASUREMENTS OF THE TYPE.—Total length, 183 mm.; head and body to anus, 55; tail, 128; head length to gular fold, 20, to posterior margin of ear, 15; head width, 8.5; hind leg, 35.

18. **Cnemidophorus celeripes,**[1] new species

TYPE.—A. M. N. H. No. 5514. Collector C. H. Townsend, Albatross Expedition, 1911.

PARATYPE.—A. M. N. H. No. 5515, immature.

TYPE LOCALITY.—San José Island, Gulf of California, Mexico.

DIAGNOSIS.—A very ornamental, conspicuously black and white patterned species of *Cnemidophorus* above medium size, largest specimen at hand measuring 382 mm., tail more than two-thirds total length. It has very fine uniform dorsal scutellation, abdominal ventrals in 8 longitudinal rows (30–32 transverse); frontoparietals separate; nostril anterior to nasal suture. The nasal is not in contact with the second supralabial; scales on extreme edge of posterior neck fold small at least at middle, the largest exceeding enlarged scales at center of gular region, greatly smaller than scales on chest; 4 supraoculars; 8 femoral rows of enlarged scales, 5 tibial, 7 brachial, 3 antebrachial; scales on underside of forearm, posterior aspect, scarcely enlarged; femoral pores 20–23.

Coloration of adult six wide longitudinal bands of white tinged with olive, alternating throughout their length with 5 wide chains of round black spots more connected anteriorly, separated into the individual black spots posteriorly and in the dorsolateral chains; somewhat irregular tessellated effect of wide black markings along the sides adjoining the ventrals, extending forward over postauricular area; throat marked by 2–4 transverse bands of black, the one between inferior margins of the ear openings particularly prominent; 2 parallel oblique black bars reach downward and forward, outlining the sublabials (often interrupted in immature); extremities with irregular coarse network of black on the very light olive background; nape, head, and tail more brown; dorsal tail vivid light rose color distally and throughout its length ventrally; the same color on posterior aspects of femur, forearms, ventral surface of hind legs, and in the adult male from the chest between the forelegs forward over fold and gular region to the sublabials; breast and abdominal region blue with 7 longitudinal narrow black lines made by the juxtaposed pigmented margins of the scales.

---

[1] "Swift-footed," with reference to its adaptability for very great speed.

The immature are black with 6 narrow white stripes dorsally (lowest on a line with the ear), lateral space black with irregular oblique and vertical white bars. In the development of the adult pattern, minute white spots appear above the lowest white stripe and widen to connect with it, scalloping the lower edge of the black band above; minute white spots appear in the median black band and spread obliquely, alternate ones in opposite directions to meet the adjoining white stripes, converting the median straight black band into a waved one and eventually by a deepening of the curves into a chain of round black spots; minute transverse extensions of white along the lower margin of the dorsal white stripe of each side, and similarly along upper and lower margins of the dorsolateral white stripe, scallop in a similar way the black bands adjoining, converting these also into chains of round black spots.

MEASUREMENTS OF THE TYPE.—Total length, 295 mm. +; head and body to anus, 90; tail length, 205 + (reproduced); tip of muzzle to collar, 31; shielded head, or to anterior border of ear, 22.5, to posterior border, 25; greatest head width, 15, width at posterior angle of orbit, 11, at anterior angle, 8.5; hind leg, 67; base of 5th to end of 4th toe, 31. The ratios of foot to head measurements in the type do not hold good in the adult male. In a male of 102 mm. head and body length, base of 5th to end of 4th toe is 33 mm., muzzle to collar, 40, greatest head width, 19.

The range of this species probably includes the mainland of Lower California along the Gulf northward from La Paz and San José Island. It is probably the species in the collections of the Muséum d'Histoire Naturelle, from Santa Rosalia and Mulege, identified by Mocquard (1899, Nouv. Arch. du Muséum d'Hist. Nat., (4) I, p. 315) as *Cnemidophorus grahamii* Baird and Girard (type from Texas, 1852).

19. **Cnemidophorus disparilis,**[1] new species

TYPE.—A. M. N. H. No. 5527. Collector, C. H. Townsend, Albatross Expedition, April 12, 1911.

PARATYPES.—A. M. N. H. Nos. 6884–6885, immature.

TYPE LOCALITY.—Tiburon Island, Gulf of California, Mexico.

DIAGNOSIS.—Of medium size; with fine and uniform dorsal scutellation, abdominal ventrals in 8 longitudinal rows; head depressed; frontoparietals separate, nostril anterior to nasal suture. The nasal is not in contact with the second supralabial; scales on posterior collar of considerable size, scarcely larger than enlarged scales at center of gular region, margin of fold with 1–4 rows of minute scales; 4 supraoculars; 6 femoral rows of enlarged scales, 3 tibial (of great size in two anterior rows), 7–8 brachial, 3 antebrachial; underside of forearm with narrow band of enlarged scales on posterior aspect; femoral pores, 19. General coloration in adult orange-brown dorsally, ventrally blackish over all surfaces, even of the feet. Color pattern 7–9 extremely narrow, orange-brown longitudinal lines, straight or wavy, alternating with black lines of similar narrowness; brilliant color obscured by blackish anteriorly; sides ornamented with orange spots more or less in vertical rows

[1]With reference to the coloration of the immature, at present unlike anything known in the genus outside of this species and its very close relative, *C. martyris*.

bordered anteriorly with black; the mottling with orange-brown and black extends over sides of head; the throat is crossed by 2–3 narrow bars of intense black; mid-ventral caudal line marked by a double series of small black spots.

The immature of this species is black everywhere ventrally; black also on the sides, brown on the back, with closely set pin-points of orange-yellow, verging to white laterally, on exposed surfaces of body and extremities; head and tail unspotted and lighter in general coloration; an unspotted mid-dorsal area, broad on nape and narrowing to a point opposite the elbows.

MEASUREMENTS OF THE TYPE.—Total length (tail broken off 30 mm. from base, with regeneration just begun); head and body to anus, 87 mm.; end of muzzle to collar, 30; tip of muzzle to anterior ear, 20; greatest head width, 12, across anterior angle of orbits, 8.5; hind leg, 54; base of 5th to end of 4th toe, 23.5.

MEASUREMENTS OF No. 6884.—Total length, 144 mm.; head and body to anus, 42; tail length, 102; tip of muzzle to posterior gular gold, 17, to anterior ear, 12, to interparietal, 9, to fore limb, 18; greatest head width, 7, width across posterior supraoculars, 6; collar to anus, 25; hind leg, 28.

It would seem likely from the discovery of this rare species on Tiburon Island with immature very like the type of *C. martyris* Stejneger, 1891, that the latter species was described from immature forms only. The different general coloration in the two, lack of enlarged scales on the ventral aspect of the forearm of *martyris*, and the variation in corresponding measurements of *C. martyris* and the paratype of *C. disparilis* indicate that the species are distinct—as we should expect as a result of development of forms isolated on the two widely separated islands, Tiburon and San Pedro Martir, in a region unfrequented by man.

20. **Cnemidophorus estebanensis,** new species

TYPE.—A. M. N. H. No. 5571. Collector, C. H. Townsend, Albatross Expedition, April 13, 1911.

TYPE LOCALITY.—San Esteban Island, Gulf of California, Mexico.

DIAGNOSIS.—Bearing close resemblance to *C. melanostethus* Cope and *C. punctilinealis*, new species, but very greatly more elongated than the latter for a given girth and development of color pattern, and with longer head and foot measurement than the former. It differs from *punctilinealis* in having the scales on the underside of the forearm considerably enlarged, the dorsal granules smaller, more elongated, set closer together (4 instead of 2½ to a millimeter). It differs from both in the small size and large number of rows of brachials and femorals, 8 and 8 respectively.

MEASUREMENTS OF THE TYPE.—Total length, 175 mm. + (tail reproduced); head and body to anus, 76.5; tail length, 98.5+; tip of muzzle to collar, 26, to anterior border of ear, 19; greatest head width, 11; hind leg, 55; base of 5th to end of 4th toe, 26.

C. melanostethus (A. M. N. H. No. 2525 from Tucson. Collector, M. C. Dickerson, 1912), with equal head and body length, has head length to fold, 25 mm., to anterior border of ear, 17, and length of 4th toe from base of 5th, 23.5 mm.

It is always unfortunate that a species should be described from one specimen only, especially in *Cnemidophorus* where evolution of the color pattern, both the method, and time in the developmental history of the lizard, furnishes one of the strongest diagnostic characters. A series of specimens from San Esteban is needed before a complete diagnosis of the color pattern can be given.

21. **Cnemidophorus punctilinealis,**[1] new species

TYPE.—A. M. N. H. No. 5532, adult, ♂. Collector C. H. Townsend, Albatross Expedition, April 12, 1911.

PARATYPES.—A. M. N. H. Nos. 5526, 5535, 5533 (immature to adult, showing development of color pattern), also A. M. N. H. Nos. 5528–5531, 5534, 5536–5539.

TYPE LOCALITY.—Tiburon Island, Gulf of California, Mexico.

DIAGNOSIS.—A teiid lizard of medium size, the largest specimen in a collection of 13, measuring 335 mm. (with tail about two-thirds the total length); closely related to *C. melanostethus* Cope. It has relatively uniform dorsal scutellation, abdominal ventrals in 8 longitudinal rows, frontoparietals separate, nostril anterior to nasal suture. The nasal is not in contact with the second supralabial; scales on posterior neck fold scarcely exceeding largest at center of gular region, 1–2 rows very small at extreme margin; 4 supraoculars; there are 7 femoral rows of enlarged scales, 3 tibial, 6 brachial, 2 antebrachial (with part of a third proximally), the superior antebrachial row and anterior tibial row extremely large; underside of forearm has scales along median line scarcely enlarged; femoral pores 20.

The final stage in the development of the color pattern gives an arrangement, from ventral scales to ventral scales, of 11 quite regular longitudinal rows of closely set minute black spots (dots, 1–5 granules large), on an olivaceous background lighter laterally—without trace of longitudinal lines or bands; the dots continue over the dorsal surface of the extremities, and are carried forward in more irregular arrangement and greater size over the sides of the head and the gular region, sometimes over the dorsal head; the breast, undersurface of arms, and the posterior gular fold are blackish in the male, often anterior gular region also black; the same linear arrangement of dots may extend conspicuously nearly one-half the length of the tail; remainder of ventral surfaces (except tibias and feet) light to dark bluish gray, with the ventrals black-margined and a double series of black spots occupying the mid-ventral caudal line; tail reddish to purplish brown distally.

Immature with 4 equidistant longitudinal light lines dorsally, between each two of which appears an irregular more or less double series of minute light spots; spots and vertical bars of lighter color closely cover the sides and extend forward on sides of head and gular region. By a process involving an increase in width of the irregular light spots of the back until they meet the light dorsal lines, 3 series of broader than long, small, pigmented bars are left. By reduction of these in size and crosswise division of the lateral bars (2 rows on each side) the adult pattern of 11 longitudinal rows of black dots comes into existence.

---

[1]With reference to the adult color pattern of dots which follow one another in close series.

MEASUREMENTS OF THE TYPE.—Total length, 313 mm.; head and body to anus, 85; tip of muzzle to collar, 29, to anterior border of ear, 22; greatest head width, 14.5, width at posterior angle of orbit, 12, at anterior angle of orbit, 9; hind leg, 65; base of 5th to end of 4th toe, 29.

Cnemidophorus punctilinealis, new species, compared with *C. melanostethus* Cope, attains advanced stages in the somewhat similar series of color patterns (with appearance of the black spots and elimination of the longitudinal stripes) at very much earlier periods in the development. The two species can always be distinguished by the very different color pattern of the sides, and by the longer head and foot of *C. punctilinealis*.

C. punctilinealis is represented in the W. W. Brown collection of the Museum of Comparative Zoology by one half-grown specimen (Field No. 785) from Guaymas on the coast of the Mexican mainland.

22. **Cnemidophorus bartolomas,** new species

TYPE.—A. M. N. H. No. 5508. Collector, C. H. Townsend, Albatross Expedition, March 13, 1911.

PARATYPES.—A. M. N. H. Nos. 5507, 5509, San Bartolome Bay; 5522, Abrejos Point, Ballenas Bay.

TYPE LOCALITY.—San Bartolome Bay, Lower California, Mexico.

DIAGNOSIS.—A very long-tailed species of medium size. Dorsal scutellation uniform (somewhat coarse, 2 granules to the millimeter), 8 rows of abdominal ventrals, nostril anterior to suture, 4 supraoculars, 2 frontoparietals, a long series of femoral pores (16–19). The collar is margined with small scales about size of posterior gulars, but has 4–5 rows enlarged at the middle anterior to these, 3–4 of which equal the largest central anterior gulars; great variability in arrangement of scales about nasal, nasal sometimes in contact with the second supralabial. Brachials, 6; antebrachials 4, those in the first posterior row small, in second posterior row of moderate size; scales underside forearm posterior aspect not enlarged; femorals 7–8; tibials 3. General coloration light olive dorsally, browner on head and tail; bluish white ventrally, spotted irregularly with black from the sides of the head and gular region out on to the tail. Dorsal pattern 5 longitudinal light stripes within area continuous with space between temporal angles; dark bands between these stripes cut crosswise into spots by development of light cross-stripes; these light cross-stripes in the two dorsal bands alternate with one another, thus converting the median light longitudinal stripe into a zigzag stripe and leaving the black spots in the 2 dorsal rows alternate with one another. Black markings both dorsal and lateral moderate and relatively uniform in size and intensity, giving an effect of considerable neat regularity in longitudinal (8–10) and transverse (about 25) rows, notwithstanding their very great diversity in shape. Pattern, both stripes and spots, obscured posteriorly.

MEASUREMENTS OF THE TYPE.—Total length, 304 mm.; head and body to anus, 82; tail length, 222; collar to anus, 55; tip of muzzle to collar, 27, to posterior ear, 225; to posterior margin of interparietal, 205; tip of muzzle to axilla, 33.5; head width at posterior orbital angles, 12, at anterior orbital angles, 9; hind leg, 58; length of 4th toe from base of 5th, 28.

23. **Cnemidophorus vandenburghi,**[1] new species

TYPE.—A. M. N. H. No. 5521. Collector, C. H. Townsend, Albatross Expedition, April 2, 1911.

TYPE LOCALITY.—Carmen Island, Gulf of California, Mexico.

DIAGNOSIS.—A small species related to *Cnemidophorus rubidus* (Cope) and *Cnemidophorus celeripes*, new species. Nasal not in contact with the second supraocular; posterior of the 4 supraoculars extremely small; all of the collar scales small except 6–10 at the middle, 2 or 3 of which may exceed the central anterior gulars. Brachials, 5–6, antebrachials, 3 (exterior row conspicuously broad), scales on underside of forearm posterior aspect somewhat enlarged; femorals, 6–7, tibials, 3; femoral pores, 21.

Head brown, not conspicuously spotted. gular region yellow, cross-banded with black and bright blue. Olivaceous dorsally, with 4 longitudinal light stripes between the temporal angles (alternating with longitudinal series of black and olive spots or bars), 6 longitudinal light stripes, counting the one stretching from postauricular area to groin on each side; median space between the two mid-dorsal light stripes twice as broad as the other spaces; black spots very irregular in shape, not opposite each other in the dorsal rows, and the whole effect of the pattern one of confused and crowded elements (in contrast with *rubidus* and *celeripes*); black lateral markings more nearly opposite than the dorsal, more regular in size and shape; pattern reduced on nape and rump. Bright blue ventrally on breast and abdomen without spots or stripes, also bright blue laterally on head, body, extremities, and tail; no spots or stripes on ventral surfaces of extremities and tail; dorsal caudal surface red distally and ventral surface red for the whole length.

MEASUREMENTS OF THE TYPE.—Total length, 217 mm.; head and body to anus, 65; tail length, 152; tip of muzzle to gular fold, 24.5, to anterior ear, 17, posterior ear, 19, to posterior margin of interparietal, 17.5, to axilla, 31; head width at posterior orbital angles, 10, anterior orbital angles, 7; hind leg, 42; 4th toe to base of 5th, 21.5.

[1]Named for Dr. John Van Denburgh, of the California Academy of Siences, whose name is more closly connected with the herpelology work in Lower California than that of any other herpetologist.