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## Results of the Puritan-American Museum of Natural History Expedition to Western Mexico

### 2. Notes on Reptiles and Amphibians from the Pacific Coastal Islands of Baja California

BY RICHARD G. ZWEIFEL

In the course of the Puritan-American Museum expedition, stops were made at many of the islands scattered along the length of the peninsula of Baja California. I was a member of the party during the period of time when the Pacific coastal islands were visited and made an effort to collect herpetological specimens on all islands visited. At various times I was assisted by the other members of the scientific party (Mr. Richard G. Van Gelder, Dr. William K. Emerson, and Mr. Oakes Plimpton) as well as by members of the crew of the "Puritan," to all of whom I extend my thanks. The number of specimens and forms collected was relatively small, a circumstance due partly to the short time available for collecting on the several islands, but due largely to the inclement weather experienced. A general account of the expedition has been published by Emerson (1958). I offer here only a few notes on localities pertinent to the herpetological collections. These localities are treated in the order in which they were visited. I wish to express my appreciation to Mr. Charles M. Bogert for reading the manuscript, and to Mrs. Frances W. Zweifel for the drawings. Specimens of *Hypsiglena* were kindly made available to me by Dr. Doris M. Cochran of the United States National Museum (abbreviated U.S.N.M. in text).

### SOUTH TODOS SANTOS ISLAND

Collecting was carried on during the afternoon of March 6, 1957. The afternoon was cloudy, with only rare, intermittent periods of sunshine. A typical air temperature at 2:30 P.M. was 17.6° C. The low vegetation of the island was very thick and verdant, which testifies to abundant moisture during the winter rainy season. There were very few spaces of ground not covered by some living vegetation, and carpets of lilies (*Brodeia*) colored the grassy areas. The cool, moist conditions evidently had an adverse effect on reptile activity, as only eight lizards were encountered in three hours of rock turning. *Batrachoseps*, *Uta*, *Anniella*, and *Eumeces* were found here.

### SAN MARTÍN ISLAND

A collecting party from the "Puritan" was ashore on San Martín Island from 9:00 A.M. until noon on March 8. The island consists largely of broken and eroded lava flows. The rocky nature of the terrain, together with abundant though shrubby vegetation, provides excellent cover for the few reptiles present. The vegetation was quite damp from the fog, which gradually lifted so that by noon the tops of the two volcanic peaks (the highest, 470 feet) were visible. Air temperatures varied from 14.6° C. at 9:30 A.M. to 17.6° C. at noon. Only *Gerrhonotus* and *Uta* were collected.

### WEST SAN BENITO ISLAND

Oakes Plimpton and I were on this island for slightly more than two hours on March 9. In contrast to the two islands previously visited, West San Benito presented a relatively brown and barren aspect. Green vegetation, other than agaves and cacti, was largely limited to narrow, dry draws. The sky was overcast during our time ashore, but there was enough warmth to activate *Uta*, several specimens of which were taken.

### CEDROS ISLAND

The "Puritan" made three stops at Cedros Island. On the late afternoon of March 9 anchor was dropped in South Bay near the southwestern corner of the island. One and one-half hours spent ashore in cloudy weather produced no specimens. On the following morning five lizards (*Uta* and *Cnemidophorus*) were all that could be found in two hours with only occasional periods of sunshine. Rough water prevented landing for further collecting in the afternoon.

On the morning of March 11 the "Puritan" moved to the southeast-

ern corner of the island, where Richard Van Gelder and I went inland 1 mile north of Morro Redondo Point at nine o'clock. The sky remained partly cloudy, with few protracted periods of sunlight, and lizard activity was low. Only four lizards, *Uta* and *Cnemidophorus*, were seen by us in two and one-quarter hours. A series of heavily mineralized pools of water in a narrow canyon at this locality showed no sign of amphibian life.

The "Puritan" sailed to the northern tip of the island on the afternoon of March 11, and a collecting party went ashore approximately 4 miles east-southeast of the northern tip of the island in mid-afternoon. The weather was clear and warmer than before, and there was more reptile activity than at previous stops. Several lizards (*Uta*, *Sceloporus*, and *Cnemidophorus*) and a snake (*Hypsiglena*) were collected.

#### MAGDALENA ISLAND

Collecting on Magdalena Island was carried on at the north end of Santa María Bay 2 miles north of Punta Hughes on March 14 and 15, and in the vicinity of Puerto Magdalena on March 16, 17, and the morning of March 18. Each of these localities offered both rocky hills and sand dunes as collecting sites. Lizards of several species (*Uta*, *Urosaurus*, *Cnemidophorus*, *Sceloporus*, and *Phyllodactylus*) were found but were not abundant. Air temperatures rose little above 20° C., and partly cloudy weather prevailed much of the time.

#### SANTA MARGARITA ISLAND

Except for a few minutes late on the afternoon of March 18, collecting here took place on March 19 and the morning of March 20. Two rocky ranges of hills separated by a low pass constitute the prominent physical features of the island. My collecting was done in the region of this pass and its bordering foothills, near Puerto Cortés, a Mexican naval base. Plans to visit a region of sand dunes in the west-central part of the island were dropped when a storm on the morning of March 19 made the roads on the island impassable. The rainy weather somewhat dampened reptile activity, but lizards of several species were collected. Included were *Phyllodactylus*, *Uta*, *Urosaurus*, *Callisaurus*, and *Cnemidophorus*.

#### ACCOUNTS OF SPECIES

##### *Batrachoseps pacificus leucopus* Dunn

*Batrachoseps leucopus* DUNN, 1922, Copeia, no. 109, p. 61. Type locality, North Island, Los Coronados, Baja California, Mexico.

South Todos Santos Island (A.M.N.H. Nos. 60405–60406).

These two individuals were found under rocks on a northeast-facing slope above the cove on the east side of the island. Pending a forthcoming revision of southern populations of *Batrachoseps* by Arden Brame and Jay M. Savage, I assign these specimens to *pacificus* rather than *attenuatus*. Ventral and subcaudal guanism is greatly reduced in the two specimens from Todos Santos. Lowe and Zweifel (1951) considered this a characteristic of the species *pacificus*. Another viewpoint is presented by Hendrickson (1954), who regarded southern populations of *Batrachoseps* as intergrades between *pacificus* and *attenuatus*.

The specimens from South Todos Santos Island represent the first record of *Batrachoseps* for the island.

*Phyllodactylus tuberculosus* Wiegmann

*Phyllodactylus tuberculosus* WIEGMANN, 1835, Nova Acta Phys.-Med. Acad. Caes. Leopoldino-Carolinae, vol. 17, p. 241. Type locality, "Californien."

Puerto Magdalena, Magdalena Island (A.M.N.H. Nos. 77390–77395, 77397–77400); 1 mile southeast of Puerto Cortés, Santa Margarita Island (A.M.N.H. Nos. 77405, 77410–77412); 1 mile west of Puerto Cortés, Santa Margarita Island (A.M.N.H. No. 77422).

One individual was found beneath a rock resting on debris at a wood-rat nest. All others were in crevices in small boulders averaging 1 to 2 feet in diameter. In only one instance were two lizards found on the same rock; all others were alone. The rocks inhabited by the lizards were scattered about the hillsides and alluvial fans, forming a discontinuous habitat. Attachment of the lizards to their individual rocks was such that they refused to leave the rock when uncovered, and almost every one found was captured.

This gecko does not appear to have been recorded previously from either of the two islands from which I obtained specimens.

*Callisaurus draconoides carmenensis* Dickerson

*Callisaurus carmenensis* DICKERSON, 1919, Bull. Amer. Mus. Nat. Hist., vol. 41, p. 465. Type locality, Carmen Island, Gulf of California, Mexico.

One mile west of Puerto Cortés, Santa Margarita Island (A.M.N.H. No. 77419).

The single specimen obtained was one of several seen in a brushy wash. The coloration of the specimen, an adult male, was noted shortly after its death: "General aspect of dorsal coloration is gray. Flanks spotted with pale yellow, deeper and brighter in groin. Side of abdomen immediately posterior to axilla dull reddish brown, followed by a

green area changing to blue. This green and blue region is crossed by two black bars" (field notes).

*Sceloporus magister monserratensis* Van Denburgh and Slevin

*Sceloporus monserratensis* VAN DENBURGH AND SLEVIN, 1921, Proc. California Acad. Sci., ser. 4, vol. 11, p. 396. Type locality, Monserrate Island, Gulf of California, Mexico.

Puerto Magdalena, Magdalena Island (A.M.N.H. Nos. 77396, 77401).

The two specimens are a male 103 mm. in snout to vent length and a female with a length of 78 mm. The larger specimen had, in life, a rusty middorsal stripe slightly less than one and two half scales wide, bordered by a gray and brown stripe about two scales wide. The predominant color of the hind legs, front legs, and jowls was yellow-green. The smaller specimen appeared much the same as the larger, with the central stripe slightly brighter rust. According to Phelan and Brattstrom (1955, p. 12) adult males of *monserratis* (the subspecies to which these authors assign the population of Magdalena Island) have no red or rufous on the dorsum.

*Sceloporus magister rufidorsum* Yarrow

*Sceloporus rufidorsum* YARROW, 1882, Proc. U. S. Natl. Mus., vol. 5, p. 442. Type locality, San Quentin Bay, Baja California, Mexico.

One mile east and 4 miles south of north tip of Cedros Island (A.M.N.H. No. 77372).

The specimen is a female 93 mm. in snout to vent length. In life, a bright, rust-colored, central band occupied one row of dorsal scales anteriorly and broadened to include two additional half rows shortly anterior to mid-body. The region immediately adjacent to the central band was gray; the flanks were yellowish tan. The dorsal surfaces of the thighs were the same bright rust color as the central band, in contrast to the yellow-green color seen in *S. magister monserratensis* of Magdalena Island.

*Urosaurus nigricaudus* Cope

*Uta nigricauda* COPE, 1864, Proc. Acad. Nat. Sci. Philadelphia, p. 176. Type locality, Cape San Lucas, Baja California, Mexico.

Two miles north of Punta Hughes, Magdalena Island (A.M.N.H. Nos. 77385-77386); 1 mile southeast of Puerto Cortés, Santa Margarita Island (A.M.N.H. No. 77409).

This species was recorded from Magdalena Island by Van Denburgh (1905, p. 25), but Mittleman (1942, p. 158) questioned the record. There

have been no previous records for the species on Santa Margarita Island. The three specimens collected on the "Puritan" expedition were all on rocks when first seen. All had a yellow or yellow-orange throat spot in life, and all have relatively large dorsal scales, characteristics of *nigricaudus* as opposed to *microscutatus*.

One of the important key characters used to distinguish *nigricaudus* from *microscutatus* is the number of enlarged dorsal scales contained in one head length: 17 to 24 in *nigricaudus* and 32 to 36 in *microscutatus* (Mittleman, 1942, pp. 127-128). The two specimens from Magdalena Island each show a count of 19, but the Santa Margarita Island specimen has a count of 29. With the use of only this character, it might be assumed that the last specimen is intermediate between the two species. That this is not the case is shown by the complete (occiput to rump) dorsal scale counts, which are 90, 95, and 93 for the three specimens. The high count of scales per head length of the specimen from Santa Margarita Island results from the fact that it is a juvenile, and the head is relatively larger, approximately 36 per cent, rather than about 22 per cent, of the snout to vent length.

The question of overlap or intergradation between *Urosaurus nigricaudus* and *U. microscutatus* remains an open one. Mittleman (1942, p. 161) believed "that intergradation between *microscutatus* and *nigricaudus* will be shown," but in the following paragraph goes on to discuss two islands, Magdalena on the Pacific side of the peninsula and San José in the Gulf of California, where he supposes the two forms occur together! He reports having examined *microscutatus* from Magdalena Island. If his identification is correct (he cites no museum numbers for specimens examined), the two species do occur together. He credits Linsdale (1932, p. 362) with capturing *microscutatus* on San José Island, whereas the locality Linsdale cited was "San José, latitude 31°," a ranch in the western foothills of the Sierra San Pedro Mártir. However, there are earlier records for the presence of *microscutatus* on San José Island, and Mittleman reports examining specimens of *nigricaudus* from there. I have seen a typical specimen (A.M.N.H. No. 77533) of *microscutatus* (145 dorsal scales, occiput to rump) from San Francisco Island immediately to the south of San José Island.

In explaining the occurrence of both species on the same island, Mittleman places emphasis on habitat differences between the species. He credits Linsdale (1932, pp. 361-362) with pointing out that *microscutatus* is often found on the ground, while *nigricaudus* is always restricted to an elevated vertical habitat on trees, rocks, and fences. A tabulation

of the data on habitat of *microscutatus* given by Linsdale reveals six specimens found on the ground and 18 in more elevated situations. Murray (1955, p. 37) found *nigricaudus* to be consistently associated with trees or bushes, but several were first located on the ground near a tree. There is no evidence for the statement that "Where the two species occur together, as on San José and Magdalena Islands, they are even then distinct ecologically" (Mittleman, 1942, p. 161).

*Uta stansburiana elegans* Yarrow

*Uta elegans* YARROW, 1882, Proc. U. S. Natl. Mus., vol. 5, p. 442. Type locality, La Paz, Baja California, Mexico.

*Uta concinna* DICKERSON, 1919, Bull. Amer. Mus. Nat. Hist., vol. 41, p. 470. Type locality, Cedros Island, Baja California, Mexico.

South Todos Santos Island (A.M.N.H. No. 77325); South Bay, Cedros Island (A.M.N.H. Nos. 77355–77358); 1 mile north of Morro Redondo Point, Cedros Island (A.M.N.H. Nos. 77360, 77362); 1 mile east and 4 miles south of north tip of Cedros Island (A.M.N.H. Nos. 77363–77371); 2 miles north of Punta Hughes, Magdalena Island (A.M.N.H. Nos. 77375–77384); 3 miles north of Puerto Magdalena, Magdalena Island (A.M.N.H. Nos. 77403–77404); 1 mile southeast of Puerto Cortés, Santa Margarita Island (A.M.N.H. Nos. 77406–77408); 1 mile west of Puerto Cortés, Santa Margarita Island (A.M.N.H. Nos. 77413–77418).

The single specimen from South Todos Santos Island is assigned to the subspecies *elegans* with reservation. On a geographic basis, it would be as reasonable to expect the subspecies *hesperis* there. The specimen has only a single row of postrostral scales, rather than two rows as is usual in *hesperis*. Murray (1955, p. 38), with five specimens available to him from South Todos Santos, considered them *elegans*.

The utas of Cedros Island have been considered to represent a distinct species, *Uta concinna* Dickerson. Among the authors who have recognized this species are Schmidt (1922, p. 655), Linsdale (1932, p. 364), Smith and Taylor (1950, p. 150), and Murray (1955, p. 38). Schmidt remarked that the difference from *Uta stansburiana hesperis* (he included utas on the mainland adjacent to Cedros Island in this form) was slight. Linsdale questioned the justification of giving a separate name to the island lizards. Van Denburgh (1922, p. 241) rated *concinna* a synonym of *U. s. elegans*.

In differentiating *Uta concinna* from *Uta parva* (= *U. s. elegans*) of San Bartolomé Bay (Turtle Bay) on the mainland, Dickerson (1919, pp. 470–471) stressed relative tail length and number of dorsal scales. The

tail length of *concinnea* was given as less than one and one-half times the snout to vent length, while *parva* was said to have the tail twice the length of the head and body. Among 11 specimens from Cedros Island in which the tail appears to be complete, the ratio of tail length to snout to vent length averages 1.55, range, 1.41–1.65. The assumption that *parva* had a relatively longer tail was evidently based on a single specimen, A.M.N.H. No. 5431 (the type specimen had an incomplete tail). Dickerson gave measurements of A.M.N.H. No. 5431 as: head and body, 44 mm.; tail, 80 mm. (tail length/snout to vent length, 1.82). In remeasuring the specimen, which is in good condition, I find the snout to vent length to be 48 mm., tail length, 77 mm. ( $TL/S-V = 1.60$ ). There is no evidence for a difference in relative tail length between the population of the island and that of the mainland.

The dorsal scales of *parva* were said by Dickerson to average about 100 between the interparietal scale and the base of the tail, while an average of 85 was given for *concinnea*. For 24 Cedros Island specimens counted by me, the average is 96.2, range, 90–112. Four paratypes of *parva* from San Bartolomé Bay have 93 to 98 scales, mean, 95.7. There is evidently no difference in number of dorsal scales between the populations.

In the key to the Mexican species of *Uta* given by Smith and Taylor (1950, p. 148), *Uta concinna* keys out through the couplet which reads "Two rows of postrostrals; both internasals separated by 2 scales from rostral." However, I find that in only three of 24 specimens from Cedros Island are there two complete rows of postrostrals. A single row of postrostrals is the usual condition among mainland populations of *U. s. elegans*.

In contrast to the degree of differentiation seen in the populations of San Martín Island and the San Benitos Islands, the Cedros Island utas show no important differences from mainland lizards. I therefore propose that *Uta concinna* Dickerson be placed in the synonymy of *Uta stansburiana elegans* Yarrow. Probably the utas of Natividad Island belong in *U. s. elegans*, though considered to represent *U. concinna*. I have not seen specimens from this island.

Specimens from Magdalena and Santa Margarita Islands also represent *U. s. elegans*, but some variations are worthy of note. A slight reduction in number of dorsal scales over that of the northern specimens may be present. Ten specimens from Magdalena Island average 89.9 scales occiput to rump (range, 81–103), and eight from Santa Margarita Island have a mean of 87.4 (77–94). The data are suggestive but are



based on too few specimens to be at all conclusive. One feature of pattern differentiates the lizards of Magdalena Island from others. The dark axillary blotch, conspicuous in specimens from Santa Margarita Island, Cedros Island, and mainland localities, is wanting or much reduced in the lizards from Magdalena Island.

*Uta mannophorus*, a "species" found on Carmen, Danzante, and Coronado Islands in the Gulf of California, resembles the lizards of Magdalena Island in lacking an axillary spot. This similarity suggested that the same form might range across the peninsula, including islands on both coasts. There is precedent for such a distribution in the lizards *Callisaurus draconoides carmenensis* and *Sceloporus magister monseratensis*. However, a specimen of *Uta* from Agua Verde Bay on the mainland south of Carmen Island bears a conspicuous axillary blotch. Presumably, then, the island populations on each side of the peninsula do not represent the distributional fringes of a single subspecies. A consideration of the edaphic conditions confronting the lizards of Magdalena Island suggests an explanation of the coloration of the island lizards. Magdalena Island consists largely of sand dunes, with rocky headlands present only towards the southern end of the island. The pale coloration with reduced axillary blotch is probably related to adaptation to life on the pale sands that cover the greater area of the island. Migrant populations moving south along the island from the closest approach to the mainland would cross many miles of sand-dune habitat and presumably would undergo strong selection for pale coloration. Santa Margarita Island, on the other hand, offers a minimum of sand-dune habitat. The lizards here retain the axillary blotch and probably were derived from the mainland to the north or east rather than from Magdalena Island. I do not feel that the slight pattern differentiation seen in the population of Magdalena Island entitles that population to subspecific recognition. Adaptation to soil color is a common phenomenon among local populations of *Uta*.

*Uta stansburiana martinensis* Van Denburgh

*Uta martinensis* VAN DENBURGH, 1905, Proc. California Acad. Sci., ser. 3, vol. 4, p. 18. Type locality, San Martín Island, Baja California, Mexico.

San Martín Island (A.M.N.H. Nos. 77332-77339).

The specimens comprising this series were found beneath debris on sandy soil surrounding shacks at Hassler's Cove.

The San Martín Island population of utas constitutes one of the more distinctive variants of the species and has been considered to

represent a distinct species by previous authors. Important characteristics of the subspecies include large size (to 64 mm. in snout to vent length), relatively large dorsal scales (average of 86.2 along the midline from occiput to rear margin of thigh in eight specimens, range, 83–90), and a large axillary blotch. In four specimens, one or both of the internasals are separated from the rostral by only a single postrostral, while in the other four there are two complete rows of postrostrals. The presence of a double row of postrostrals has been used as a key character of the "species" *martinensis*, separating it from *U. s. elegans* (but not from some other subspecies of *stansburiana*).

A small sample (four specimens) from 9 miles north of Rosario on the mainland, a distance of about 30 miles to the south-southeast of San Martin Island, shows some overlap in scale counts with *martinensis*. The dorsal scales range from 88 to 98, mean, 92.7. These specimens, too, have half of the sample with single, and half with double, postrostral rows. I consider them to represent *U. s. elegans*.

*Uta stansburiana stellata* Van Denburgh

*Uta stellata* VAN DENBURGH, 1905, Proc. California Acad. Sci., ser. 3, vol. 4, p. 21. Type locality, San Benitos Islands, Baja California, Mexico.

West San Benito Island (A.M.N.H. Nos. 77347–77354).

Petrel burrows serve as retreats for these lizards, as was noted by Murray (1955, p. 38). Our specimens, however, were found under rocks where capture was simpler.

The dominating color of the dorsal surface of both males and females is brown. The males, when warm, show a generous sprinkling of light spots which are blue in the middorsal region, yellowish tan on the upper flanks, and shade into rust on the lower flanks. On the middorsum, each light blue spot occupies a single scale. The blue spots seem more numerous on *stellata* than on related forms, a situation perhaps related to the finer scutellation of *stellata*. The gular region is deep blue, bordered with bright orange spots. The females appear brown without pattern at first glance. Close examination shows darker paired dorsal spots and a light lateral band.

Among 14 specimens (including some in the collections of the American Museum previous to the Puritan-American Museum expedition) the dorsal scales range from 105 to 124, mean, 113.1. Eleven specimens have a single row of postrostral scales; three, a double row.

*Eumeces skiltonianus* Baird and Girard

*Plestiodon skiltonianum* BAIRD AND GIRARD, 1852, Proc. Acad. Nat. Sci. Philadelphia, p. 69. Type locality, Oregon.

South Todos Santos Island (A.M.N.H. Nos. 77328–77331).

The specimens collected and one that escaped were all under surface litter when first found. The two largest individuals, a male and a female, each measure 64 mm. in snout to vent length. In contrast to the obscure dorsal striping that characterizes individuals of similar size from the Coronados Islands (Zweifel, 1952, p. 10), the present specimens resemble lizards of the mainland in having distinct stripes.

*Cnemidophorus hyperythrus hyperythrus* Cope

*Cnemidophorus hyperythrus* COPE, 1863, Proc. Acad. Nat. Sci. Philadelphia, p. 103. Type locality, Cape San Lucas, Baja California, Mexico.

Two miles north of Punta Hughes, Magdalena Island (A.M.N.H. Nos. 77387–77389); Puerto Magdalena, Magdalena Island (A.M.N.H. No. 77402); 1 mile west of Puerto Cortés, Santa Margarita Island (A.M.N.H. Nos. 77420–77421).

These five specimens are typical of the subspecies *hyperythrus* in possessing distinct paravertebral lines and a somewhat less clearly defined vertebral line. Few *hyperythrus* were seen, a circumstance probably attributable to the lack of extended periods of warm weather during the time available to us for collecting. Relatively low body temperatures (36.8° and 38.4° C.) recorded for two lizards tend to substantiate the suggestion that it was too cool for much activity by this species.

*Cnemidophorus tigris multiscutatus* Cope

*Cnemidophorus tessellatus multiscutatus* COPE, 1892, Trans. Amer. Phil. Soc., vol. 17, p. 28. Type locality, Cedros Island, Baja California, Mexico.

South Bay, Cedros Island (A.M.N.H. No. 77359); 1 mile north of Morro Redondo Point, Cedros Island (A.M.N.H. No. 77361); 1 mile east and 4 miles south of north tip of Cedros Island (A.M.N.H. No. 77373).

The dorsal pattern is largely a reticulum of black and yellowish brown. Narrow paravertebral and dorsolateral lines are present anteriorly in the two smaller specimens (snout to vent length, 49 and 70 mm.), but only a faint trace of the dorsolateral is seen in the shoulder region of the largest specimen (80 mm.). The chin and chest are bright rust color, with black markings in the largest specimen.

Burger (1950, p. 7) used the name *multiscutatus* for populations of *tigris* ranging from the Los Angeles area in California south to beyond Vizcaino Bay. In doing so, he relegated to synonymy the name *stejnegeri* (Van Denburgh, 1894, type locality between San Rafael and En-

senada, Baja California) which had been used for populations covering the same mainland areas in California and Baja California. The *tigris* of coastal southern California possesses distinct light stripes separated by dark fields which are variously spotted or broken. The striped aspect of the pattern is quite different from the obscure reticulum seen in the animals from Cedros Island, and I doubt that it is proper to refer the two populations to the same subspecies. A solution to the problem must await the examination of specimens from the peninsula between Cedros Island and the California border.

Burt (1931, p. 188) recorded *Cnemidophorus tessellatus tessellatus* from the San Benitos Islands. The lizards may represent the same form as is found on Cedros Island, but in view of the distinctness of the *Uta* of San Benitos, there is the possibility that the *Cnemidophorus*, too, may represent a distinct subspecies. I have seen no specimens of *Cnemidophorus* from the San Benitos Islands.

*Gerrhonotus multicarinatus ignavus* Van Denburgh

*Gerrhonotus scincicauda ignavus* VAN DENBURGH, 1905, Proc. California Acad. Sci., ser. 3, vol. 4, p. 19. Type locality, San Martín Island, Baja California, Mexico.

San Martín Island (A.M.N.H. Nos. 77340–77346).

Three lizards found actively foraging had body temperatures of 18.7°, 20.7°, and 22.4° C., while two found under cover were at 16.4° and 16.8° C. The ability to become active at relatively low temperatures must be of considerable importance to animals inhabiting an island such as San Martín, which is frequently shrouded in fog.

*Anniella pulchra pulchra* Gray

*Anniella pulchra* GRAY, 1852, Ann. Mag. Nat. Hist., ser. 2, vol. 10, p. 440. Type locality, California.

South Todos Santos Island (A.M.N.H. Nos. 77326–77327).

One was unearthed when a dead shrub was pulled up. The other was buried in loose soil beneath a rock.

*Hypsiglena torquata baueri*, new subspecies

*Hypsiglena ochrorhyncha klauberi* TANNER, "1944" [1945], Great Basin Nat., vol. 5, p. 73 (part).

TYPE SPECIMEN: A.M.N.H. No. 77374, adult male, captured on the east coast of Cedros Island, Baja California, 1 mile east and 4 miles south of the northern tip of the island, on March 11, 1957, by Richard G. Zweifel.

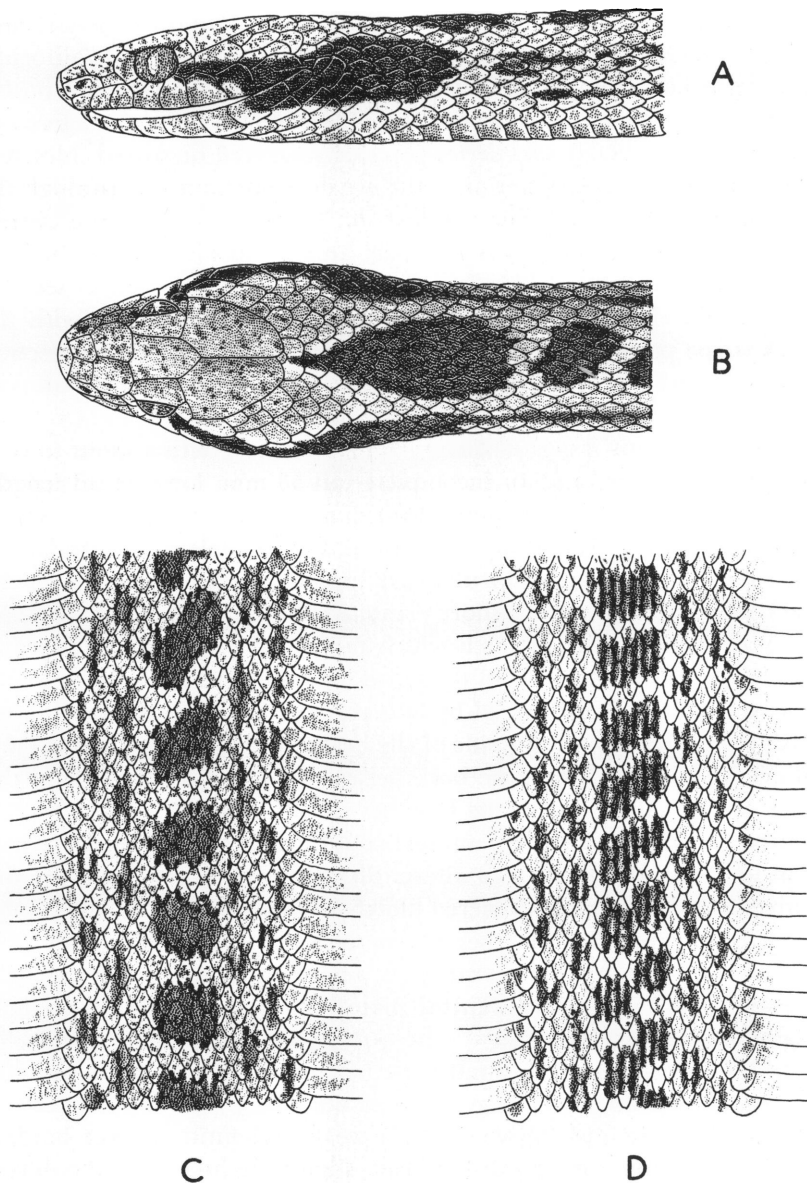


FIG. 1. A. Type specimen of *Hypsiglena torquata baueri*, A.M.N.H. No. 77374, side of head. B. Same, top of head. C. Same, middorsal section of body. D. Intergrade between *H. t. klauberi* and *H. t. venusta*, A.M.N.H. No. 75578, 5 miles north and east of Punta Santa Rosalía, Baja California, mid-dorsal section of body.

DIAGNOSIS: A subspecies of *Hypsiglena torquata* most closely related to *H. t. klauberi* and *H. t. venusta* of the mainland of Baja California. Distinguished from *H. t. venusta* in that the body pattern consists largely of a single row of large blotches with relatively few staggered or alternating, rather than a series of small staggered or paired, blotches. Also, the dark stripe posterior to the eye does not continue through the eye to the nostril as it does in *venusta*. In *H. t. klauberi* the central nuchal blotch seldom shows a strong, anterior projection reaching to within one scale of the parietals, while such a projection is seen in *baueri*. The lateral nuchal blotch is only rarely continuous with the dark stripe posterior to the eye in *klauberi*, while a strong connection is present in the type of *baueri* and weaker connection in the paratype on one side.

DESCRIPTION OF TYPE SPECIMEN: An adult male, with a snout to vent length of 280 mm. and an incomplete tail 53 mm. long. Head length, 13.4 mm.; head width, 7.6 mm.; orbit diameter, 1.9 mm. Ventral scutes 168, subcaudals 48 (incomplete series); supralabials 8/8, infralabials 10/10, preoculars and postoculars 2/2, loreals 1/1; 21 scale rows on the neck and at mid-body, 15 shortly anterior to the vent. Nuchal region with a separate central blotch which tapers to a point anteriorly and reaches to within one scale of the posterior end of the parietals (fig. 1B). The central blotch is flanked by lateral blotches which are continuous with the dark stripe on the side of the head (fig. 1A). A series of 48 dark blotches is present along the back between the nuchal blotch and the base of the tail. A few of the blotches show a diagonal rather than a transverse orientation. The extreme condition of the diagonal orientation is a separation into two alternating blotches. I have adopted the convention of counting staggered blotches as separate, if the line of pigment connecting two blotches is less than one scale wide. There are two rows of alternating lateral spots, and a third row is sporadically present. The ends of the ventral plates possess a sprinkling of dark pigment cells (fig. 1C).

In life the dorsal background color was gray-brown laterally, slightly paler and with a reddish tinge between the dorsal blotches. The dorsal blotches were reddish brown, with a weak, indefinite, darker border. The lateral spots were reddish brown, slightly lighter than the dorsal blotches. The top of the head was slightly redder than the body, but not so dark as the blotches.

PARATYPE: A single paratype is available (U.S.N.M. No. 59371), from the northeast side of Cedros Island. The specimen is a small female

with 189 ventrals and 45 subcaudals (complete). Other details of scutellation are as in the type specimen. The central nuchal blotch is very similar to that described for the type specimen. The lateral blotch is disconnected from the head stripe on one side, but is continuous on the other. There are 48 dorsal body blotches closely similar to those seen in the type specimen.

DISCUSSION: On the basis of the small female specimen, Tanner ("1944" [1945], p. 73, pl. 4) included Cedros Island within the range of the northern subspecies, *klauberi*, and extended the range of that form south to include the Vizcaino Desert to the southeast of Cedros Island. The southernmost specimen of *klauberi* from the mainland of Baja California examined by Tanner was from the Sierra San Pedro Mártir, at least 100 miles north of Cedros Island. The northernmost locality for *H. t. venusta* is San Ignacio, which leaves a segment of over 200 miles of the peninsula of Baja California from which no *Hypsiglena* had been recorded.

A specimen (A.M.N.H. No. 75578) collected recently by C. E. Shaw and C. M. Bogert at 5 miles north and east of Punta Santa Rosalía on the Pacific coast of Baja California falls in the middle of this gap and is pertinent to an understanding of the relationships of *klauberi*, *baueri*, and *venusta*. This individual is an adult male with 181 ventrals and 51 caudals (complete). The central nuchal blotch reaches to the scale behind the parietals and is separated from the left lateral but joined to the right lateral blotch. The lateral nuchal blotches are weakly continuous with the stripes posterior to the eye. There are approximately 83 dorsal body blotches. Only 24 of these are the relatively large, transverse type that predominates in *baueri* and *klauberi*. The rest are staggered or alternating (fig. 1D). In lacking the anterior extension of the dark stripe through the eye to the nostril, this specimen resembles *klauberi*. Continuity between the lateral nuchal blotch and head stripe and the anterior extension of the central nuchal blotch are characters of *venusta*. The relatively large number of body blotches, most of which are staggered or alternating, allies the specimen more closely to *venusta*, a form in which the dorsal body spots are small and either staggered or arranged in opposite pairs (Tanner, "1944" [1945], pl. 3, fig. 7). I regard this specimen as an intergrade between *klauberi* and *venusta*, with strongest resemblance to the latter.

Unless the specimen described above proves to be an anomalous individual, it must be assumed that typical *klauberi* does not range south into the Vizcaino Desert, and that *H. t. baueri* is well isolated from

*klauberi*, which it resembles not only in having a similar body pattern, but in being generally darker in coloration than *venusta* (to judge from preserved specimens).

If differences in scutellation are present between *baueri* and *klauberi*, or between *baueri* and *venusta*, many more specimens will be required to demonstrate them. The count of 168 ventrals seen in the type specimen of *baueri* would be very low for *klauberi* (mean,  $174.0 \pm 0.5$ , range, 166–184, for 58 male specimens from San Diego County, California<sup>1</sup>), but the count of 189 ventrals in the female paratype would be very high for *klauberi* (mean,  $179.5 \pm 0.7$ , range, 169–191, for 39 females from San Diego County). Tanner ("1944" [1945], table 2, p. 42) recorded two male *venusta* with ventral counts of 176 and 184, and seven females ranging from 174 to 190, mean 184. The data on ventral counts are too few to permit reliable analysis.

The type specimen of *H. t. baueri* was found on the ground beneath a piece of cloth by an abandoned shack at the mouth of a wash not far above the high-tide line.

This new subspecies is named for Mr. Harry J. Bauer, whose support made the Puritan-American Museum expedition possible.

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<sup>1</sup> Data gathered by Keith F. Murray and the author for an as yet unpublished review of *Hypsiglena* in California.



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