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A NEW SLIDER TURTLE (*PSEUDEMYS SCRIPTA*) FROM SONORA, MÉXICO

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ABSTRACT: Slider turtles (*Pseudemys scripta*) have not previously been reported in northwestern México (north of the Río del Fuerte drainage). *Pseudemys scripta yaquia* new subsp. is described from 12 specimens (Río Mayo, Conicarit, Sonora). Data are presented for 11 other specimens. The known range of *P. s. yaquia* is in the lower reaches of the Río Mayo, Yaqui, and Sonora drainages, entirely within the state of Sonora. *P. s. yaquia* is regarded as most closely related to *P. s. ornata* on the basis of shared characters; *yaquia* differs from *ornata* in lacking distinct carapacial ocelli and in having an indistinct plastral pattern. The geographical ranges of *ornata* (Río Sinaloa southward at least to Tuxpan, Nayarit) and *yaquia* are separated by that of *P. s. hiltoni* (lower reaches of Río del Fuerte); no intergradation of *hiltoni* with either *yaquia* or *ornata* can be demonstrated. A key to the subspecies of *P. scripta* in northwestern México (*gaigeae*, *hiltoni*, *nebulosa*, *ornata*, and *yaquia*) is presented.

Four subspecies of *Pseudemys scripta* (Schoepff) are known to occur in northwestern México (herein arbitrarily defined by a line from the Big Bend of the Río Grande to Tepic, Nayarit), as follows: *P. s. nebulosa* Van Denburgh 1895, in Baja California del Sur from San Ignacio southward; *P. s. gaigeae* Hartweg 1939, in the Upper Río Grande and its tributaries (Big Bend region and above); *P. s. hiltoni* Carr 1942, in the lower Río del Fuerte of Sonora and Sinaloa; and *P. s. ornata* Gray 1831, on the coastal plain from Culiacán, Sinaloa southward at least to Tuxpan, Nayarit.

There is only one report of *Pseudemys* in the three major Pacific drainages (Ríos Sonora, Yaqui and Mayo) north of the Río del Fuerte in Sonora; Zweifel and Norris (1955) reported a specimen of *P. s. hiltoni* (MVZ 55384) from the Río Yaqui, 20 miles upstream from Cócorit. The specimen cannot be found; Robert C. Stebbins informed Webb that the number is allocated to a lizard.

Since 1963, field expeditions from the University of Texas at El Paso, the University of Arizona (UAZ), the University of Utah (UU), Arizona State University (ASU) and the Los Angeles County Museum (LACM) have obtained 23 specimens of *Pseudemys scripta* from the Sonora, Yaqui, and Mayo drainages of Sonora; the specimens represent a subspecies which is distinct and unrecognized. The name proposed below alludes to the occurrence of this turtle in the land of the Yaqui Indians.

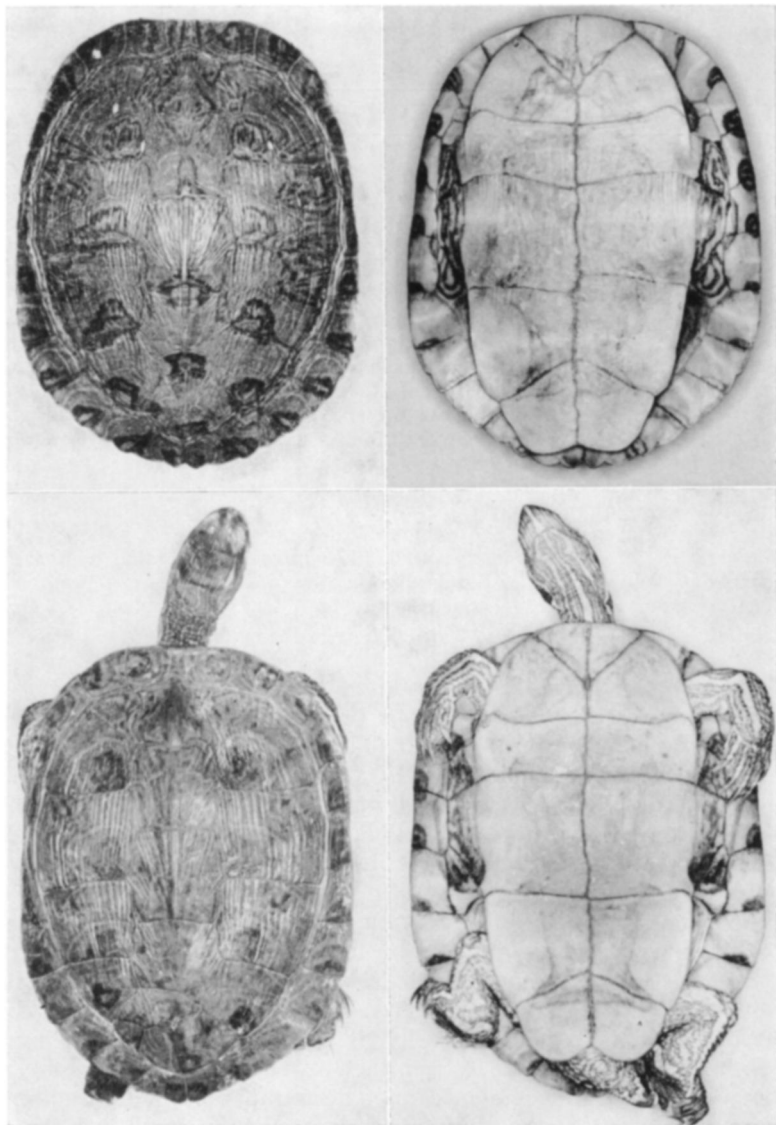


FIG. 1.—*Pseudemys scripta yaquia* new subspecies. TOP: Shell of holotype, UU 6030 ♀, $\times .25$. BOTTOM: Paratype, UU 6031 ♂, $\times .25$.

Pseudemys scripta yaquia new subsp.
Yaqui Slider

Holotype.—University of Utah Museum of Zoology, No. 6030, mature female; Río Mayo, Conicarit, Sonora, México [$27^{\circ} 14' N$, $109^{\circ} 06' W$]; obtained 23 July 1965 by James L. Christiansen (orig-

inal number JLC 1160); prepared as a dry shell with soft parts in alcohol (Figs. 1 and 2, top).

Paratypes.—A total of 11 adult or subadult specimens from the type locality; UU 6028–29*, ASU 6776, females; UU 6031, 6032*, 6033, ASU 6749–52, 6775, males. Numbers marked with an asterisk indicate specimens prepared in same manner as holotype. Paratypes from Arizona State University were collected on 31 August 1966.

Diagnosis.—A subspecies of *Pseudemys scripta* most closely resembling *P. s. ornata* and distinguished from all other members of that species by the following combination of characters (see Fig. 2 for stripe terminology): (1) Postorbital mark yellowish orange, a moderate expansion of a single stripe from eye to base of neck; (2) Ramal stripe usually isolated, shorter than postorbital mark; (3) Tomial edge of mandibular sheath coarsely serrate; (4) Plastral formula Ab. > An. > Fem. > Pec. > Gul. > Hum., humeral scute equal to or longer than $\frac{1}{2}$ of pectoral; (5) Lateral scutes having jagged black blotches at the centers of poorly defined ocelli; (6) Mature males lacking conspicuously elongated snout and foreclaws; (7) Carapacial and plastral patterns obscure in adults of both sexes, plastron never bearing discrete, solid, dark blotches.

Description of subspecies (from holotype and paratypes).—Carapace relatively broad and low (height/width 42–48%; width/length 72–79%) (Table 1), evenly rounded or slightly flat-topped in cross-section; widest at level of marginals 7–8, tending to be straight-sided; anterior and posterior margins evenly rounded, lacking any distinct spiking of scutes (at most a slight scalloping posteriorly); texture of carapace roughened by longitudinal furrows (parallel to shell margins on lateral scutes, radial on centrals); first central scute longer than wide, others wider than long (or length and width subequal); faint trace of mid-dorsal keel on centrals 3–5.

Plastron flat or slightly concave in cross-section (both sexes), slightly roughened by longitudinal furrows; free edges of gulars smooth, nearly straight in ventral aspect, forming a dorsal concavity in anterior aspect; anterolateral projections of gulars blunt and indistinct; anal notch shallow and obtuse; free edges of anterior lobe evenly rounded from bridge to gulars; free edges of femorals nearly straight, curved inward to form a distinct indentation at ano-femoral seam; free edges of posterior lobe having slight ventral reflection in both sexes; width of plastral lobes subequal. Plastral formula Ab. > An. > Fem. > Hum. (11 of 12 specimens); interhumeral seam always shortest, Hum. > (or =) $\frac{1}{2}$ Pec.; an intergular scute present in 9 of 12 specimens.

Choanal flaps fleshy, unadorned, extending $\frac{1}{4}$ to $\frac{1}{3}$ of distance across choanal opening when folded medially.

Tomial edges of maxillary sheath finely serrate, forming a wide V where they meet anteriorly; mandibular tomium coarsely serrate, the individual serrations varying irregularly in size and shape, none conical; single blunt cusp at mandibular symphysis (otherwise no distinctly enlarged cusps on tomial edges of jaw sheaths). Mandibular triturating surface bearing a thickened ridge near medial edge, separated from tomial edge by deep groove; ridge bearing a distinctly enlarged conical tooth at about mid-ramus and several smaller cusps anteriorly; maxillary triturating surface bearing narrow ridge studded with minute cusps, ridge and tomial edge forming walls of groove for insertion of mandibular tomial edge; distinct pit in maxillary groove accommodating man-

TABLE 1.—Measurements (mm) of the holotype (UU 6030) and 11 topotypic paratypes of *Pseudemys scripta yaquia*, new subspecies. Widths of plastral forelobe and hindlobe were measured at humeropectoral seam and mid-femoral scute respectively.

| Collection and Catalogue No. | Sex | Length of Carapace | Width of Carapace | Length of Plastron | Width of Plastral forelobe | Width of Plastral hindlobe | Height of Shell | Width of Head |
|------------------------------|-----|--------------------|-------------------|--------------------|----------------------------|----------------------------|-----------------|---------------|
| UU 6028 | ♀ | 309 | 239 | 285 | 140 | 134 | 120 | 49 |
| UU 6029 | ♀ | 289 | 221 | 266 | 122 | 119 | 102 | 43 |
| ASU 6776 | ♀ | 273 | 217 | 252 | 122 | 123 | 97 | 39 |
| UU 6030 | ♀ | 241 | 187 | 226 | 112 | 106 | 88 | 36 |
| ASU 6749 | ♂ | 268 | 193 | 241 | 111 | 110 | 92 | 38 |
| UU 6032 | ♂ | 256 | 194 | 230 | 108 | 108 | 84 | 37 |
| UU 6031 | ♂ | 240 | 177 | 216 | 104 | 98 | 75 | 34 |
| ASU 6750 | ♂ | 236 | 181 | 208 | 100 | 100 | 80 | 33 |
| ASU 6775 | ♂ | 232 | 179 | 214 | 102 | 99 | 79 | 35 |
| ASU 6752 | ♂ | 230 | 174 | 213 | 97 | 97 | 78 | 34 |
| UU 6033 | ♂ | 216 | 162 | 191 | 87 | 90 | 70 | 29 |
| ASU 6751 | ♂ | 211 | 163 | 189 | 89 | 85 | 71 | 31 |

dibular triturating cusp. Head broadest across tympana. Snout slightly upturned and attenuate in males, unmodified in females.

Major markings of head and neck consisting of pale, dark-bordered stripes (Fig. 2) as follows: a postorbital stripe from posteriormost edge of orbit (or narrowly separated from orbit) to base of neck, expanded (3 to 4 times) in temporal region to form elongate postorbital mark; a primary orbitocervical stripe extending without interruption from lower posterior border of orbit at least to anterior part of neck on ventrolateral surface, thereafter variously interrupted, joined to transverse stripes, or extending to base of neck; primary orbitocervical wider on neck than on side of head but nowhere wider than $\frac{2}{3}$ of expanded postorbital mark; postorbital and primary orbitocervical constitute two most evident stripes seen in profile of head, the latter being more distinct by virtue of being paler and having darker borders; aforementioned stripes separated by a variable number of less distinct lateral orbitocervicals, the most evident passing obliquely through upper $\frac{1}{2}$ of tympanum; a ramal stripe extending from middle of mandibular ramus to mandibular angle, isolated, or joined to stripes in gular region, almost never joined to primary orbitocervical; a symphyseal stripe beginning on mandibular symphysis and extending posteriorly to gular region where it bifurcates to form a Y or is narrowly separated from such branches (isolated in 3 of 12 specimens). Exposed skin at oral angle (mouth open) immaculate or bearing nebulous dusky markings (no distinct stripes). Dorsal field between postorbital stripes bearing numerous, fine, usually undulating, pale stripes, the most distinct of which is median and extends from top of snout to mid-parietal region. Anterior antibrachial surface bearing numerous pale stripes on a dark field, the widest and most distinct of which extend to second, fourth, and third digits.

Coloration of preserved specimens.—Ground color of soft parts (alcohol fixation) various shades of brownish olive to buffy brown, a tendency to more neutral slaty colors after formalin fixation; pale

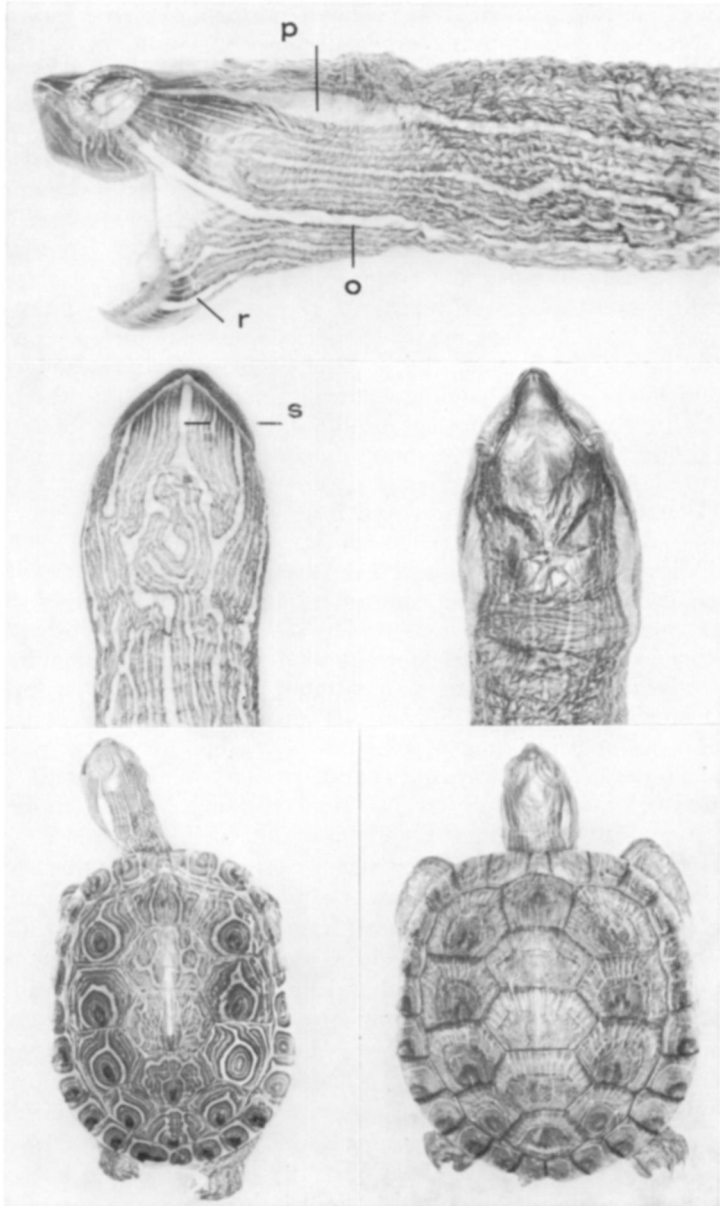


FIG. 2.—TOP and CENTER: *Pseudemys scripta yaquia* new subspecies, head of holotype (UU 6030 ♀); lateral view $\times .90$, dorsal and ventral views $\times .72$. Abbreviations for head stripes: p = postorbital; r = ramal; o = primary orbitocervical; s = symphyseal. BOTTOM: Left. *P. s. ornata*, UU 3821 juv., Río Baluarte, $\frac{1}{2}$ mile E Rosario, Sinaloa, $\times .56$; Right. *P. s. yaquia*, UU 12486 juv., Río Chico, 1.5 miles N Nuri, Sonora, $\times .86$.

stripes chiefly cream to straw yellow; postorbital stripe and mark much darker, dull orangish, especially on upper anterior part; dark borders of stripes various shades of brown, seldom actually black.

Ground color of carapace brownish olive to dark buffy brown; darker markings dark brown to black, paler markings dark buffy yellow or tawny yellow. All interlaminal seams narrowly darkened. Laterals bearing modified ocelli, each ocellus consisting of one or two thin, pale peripheral rings and a darker center with indistinct boundaries. Ocelli situated on posterior portions of laterals and complete only to posterior edges of those scutes. Central scutes bearing parenthetical or hourglass figures defined by pale lines enclosing irregular dark marks. Superior marginal surfaces bearing dark-centered ocelli on posterior $\frac{1}{2}$ of each scute, those at level of second lateral scute spanning intermarginal seams, the others not. First three superior marginal ocelli indistinct. Pattern of laterals and centrals distinct only in young specimens, partially or completely obscured in adults.

Ground color of plastron and inferior marginal surfaces straw yellow; dark plastral markings dusky, blackish brown; all interlaminal seams narrowly darkened. Central plastral figure of the concentric *Chrysemys* type, continuous (or nearly so) from posterior gular angle to anterior anal angle, relatively narrow except for expansions along transverse interlaminal seams, never extending to free edges of plastron, never contiguous with pattern of bridge; plastral pattern distinct in youngest specimens, obscure in largest specimens; ventral plane of plastron never bearing discrete, solid, dark blotches. Bridge bearing concentric dark markings with longitudinal orientation. Inferior marginal surfaces bearing indistinct, dusky ocelli, concentrated chiefly anterior to intermarginal seams. Markings of bridge and inferior marginal surfaces tending to become solid and less distinct with age.

Coloration of living specimens (from field notes and color photographs).—Plastron approximately as described, but brighter, more greenish yellow in life. Peripheral rings of carapacial ocelli and markings on centrals pale orange to pale orange-yellow; ground color of carapace as described but richer brownish in life, especially when wet. Postorbital mark and adjacent parts of stripe dark orange-yellow to near brownish red. Primary orbitocervical golden yellow; ramal and symphyseal stripes cream yellow, slightly orange-yellow on and near mandibular sheath; stripes at base of neck tending to be more orangish than farther anteriorly; stripes on top of head darker than others, dark buffy yellow to dull orange. Iris yellow with pale orange tinge and horizontal black stripe. Stripes and blotches on limbs ranging from dark gold to cream yellow, those on anterior surfaces generally darker than those on posterior surfaces.

Geographic range.—Localities for the 23 known specimens of

P. s. yaquia probably define the bulk of the geographic range of the subspecies—the Sonora, Yaqui, and Mayo drainages, in their lower reaches, probably below elevations of 2,000 feet. It seems unlikely that the geographic range extends out of the state of Sonora. Sliders could occur in southwestern Chihuahua, approximately 35 miles N and 11 miles E of Conicarit where the Río Mayo flows out of Chihuahua, just south of San Luis Babarocos. Legler has collected turtles (*Kinosternon sonoriense* and *K. h. hirtipes*) in the headwaters of the Yaqui in extreme western Chihuahua (Ríos Papigochic and Tomuchic); habitats in these streams were judged to be unsuitable (fast water in deep rocky gorges) for *Pseudemys*. The headwaters of the Yaqui (Ríos Bavispe and Moctezuma) in northern Sonora and southern Arizona should be investigated for possible populations of *P. s. yaquia*. The Río Magdalena of northern Sonora is now dry in summer and intermittent at other times because of irrigation practices. Prior to the 1950's the stream was shallow but permanently flowing (Miller, 1945). Charles H. Lowe (in conversation with Webb) is of the opinion that *Pseudemys* probably has not occurred in the Río Magdalena in modern times.

Habitat.—*Pseudemys scripta* demonstrates remarkable versatility in colonizing a wide variety of permanent and temporary aquatic situations (Moll and Legler, *in press*). Although the Ríos Mayo, Yaqui, and Sonora are permanent streams, they become shallow in the dry season, restricting habitable situations for sliders to impoundments, deep channels, and interconnected pools. Man's hydrological works in northern México may have created more consistently favorable habitat than formerly existed.

The type locality consists of a deep channel and several contiguous oxbow pools immediately below the dam forming the Presa Mocuzari on the Río Mayo. Many large sliders were seen basking at the surface in the fluvial channel. The type specimens were captured in baited hoopnets set on mud bottom in 2 to 8 feet of water near the banks of the pools. Water in the pools was greenish (but fairly clear), smelled strongly of sulfur, and had no detectable current. The pools were partially bordered by cattails. James L. Christiansen observed dense beds of rooted, submergent, aquatic vegetation in the channel.

Webb obtained five specimens of *P. s. yaquia* from hoopnets in a flood pond of the Río Yaqui, 7 miles N Ciudad Obregón, Sonora. The pond was shallow (average depth 2 feet), had a bottom consisting of soft mud and organic material up to 2 feet deep, and contained floating mats of water hyacinth and some fringing cattails. Three specimens were taken in quiet pools of a small headwater stream (Río Chico) of the Río Yaqui, 1.5 miles N Nuri, Sonora.

Ontogenetic variation.—The only juvenile of *P. s. yaquia* examined (UU 12486, Fig. 2) has a carapace length of 57 mm and is

probably in its first full year of growth. It shows the markings of shell and soft parts more clearly than any larger specimen; the carapacial ocelli are nonetheless faintly indicated, their pale rings having indistinct dark borders and the centers being dark brown. Ground color of the carapace is paler than in adults and the ground color of the plastron is cream, having only a slight tinge of yellow. Ground color of the soft parts is slaty olive and lacks the overall brownish aspect of adults from the Mayo drainage.

The carapace of mature males is somewhat darker and less distinctly patterned than females. The converse is true of the plastron; adult males tend to maintain a more distinct plastral pattern, whereas it becomes obscure in larger females. Carapacial ocelli are obscured in adults of both sexes as brown pigment is deposited in the longitudinal furrows of the shell.

Sexual maturity was judged for females by gonadal examination and for males by development of secondary sexual characteristics (chiefly enlargement of precloacal region of tail). All males examined were mature, the smallest (LACM 7305) having a carapace length (CL) of 162 mm. The two largest female paratypes (UU 6028-29, CL 309 and 289) bore enlarged ovarian follicles, the latter having 22, each about 18 mm in diameter. The holotype (UU 6030, CL 241) bore 14 enlarged follicles ranging from 9-16 mm, indicating possible recent maturity. Three immature females from the Yaqui drainage (UU 12487, 89, 90) had carapace lengths of 223, 182, 173 mm respectively; a fourth (UU 12488) was mature at CL 204.

None of the mature topotypic females obtained on 23 July 1965 bore any indication of corpora lutea nor did any contain oviducal eggs. It is assumed that those bearing enlarged follicles had not produced eggs in that season but would do so later. It is of interest that females of *P. s. hiltoni* (UU 6037-38) obtained in the Río del Fuerte on the same date bore oviducal eggs or greatly enlarged (25 mm) preovulatory follicles.

Geographic variation.—It will be difficult to assess geographic variation in *P. s. yaquia* until more specimens are available and direct comparisons of live specimens from the three drainage systems can be made. Sufficient material is available from the Mayo and Yaqui drainages to suggest that geographic variation is minor.

An intergular scute occurs in 75% of the type specimens (Mayo drainage) but in only one of the 11 other specimens examined (UU 12486). Preserved specimens from the Yaqui drainage differ slightly from those in the Mayo as follows: the ground of the carapace is somewhat paler and more richly brown, and pale stripes on the head and neck are more distinctly dark-bordered. The postorbital mark of living specimens from the Yaqui drainage has a redder tinge than in those from the Mayo.

Relationships.—A detailed account of the taxonomy and distribution of *Pseudemys* in northern México is now being prepared (by Legler); for that reason the present account of *P. s. yaquia* is brief. The following taxonomic key will serve temporarily to distinguish five subspecies of *P. scripta* in northwestern México.

We consider *P. s. yaquia* to be most closely related to *P. s. ornata*, on the basis of shared characters. The two subspecies are best distinguished by shell markings, *ornata* having a distinct plastral pattern and distinct carapacial ocelli at all ages, both patterns being less distinct, especially with age, in *yaquia*. Both subspecies belong to a group of sliders occurring in the Pacific drainages of western México (including *P. s. grayi*), in which the tomium of the mandible is coarsely serrate.

Pseudemys scripta hiltoni and *P. s. nebulosa* are closely related but quite distinguishable. They are here regarded as members of *P. scripta* because their distinguishing characters are all variously expressed elsewhere in that species. Their relationship to other subspecies of *P. scripta* is, however, not so evident as former works have suggested (“*gaigeae* group,” Carr, 1942; Williams, 1956; Legler, 1960).

Pseudemys scripta gaigeae is most closely related to a subspecies in the internal Río Nazas drainage system of Coahuila and Durango, to be described in a subsequent paper by Legler.

The geographic ranges of *P. s. yaquia* and *P. s. ornata* are separated by that of *P. s. hiltoni*, and there is no evidence of intergradation between any of these subspecies. The type locality of *P. s. hiltoni* (Rancho Guirocoba) lies about 35 miles SE of Conicarit; populations are known also at Vado Cuchujaqui (9 miles ESE Alamos, Sonora, UU 3823–45) and at the junction of Highway 15 and the Río del Fuerte (ca. 10 miles N Los Mochis, Sinaloa, UU 6034–43). The ranges of *P. s. yaquia* and *P. s. hiltoni* may, in fact, be separated by as little as 6 to 10 miles in the region northeast of Alamos.

Specimens of *P. s. hiltoni* are known only from the Río del Fuerte drainage. The range of *P. s. ornata* is known to extend from the region of Tuxpan, Nayarit northward to the Río San Lorenzo drainage in the region of El Dorado, Sinaloa (UU 11147–54, 11375–8). No *Pseudemys* have been taken in the two largest drainages to the northwest (Ríos Culiacán and Sinaloa) but Legler has reliable reports that sliders occur in both. The range of *P. s. ornata*, in our opinion, probably extends to the Río Sinaloa drainage and approximates the range of *P. s. hiltoni* as closely as does that of *P. s. yaquia*. The distinctness of *hiltoni* and its seeming lack of intergradation may indicate an earlier colonization of Pacific drainage systems than either *ornata* or *yaquia*.

Recent papers considering the taxonomy of *Pseudemys scripta*

in México (Williams, 1956; Legler, 1960) have considered *P. s. ornata* Gray to be more wide-ranging than it actually is (southward, from both coasts of México, an undetermined distance into Central America). Legler is now preparing a paper which will demonstrate that *P. s. ornata* (type locality at Mazatlán) occurs only on the west coast of México, being replaced by *P. s. grayi* in the Pacific lowlands of the Isthmus of Tehuantepec.

Other specimens of P. s. yaquia examined.—RÍO MAYO DRAINAGE: UU 12449, female, near Navajoa, Sonora. RÍO YAQUI DRAINAGE: UU 12487-90, females, UU 12491, male, 7 miles N Ciudad Obregón, Sonora; UU 12486, juvenile, UAZ 13757-8, males, Río Chico, 1.5 miles N Nuri, Sonora; LACM 7305, male, 11 miles E Esparanza, Sonora. RÍO SONORA DRAINAGE: UAZ 13759, male, Hermosillo Dam (Presa Abelardo Rodríguez L.).

Comparative materials examined.—Aside from specimens mentioned by museum number in the text, 19 specimens of *P. s. nebulosa* and 44 of *P. s. gaigeae* were examined.

Preliminary Key to *Pseudemys scripta* in Northwestern México

1. Postorbital mark a slight expansion of a continuous stripe from eye to base of neck, yellowish orange; mandibular tomium coarsely serrate 4
 Postorbital mark isolated, color variable; if connected with another lateral stripe, contiguous stripe much narrower than 1° orbitocervical; mandibular tomium smooth or finely serrate 2
2. Throat bearing distinct, dark-bordered, pale stripes (7 to 9 at level of posterior border of tympanum, including 1° orbitocervicals); symphyseal stripe usually forming Y — *P. s. gaigeae*
 Throat lacking distinct, dark-bordered, pale stripes; uniformly pale or, if striped, stripes wide and indistinct (no more than 5 at posterior level of tympanum, including 1° orbitocervicals); symphyseal stripe seldom forming Y; midventral markings on throat, if present, more often lance-shaped 3
3. Throat usually uniformly pale between 1° orbitocervical stripes; ramal stripe, if distinct, usually not contiguous with 1° orbitocervical stripe; vertical extension of 1° orbitocervical on tympanum usually contiguous with anterior postorbital stripe; plastral pattern of dark blotches narrow, not distinctly hourglass, not enclosing wide pale central area (completely filled by dark pigment or extremely narrow), gulars often lacking dark markings *P. s. hiltoni*
 Throat uniformly pale or bearing a lance-shaped mark, expanded at level just posterior to tympana, extending from mandibular symphysis to base of neck; ramal stripe usually distinct and contiguous with 1° orbitocervical; vertical

extension of 1° orbitocervical on tympanum usually not contiguous with anterior postorbital stripe; plastral pattern of dark blotches forming hourglass figure extending from humeropectoral seam to anals, enclosing broad pale central area (chiefly on abdominals) which may or may not include other dark marks; marks on gulars and humerals usually separated from main pattern by constriction at humeropectoral seam *P. s. nebulosa*

4. Ground color of carapace dark brown; each lateral scute bearing a distinct ocellus consisting of 2 to 3 pale concentric lines and a darker center; ocellar pattern never lost in adults; dark centers of ocelli not contrasting sharply with ground color; plastral pattern distinct, consisting of four concentric, dusky lines on a pale yellow ground, fading somewhat with age but never completely obscured in adults

..... *P. s. ornata*

Ground color of carapace pale brown; ocelli on laterals faintly distinguishable, bearing distinct dark centers in sharp contrast to ground color; dark centers irregular, often vertically oriented and ragged; entire carapace may be dark brown in old specimens; plastral pattern indistinct except in young; fading to uniform yellowish or obscured by brownish pigment with age *P. s. yaquia*

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ECCRITIC TEMPERATURES OF ZEBRA-TAILED LIZARDS ON THE MOJAVE DESERT

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SEVERAL recent reports have presented data on eccritic temperatures of zebra-tailed lizards, *Callisaurus draconoides* (Brattstrom, 1965; Cunningham, 1966; Mayhew, 1968). We wish to present here additional data on body temperatures of this species so as to extend the knowledge of its thermal requirements.

Field work was done between 23 August and 15 September 1969 on the Mojave Desert near Boulder City, Clark County, Nevada. Vegetation of the study site is desert scrub climax, the dominant plant being creosote bush (*Larrea divaricata*). Hours for collecting were 0530-1030 and 1430-1730 PST.

Cloacal temperatures (= body temperatures) were taken with a Schultheis rapid-registering mercury thermometer immediately following capture of lizards by noosing. Precautions were taken to