

Catalogue of American Amphibians and Reptiles.

Vitt, Laurie J., and Nancy A. Dickson. 1988. *Urosaurus graciosus*.

Urosaurus graciosus Hallowell Long-tailed Brush Lizard

Urosaurus graciosus Hallowell, 1854:92. Type-locality, "Lower California" [= Southern California], restricted to Winterhaven (=Fort Yuma), [Imperial Co.] California by Smith and Taylor (1950). Syntypes, Acad. Nat. Sci. Philadelphia 8550-8555, collected by W. Gabb, Dr. Heerman, and Dr. Horn, date of collection unknown (not examined by authors).

Uta graciosa: Baird, 1859:7. See Remarks.

Uta grattiosa: Coues, 1875:596. Emendation.

Urosaurus ornatus graciosus: Mittleman, 1942:144.

• **Content.** Two subspecies, *graciosus* and *shannoni*, are recognized. See Comment.

• **Definition.** A medium-sized (to 68 mm SVL), streamlined species of *Urosaurus* with a long tail (average tail length 2.24 times SVL). The frontal plate is divided transversely and in contact with the occipital, and post-femoral dermal pockets are absent. Six to eight mid-dorsal rows of scales are enlarged, imbricate, keeled, and of approximately equal size, and change abruptly to granular lateral scales. The dorsal color varies depending upon temperature, but is generally grayish with or without dark chevron-shaped crossbars. The venter is nearly white and the throat is yellowish, but adult males have blue on the ventral surface and throat.

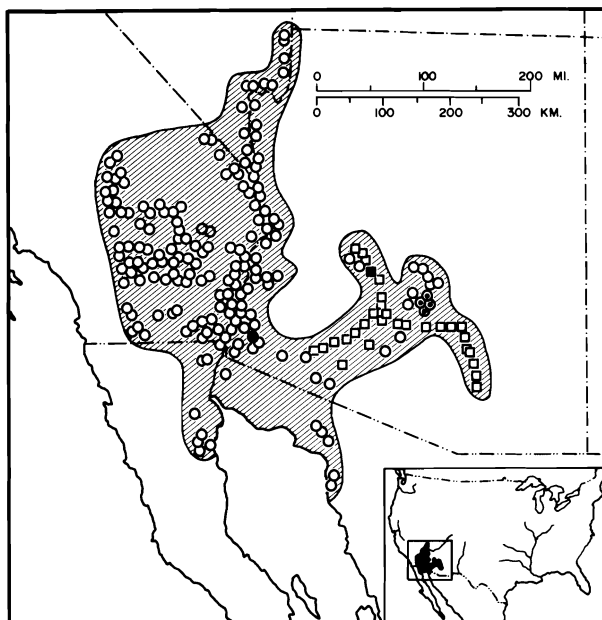
• **Descriptions.** *Urosaurus graciosus* has been adequately described by Cope (1900), Van Denburgh (1922), Mittleman (1942), Smith (1946), Lowe (1955) and Stebbins (1985). Savage (1958) described some osteological features.

• **Illustrations.** Black and white photographs are in Van Denburgh (1922), Smith (1946) and Pickwell (1947). Stebbins (1954, 1964, 1985) provided original drawings. Cope (1900), Mittleman (1942) and Savage (1958) included line drawings of scalation patterns. Carpenter (1962) graphed a display-action pattern. Behavioral postures of males are in Gates (1963) and Barnes (1974).

• **Distribution.** *Urosaurus graciosus* occurs in the Sonoran, Colorado, and Mojave Deserts of southern Nevada, northwestern Sonora and northeastern Baja California Norte, Mexico, through southern California to southwestern and south central Arizona. It was listed erroneously in Colorado until Maslin (1959) revised the faunal list. Boulenger (1885) listed it erroneously from Fort Bliss, New Mexico (= Texas). Mocquard (1899) recorded it at Santa Rosalia, Baja California, a record disputed by Van Denburgh (1922). *Urosaurus graciosus* is strongly arboreal, and has been found at elevations from near sea level to 1070 m.

• **Fossil Record.** None.

• **Pertinent Literature.** *Urosaurus graciosus* is among the best-known desert lizards in terms of ecology, systematics, and distribution. Van Denburgh (1922), Atsatt (1939), and Norris and Lowe (1964) report that *Urosaurus graciosus* has great ability to change color. Shaw (1952) reported on egg and clutch sizes and incubation times. Mayhew (1966, 1968) described the male reproductive cycle and Fitch (1970) commented on reproduction. Gates (1957, 1963) discussed the species' ecology in central Arizona, and Pianka (1967, 1986) included it in studies on species diversity and ecology of desert lizards. Vitt and Ohmart (1975) detailed ecology, reproductive cycles, and reproductive effort along the lower Colorado River. Vitt et al. (1978) described seasonal variation in reproduction in central Arizona. Clutch frequency and egg size characteristics are in Vitt



Map. Solid symbols mark type localities, open symbols indicate other records. Circles with black dots cover areas where both subspecies apparently occur. See Comment.

(1977) and caloric content of eggs and bodies from two populations were described by Vitt (1978). Vitt and Congdon (1978) and Vitt and Price (1982) considered *U. graciosus* in theoretical models relating clutch mass/body mass to foraging modes and predator-escape tactics, and it is included in a statistical analysis of lizard life history traits by Dunham and Miles (1985). Vitt et al. (1981) described the ecological relationships of *U. graciosus* with *U. ornatus* and *Sceloporus magister*, and Congdon et al. (1982) compared water flux rates of *U. graciosus* with those of *U. ornatus*. Carpenter (1962) and Purdue and Carpenter (1972) compared behavioral display patterns with those of other iguanid species, and Barnes (1974) examined possible ecological competition with sympatric *U. ornatus*. Bovee (1966) described a new coccidium from the gall bladder of a Mojave Desert specimen. Cowles (1941) determined that winter activity is temperature-dependent. Mayhew (1968) reported the minimum cloacal temperature of active *U. graciosus* as 16.6 C.

Distributional data are in Hallowell (1854, 1859), Girard (1858), Cope ("1866" [1867], 1900), Yarrow (1882), Stejneger (1890), Meek (1905), Van Denburgh and Slevin (1913, 1921a, b), Camp (1916), Stephens (1918, 1921), Van Denburgh (1922), Schmidt (1922, 1953), Stejneger and Barbour (1923), Burt and Burt (1929), Linsdale (1932, 1940), Burt (1935), Cowles and Bogert (1936), Gloyd (1937), Klauber (1939), Murray (1953, 1955), Lowe (1955, 1964), Blair et al. (1957), Norris (1958), Stebbins (1964, 1985), Banta (1965), Cochran and Goin (1970), Leviton (1971), Welsh (1976), Vitt and Ohmart (1978), and Welsh and Bury (1984).

• **Remarks.** Hallowell (1854) described *Urosaurus graciosus* as similar to *Uta ornata* Baird, except that enlarged dorsal scales extend the length of the dorsum in a broad uninterrupted band. Baird (1859) ignored this initial treatment and placed the species in the genus *Uta*, as then configured. It remained so until Mittleman (1942) placed *graciosus* in the "*Urosaurus ornatus* complex." This arrangement persisted until sympatric *Urosaurus ornatus* and *Urosaurus graciosus* were discovered in the vicinity of Wickenburg, Maricopa County, Arizona by Lowe (1955). *Urosaurus graciosus* has since then been recognized as a distinct species (Stebbins, 1954, 1985).

• **Etymology.** The species name *graciosus* (Latin) means "most

slender," in reference to the streamlined, attenuate body shape. The name *shannoni* honors Dr. Frederick A. Shannon, a well-known Arizona herpetologist.

1. *Urosaurus graciosus graciosus* Hallowell Western Brush Lizard

Urosaurus graciosus Hallowell, 1854:92. See species synonymy.
Urosaurus graciosus graciosus: Lowe, 1955:96. First use of trinomial.

• **Definition.** All mid-dorsal scales of approximately equal size across the rump; coloration pale; pattern greatly subdued with some individuals nearly patternless, especially in the lower Colorado Desert, California.

2. *Urosaurus graciosus shannoni* Lowe Arizona Brush lizard

Urosaurus graciosus shannoni Lowe, 1955:96. Type-locality, "East bank of Hassayampa River, 2 miles west of Morristown, Maricopa County, Arizona." Holotype, Univ. Illinois Mus. Nat. Hist. 67066, male, collected by R. Abbuhl and G. Gates, 3 August 1954 (not examined by authors).

• **Definition.** Two to three mid-dorsal scale rows across the rump reduced in size; males with highly contrasting dorsal pattern of 6 to 7 bold black crossbars on gray background.

• **Comment** The distribution of the species was poorly known when Lowe (1955) described *Urosaurus graciosus shannoni*. It is now known that the east-west distribution is continuous, at least along the Gila River drainage in Arizona to the Colorado River. The scutellation differences defining subspecies are variable enough that museum specimens from the eastern part of the range in Arizona can be assigned to either subspecies. Stebbins (1985) indicated subspecies ranges as well as an intergrade zone which dissects the species range from north to south. The subspecies were distinguished by Stebbins (1985) on the basis of color pattern, which has been demonstrated (Norris and Lowe, 1964) to be highly variable. There has been no taxonomic reassessment since Lowe (1955) described the subspecies. We consider delineation of subspecies' ranges to be of little value until that is done.

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