Catalogue of American Amphibians and Reptiles.

HAHN, DONALD E. 1979. *Leptotyphlops humilis.*

Leptotyphlops humilis (Baird and Girard) Western blind snake

Rena humilis Baird and Girard, 1853:143. Type-locality, "Vallecitas, Cal."; restricted by Klauber (1931) to vicinity of Vallecito, eastern San Diego County, and by Brattstrom (1953) to the Upper Sonoran Life Zone of the Vallecito area. Holotype, U.S. Nat. Mus. 2101, adult, collected by Dr. John L. LeConte in 1850, sex not given (not examined by author).
Stenostoma humile: Peters, 1857:402.
Glauconia humilis: Boulenger, 1893:70.
Siagonodon humilis: Van Denburgh, 1897:150.
Leptotyphlops humilis: Ruthven, 1907:573.

• CONTENT. Nine subspecies are recognized: *boettgeri, cahuilae, dugesi, humilis, levitoni, lindsayi, segregus, tenuiculus,* and *utahensis.*

• DEFINITION. This is one of the largest species of the genus (maximum total length in *L. h. cahuilae* 389 mm). Supraoculars are absent, and a single supralabial is anterior to the ocular. Dorsal scale rows (vertebrals) number 210–308, subcaudals 12–21, and there are 10 or 12 rows around the tail. Five or seven of the dorsalmost scale rows are pigmented in various shades of brown. The mean of body length/diameter ranges from 41 to 63 in the 9 geographical races; mean of body length/tail length ranges from 19 to 25.

• DIAGNOSIS. *L. humilis* is distinguished from all other United States, Mexican and Central American species by the absence of supraoculars, the presence of a prefrontal, and nasals which do not extend posterior to the eye.

• DESCRIPTIONS. Best descriptions are found in Klauber (1940) and Murphy (1975). Other descriptions are found in Boulenger (1893), Cope (1900), Ruthven (1907), Van Denburgh (1922), Stebbins (1954, 1966), Wright and Wright (1957), Smith and Larsen (1974), and Conant (1975).

• ILLUSTRATIONS. Drawings of head scales appear in Cope, 1900 (*boettgeri*); Taylor, 1939 (*cahuilae*); Taylor, 1940 (*dugesi*); Klauber, 1940 (*utahensis*); Schmidt and Davis, 1941; Stebbins, 1954, 1966 (*humilis*); Conant, 1975 (*segregus*); and Murphy, 1975 (*levitoni* and *lindsayi*). Black and white photographs appear in Wright and Wright, 1957 (*humilis*); and Fowlie, 1965 (*humilis, cahuilae, segregus,* and *utahensis*). Color photographs appear in Cochran and Goin, 1970 (*humilis*); Leviton, 1972 (*humilis*); and Shaw and Campbell, 1974 (*humilis*). List (1966) figures the skull and other osteological features of *L. h. cahuilae.* Underwood (1967) discusses and illustrates the visceral anatomy and visual cells. The hemipenes have not been figured or described.

• DISTRIBUTION. *L. humilis* inhabits Lower and Upper Sonoran life-zones from sea level to over 1500 meters in a variety of habitats, but usually in the vicinity of loose soil and moisture. It occurs from the Big Bend area of West Texas westward to southern California, north to southern Nevada, southwestern Utah and southcentral New Mexico, and south to Colima and Baja California, including Santa Catalina, Carmen, Cerralvo and Cedros islands. Distribution maps are in Klauber (1940), Stebbins (1954, 1966), Wright and Wright (1957), Conant (1975), Fowlie (1965), Shaw and Campbell (1974) and Hardy and McDiarmid (1969).

• FOSSIL RECORD. None.

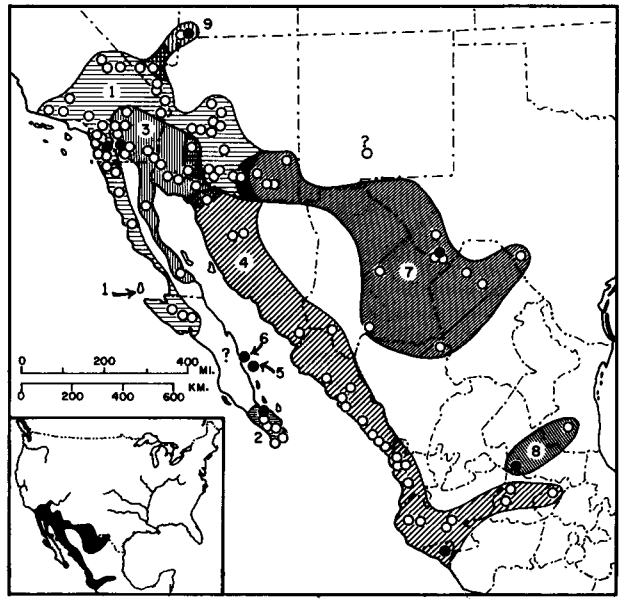
• PERTINENT LITERATURE. Klauber's (1940) revision is the most comprehensive work on the taxonomy and ecology of this species, and provides a summary of distributional data and a review of the literature prior to 1940. Brattstrom and Schwenkmeyer (1951) comment on abundance, food habits, parasites, and the effects of moonlight, temperature, and humidity on periods of activity. Wright and Wright (1957) summarize most of the published life history and ecological data for U.S. subspecies. Fitch (1970) summarizes reproductive data. Punzo (1974) presents detailed analysis of food preferences. Mosauer (1936) reports on habitat, locomotion and tracks. Anderson (1956), Kassay (1957), and Vitt and Hulse (1973) report on predators of *L. humilis.* Underwood (1970) describes the eye. Baird (1970) and Miller (1968) describe the anatomy of the ear. McDowell (1972) describes the tongue. Hulse (1971) reports that the integument fluoresces. Dessauer (1970) illustrates the electrophoretic pattern of the plasma proteins. List (1955, 1966) presents osteological data. Fox (1965) and Fox and Dessauer (1962) describe the urogenital system. Murphy (1975) comments on relationships and zoogeography of the races and provides an excellent key to the subspecies. Distribution data are presented by Banks and Farmer (1963), Banta (1953), Brown and Brown (1967), Dixon, Sabbath, and Worthington (1962), Duellman (1958), Bogert and Oliver (1945), Fugler and Dixon (1961), Grinnell and Camp (1917), Hahn and May (1972), Jameson and Flury (1949), Kay (1970), Langebartel and Smith (1954), Leviton and Banta (1964), Lewis (1950), Linsdale (1932), McCoy (1964), Murray (1955), Pequegnat (1951), Raun and Gehlbach (1972), Schmidt (1922), Schmidt and Owens (1944), Schmidt and Smith (1944), Soule and Sloan (1966), Slevin (1950), Tanner and Robison (1960), Twining and Horn (1941), Van Denburgh (1912, 1924), Van Denburgh and Slevin (1913, 1914), Williams, Chrapliwy and Smith (1961), and Zweifel (1954, 1959). Other papers giving Mexican locality records are listed in Smith and Smith (1976).

• REMARKS. Klauber (1940) places this species in the "*dulcis-humilis*" group which is equivalent to the *dulcis* group of Peters and Orejas-Miranda (1970). Other species in this group are *dulcis, affinis, anthracinus, brevissimus, dimidiatus, dugandi, joshuai, koppesi, macrolepis, maximus, bressoni, salgueiroi,* and *unguirostris.* Characteristics of this group are enumerated by Klauber (1940).

• ETYMOLOGY. The Latin *humilis* means small, or ground-dwelling; *boettgeri, dugesi, levitoni,* and *lindsayi* are patronyms for Oskar Boettger, Alfredo Dugès, Alan E. Leviton and George E. Lindsay, respectively; *segregus* refers to the isolated geographical distribution of the race; *cahuilae* is in reference to Lake Cahuila near the type locality; *utahensis* for the state of Utah: and *tenuiculus* is derived from the Latin *tenuis* meaning slender + *culus* meaning small.

1. *Leptotyphlops humilis humilis* (Baird and Girard)

Rena humilis Baird and Girard. See species synonymy.
Leptotyphlops humilis humilis: Klauber, 1931:340.



MAP. Solid circles mark type-localities; open circles are other records. Overlapping patterns indicate areas of intergradation.

• DIAGNOSIS. Differs from all other races in having a combination of 12 scale rows around the middle of the tail, more than 257 dorsals (257–283, $\bar{x}$ = 272), 7 to 9 pigmented dorsalmost scale rows, fifth middorsal scale not much wider, if any, than sixth, and 15–21 ($\bar{x}$ = 17.9) subcaudals.

2. *Leptotyphlops humilis boettgeri* (Werner)

Glauconia boettgeri Werner, 1899:116. Type-locality, "unknown." Smith and Larsen (1974) restricted the type-locality to La Paz, Baja California, Mexico. Holotype, Naturhistorisches Museum, Vienna 15455, adult, sex, date of collection, and collector unknown (not examined by author).
Leptotyphlops humilis slevini Klauber, 1931:338. Type-locality, "La Paz, Baja California Sur, Mexico." Holotype, California Acad. Sci. 53721, adult, collected by J. R. Slevin, 2 June 1921 (not examined by author).
Leptotyphlops humilis boettgeri: Smith and Larsen, 1974:95.

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around tail, 5 pigmented dorsal median scale rows, less than 270 dorsals (244–269, $\bar{x}$ = 253), and 12–18 ($\bar{x}$ = 15) subcaudals.

3. *Leptotyphlops humilis cahuilae* Klauber

Leptotyphlops humilis cahuilae Klauber, 1931:339. Type-locality, "Yaqui Well, San Diego County, California." Holotype, San Diego Soc. Natur. Hist. 2637, adult, collected by the County Road Camp on 15 May 1930, sex unknown (not examined by author).

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around the tail, 5 lightly pigmented dorsalmost scale rows, more than 280 dorsals (280–305, $\bar{x}$ = 295), and 16–21 ($\bar{x}$ = 17.4) subcaudals.

4. *Leptotyphlops humilis dugesi* (Bocourt)

Catodon dugesii Bocourt, 1881:81. Type-locality, "Colima, Mexico." Syntypes, Mus. Nat. d'Histoire Natur. Paris 1651 (2), adults, collected by A. Dugès, date of collection and sexes unknown (not examined by author).
Siagonodon dugesii: Bocourt, 1882:507.
Rena dugesii: Cope, 1887:64.
Leptotyphlops dugesii: Taylor, 1940:538.
Leptotyphlops humilis dugesii: Klauber, 1940:129.

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around the tail, 7 to 9 pigmented dorsalmost scale rows, less than 257 dorsals (231–257, $\bar{x}$ = 242) and more than 15 ($\bar{x}$ = 17) subcaudals.

5. *Leptotyphlops humilis levitoni* Murphy

Leptotyphlops humilis levitoni Murphy, 1975:94. Type-locality, "Isla Santa Catalina, Gulf of California, Mexico [26°40′N., 110°47′W.]." Holotype, California Acad. Sci. 135146, adult, collected by Bruce Feldhammer on 24 March 1972, sex unknown (not examined by author).

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around the tail, 7 to 9 pigmented dorsalmost scale rows, 249–250 dorsals, 14 subcaudals in both known specimens, and lower nasals not pigmented.

6. *Leptotyphlops humilis lindsayi* Murphy

Leptotyphlops humilis lindsayi Murphy, 1975:96. Type-locality, "isla Carmen, Gulf of California, Mexico [25°57′N., 111° 12′W.]." Holotype, San Diego Soc. Natur. Hist. 44386, adult female, collected by Charles E. Shaw and George E. Lindsay on 4 April 1962 (not examined by author).

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around the tail, 7 to 9 pigmented dorsalmost scale rows, infralabials unpigmented in adults, lower nasals pigmented, 243 dorsals, and 14 subcaudals in the single specimen known.

7. *Leptotyphlops humilis segregus* Klauber

Leptotyphlops humilis segregus Klauber, 1939:67. Type-locality, "on Chalk Draw, Brewster County, Texas." Holotype, U.S. Nat. Mus. 103670, adult, collected by T. F. Smith on 11 August 1936, sex unknown (not examined by author).

• DIAGNOSIS. Differs from other races in having a combination of 10 scale rows around the tail, more than 250 dorsals (261–275, $\bar{x}$ = 271), 12–16 subcaudals ($\bar{x}$ = 14), and the 7 dorsalmost scale rows pigmented.

8. *Leptotyphlops humilis tenuiculus* (Garman)

Stenostoma tenuiculum Garman, 1883:5. Type-locality, "San Luis Potosi, Mexico." Holotype, Mus. Comp. Zool. Harvard Univ. 4519, adult, collected by Dr. Edward Palmer in 1879, sex unknown (not examined by author).
Rena tenuicula: Cope, 1887:91.
Leptotyphlops humilis tenuiculus: Klauber, 1940:143.

• DIAGNOSIS. Differs from other races in having a combination of 10 scale rows around the tail, less than 250 dorsals (210 and 244 in 2 known specimens), and 14 subcaudals.

9. *Leptotyphlops humilis utahensis* Tanner

Leptotyphlops humilis utahensis Tanner, 1938:149. Type-locality, "east of the sugar loaf at Saint George, Washington County, Utah." Holotype, Brigham Young Univ. Mus. 662, adult, collected by V. M. Tanner and A. Paxam, 28 April 1938, sex unknown (not examined by author).

• DIAGNOSIS. Differs from other races in having a combination of 12 scale rows around the tail, 7 to 9 pigmented dorsalmost scale rows, more than 280 dorsals (289–308, $\bar{x}$ = 300), 17–20 subcaudals ($\bar{x}$ = 18.0), fourth middorsal scale often divided longitudinally, and fifth dorsal much wider than sixth.

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Primary editor for this account, Larry David Wilson.

Published 6 September 1979 by the SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES.