

Catalogue of American Amphibians and Reptiles.

Jennings, Mark R. 1988. *Phrynosoma coronatum*.

***Phrynosoma coronatum* (Blainville)
Coast Horned Lizard**

Agama (*Phrynosoma*) *coronata* Blainville, 1835:284. Type-locality, "Californiae," restricted to Cape San Lucas, Baja California, México, by Smith and Taylor (1950 a). Holotype, Mus. Nat. d'Hist. Natur. Paris 1921, an adult male collected by Paolo Emilio Botta [in May, 1827] (Guibé, 1954) (not examined by author).

Phrynosoma coronatum: Duméril and Bibron, 1837:318.

• **Content.** Five subspecies are recognized: *coronatum*, *blainvillii*, *frontale*, *jamesi*, and *schmidti*.

• **Definition.** *Phrynosoma coronatum* is a large (65-105 mm SVL), oviparous horned lizard with a dusky-spotted, smooth-scaled venter, two prominent rows of pointed lateral fringe scales (the lower row may be reduced), and 3-4 rows of enlarged gular scales on each side. The dorsal coloration is gray, tan, reddish-brown, or whitish; usually resembling the prevailing soil color. There are two occipital spines, each 3-4 times longer than its basal width, not in contact at the base, and 4-5 temporal spines on each side of the head. The tympanum is visible, and there are no dark stripes on the face.

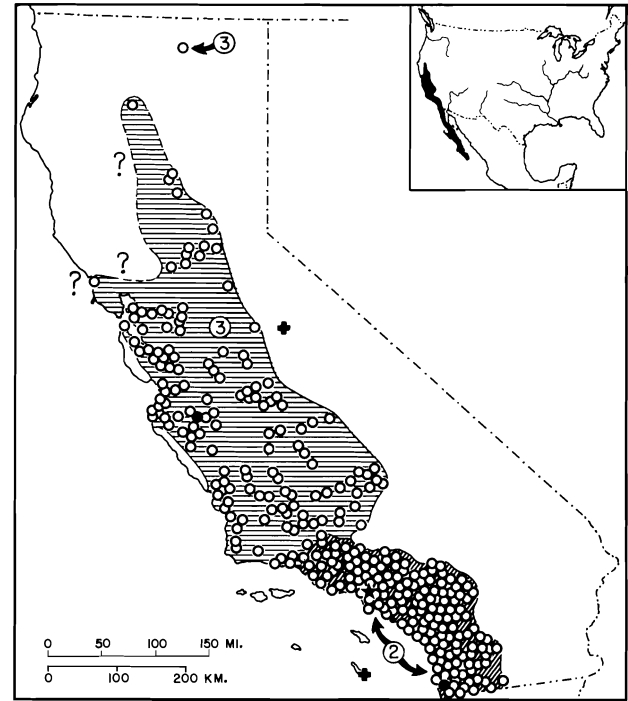
• **Descriptions.** Reeve (1952) described all five subspecies. Other general descriptions are in Hallowell (1853), Gentry (1885), Van Denburgh (1895, 1897, 1922), Cope (1900), Bryant (1911), Smith (1946), Stebbins (1954, 1972, 1985), Sherbrooke (1981), and Montanucci (1987).

• **Illustrations.** Black and white photographs of various subspecies are in Bryant (1911), Schmidt (1922), Van Denburgh (1922), Cuesta Terrón (1932), Smith (1946), Pickwell (1947), Dixon (1967), and Baur (1984); drawings are in Cope (1900) and Stebbins (1954, 1985); and color photographs are in Schmidt and Inger (1957), Behler and King (1979), and Sherbrooke (1981). Black and white photographs of hatching young and a specimen in the process of ecdysis were provided by Shaw (1950) and Pope (1955). Carr (1963) and Leviton (1972) presented color photos of a specimen ejecting blood from the eye.

• **Distribution.** *Phrynosoma coronatum* occurs west of the Sierra Nevada crest from Kennett (now under Shasta Reservoir), Shasta County, California (San Diego Nat. Hist. Mus. 25837), south throughout all of southern California (west of the Mojave Desert) and the Baja California peninsula at elevations from near sea level to over 1,830 m (Reeve, 1952; Stebbins, 1972). A disjunct population occurs at Grasshopper Flat near Medicine Lake, Siskiyou County, California (Banta, 1962). Attempted introductions into Yosemite Valley, Mariposa County, California (Walker, 1946), Smugglers (=Pyramid) Cove, San Clemente Island, Los Angeles County, California (Mearns, 1907), Honolulu, Oahu Island, Hawaii (Jennings, 1987), Bogotá, Colombia, and Guatemala, have failed.

• **Fossil Record.** *Phrynosoma coronatum* was reported from the Pleistocene at Rancho La Brea, Los Angeles County, California (Brattstrom, 1953).

• **Pertinent Literature.** Bryant (1911), Van Denburgh (1922), Smith (1946), Reeve (1952), Smith and Smith (1973, 1976), Pianka and Parker (1975), and Sherbrooke (1981) provide summaries of literature. Other specific topics include: osteology (Cope, 1892; Norris and Lowe, 1951; Avery and Tanner, 1964; Presch, 1969; Montanucci, 1987), musculature (Sanders, 1874), parietal eye (Ritter, 1890), cochlear duct (Miller, 1966), chromosomes (Matthey, 1931; Gorman et al., 1969), body temperatures and thermoregulation (Cowles, 1939; Cowles and Bogert, 1944; Heath, 1962, 1964, 1965;



Map 1. Solid circles mark type-localities, open circles indicate other selected localities. Shading patterns overlap in areas of presumed integration. Question marks indicate uncertain range boundaries. Star marks Pleistocene fossil locality. Crosses indicate unsuccessful introduction attempts. Distribution map continued on next page.

Brattstrom, 1965; Cunningham, 1966), blood ejection from the eyes (Hay, 1892; Stejneger, 1893; Van Denburgh, 1897, 1912; Holder, 1901; Bursleson, 1942; Pequegnat, 1945), changes in skin color and cryptic coloration (Parker, 1938; Cott and Huxley, 1940; Norris and Lowe, 1964), albinism (Shaw, 1963), food and feeding habits (Stephens, 1921; Grinnell and Storer, 1924; Ingles, 1929), predators (Bryant, 1916; Cunningham, 1956; Montanucci, 1965; Eakle, 1984), parasites (Brennan, 1949; Brennan and Jones, 1954), courtship and reproduction (Wood, 1936; Lynn, 1963; Montanucci, 1968; Fitch, 1970; Howard, 1974; Tollestrup, 1981; Goldberg, 1983), intra- and interspecific hybridization (Bauer, 1984), longevity (Porter, 1982; Baur, 1986), and exploitation of wild populations (Tower, 1902; Klauber, 1939; Jennings, 1987). Notes on habitat and general ecology are in Grinnell and Grinnell (1907), Grinnell and Camp (1917), Klauber (1939), Tevis (1944), Stebbins (1954, 1972, 1985), Banta and Morafka (1968), Morafka and Banta (1976), Behler and King (1979), and Basey and Sinclair (1980).

• **Etymology.** The name *coronatum* (L. "coronatus" =crowned), alludes to the crown-like appearance of the temporal and occipital spines. The subspecies names are derived as follows: *blainvillii*, patronym for Henri Marie Ducrotay de Blainville; *frontale* (L. "the forehead") refers to the diagnostic frontal scales; *jamesi*, patronym for Arthur Curtiss James; and *schmidti*, patronym for Karl Patterson Schmidt.

1. *Phrynosoma coronatum coronatum* (Blainville) Cape Horned Lizard

Agama (*Phrynosoma*) *coronata* Blainville, 1835:284. See species account.

Phrynosoma coronatum: Duméril and Bibron, 1837:318. See species account.

Phrynosoma (*Batrachosoma*) *coronatum*: Fitzinger, 1843:79.

Phrynosoma cornutum: Yarrow, 1882:66 (part).

Phrynosoma asio: Yarrow, 1882:67.

Phrynosoma coronatum coronatum: Linsdale, 1932:367. First use of trinomial.

• **Definition.** A subspecies with three or more rows of enlarged gular scales on each side of the throat, postrictal scale rudimentary or absent, five laterally projecting temporal spines (increasing in size posteriorly), and plate-like, rugose, light-edged, frontal scales.

2. *Phrynosoma coronatum blainvillii* Gray San Diego Horned Lizard

Phrynosoma blainvillii Gray, 1839:96. Type-locality, "California." Restricted to San Diego, San Diego Co., by Klauber (1936). Holotype, British Mus. Natur. Hist. 1946.8.10.19 (formerly XXIII.125a), a juvenile (male?) collected by Paolo Emilio Botta in April, 1827 (Klauber, 1936) and presented to the British Museum by Professor Henri Marie Ducrotay de Blainville (not examined by author).

Phrynosoma coronatum: Hallowell, 1853:122.

Batrachosoma coronatum: Girard, 1858:400.

Phrynosoma blainvillei: Cope, 1875:49 (part). Emendation.

Phrynosoma modestum: Yarrow, 1882:64 (part).

Phrynosoma blainvillei blainvillei: Bryant, 1911:5. First use of trinomial.

Phrynosoma blainvillii blainvillii: Grinnell and Camp, 1917:164. Emendation.

Phrynosoma blainvillii: Matthey, 1931:120. Emendation.

Phrynosoma coronatum blainvillii: Linsdale, 1932:349 (part). First use of combination.

Phrynosoma blainville blainville: Cuesta Terrón, 1932:100. Emendation.

Phrynosoma ochoterenai Cuesta Terrón, 1932:109. Type-locality, "Tecate, Baja California," México. Holotype, uncatalogued specimen in the Museo Nacional de Historia Natural de México City, apparently lost (Martín del Campo, 1934; Smith and Taylor, 1950b), collected by José María Callegas.

Phrynosoma coronatum ochoterenai: Martín del Campo, 1934:330.

Phrynosoma blainvillii frontale: Klauber, 1936:103 (part).

Phrynosoma coronatum blainvillei: Schmidt, 1953:133. Emendation.

Phrynosoma coronatum blainvillii: Jennings, 1983:157. Emendation.

• **Definition.** A subspecies with three or more rows of enlarged gular scales on each side, a large postrictal scale, five posteriorly-curved temporal spines, and large, smooth, rounded temporal scales.

• **Remarks.** *Phrynosoma coronatum blainvillii* has disappeared from many metropolitan and agricultural areas of southern California due to habitat destruction and exploitation over the past 100 years (Goldberg 1983; Jennings, 1987, IUCN, in press). Collecting is closely monitored by the State of California (Jennings, 1983) and the subspecies is protected by laws relating to the Convention on International Trade in Endangered Species (Collette and King, 1973; King, 1974).

3. *Phrynosoma coronatum frontale* Van Denburgh California Horned Lizard

Phrynosoma coronata: Holbrook, 1838:65.

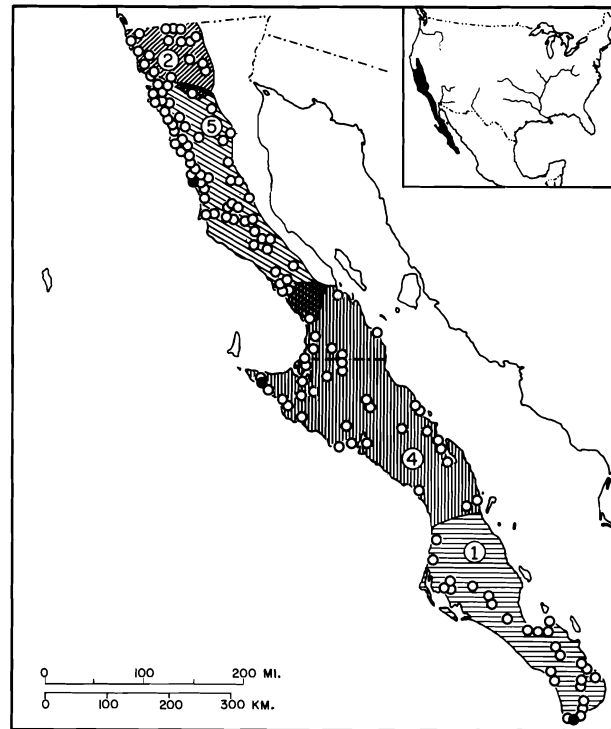
Phrynosoma coronatum: Girard, 1852:36. Emendation.

Tapaya coronata: Cronise, 1868:482.

Phrynosoma blainvillei: Cope, 1875:49 (part).

Phrynosoma blainvillii: Stejneger, 1893:49 (part). Emendation.

Phrynosoma frontalis Van Denburgh, 1894:296. Type-locality, "Bear Valley, San Benito County, California." Holotype, [Calif. Acad. Sci.-]Stanford Univ. 93, an adult male collected by Charles Henry Gilbert and William Wightman Price on March 31, 1893



Map 2. Distribution of *P. coronatum* (continued). Solid circles mark type-localities, open circles indicate other selected localities. Shading patterns overlap in areas of presumed intergradation.

(examined by author).

Phrynosoma frontale: Van Denburgh, 1897:93. Emendation.

Phrynosoma blainvillii frontale: Van Denburgh, 1897:95. First use of trinomial.

Phrynosoma blainvillei frontale: Bryant, 1911:5. Emendation.

Phrynosoma blainvillii frontale: Burt and Burt, 1929:453. Emendation.

Phrynosoma coronatum frontale: Linsdale, 1932:367. First use of combination.

• **Definition.** A subspecies with three or more rows of enlarged gular scales on each side, a large, spine-like postrictal scale, five closely set, posteriorly-curved, temporal spines gradually increasing in size posteriorly, and small, often pointed, rugose frontal scales.

4. *Phrynosoma coronatum jamesi* Schmidt Central Peninsular Horned Lizard

Phrynosoma jamesi Schmidt, 1922:668. Type-locality, "San Bartolomé Bay [=Bahía Tortugas], [Baja California,] México.

Holotype, Nat. Mus. Natur. Hist. (USNM) 64450, an adult female collected by Charles Haskins Townsend on March 14, 1911 (Cochran, 1961) (not examined by author).

Phrynosoma coronatum jamesi: Linsdale, 1932:349. First use of trinomial.

• **Definition.** A subspecies with three or more rows of enlarged gular scales on each side, a moderately developed postrictal scale, four (usually) enlarged, laterally or anteriorly projecting temporal spines on each side of the head (the fourth from the rear is reduced leaving a gap in continuity), and the substrictal scale slightly above the row of chinshields.

5. *Phrynosoma coronatum schmidti* Barbour Northern Peninsular Horned Lizard

Phrynosoma coronatum: Meek (nec. Blainville), 1905:12.

Phrynosoma schmidti Barbour, 1921:113. Type-locality, "Cerros

[=Cedros] Island, [Baja] California, Mexico;" revised to San Quintín, Baja California by Jennings (1985). Holotype, Mus. Comp. Zool. 15142, an adult female collected by Wilmont Wood Brown, Jr. in July, 1906 (examined by author).
Phrynosoma nelsoni Schmidt, 1922:666. Type-locality, "San Quintín, [Baja] California," México. Holotype, Nat. Mus. Natur. Hist. (USNM) 37585, an adult female collected by Edward William Nelson and Edward Alphonso Goldman on August 15, 1905 (not examined by author).
Phrynosoma cerroense: Van Denburgh, 1922:401 (part).
Phrynosoma blainvillii frontale: Klauber, 1936:107 (part). First use of trinomial.
Phrynosoma blainvillii nelsoni: Tinkham, 1951:171.
Phrynosoma coronatum schmidti: Reeve, 1952:886. First use of combination.

• **Definition.** A subspecies with three rows of enlarged gular scales on each side, a medium-sized postrictal scale, five laterally-projecting temporal spines (the posterior three greatly enlarged) on each side of the head, small, pointed, rugose frontal scales without dark pigment, and the substrictal scale distinctly above the row of chin-shields.

• **Remarks.** The closely related *Phrynosoma cerroense*, on Cedros Island, appears distinct from nearby mainland populations of *P. coronatum schmidti* based on scalation and osteological characteristics (Barbour, 1921; Reeve, 1952; Presch, 1969).

• **Comment.** There has been wide disagreement among authorities regarding the *coronatum-blainvillii* complex. Van Denburgh (1922), Klauber (1936), Smith (1946), and Tinkham (1951) recognized two species (each with subspecies), while Linsdale (1932), Tevis (1944), Reeve (1952), and Murray (1955) presented evidence that one species (with several subspecies) is involved. I have followed the latter arrangement based on evolutionary scenarios presented by Savage (1960, 1967) and Murphy (1983).

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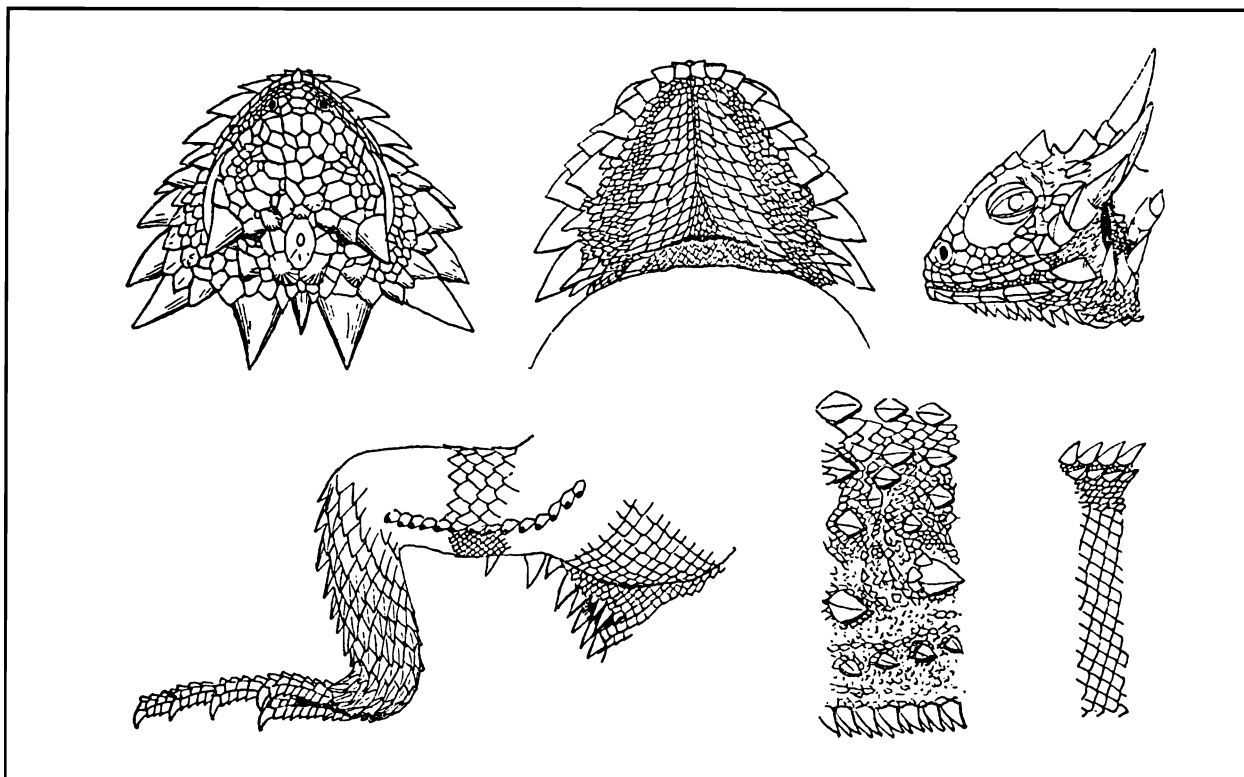


Figure. *Phrynosoma coronatum*, from Cope (1900).

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