ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **ElementCode:** ARADB05011
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Chionactis occipitalis*
COMMON NAME: Western Shovel-nosed Snake, Mojave Shovelnose Snake, Mojave Shovel-nosed Snake, Mojave Desert Shovelnose Snake
SYNONYMS: *Chionactis occipitalis occipitalis, Rhinostoma occipitale, Lamprosoma occipitale*
FAMILY: Colubridae

AUTHOR, PLACE OF PUBLICATION: *Chionactis occipitalis occipitalis* (Hallowell, 1854), Proc. Acad. Nat. Sci. Philadelphia, Vol. 7, p. 95.

TYPE LOCALITY: Unknown.

TYPE SPECIMEN: Unknown.

TAXONOMIC UNIQUENESS: One of three species in the genus *Chionactis*, all of which occur in Arizona. Previously, this taxon was considered the subspecies *C. o. occipitalis,* but was elevated to a full species on the basis of morphological and genetic data (Wood et al. 2014).

DESCRIPTION: This is a small snake of medium girth. Most individuals measure 22-32 cm (8.7-12.6 in) in snout-vent length, and the maximum total length for the species is 37 cm (14.6 in) (Funk 1967, Klauber 1951, Rosen and Lowe 1996). The ground color is uniform solid white to light cream, with solid and dark (brown to dark brown) bands; generally, between 24 and 40. The light background color is uniform in most individuals, but in some individuals, it can contain a hint of color, giving the appearance of faded orange saddles. In southern Nevada, the background color can be mottled with brown, forming narrow brown secondary saddle (Holycross and Mitchell 2020). The posterior black bands usually completely encircle the body but the anterior bands do not. The snout is cream or light yellow. A black mask crosses the top of the head and covers the eyes. Each ventral scute bends upward latterly, as the abdomen is sharply angled. The scales are smooth, shiny and not keeled; the dorsal scales are usually in 15 rows at the mid-body. The head (which is only slightly distinct from the neck) is narrow with a large spade-like scale on the tip of a flat shovel-like snout and is flat and beveled from parietals to snout. The pupils are round. The internasals are not separated by the rostral. The anal plate is divided. A deeply inset jaw, nasal valves, and a flap-like protrusion of the mental scute that occludes the lingual fossa are adaptations to the arenicolous existence of this snake (Stebbins 2003, Brennan 2006, Brennan and Holycross 2006, Holycross and Mitchell 2020).

AIDS TO IDENTIFICATION: *Chionactis annulata* has black primary bands, orange or red saddles, and a dark head crescent that engages less of the posterior edge of the frontal scale (Wood et al. 2014). *Chionactis palarostris* has 21 or fewer black primary bands and a more convex snout (Holycross and Mitchell 2020). *Micruroides euryxanthus* has a black snout and red bands which fully encircle the body. *Chilomeniscus cinctus* has 13 scale rows at the midbody, and the rostral separates the internasals. *Sonora semiannulata* usually has dark pigment at the base of most of the dorsal scales, and does not have a deeply inset jaw or nasal valves (Stebbins 2003, Holycross and Mitchell 2020).

ILLUSTRATIONS:
Color photos (Behler and King 1979: plates 604 and 612)
Color drawing (Stebbins 1985: plate 38 and 2003: plate 45)
Color photo (T.C. Brennan and A.T. Holycross 2006: P. 99)
Color photos (Holycross and Mitchell 2020: p. 117, P. 120)

TOTAL RANGE: Interior deserts of northwestern Arizona, southern California, and southern Nevada.

RANGE WITHIN ARIZONA: Found north of the Bill Williams River in Mohave County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: A nocturnal species that burrows underground in the daytime, but occasionally is found by day in shaded areas. Most surface activity occurs in the spring. Adaptations that allow for a quick swimming movement ("sand swimming") through loose sand, with an s-shaped, side-to-side movement includes smooth scales, flat snout (inset lower jaw), concave abdomen, and nasal valves. The angular, concaved abdomen is also thought to reduce slippage when crawling on surfaces. This species is inactive in cold temperatures and extreme heat. It is rarely seen on the surface except at night, where it is often observed crossing desert roads. It spends most of its time under the sand/soil hunting for inverts. It may be immune or highly resistant to scorpion venom (Norris and Kavanau 1966). *Chionactis occipitalis* is non-venomous, although their saliva is considered to be mildly toxic. They are preyed upon by a variety of carnivores where abundant including various snakes, foxes, coyotes, shrikes, and raptors (Brennan and Holycross 2006).

REPRODUCTION: It is believed that mating activity in this species peaks from April to June, corresponding with peak surface activity (Goldberg 1997). Males likely engage in combat during the breeding season (Holycross and Mitchell 2020). Only a portion of the female population appear to mate each year (Goldberg 1997). Oviposition and egg-laying sites have not been found in the wild, but eggs are likely laid in late spring and early summer (Ernst and Ernst 2003, Stebbins 2003). Average clutch size is estimated as 2-4 eggs or 2-5 eggs, (Klauber 1951, Wright and Wright 1957, Goldberg 1997, Stebbins 2003, Ernst and Ernst 2003).

FOOD HABITS: Actively forage for desert arthropods. Native roaches, larval and pupal insects, and scorpions are regularly eaten, though reptile eggs are occasionally consumed (Holycross and Mitchell 2020).

HABITAT: Intermontane valleys in Mojave Desertscrub. Occurs with fine grained sediment in valley plains, sandy washes, xeroriparian areas, and the periphery of dunes. In Arizona, all museum specimens have been found on Quaternary alluvial and eolian surficial deposits (Holycross and Mitchell 2020).

ELEVATION: In Arizona, found from 200 to 1,250 m (650-4,100 ft) (Holycross and Mitchell 2020).

PLANT COMMUNITY: Mohave Desertscrub. Associated vegetation includes Creosote bush (*Larrea tridentate*), mesquite (*Prosopis* spp.), ocotillo (*Fouquieria splendens*), saltbush (*Atriplex* spp.), and white bursage (*Ambrosia dumosa*) (Holycross and Mitchell, 2020).

POPULATION TRENDS: Unknown. Abundant across much of the range, but distribution and/or abundance in Arizona appears to be limited (Holycross and Mitchell 2020).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: 3 (AZGFD AWCS 2022)
[1C (AGFD SWAP 2012)]
OTHER STATUS: None

MANAGEMENT FACTORS: No major threats have been identified for *Chionactis occipitalis*. It is likely that some local populations have declined as a result of conversion of habitat to human uses. (NatureServe 2006).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Annual surveys for distribution and trend information.

LAND MANAGEMENT/OWNERSHIP: Unknown.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

The genus name *Chionactis* is Greek, where *chion* means snow and *aktis* means ray or beam. The species name *occipitalis* is Latin, pertaining to the back of the head. (Californiaherps.com).

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