

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Animal Abstract**

**Element Code:** ARADE02130

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Crotalus willardi obscurus*  
**COMMON NAME:** New Mexico Ridge-nosed Rattlesnake  
**SYNONYMS:** *Crotalus willardi silus*  
**FAMILY:** Serpentes: Viperidae

**AUTHOR, PLACE OF PUBLICATION:** *C. willardi* (Meek, S.E. 1905. Field Mus. Zool. Ser. 7(1):1-19); *C. w. obscurus* (Harris, H.S., Jr. and R.S. Simmons. 1976. Bull. Maryland Herp. Soc. 11(1):1-7).

**TYPE LOCALITY:** Indian Creek Canyon near Animas Mts., New Mexico (Bogert and Degenhardt 1961); originally referred to as *C. w. silus*, until formally renamed by Harris and Simmons (1976).

**TYPE SPECIMEN:** For the species it is FMNH 902, F.C. Willard.

**TAXONOMIC UNIQUENESS:** Approximately 30 species in genus *Crotalus*. Of the five subspecies of *willardi*, *C.w. willardi* and *C. w. obscurus* occur in Arizona.

**DESCRIPTION:** The New Mexico Ridge-nosed Rattlesnake is a small mountain rattlesnake, up to 668 mm (26.3 in) total length, but most specimens are smaller (Keegan et al. 1999). The color is generally grayish-brown, and a distinct ridge is present on the end of its snout. The upper surface has obscure, irregularly spaced white crossbars edged with brown in a dull pattern. The young are dark brown and have yellow-orange pigment on the labial scales (Degenhardt et al. 1996); they may have yellow or black tails (Holycross 2000).

*C. willardi* is typically gray in coloration with 18-45 dorsal blotches, but some individuals may be brownish or reddish (Degenhardt et al. 1996). *C. willardi* has 23-31 rows of keeled scales at mid-body (Degenhardt et al. 1996). Males have 140-156 ventrals and 24-36 subcaudals; females have 146-160 ventrals and 21-32 subcaudals (Barker 1991). Males have tails 9.1-11.5% of SVL; females only 7.9-9.8% of SVL (Degenhardt et al. 1996). There are 1-3 loreals, 2-3 preoculars, 3-4 postoculars, and 13-14 (12-17) upper and lower labials (Ernst 1992).

**AIDS TO IDENTIFICATION:** *C. willardi obscurus* lacks the vertical white stripe on the rostral and mental scales, and the lateral facial stripes are faded or absent, compared to *C. willardi willardi* (Ernst 1992). *C. w. obscurus* is gray to brownish compared to the brownish to reddish-brown *C. w. willardi* (Ernst 1992).

**ILLUSTRATIONS:** Color photo (Ernst 1992: plate 55)  
Color photo (Campbell and Lamar 1989: figure 435)  
Color photo (Degenhardt et al. 1996: plate 122)

**TOTAL RANGE:** *C. willardi* occurs from south central Arizona and southwestern New Mexico south to Durango and Zacatecas (Lowe et al. 1986). *C. w. obscurus* is known only from the Animas and Peloncillo mountains of New Mexico (and the Peloncillos of Arizona; Holycross and Smith 1997) and the Sierra de San Luis of extreme northeastern Sonoran and western Chihuahua, Mexico (Ernst 1992).

**RANGE WITHIN ARIZONA:** *C. willardi* is found in most of the Sky Island mountain ranges throughout much of southeastern. The species is known from the Huachuca, Santa Rita, Patagoina, Canelo and Whetstone mountain ranges. (Brennan 2008). *C. w. obscurus* is known only from the Peloncillo Mountains of Arizona (Holycross and Smith 1997).

## **SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** Ridge-nosed rattlesnakes are generally secretive and inconspicuous; when encountered they are more likely to rattle and attempt to escape rather than coil and strike (Degenhardt et al. 1996). Individuals from Sierra de San Luis were found hibernating 40-46 cm (16-18 in) deep in talus slopes, and observed basking at air temperatures of 6-9°C (43-48°F, shade) and 26°C (79°F, sun) (Degenhardt et al. 1996). The paleogeography and evolution of *C. willardi* complex were described by Harris and Simmons (1976). Morphology and biochemical characteristics of *C. willardi* complex, and specifically the acceptance of the *C. w. obscurus* taxon, were described by Barker (1992). It uses its venom by injecting it through long, hollow and retractable fangs. *C. willardi* is diurnal, can be crepuscular and is occasionally active during the night at lower elevations. This ground-dweller is occasionally found in tree trunks and on rock outcroppings. As with all other pit-vipers it uses heat sensing pits to detect warm-blooded prey and predators (Brennan 2008).

**REPRODUCTION:** Mating occurs in midsummer to early fall. Brood size averages about 5.5 young (2-9), with the young born from late July through late August (Applegarth 1980; Holycross and Goldberg 2001). Female reproduction is typically biennial or longer (Holycross and Goldberg 2001). The shortest reproductively active specimens measured 402-406 mm (16 in) snout-vent length for females and males, respectively (Holycross and Goldberg 2001). An apparent natural hybrid between *C. w. obscurus* and *C. lepidus klauberi* was reported from the Peloncillo Mountains, New Mexico (Campbell et al. 1989).

**FOOD HABITS:** Applegarth (1980) reported prey including various rodents, birds, lizards, snakes, and arthropods. Barker (1991) also found body parts of the large centipede, *Scolopendra*, in a fecal sample. The juvenile diet consists primarily of lizards and centipedes, while adults feed primarily on small mammals, lizards, and passerine birds (Holycross et al. in press). Its venom will kill and begin digesting its prey (Brennan 2008)

**HABITAT:** The New Mexico Ridge-nosed Rattlesnake occupies Madrean evergreen woodland and Petran montane forest communities (Holycross and Douglas 1997). Most commonly found near drainages with plentiful leaf litter and canopy cover. Often thought did not leave

**ELEVATION:** *C. w. obscurus* occurs at elevations above 1525 m (5,000 ft) (Holycross and Douglas 1997).

**PLANT COMMUNITY:** The species has been described as a montane generalist (Degenhardt et al. 1996; Lowe et al. 1986) but is primarily a denizen of pine-oak woodland. *C. w. obscurus* is found in habitat composed of various oaks, Apache and Chihuahua pines (*Pinus engelmannii* and *P. leiophylla*), alligator juniper (*Juniperus deppeana*), Arizona cypress (*Cupressus arizonica*), Arizona madrone (*Arbutus arizonica*), manzanita (*Arctostaphylos* sp.), and various grasses including *Sporobolus*, *Muhlenbergia*, and *Aristida* (Degenhardt 1972; Degenhardt et al. 1996).

**POPULATION TRENDS:** Population trends are unknown, but it is believed that the New Mexico population could be negatively impacted by habitat destruction or by overzealous and irresponsible collectors (Degenhardt et al. 1996). The subspecies was historically limited in range and never very common.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** LT with Critical Habitat in New Mexico only (USDI, FWS 1978)

**STATE STATUS:** 1A (AGFD SWAP 2012)  
State Endangered (New Mexico Game and Fish 1990)

**OTHER STATUS:** PR, Determined Subject to Special Protection in Mexico (NORMA Oficial Mexicana NOM-059-SEMARNAT-2010)  
[Determined Subject to Special Protection Secretaria de Medio Ambiente 2000]  
[Determined Subject to Special Protection, Secretaria de Desarrollo Social 1994]

**MANAGEMENT FACTORS:** Threats exist due to stand-replacing fire from years of fire suppression and overgrazing; fuel loads should be reduced before allowing or reintroducing large-scale summer fires (Smith et al. 2001). State-imposed limits on collecting permits should be continued.

**PROTECTIVE MEASURES TAKEN:** Critical habitat was designated in the Animas

Mountains in Hidalgo County, New Mexico (FWS 1978). A recovery plan was completed in 1985. New Mexico Ridge-nosed Rattlesnakes may not be collected from the wild in Arizona (Arizona Game and Fish Commission Order 43).

**SUGGESTED PROJECTS:** Determine presence/distribution within the Mule, Dragoon, and Chiricahua mountains (Holycross and Douglas 1997). Determine distribution within the Peloncillo Mountains. Population monitoring during the 10-year Peloncillo Programmatic Fire Plan. Habitat, population, and life history studies are needed.

**LAND MANAGEMENT/OWNERSHIP:** US Forest Service: Coronado National Forest.

## **SOURCES OF FURTHER INFORMATION**

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**ADDITIONAL INFORMATION:**

An additional study on diet (Holycross et al. *in* Biology of the Vipers, edited by G. Schuett) is currently in press.

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