Amphibians & Reptiles

of White Sands Missile Range

FIELD GUIDE

Take the Pattern Recognition Quiz!

See if you can identify the amphibian or reptile represented by each small patch in the collage above. You can check your answers against the key, which is on the inside back cover.

Amphibians and Reptiles
of White Sands Missile Range

Field Guide
2016

by Douglas W. Burkett

Submitted to:

U.S. Army Garrison White Sands
Directorate of Public Works
Environmental Division
White Sands Missile Range, New Mexico 88002

Submitted by:

ECO Inc.
3792 Galina Place
Las Cruces, New Mexico 88012

Striped Whipsnake (*Coluber taeniatus*)

Greater Earless Lizard (*Cophosaurus texanus*)

Western Diamond-backed Rattlesnake (*Crotalus atrox*)

ACKNOWLEDGMENTS

This field guide is a result of information gathered on amphibians and reptiles of White Sands Missile Range during the course of numerous studies over the past 26 years. Contributors to research effort include Doug Burkett, Larry Kamees, Charlie Painter, David Black, Rob Albach, Matt Hartsough, Justin Hobert, Gilbert Villegas, Mike Swink, Erica Rosenblum. Rob Wu assisted greatly in design, formatting, and editorial review.

All photos were taken by Doug Burkett unless otherwise stated. Pattern Recognition Quiz collage consists of photos of animals found on White Sands Missile Range.

Front cover design by Rob Wu. Back cover illustration and design by Rob Wu.

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Banded Rock Rattlesnake (*Crotalus lepidus*)

Couch's Spadefoot (*Scaphiopus couchii*)

Black-tailed Rattlesnake (*Crotalus ornatus*)

PREFACE

The intent of this guide is to provide a list and description of the amphibians and reptiles known to inhabit White Sands Missile Range (WSMR), New Mexico. Possible species that may never be documented due to their secretive nature and scarcity include the New Mexico Milksnake (*Lampropeltis triangulum*) and Many-lined Skink (*Plestiodon multivirgatus*).

This guide is formatted for quick reference to each species including physical description, specific diagnostic characteristics relevant for identification, and brief natural history notes. Size measurements for snakes, lizards, and the Barred Tiger Salamander are given in total length from tip of snout to tip of tail. Measurements for toads are the distance from snout to vent, and the length of the carapace (top of shell) is given for the Box Turtle. All measurements are presented first in metric (centimeter = cm, meter = m), followed by English units (inches = in, feet = ft).

Information on diet and distribution is based on general knowledge collected from literature sources and author observations over the course of 26 years of research across WSMR. Interesting facts are presented for unique information on food items, behaviors, distinctive physical characteristics, and distributions of animals observed in the wild and in captivity.

Scientific names used in this guide follow those recommended in 2015 by the Center for North American Herpetology in partership with the Society for the Study of Amphibians and Reptiles (www.CNAH.org). Deviations from this publication are discussed in the text and are based on information obtained by the author and researchers studying amphibians and reptiles on WSMR.

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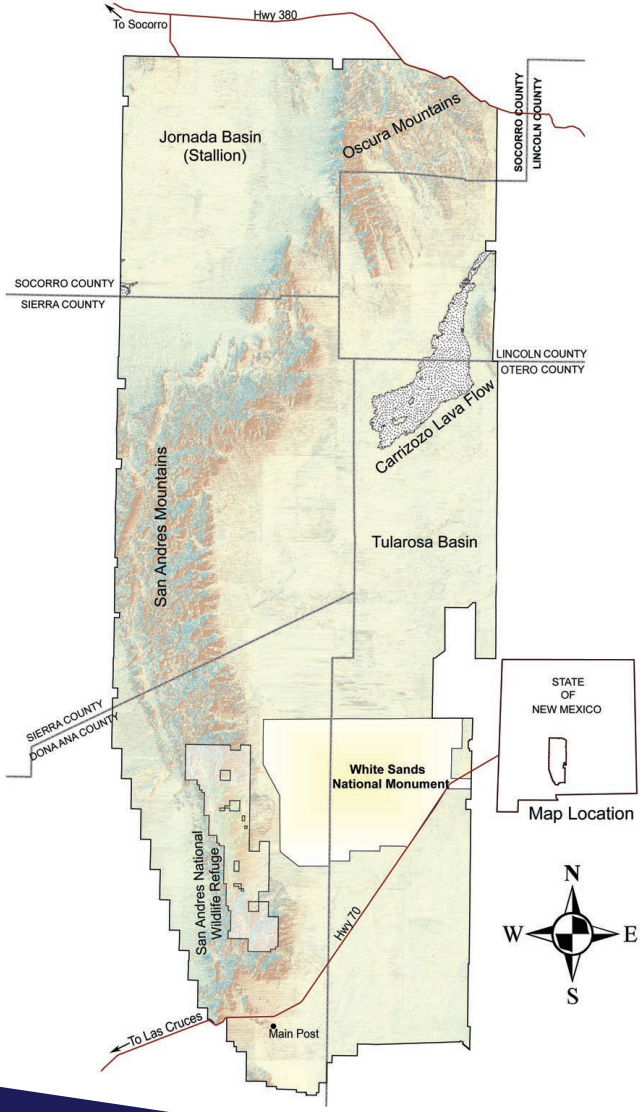
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INTRODUCTION:

White Sands Missile Range (WSMR) is the largest single Department of Defense (DoD) land holding at nearly 2.3 million acres. Much of the land within WSMR boundaries is not impacted by testing and represents some of the most undeveloped land remaining in the southwestern United States. WSMR is managed by the U.S. Army and operated to support DoD readiness programs involving the research, development, testing, and evaluation of weapons and space systems. This portion of south-central New Mexico is at the northern end of the Chihuahuan Desert. WSMR is roughly 104 miles north to south and 39 miles east to west, occupying just under 3% of New Mexico's total land area. White Sands National Monument and the San Andres National Wildlife Refuge are located entirely within WSMR's boundaries and are managed by the National Park Service and U.S. Fish and Wildlife Service, respectively.

Animal diversity reflects the wide range of topography and vegetation across WSMR. Elevations range from below 1220 m (4,000 ft) in the Tularosa Basin to nearly 2750 m (9,000 ft) at Salinas Peak in the San Andres Mountains. The Carrizozo Lava Flow, gypsum dunes, and broad dry gypsum lakebeds interrupt desert scrub habitats that dominate the Tularosa Basin in the south and central portions of WSMR. A permanent stream, Salt Creek, runs a short distance through the central Tularosa Basin portion of WSMR. In the north, broad grassy basins and rolling yucca grasslands intermingle with swaths of sand sage and creosotebush. The San Andres and Oscura Mountains comprise nearly 35% of WSMR's total land area. Broad grassy foothills lead up to steep rocky cliffs that appear almost barren from long distances; however, these areas are vegetated with a multitude of shrubs, grasses, and cacti. Juniper trees give way to piñon pine and a few ponderosa pine at some of the highest mountain peaks on WSMR.

Seven species of amphibians and 48 species of reptiles, representing three orders and 12 families, have been documented on WSMR. These include six species of toads (three spadefoot toads and three true toads), one salamander, one turtle, 20 lizards (including one non-native species), and 27 snakes. Five rattlesnake species occur on WSMR, and bites from all should be considered potentially life-threatening. All other snakes occurring on WSMR are either non-venomous or mildly venomous and are not dangerous to humans.

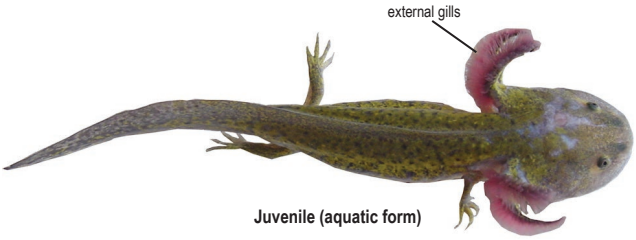
FAMILY *Ambystomatidae* Mole Salamanders

Barred Tiger Salamander (*Ambystoma mavortium*)

Occasionally over 30.5 cm (12 in). Aquatic juveniles (often referred to as water dogs) are pale green or dark gray with large external gills. Semi-terrestrial adults have yellow spots or bars on a black background. This is the only species of salamander that occurs on WSMR, and one of only three in New Mexico. Barred Tiger Salamanders are widely distributed where permanent or semi-permanent water provides breeding habitat. They occur at elevations over 2100 m (7,000 ft) in the Oscura Mountains to below 1220 m (4,000 ft) in the Tularosa Basin. Aquatic invertebrates and toad tadpoles make up the bulk of the aquatic Tiger Salamander's diet. Adult Tiger Salamanders will eat nearly any animal they can swallow, with the exception of noxious invertebrates and adult toads.

Barred Tiger Salamander eating
adult male Side-blotched Lizard

interesting fact:
Barred Tiger Salamanders in captivity are known to eat food items as varied as Side-blotched Lizards to scrambled eggs!



Juvenile (aquatic form)

Adult

FAMILY *Scaphiopodidae* Spadefoot Toads

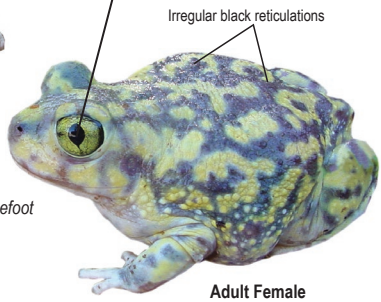
Three species of Spadefoot Toads occur on WSMR in two genera (*Scaphiopus* and *Spea*). Spadefoots are distinguished from True Toads (*Bufonidae*) by their vertical pupils and lack of parotoid glands (large paired wart-like glands just behind the head). Spadefoot and some true toad species have enlarged hardened spades on their hind feet for digging.

Couch's Spadefoot (*Scaphiopus couchii*)

Up to 8.9 cm (3.5 in). Males are green, often with some black markings. Females are greenish-yellow with irregular black reticulations on the back. A pale form occurs on the gypsum dunes of WSMR and White Sands National Monument. This species is widely distributed and common throughout WSMR in mesquite and creosote foothills and basins. Eats soft-bodied invertebrates (Termites are a primary food source.).

hind foot detail

Adult Male

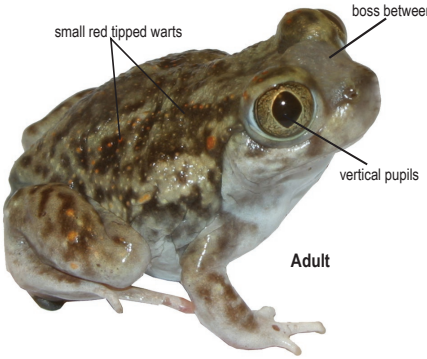


Adult Female

interesting fact:
Skin secretions from all toads are unpleasant and may cause skin and eye irritation; Couch's Spadefoot toads are some of the most noxious.

Plains Spadefoot (*Spea bombifrons*)

Up to 6.4 cm (2.5 in). This drab brown toad typically has a distinct boss (bump) between the eyes. A pale form occurs on the gypsum dunes of WSMR and White Sands National Monument. Plains and Mexican Spadefoot toads may hybridize and can be difficult to distinguish. Tadpoles of the two species are almost impossible to tell apart. This species is predominantly found in desert grassland and sagebrush habitats within WSMR. Eats invertebrates.

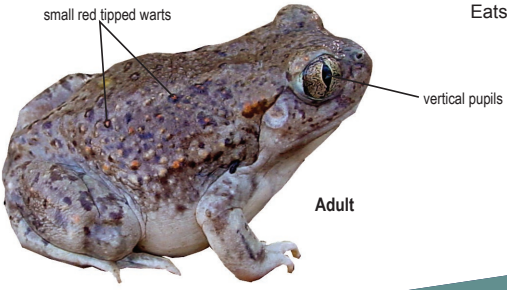


Adult

hind foot detail

Mexican Spadefoot (*Spea multiplicata*)

Up to 6.4 cm (2.5 in). This small toad has a bland coppery brown coloration, sometimes mottled with darker pigments forming an irregular pattern. Small red-tipped warts in young often fade away in adults which have very little or no pattern. The Mexican Spadefoot is very similar to the Plains Spadefoot but lacks the prominent boss between the eyes. The Mexican Spadefoot is found throughout WSMR from mesquite and creosote basins to piñon-juniper habitats in the mountains. Eats invertebrates.



Adult

FAMILY *Bufonidae* True Toads

Three species of True Toads occur on WSMR in the genus *Anaxyrus* (formerly *Bufo)*; all have horizontal pupils and well defined parotoid glands.

Great Plains Toad (*Anaxyrus cognatus*)

The largest toad on WSMR, reaching 11.4 cm (4.5 in). Great Plains Toads have large, oval parotoid glands and conspicuous, often paired, dark greenish or brown blotches. Large spades for burrowing into the soil are present on the hind feet. Very young toadlets, just out of their aquatic tadpole stage, are slick and do not have parotoid glands. These toads are widespread and common throughout WSMR in grasslands and mixed scrub habitats. Eats invertebrates.

Adult

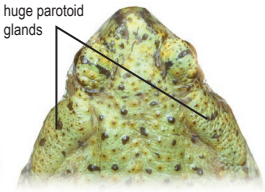
hind foot detail

head detail

Chihuahuan Green Toad (*Anaxyrus debilis*)

The smallest toad on WSMR, reaching 5 cm (2 in). These toads have a flattened physique with proportionally huge parotoid glands. As the name suggests, these little toads are green to yellow with irregular black spots that sometimes connect to form bars. This is a fairly common toad in mesquite, grassland, and creosote basin areas, up to low rocky foothills. Eats invertebrates.

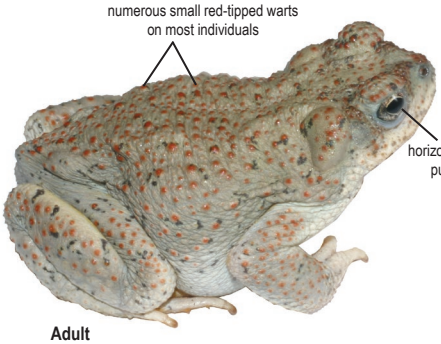
Adult



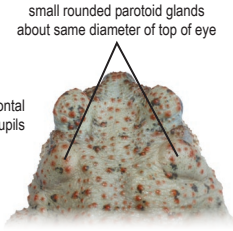
Head detail

Red-spotted Toad (*Anaxyrus punctatus*)

Up to 7.6 cm (3 in). Red-spotted Toads have small rounded parotoid glands, a blunt triangular head, and a drab gray or brown body. The amount of red coloration on the numerous small warts varies among individuals and local populations. Some individuals appear dull gray with no red at all. This toad prefers rocky habitats: it is the most abundant toad in foothills and the only toad found in mountain canyons throughout WSMR. Eats invertebrates.



Adult



Head detail

FAMILY *Emydidae* Box and Water Turtles

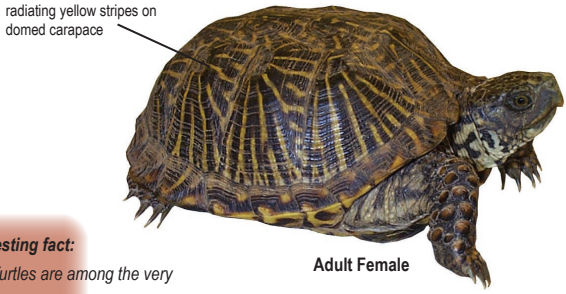
Box Turtles live on land and are capable of almost completely enclosing themselves inside their shells with their hinged plastron (bottom of shell). No Water Turtles are known to naturally occur on WSMR.

Juvenile Ornate Box Turtle

interesting fact:
One species of Box Turtle has adapted to life in the desert springs of Cuatro Ciénegas, Mexico, by becoming partially aquatic.

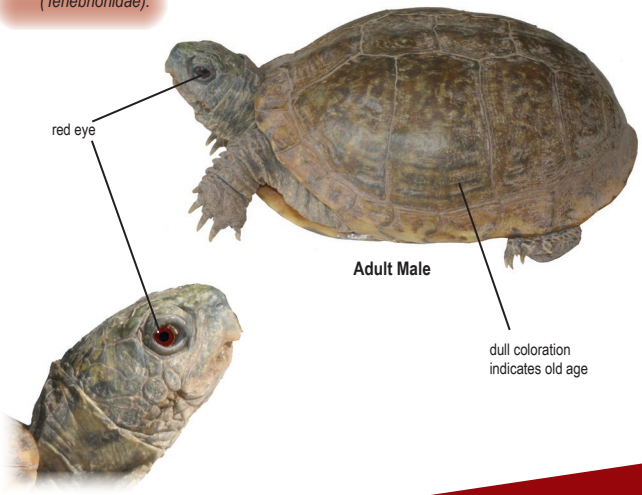
Ornate Box Turtle (*Terrapene ornata*)

Up to 15.25 cm (6 in). The domed, slightly oval shell is brown with yellow radiating stripes that fade with age. As Box Turtles age, they become dull green, losing the yellow stripes completely. Adult males have red eyes while a female's are brown or pale yellow. Box turtles spend most of their lives in underground burrows and are most active following summer rain. These turtles, most abundant in sandy soils, are also found in various habitats up to about 1980 m (6,500 ft) elevation. Eats a wide variety of vegetation, including cacti, and a variety of invertebrates.



Adult Female

interesting fact:
Box Turtles are among the very few animals known to consume noxious Darkling Beetles (Tenebrionidae).



Adult Male

FAMILY *Crotaphytidae* Collared and Leopard Lizards

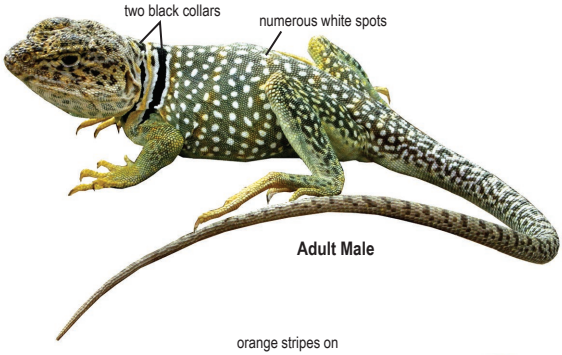
This family occurs only in western North America, from southern Oregon down to northern Mexico, and is represented on WSMR by Collared and Leopard Lizards. Both of these species are large predatory lizards with powerful jaws. Collared Lizards are well known for their propensity to flee danger by running on their hind legs, using their long tails for balance. Other lizards on WSMR, including Leopard Lizards and Marbled Whiptails, are also capable of this type of locomotion but do not do use it as often.

interesting fact:
Displaying the voracious predatory nature for which this species is famous, a Collared Lizard in captivity consumed three newborn Garter Snakes (Thamnophis).

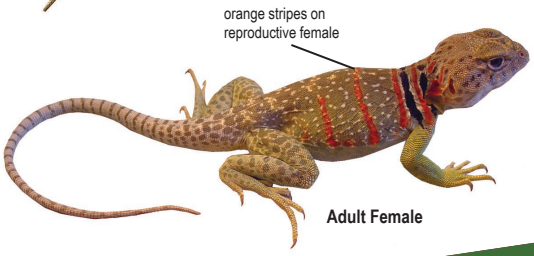
Collared Lizard (*Crotaphytus collaris)*

Up to 35.5 cm (14 in), including tail. These lizards have a broad head, two black collars (typically broken), and a rounded tail with faint banding. Coloration varies from drab brown to green, with numerous white spots and yellow feet. Females develop orange spots and stripes during breeding season. Occasionally found in basin grassland and shrub habitats, they are most common in foothill and mountainous regions. These lizards frequent roadsides where they perch on large rocks waiting to rush and ambush prey. Collared Lizards are known to occur from Oscura Peak at over 2600 m (8,000 ft) to below 1280 m (4,200 ft) in the Tularosa Basin. Eats a wide array of invertebrates and smaller lizards.

Neonate



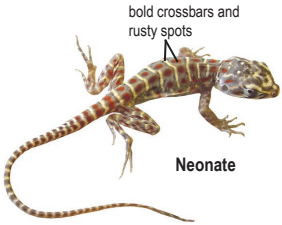
Adult Male



Adult Female

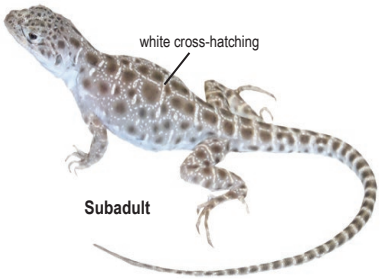
Long-nosed Leopard Lizard (*Gambelia wislizenii*)

Up to 37 cm (14.5 in) including tail. The color and pattern go through several changes as the lizard matures. A newborn's rusty spots and distinct white crossbars change to brown spots with white cross-hatching in sub-adults. As adults, the brown spots are surrounded by a halo of white spots in a complex patchwork. Females develop bright orange spots on the body and underside of tail during breeding. These secretive lizards are capable of dramatically changing color and blend well with their surroundings. Unlike the closely related Collared Lizard, this species does not hunt from high on a rock but lies low and inconspicuous, waiting to ambush prey. Most commonly observed in mesquite dunes, this lizard also occurs in desert scrub habitats up into foothills and low canyons. Eats lizards, invertebrates, and small mice.

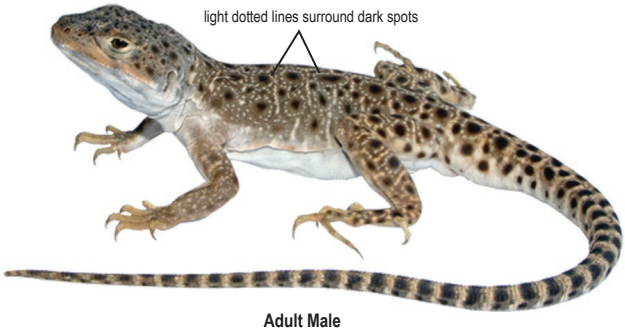


Neonate

interesting fact:
This is the only species of lizard on WSMR in which females grow significantly larger than males.

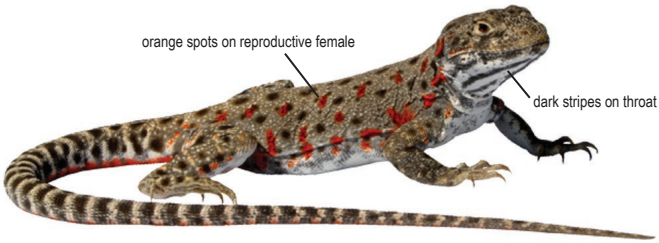


Subadult



Adult Male

interesting fact:
Leopard Lizards sometimes bite off more than they can chew—one found on WSMR attempted to swallow a large Whiptail Lizard but choked to death when the Whiptail's hind legs and tail got caught in the throat.



Adult Female

FAMILY *Gekkonidae/Eublipharidae* Geckos

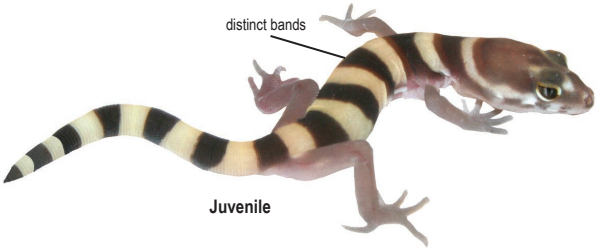
The Texas Banded Gecko (*Coleonyx brevis*) is the only native member of this family that occurs on WSMR. The non-native Mediterranean Gecko (*Hemidactylus turcicus*) was first discovered on the Main Post of WSMR on 30 August 2013.

Mediterranean Gecko (*Hemidactylus turcicus*) non-native

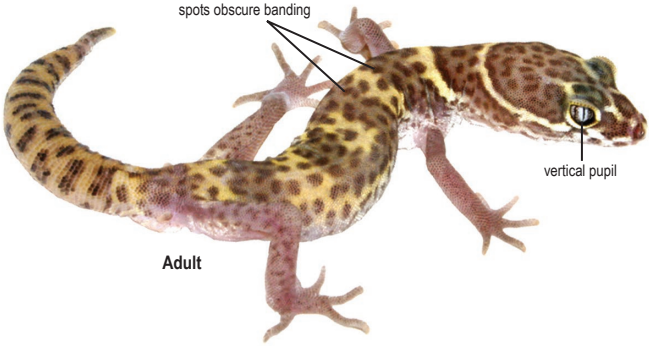
Rarely over 10 cm (4 in), including tail. This small nocturnal lizard appears pink and rough textured dorsally with a smooth, nearly transparent belly. Smooth granular scales covering this lizard are interrupted by numerous sporadic larger light colored tubercles. Irregular dark spots speckled across the back sometimes form week dorsal bands and the tail is strongly banded unless it has been broken and regenerated. No eyelids are present and fringes on the underside of the toes help it cling to vertical and overhanging surfaces. Typically observed hanging on walls near lights hunting.
On WSMR, this recent arrival is known only from the main cantonment area. Eats small, soft-bodied invertebrates.

Texas Banded Gecko (*Coleonyx brevis*)

Up to 6.4 cm (2.5 in), including tail. Tiny granular scales create a soft texture to this small banded lizard, which is nearly translucent when held up to the light. The distinct bands on newborns fade with age and become obscured by spots on adults. On WSMR, these lizards are rarely encountered and are known to occur in a few rocky bajadas dominated by Chihuahuan desert scrub. Individuals captured in the Oscura Mountains represent the northernmost distribution record for this species. This species appears to be absent from the San Andres Mountains, Tularosa Basin, and Stallion Basin. Eats small, soft bodied invertebrates with principal prey being termites and moths.



Juvenile



Adult

FAMILY *Teiidae* Whiptail Lizards

Six species of whiptail lizards in the genus *Aspidoscelis* occur on WSMR. Four of the six species are all female and reproduce asexually through a unique reproductive process known as parthenogenesis. These lizards are the product of past hybridization events between sexually reproducing species. For example, the parthenogenetic New Mexico Whiptail Lizard (*A. neomexicana*) is a product of hybridization between the sexually reproducing Marbled Whiptail (*A. marmorata*) and Little Striped Whiptail (*A. inornata*). Whiptail lizards have long tails relative to their body length. Total length presented in this field guide includes the tail and belies the relatively small body size of smaller species. Tails of these lizards break off easily and may be quite short while they are in the process of regenerating.

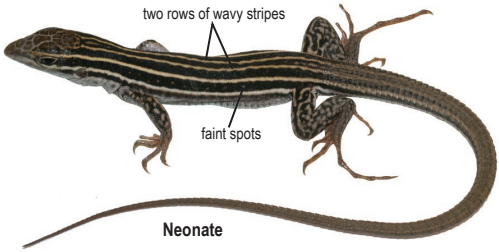
Correct species identification is difficult and hybridization between species exacerbates the problem. Differences in shape and size of scales at specific areas on the body offer a reliable way to identify the six WSMR species. Two of the more prominent scale differences are found on the underside of the forearm (postantebrachial scales) and the throat near the gular fold (mesoptychial scales).

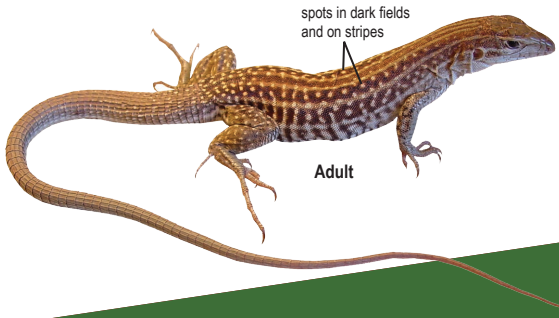
Chihuahuan Spotted Whiptail (*Aspidoscelis exsanguis*)

Up to 28 cm (11 in), including tail. This large, all-female species is striped and spotted (similar to the New Mexico Whiptail); however, this species does not have a central stripe. Newborns have two obvious wavy stripes down the back and very faint spots. This species has greatly enlarged postantebrachial and mesoptychial scales. Most common in rocky arroyos in the foothills and mountainous regions throughout WSMR. This lizard occasionally occurs in low basin grasslands. Eats invertebrates, with termites being an important dietary component.

greatly enlarged postantebrachial scales

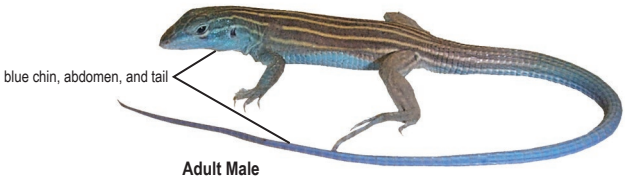
mesoptychial scales greatly enlarged



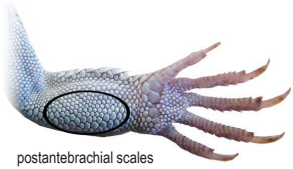


Little Striped Whiptail (*Aspidoscelis inornata*)

Up to 17.8 cm (7 in) including tail. Locally referred to as “blue-tails”, these lizards not only have a blue tail but also face, neck, and abdomen (females less blue). Postantibrachial and mesoptichial scales are only slightly enlarged. The obvious yellow stripes typical of most populations on WSMR are faint or absent on pale individuals from gypsum dune habitats. This pale form is considered a separate species by some taxonomists (*A. gypsi*); however, genetic analysis (Rosenblum 2006) suggests pale forms are not genetically isolated from typical forms and thus not a unique species according to the traditional definition. Among the most abundant lizard in basin grassland habitats of WSMR, it is less common in desert scrub. Eats invertebrates.

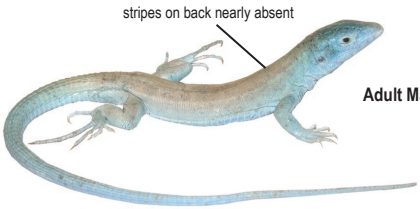


Adult Male



postantebrachial scales
slightly enlarged

mesoptychial scales slightly enlarged

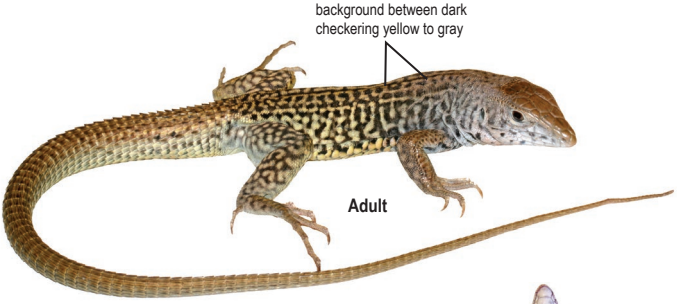


Adult Male

Pale form from gypsum dunes

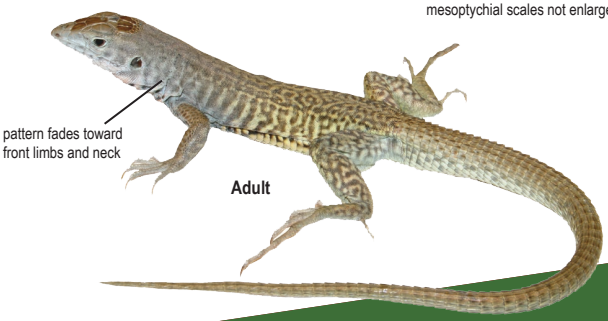
Marbled Whiptail (*Aspidoscelis marmorata*)

Up to 33 cm (13 in), including tail. Males grow larger than females, and both typically have dark mottling on a brown, gray, or yellow background. The pattern often takes on a barred appearance on the flanks, reminiscent of tiger-stripes. Individuals from the same location may be brightly patterned or drab and indistinct. Postantibrachial and mesoptychial scales are not enlarged. This whiptail is the most abundant lizard in WSMR's mesquite dune habitats. It is found less frequently in open mixed scrub communities up to 1830 m (6,000 ft) in the Tularosa Basin and in grasslands and desert scrub in the northern Jornada del Muerto (Stallion) portions of WSMR. Eats invertebrates.



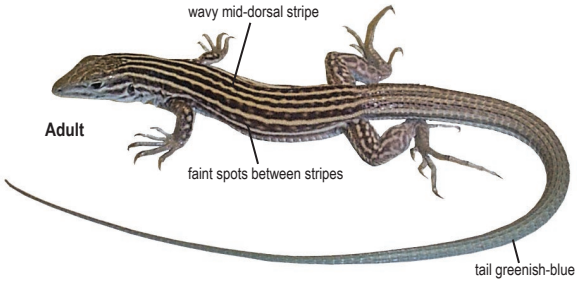

postantebrachial scales not enlarged

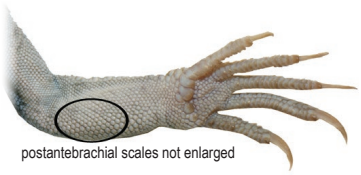

mesoptychial scales not enlarge

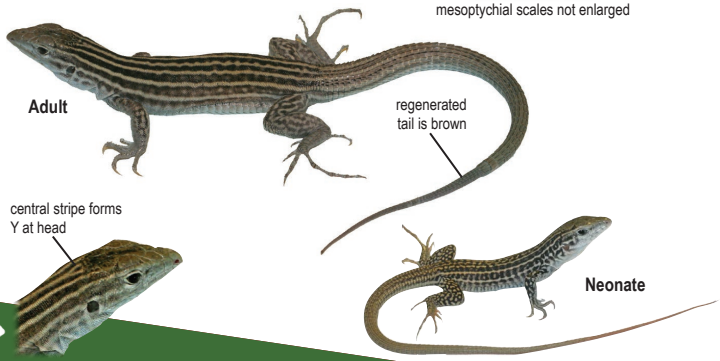


New Mexico Whiptail (*Aspidoscelis neomexicana*)

Up to 20 cm (7 in), including tail. This all-female species is striped and spotted with a greenish-blue tail (brighter blue in young). The single wavy mid-dorsal stripe is unique to this species and differentiates it from the similar Chihuahuan Spotted Whiptail. The center stripe typically forms a short "Y" at the base of the head. Neither postantebrachial nor mesoptychial scales are enlarged. This lizard is most often found in grassland and desert scrub habitats in basin or low foothill regions that are subject to recurring disturbance (e.g., road cuts, fire, heavy grazing). Eats invertebrates including small flying insects and ants.

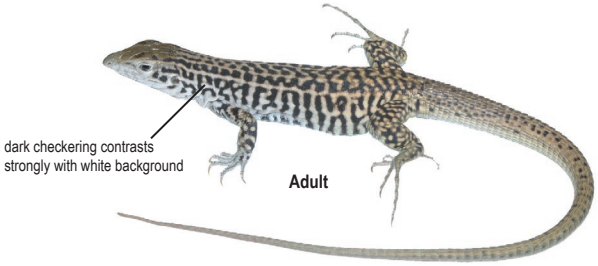


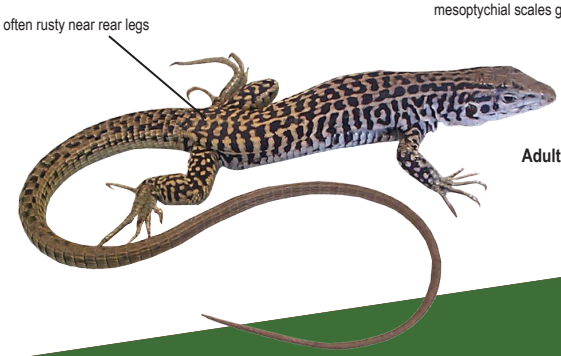




Checkered Whiptail (*Aspidoscelis tesselata*)

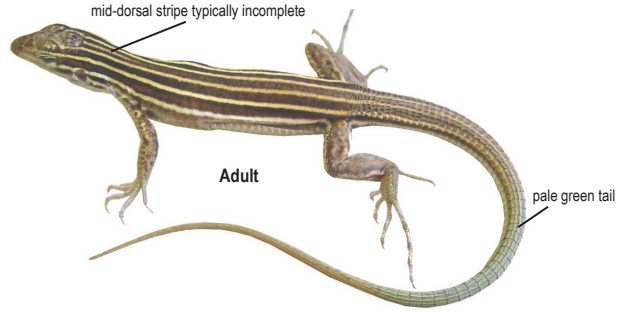
Up to 33 cm (13 in), including tail. This all-female species has a distinct pattern of strongly contrasting black checkering; this checkering begins on a whitish background near the front legs, but often the background becomes rusty toward the hind legs. Postantibrachial scales are slightly enlarged and mesoptychial scales are greatly enlarged. Usually numerous where they occur, distribution on WSMR is patchy with most populations occurring in rocky soils from desert scrub to juniper habitats in foothills and mountains. A population also exists on main post. Eats invertebrates, with termites being a principal prey item.

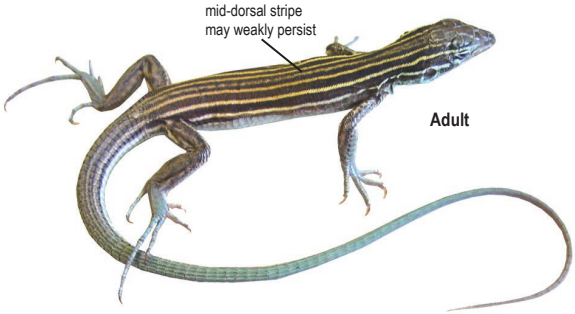




Desert Grassland Whiptail (*Aspidoscelis uniparens*)

Up to 19 cm (7.5 in), including tail. This all-female species has distinct yellow stripes with no spots on a tan to dark brown background. Most individuals have a partial mid-dorsal stripe that is incomplete. Overall, this lizard is less blue than the similar Little Striped Whiptail. The blue tail of neonates (newborns) becomes more greenish brown in adults. The postantebrachial and mesoptychial scales are greatly enlarged. This species, not often encountered on WSMR, is found sporadically from sandy grassland and desert scrub habitats in the low elevation basins to desert scrub communities in low rocky foothills. Eats invertebrates.





postantebrachial scales greatly enlarged

mesoptychial scales greatly enlarged

interesting fact:

a population of Desert Grassland Whiptails near the Poison Hills in northern WSMR consistently has a mid-dorsal stripe and scale differences not typically seen in this species.

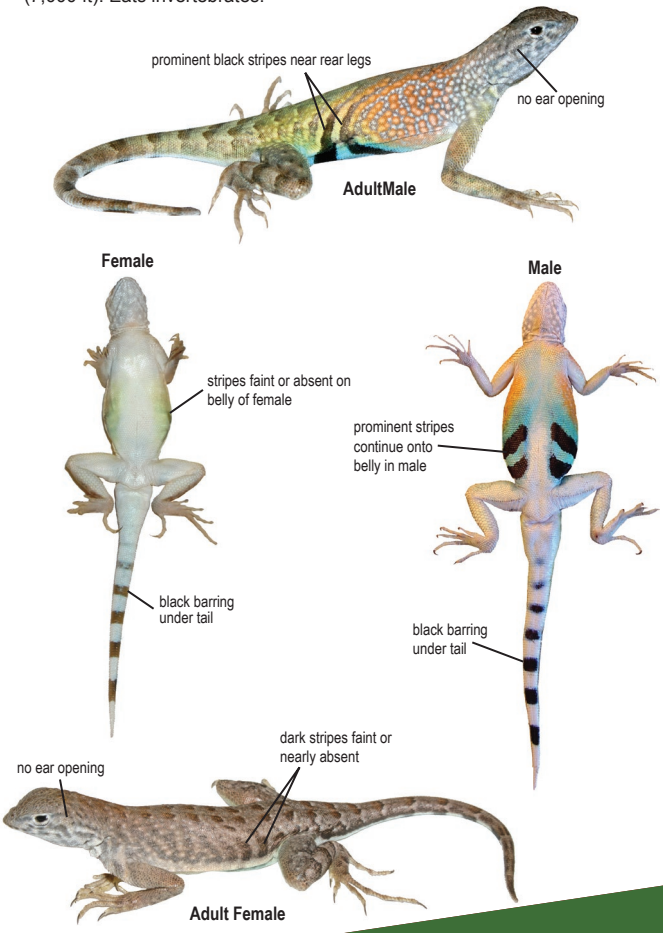
FAMILY *Phrynosomatidae* Spiny Lizards

This family is comprised of ten genera and about 125 species that range from North America (Southern Canada) to Panama. On WSMR, this diverse family includes Earless, Horned, Tree, Side-blotched, and Spiny lizards.

interesting fact:
Greater and Lesser Earless Lizards often feign death after capture, then spring to life and attempt escape. No other lizards on WSMR use this tactic.

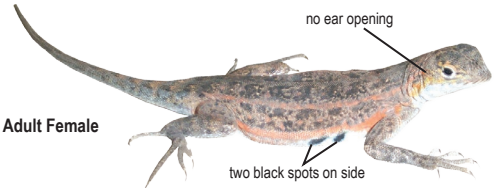
Greater Earless Lizard (*Cophosaurus texanus*)

Up to 19 cm (7.5 in), including tail. Males are striking, with orange spots on the back, lime green surrounding two prominent black stripes near the hind limbs, and a bright blue belly and rear flanks. Females are less conspicuous and more brown overall. There are no external ear openings, and black barring under the tail is well defined in both sexes. This lizard is abundant in rocky habitats from low foothills and canyons to mountain slopes over 2100 m (7,000 ft). Eats invertebrates.



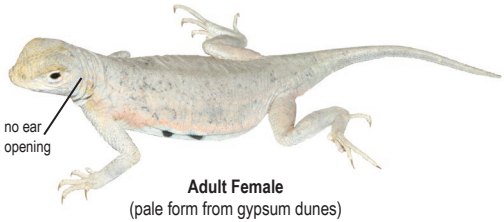
Lesser Earless Lizard (*Holbrookia maculata*)

Up to 10 cm (4 in), including tail. Both sexes have two black spots on each side, more pronounced in males. Males generally have light yellow tinges on a brown background, and females have pink or orange tinges that become more prominent during breeding. The overall color varies depending on predominant soil coloration, from sandy brown with darker blotches down the back to almost completely white on gypsum dunes. Lesser earless lizards prefer loose, sandy soils for burying themselves under the surface. Populations on WSMR are locally abundant but patchy. This species typically occurs in basin or lower foothill grassland habitats. Eats invertebrates.



Adult Female

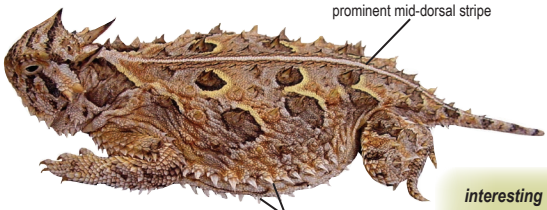
Adult Male



Adult Female
(pale form from gypsum dunes)

Texas Horned Lizard (*Phrynosoma cornutum*)

Up to 15.3 cm (6 in), including tail. This is the largest of WSMR's horned lizards. These flat lizards are light brown to yellow, with dark spots surrounded by a partial or complete yellow halo. A prominent white mid-dorsal stripe runs from the base of the head to the tail. Two long horns at the top of the head, two rows of fringe scales, and dark stripes radiating from the eye identify this lizard. Texas horned lizard occurs in desert scrub and grasslands with sandy soils to around 2440 m (8,000 ft) elevation. Eats invertebrates, primarily ants.



Adult

interesting fact:
The genus Phrynosoma literally translates to toad-body, referring to the flat, round shape of these lizards.

Greater Short-horned Lizard (*Phrynosoma hernandesi*)

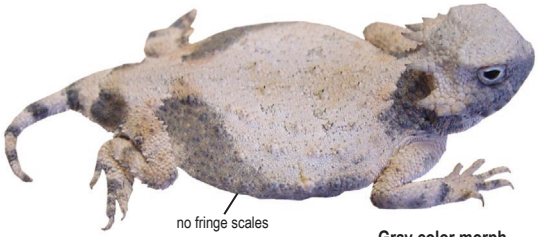
Up to 11.5 cm (4.5 in), including tail. As the name suggests, the horns are very short. Coloration varies depending on soil color. This species has only one row of fringe scales. These lizards are rarely encountered on WSMR, with most detections occurring in piñon-juniper woodlands in the Oscura Mountains and northern portions of the San Andres Mountains. A population is also known from alkali-sacaton grassland playas in the northern portions of WSMR. This is the only live-bearing lizard occurring on WSMR. Eats invertebrates, primarily ants.

interesting fact:
As a defense mechanism, Texas and Greater Short-horned Lizards are capable of discharging blood from their eyes by constricting blood in sinuses surrounding the eye.

Adult

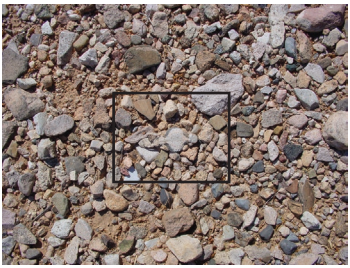
Round-tailed Horned Lizard (*Phrynosoma modestum*)

Up to 7 cm (2.75 in), including tail. This lizard has relatively short horns, no fringe scales, and a rounded tail with obvious bands. Coloration may be brown, light gray, or red, matching the prevailing soil color. This lizard is fairly common and widespread in mixed scrub and grassland habitats in basins and foothills up to piñon-juniper habitats to around 2100 m (7,000 ft) elevation. Eats invertebrates, primarily ants.



Gray color morph

interesting fact:
This species is one of the most cryptic lizards on WSMR and can be nearly undetectable - often only movement gives away their presence.

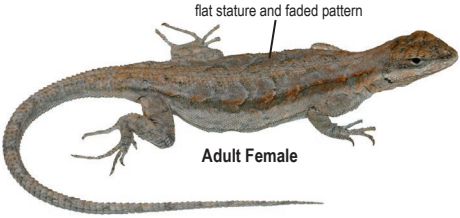


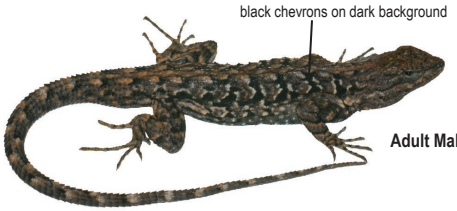
Red color morph

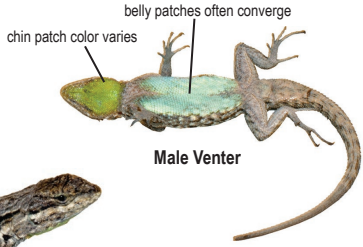
Ornate Tree Lizard (*Urosaurus ornatus*)

Up to 13.3 cm (5.25 in), including tail. This small lizard has a flat stature allowing it to easily squeeze into thin cracks. Dominant males may appear nearly black when heating up in the suns rays. Females are less dark with a more faded pattern. Following capture, black males typically turn lighter gray in a short period of time. Dark chevrons on the back enhance camouflage by giving the appearance of tree bark. The single green or blue throat patch and paired bright blue belly patches are brilliant in adult males. Females have muted orange throat patches. Tree lizards are widespread on WSMR, occurring in nearly every habitat that has large rocks from flats and arroyos to foothills and upper mountainous regions. Eats small invertebrates.

interesting fact:
Despite the name, these lizards are observed much more often on rocks and wooden buildings than in trees.

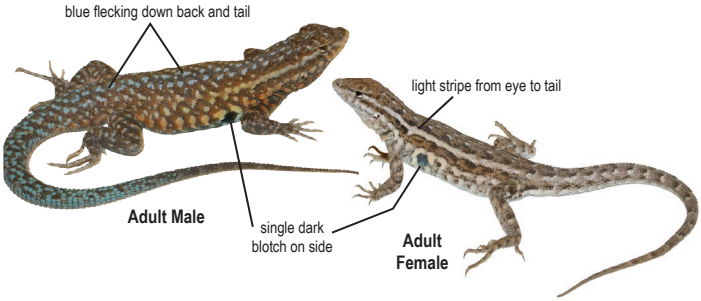






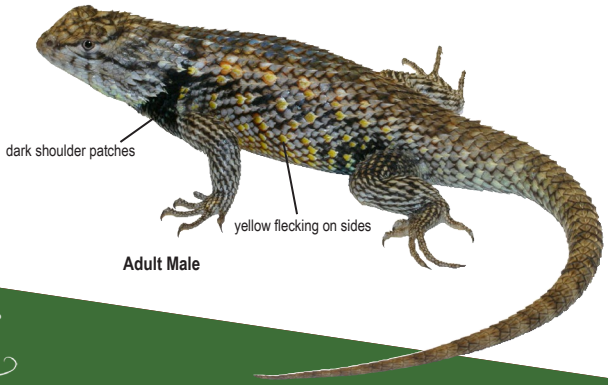
Common Side-blotched Lizard (*Uta stansburiana*)

Up to 14 cm (5.5 in), including tail. Both sexes have a dark blue to black spot on the side just behind the forelimb. Adult males have blue flecking over back and tail. Females are more drab and have a well-defined stripe from the eye to the tail on each side. This is the only lizard on WSMR likely to be active on warm days during all months of the year. Side-blotched lizards are common throughout WSMR in desert scrub, yucca grasslands, and sand dunes. This species is less common in woodlands and higher mountain habitats. Eats small invertebrates.



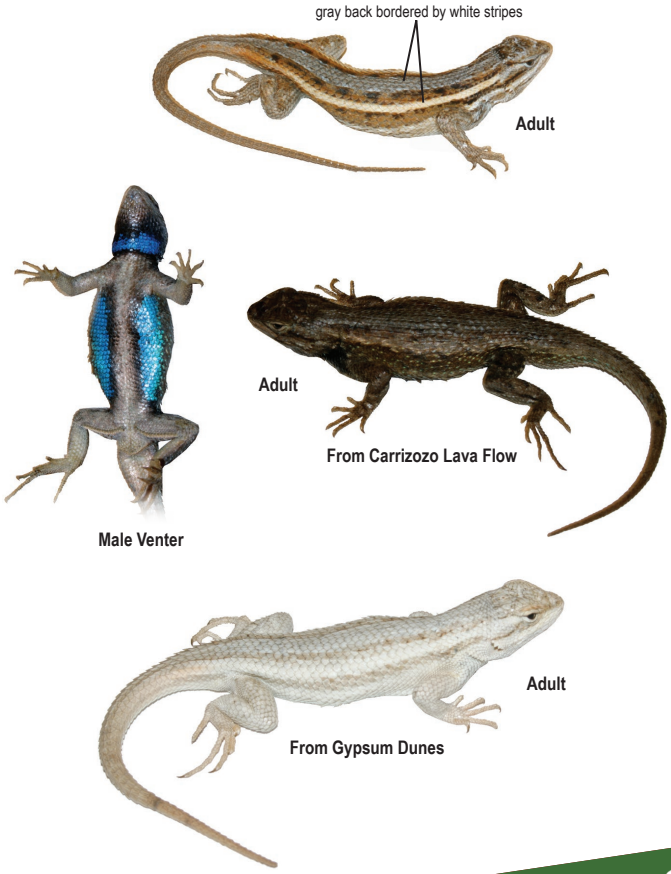
Desert Spiny Lizard (*Sceloporus magister*)

Up to 25.4 cm (10 in), including tail. This is a stout spiny lizard with large keeled and pointed scales creating an overall spiky appearance. Males have a single blue throat patch, and paired blue belly patches (sometimes nearly absent). Adults have orange and yellow flecking down the sides and black shoulder patches. Some individuals on WSMR have an orange head. Found from mesquite dunes and mixed scrub habitats to juniper woodlands. Eats invertebrates and lizards.



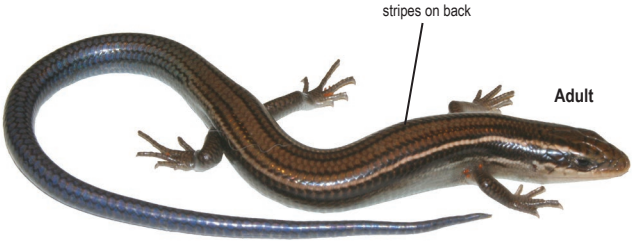
Southwestern Fence Lizard (*Sceloporus cowlesi*)

Up to 12 cm (4.75 in), including tail. Ground color ranges from white on gypsum dunes to nearly black on lava flows. Most populations on WSMR are light brown with a gray back bordered by bold white stripes. Males have bright blue belly patches and two blue chin patches that often converge to form a single chin patch. These lizards occur throughout WSMR in yucca grasslands, desert scrub, lava flows, sand dunes, and woodlands. Eats invertebrates.



FAMILY *Scincidae* Skinks

A single species, the Great Plains Skink, occurs on WSMR. The Many-lined Skink has been collected in the nearby Organ Mountains and may one day be discovered within the boundaries of WSMR. These lizards have smooth, slick, overlapping scales and cylindrical bodies.

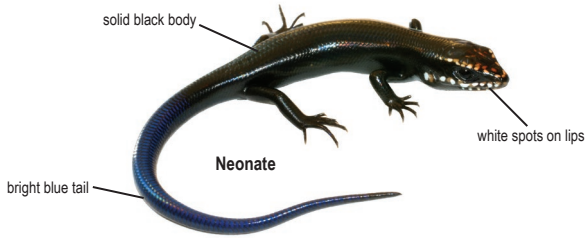


Many-lined Skink
(Plestiodon multivirgatus)

This species is possible but not yet documented on WSMR)

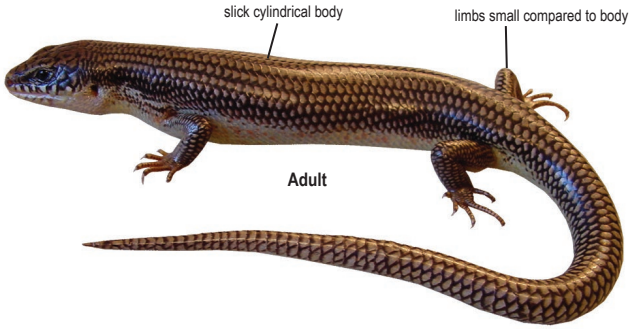
Great Plains Skink (*Plestiodon obsoletus*)

Up to 26.7 cm (10.5 in). These are the only lizards on WSMR with cycloid scales. The body is elongate and cylindrical with relatively short legs. Newborns are jet black with a bright blue or purple tail and white lip scales. As individuals mature they gradually take on the yellow or copper color of adults with salmon flecking on their sides, and often orange feet. This secretive lizard frequents washes with dense undergrowth. It also occurs in desert scrub and grassland habitats from the mountains to the flats, including lava flows.Eats invertebrates.



interesting fact:

Female Great Plains Skinks take care of their eggs and will relocate them if the original nest is disturbed.



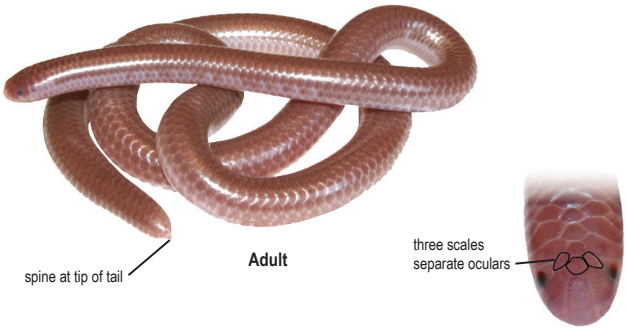
Snakes within WSMR are diverse, with 27 species in five families occupying every habitat except for barren gypsum lakebeds. Some, like the Western Diamond-backed Rattlesnake and Gophersnake, are commonly observed and widespread; others, like the Great Plains Ratsnake and Lyresnake, are known from only a few observations.

FAMILY *Leptotyphlopidae* Threadsnakes

Threadsnakes are small pink snakes that resemble earthworms. These snakes have reduced eyes that appear as dark spots under a large scale, and the tail is tipped with a sharp spine.

New Mexico Threadsnake (*Rena dissectus*)

Rarely over 25.4 cm (10 in). These snakes are pink overall, sometimes with a silver or slightly purple sheen. The body is covered in overlapping rounded scales. The cylindrical body, rounded head, and indistinct eyes give this snake an earthworm-like appearance. Three small scales separate the ocular scales. This snake occurs in a variety of habitats and has been found on WSMR from piñon-juniper woodlands to mesquite dunes. Eats primarily eggs and pupae of termites and ants.



Adult

Western Threadsnake (*Rena humilis*)

Rarely over 25.4 cm (10 in). Nearly identical to the New Mexico Threadsnake in appearance and habits, this species differs in having only one scale separating the oculars. Eats primarily eggs and pupae of ants and termites.

Adult

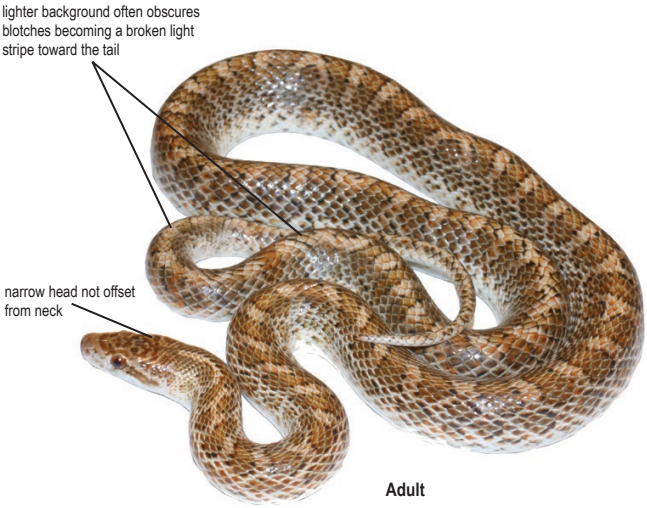
FAMILY *Colubridae*
Harmless Egg-Laying Snakes

Colubrids are the most common and diverse family of snakes in North America. Fifteen species on WSMR range in size from Black-headed Snakes, thinner than a pencil and only 25.4 cm (10 in) long, to impressive Gophersnakes, twice as thick as a garden hose and over 213 cm (7 ft) long. Most are nocturnal or crepuscular for the majority of the year, with a handful of species being primarily diurnal.

Glossy Snake (*Arizona elegans*)

Rarely attains 122 cm (4 ft). This snake is pale brown to reddish overall with rusty oval blotches bordered by a thin black edge. The eyes of adults are reddish. The slender body is covered in smooth shiny scales and the narrow head is not greatly offset from the neck. Newborn Glossy Snakes have a clean pattern and are more gray and brown compared to typically more reddish adults that exhibit a diffuse pattern. These snakes, common in mesquite dune habitats, are also found in mixed scrub and grasslands up to around 1850 m (6,000 ft) elevation. Eats mainly lizards but sometimes takes small mammals.

Neonate



Adult

Trans-Pecos Ratsnake (*Bogertophis subocularis*)

Up to 168 cm (5.5 ft). These snakes have large bulging eyes and dark stripes on the neck that become a series of H-shaped marks down the back. Coloration is typically light yellow or slightly orange with an unmarked belly. Trans-Pecos Ratsnakes prefer rocky habitats from desert scrub to piñon-juniper woodlands. A population from the Carrizozo Lava Flow is consistently dark orange (occasionally gray). The dorsal pattern of this population has dark pigmentation that is thick and heavy enough to obscure the "H" pattern, and the belly has dark checkering. This snake has been recorded in the San Andres and Mockingbird Mountains, Carrizozo Lava Flow, and may occur in the Oscura Mountains. Eats mainly mammals but also known to consume lizards and birds.

Adult from the Tularosa Basin near the San Andres Mountains

Adult from the Carrizozo Lava Flow

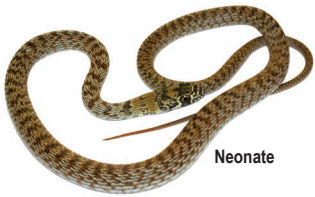
checkering on belly of Trans-Pecos Ratsnake from Carrizozo Lava Flow

interesting fact:
the genetics, pattern, and coloration of B. subocularis from the Carrizozo Lava Flow are unique to WSMR.

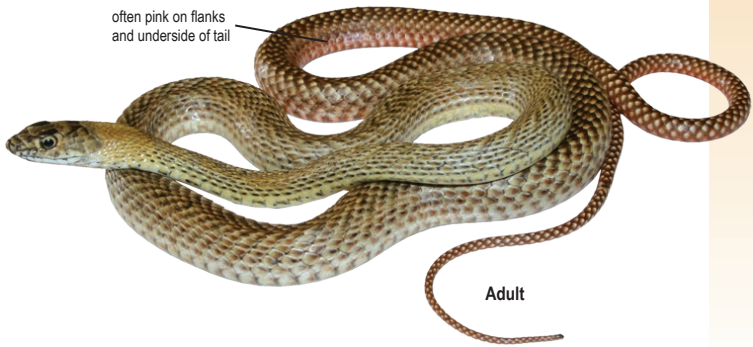
Coachwhip (*Coluber flagellum*)

Up to 213 cm (7 ft). Coachwhips are slender brown or tan snakes. Young often have dark banding, particularly on the neck near the head. Most individuals on WSMR have some pink on the belly, which becomes more prominent under the tail. Coachwhips are most common in desert scrub habitat from mesquite dunes to creosote foothills. Eats a variety of prey including lizards, small mammals, birds, and snakes.

interesting fact:
In captivity these snakes undulate their tail to probe their cage while holding their head elevated and still. This action serves to flush lizard prey hiding in the cage - when the lizard moves the Coachwhip seizes and eats them. They likely use this tactic in the wild.



Neonate



Adult

Striped Whipsnake (*Coluber taeniatus*)

Up to 168 cm (5.5 ft). Striped Whipsnakes are long, thin, quick snakes. Individuals on WSMR are dark brown to black with prominent light stripes down the sides and pink coloration under the tail. Broad, widely-spaced bronze bands occur on many individuals. The Striped Whipsnake is found wherever rocky habitats occur from the flats to the highest elevations of WSMR. A single hybrid between a Coachwhip and Striped Whipsnake has been captured on WSMR. Eats lizards, small mammals, birds, snakes, and insects.

Coachwhip X Striped Whipsnake hybrid Neonate

Striped Whipsnake Neonate

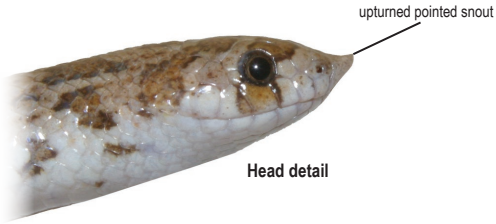
interesting fact:

This hybrid snake (upper left), captured at WSMR Main Post, represents the only recorded hybridization between the two species. Scale counts at mid body, labials, and subcaudals are intermediate between the two species.

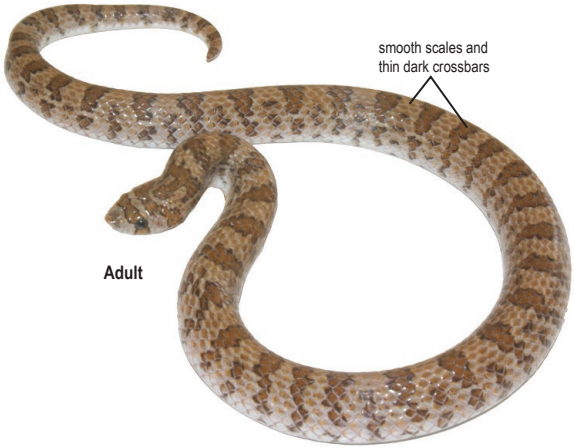
Striped Whipsnake
Masticophis taeniatus

Chihuahuan Hook-nosed Snake (*Gyalopion canum*)

Up to 35.6 cm (14 in). This little snake is light brown with darker, sometimes reddish, narrow oval blotches that give the snake a somewhat banded appearance. The snout is tipped with a sharply pointed, upturned rostral (nose) scale. When encountered, this snake typically forms an open round coil with its head raised, then twitches so violently that its head and tail exchange places in a nearly instantaneous 180 degree spin-around. This maneuver is accompanied by a popping sound emitted by quickly everting the cloaca. Infrequently encountered on WSMR from juniper woodlands to desert scrub habitats in the basins. Eats scorpions, centipedes, spiders, and insects.



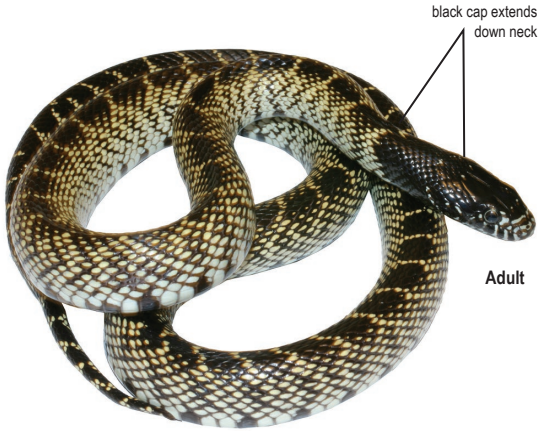
Head detail



Adult

Desert Kingsnake (*Lampropeltis splendida*)

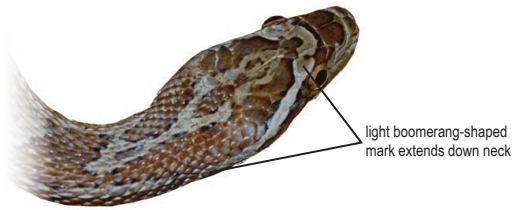
Up to 122 cm (4 ft). Desert Kingsnakes have a black head and neck with yellow pigmentation on the snout, lips, and chin. The body has a loose chain of black blotches down the back on a yellow background. The sides are yellow infused with black creating a web-like appearance. This species is most often found in desert scrub habitats in low foothills, but it is occasionally found in habitats from grassland flats to juniper woodlands. Eats lizards, snakes, small mammals, and birds.



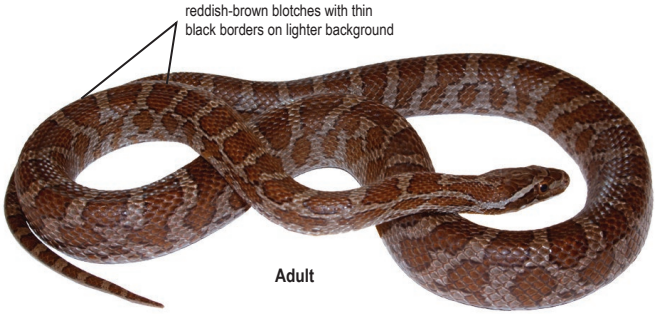
Adult

Great Plains Ratsnake (*Pantherophis emoryi*)

Up to 152 cm (5 ft). The few individuals collected on WSMR are gray, brown, or nearly black with oval, often reddish blotches down the back. A light boomerang shaped mark on top of the head extends down the side of the head and neck. Known on WSMR only from Malpais Spring near the southern end of the Carrizozo Lava Flow, this species is uncommon in New Mexico and is typically observed only along major river corridors and large riparian habitats. Eats mammals and birds.



Head detail



Adult

interesting fact:

A Great Plains Ratsnake in captivity ate an adult Hog-nosed Snake after sharing a tank for 5 years,

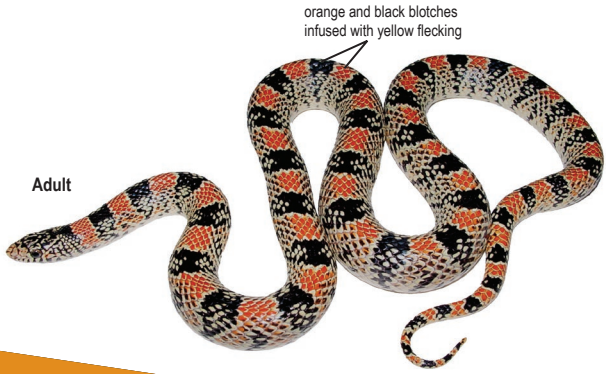
Gophersnake (*Pituophis catenifer*)

Rarely over 213 cm (7 ft). Gophersnakes (a.k.a. bullsnakes) are the longest snakes on WSMR. Adults are typically muscular and heavy-bodied. The body is light brown to yellow with distinct irregular dark blotches down the back that often become darker toward the tail. Desert scrub is the preferred habitat, but this snake is found in nearly all vegetation types from basin grasslands and foothills up to piñon-juniper woodlands. Eats small mammals, birds and their eggs, and occasionally lizards.

Adult

Long-nosed Snake (*Rhinocheilus lecontei*)

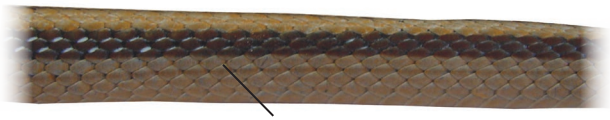
Up to 107 cm (3.5 ft). This medium-sized snake has a pointed snout and colorful orange and black blotches down the back. Found from grasslands in the basins to upper foothills in mixed scrub. Yellow or white flecking becomes more prominent along the sides. Eats lizards, reptile eggs, and occasionally small mammals.



Adult

Mountain Patch-nosed Snake (*Salvadora grahamiae*)

Up to 102 cm (40 in). This slim, light-brown snake has a single prominent dark stripe down each side. The rostral (nose) scale is an enlarged, flattened, triangular scale covering the snout. This species is distinguished from the very similar Western Patch-nosed Snake by having eight upper lip scales, a less pronounced rostral scale, and a weak or absent secondary stripe three scale rows up from the belly. This species inhabits desert scrub habitats from the upper foothills and arroyos to juniper woodlands at higher elevations. Eats lizards, reptile eggs, and occasionally small mammals.

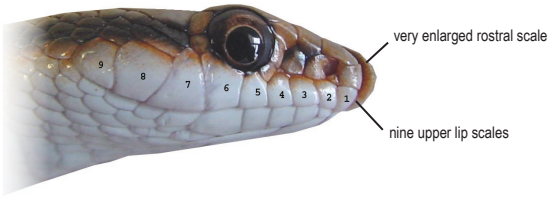


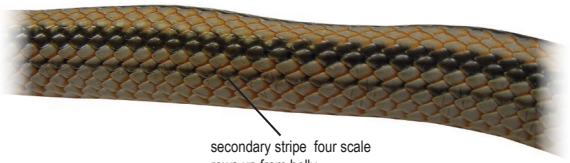
weak secondary stripe (if present) three scale rows up from belly

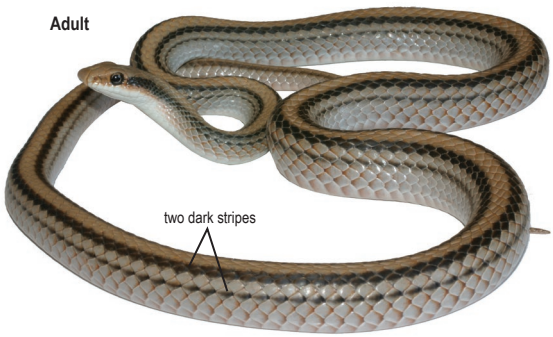
Adult

Western Patch-nosed Snake (*Salvadora hexalepis*)

Up to 102 cm (40 in). Different from the similar Mountain Patch-nosed Snake in having two dark stripes (secondary stripe is four scale rows up from belly) flanking the light tan back. Other differences include nine upper lip scales and a more pronounced rostral scale. This snake occurs from lower elevation desert scrub up into foothills, where its range overlaps that of the Mountain Patch-nosed Snake. Eats lizards, reptile eggs, and small mammals.







Western Groundsnake (*Sonora semiannulata*)

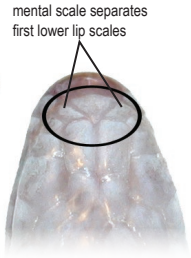
Up to 48 cm (19 in). This small, slim snake is extremely variable in color and pattern throughout its range. Two variations typically found on WSMR are the orange-striped phase and the banded phase. Orange-striped individuals vary from being nearly solid orange to having a thin orange stripe on a tan or slightly green background. Most often associated with rocky soils in desert scrub habitat, this snake is occasionally found in desert grasslands and piñon-juniper woodlands. Eats small lizards and invertebrates, including scorpions, spiders, and centipedes.

Banded phase

Orange-striped phase

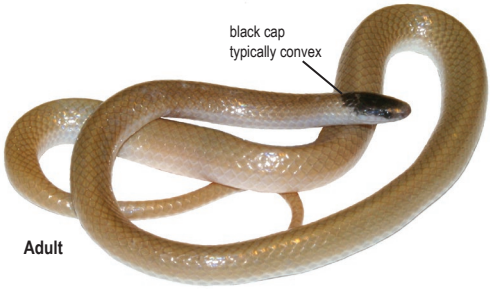
Smith's Black-headed Snake (*Tantilla hobartsmithi*)

Up to 30 cm (12 in). These small slender snakes are plain tan or light brown with a distinctive black cap and a pink to red stripe down the belly. Nearly identical to the Plains Black-headed Snake, this species is usually identified by the straight rear edge on the black cap that extends less than three scale rows behind the head. Additionally, the mental (chin scale) separates the first two lower labial (lip) scales, not allowing them to touch. This snake occurs in a variety of habitats, from piñon-juniper woodlands to basin grasslands, and is most frequently encountered in basin desert scrub. Eats invertebrates including scorpions, centipedes, and spiders.



Plains Black-headed Snake (*Tantilla nigriceps*)

Up to 30 cm (12 in). Distinguished from Smith's Black-headed Snake by typically having a convex rear edge to the black cap that extends three or more scale rows behind the head. The mental scale does not separate the first two lower labials, allowing them to contact one another. Found in the same habitats as the Smith's black-headed Snake, this little snake must be carefully examined to correctly identify species. Eats invertebrates including scorpions, centipedes, and spiders.



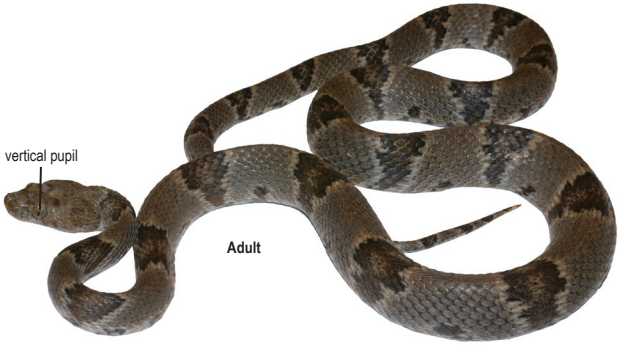
Adult

interesting fact:
the shape of the black cap varies and is not always a reliable diagnostic characteristic.

Texas Lyresnake (*Trimorphodon vilkinsonii*)

Up to 102 cm (40 in). Lyresnakes are medium-sized snakes that are light gray to brown with numerous irregular dark blotches that become thin bands on the tail. The few individuals collected on WSMR do not have the lyre-shaped marking on the head (from which the common name is derived). This species is harmless to humans but subdues its prey with a mild venom. The large eyes with vertical pupils are set in a broad triangular head. On WSMR this snake is known from rocky desert scrub habitats on low mountain bajadas around the Organ Mountains. It likely occurs in other rocky habitats in the San Andres Mountains and possibly the Oscura Mountains. Eats lizards, small mammals (including bats), and young birds.

Subadult



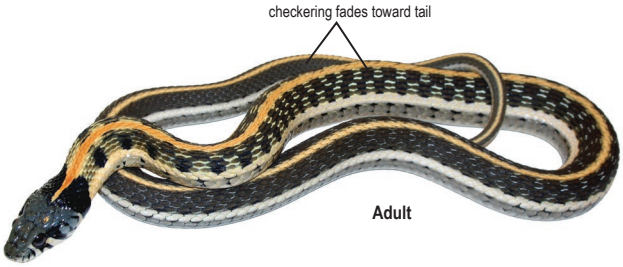
Adult

FAMILY *Natricidae*
Harmless Live-bearing Snakes

On WSMR only two species of harmless live-bearing snakes are known to occur. Both are garter snakes in the genus *Thamnophis.* Although these species are often thought of as being strictly associated with water and riparian areas, they are sometimes found far from permanent water sources.

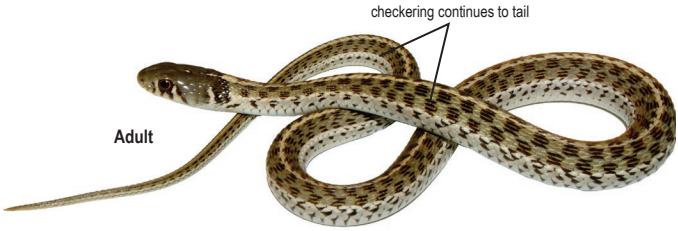
Black-necked Gartersnake (*Thamnophis cyrtopsis*)

Up to 107 cm (3.5 ft). This medium-sized snake has a prominent orange stripe down the center of its back and a black to bluish head with large dark patches on the neck. Checkering on the sides fades toward the drab olive or brown tail. This species is most often found near permanent springs from the Tularosa Basin to piñon-juniper woodlands in the Oscura and San Andres Mountains. Individuals are occasionally found miles from water sources in many basin and foothill habitats within WSMR. Eats invertebrates, amphibians, lizards, fish, and small mammals.



Checkered Gartersnake (*Thamnophis marcianus*)

Up to 107 cm (3.5 ft). This medium-sized snake is olive green with a thin light-yellow stripe down the back and a distinct dark checkerboard pattern of alternating rows that continue to the tail. The few individuals known from WSMR were found in the Tularosa Basin in low elevation desert scrub habitat. This species is known from a variety of habitats throughout its range, sometimes far from water. Eats invertebrates, amphibians, lizards, fish, and small mammals.

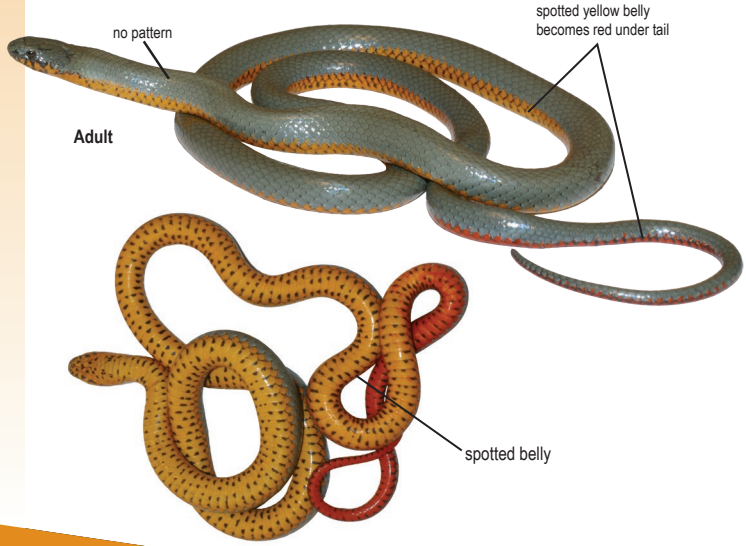


FAMILY *Dipsadidae* Rear-fanged Snakes

A diverse and widespread group of snakes represented by over 700 species worldwide. Three species of these harmless rear-fanged snakes are known to occur on WSMR

Ring-necked Snake (*Diadophis punctatus*)

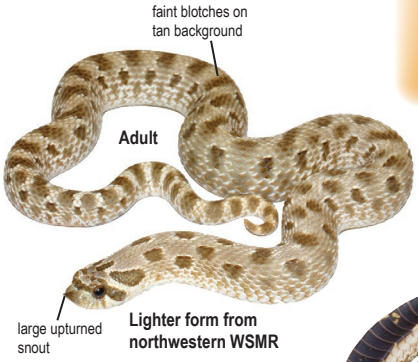
Rarely up to 86 cm (34 in). This slender snake is greenish to blue-gray with no pattern on the back. None of the individuals found on WSMR have the colorful ring around the neck typically exhibited in the species from other areas in their range. The bright yellow belly, speckled with small black spots, becomes scarlet toward the tail. This rarely encountered snake occupies a variety of habitats on WSMR, including grassland playas, creosote bajadas, and piñon-juniper woodlands. Eats invertebrates, small snakes, and lizards.



Hog-nosed Snake (*Heterodon nasicus*)

Up to 86 cm (34 in). Hog-nosed snakes are stout-bodied, with a large upturned snout. Hog-nosed Snakes on WSMR range in color from light tan to darker brown. Individuals from WSMR have scale characteristics intermediate between Mexican Hog-nosed (*H. kennerlyi*) and Plains Hog-nosed (*H. nasicus*). These snakes have dark blotches down the back, bordered by two alternating rows of smaller spots down the sides. When encountered, these snakes often hiss loudly and spread their necks in a defensive posture. If this bluff fails, they sometimes feign death by flopping onto their back, writhing, and gaping widely. Most often found in sandy soils in mixed scrub, grasslands, and mesquite habitats. Eats primarily toads but also consumes small mammals, lizards, and reptile eggs.

interesting fact:
Hog-nosed Snakes sometimes constrict prey and have also been observed grasping lizards in their mouth while repeatedly rolling over to help subdue the prey before swallowing.

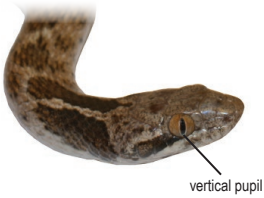


feigning death

spreading neck

Chihuahuan Night Snake (*Hypsiglena jani*)

Rarely over 51 cm (20 in). Night Snakes are slender brown snakes with obvious dark blotches on the neck and irregular spots down the back. The mild venom this snake uses to subdue its prey is considered harmless to humans. Chihuahuan Night Snake occurs in a variety of habitats, from piñon-juniper woodlands down to creosote and mesquite shrublands. Eats lizards, snakes, and occasionally small mammals.



Adult

interesting fact:

A Night Snake in captivity bit and paralyzed a Gray Banded Kingsnake (Lampropeltis alterna) nearly twice its weight and attempted to consume it. After a forced release, the kingsnake fully recovered within 20 minutes.

Not Yet Found on WSMR...

New Mexio Milksnake (*Lampropeltis triangulum*)

This coral snake mimic is actually a close relative of the Desert Kingsnake (*Lampropeltis splendida*, p.42). It may reach up to 90 cm (35 in). Milksnakes may occur throughout the desert southwest; however, their secretive habits have thus far resulted in only a handful of records for New Mexico, most of them occurring to the north and east of WSMR.

Adult

New Mexico Milk Snake
(*Lampropeltis triangulum*)

This snake may occur but has not yet been found on WSMR.

FAMILY *Viperidae* Pitvipers

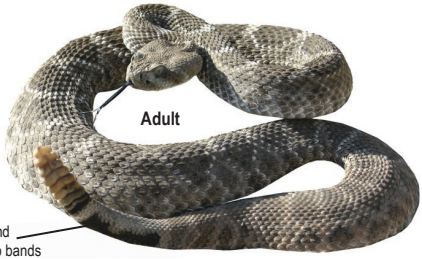
Pitvipers on WSMR are represented by five species of rattlesnakes. These five venomous species are the only reptiles or amphibians on WSMR that are potentially life-threatening to humans.

Western Diamond-backed Rattlesnake (*Crotalus atrox*)

Rarely over 183 cm (6 ft). Although larger individuals are known from New Mexico and Texas, Western Diamond-backed Rattlesnakes over five feet long are rare on WSMR (less than one percent of individuals encountered [author's data]). Overall color varies greatly from silver-gray to brown to red. The back is patterned with large, dark angular blotches outlined in white. The boldly contrasting black and white tail is conspicuous. Common and widespread from rocky arroyos to foothills and mountains, this species is also found in low basin dunes, grasslands, lava flows, and desert scrub habitats. Eats small mammals from mice to rabbits, lizards, and birds.

interesting fact:
A wintering hibernaculum of 41 individual Western Diamondbacks found on WSMR is the largest single group of this species ever found in New Mexico.

Neonate



Adult

atypical black and white tail with no bands

typical contrasting black and white banded tail

Adult

Banded Rock Rattlesnake (*Crotalus lepidus*)

Rarely over 76 cm (30 in). This small rattlesnake is gray to greenish with distinct dark cross-bands. The amount of checkering between the bands varies greatly between individuals and at different locations. Some sexual dimorphism is evident in this species with adult males sometimes being quite green, while adult females are more gray with pink on the sides and belly. This species is most often found in steep rock slides at over 1830 m (6,000 ft) in the mountains. It is also found in piñon-juniper, and ponderosa pine woodlands and, less frequently, at lower elevations in rocky arroyos. Eats invertebrates, lizards, and small mammals.

Adult Female from southern San Andres Mountains

Adult Male from Organ Mountains

Adult Male

Black-tailed Rattlesnake (*Crotalus ornatus*)

Rarely over 122 cm (4 ft). Black-tailed Rattlesnakes range from greenish to brown and dark gray, depending on location and habitat, but all have a solid black tail. Bold black and yellow blotches create a striking design down the back. This bold pattern fades toward the tail. The Black-tailed Rattlesnake is found in rocky terrain, from the Carrizozo Lava Flow in the Tularosa Basin to piñon-juniper woodlands and ponderosa pine habitat at 2750 m (nearly 9,000 ft) in the San Andres Mountains on WSMR. Eats lizards, birds, and small mammals including cottontail rabbits.

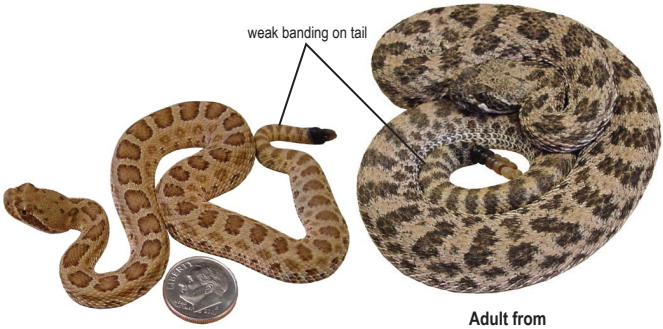
Adult from the Oscura Mountains

Adult from the Carrizozo Lava Flow

Adult from
the Jarilla Mountains

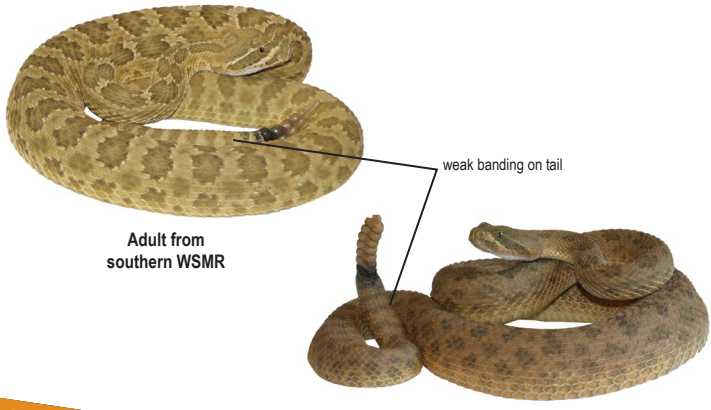
Prairie Rattlesnake (*Crotalus viridis*)

Rarely up to 112 cm (44 in). Prairie Rattlesnakes are highly variable in color and pattern. On WSMR these snakes are typically brown but may be green, yellow, or pinkish overall. Irregular, roughly oval blotches are typically obvious down the back but may be broken or muted, giving the snake an inconsistent pattern. One consistent feature of these medium-sized rattlesnakes is the faintly banded tail, which lacks the boldly contrasting black and white bars (as in the Western Diamond-backed Rattlesnake). This species is most common in sandy soils in mesquite dune habitat, and less frequent at higher elevations in creosote scrub habitat. Eats lizards and small mammals.



Newborn from central WSMR

Adult from northern WSMR



Adult from southern WSMR

Adult from central WSMR

Massasauga (*Sistrurus catenatus*)

Rarely over 61 cm (24 in). The smallest rattlesnake occurring on WSMR, this snake is brown to gray, with darker irregular oval blotches down the back and a row of smaller angular spots along the sides. Two dark stripes on the head continue onto the neck. On WSMR this is the only representative of genus *Sistrurus*: nine large scales cover the top of the head, in contrast to the numerous small scales of other species of rattlesnakes on range. Most individuals found on WSMR are from gypsum dune habitat in the Tularosa Basin; however, a single record exists from low elevation sandy grasslands in Stallion Range. Eats centipedes, lizards, and small mammals.

Adult

GLOSSARY

Aquatic: refers to organisms that live in water. On WSMR the Barred Tiger Salamander and toad species are exclusively aquatic as newborns and become partially terrestrial as adults.

Bajada: gently sloping footslope at the base of mountains comprised of single or coalesced alluvial deposits.

Carapace: the top portion of a turtle's shell.

Crepuscular: active primarily during the twilight hours of sunrise and sunset.

Cycloid: scales with a smooth rounded rear edge.

Cryptic: blending into the habitat; coloration and pattern that serve to camouflage.

Dimorphism: animals of the same species exhibiting differences in color, size, shape or pattern. These differences are most often exhibited between the males and females of the same species.

Diurnal: being active during the day.

Gular: throat region.

Keeled: scales with a lengthwise ridge down the center resulting in rough skin texture.

Labial: lip scales of snakes and lizards.

Mental: the chin scale – the scale between the lower left and right lip (labial) scales.

Mesoptychial: scales on the underside of a lizard's neck immediately anterior to the gular fold.

Neonate: Newborn.

Nocturnal: being active at night.

Parotoid: paired wart-like glands on the back of the head of true toads (family Bufonidae). These glands exude toxins that can irritate potential predators—as well as humans that inadvertently get the toxins into the mouth or eyes after handling them.

Parthenogenesis: reproduction through development of an unfertilized egg.

Plastron: the bottom portion of a turtle's shell.

Playa: low lying, flat, undrained basin that periodically fills with water following heavy rain events. They may be vegetated or barren.

Postantebrachial: scales on the underside of a lizard's forearm between the wrist and elbow.

Riparian: referring to vegetation that typically grows in and adjacent to permanent or intermittent water sources including springs, arroyos, and man-made water catchments

Rostral: the nose scale – this scale separates the upper left and right lip scales (labials).

Subcaudals: scales on the underside of the tail.

Terrestrial: living on land.

Venter: underside, belly.

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About the Author

Doug Burkett earned M.S. and B.S. degrees in Wildlife Science from New Mexico State University. He has worked on White Sands Missile Range for over 26 years on dozens of projects involving a diverse array of natural resource investigations. His curiosity of snakes began early in childhood and developed into a genuine love and knowledge of Chihuahuan Desert ecology. His work on WSMR has resulted in publications in peer-reviewed journals, including the Journal of Conservation Biology and numerous distributional notes in Herpetological Review. Doug's work in south-central New Mexico has been recognized by the New Mexico Department of Game and Fish as a significant contribution to the knowledge of New Mexico's herpetofauna.

Photo by Mark Van Doorne

CHECKLIST

Salamanders

- ☐ Barred Tiger Salamander (***Ambystoma mavortium***)

Toads

- ☐ Couch's Spadefoot (***Scaphiopus couchii***)
- ☐ Plains Spadefoot (***Spea bombifrons***)
- ☐ Mexican Spadefoot (***Spea multiplicata***)
- ☐ Great Plains Toad (***Anaxyrus cognatus***)
- ☐ Chihuahuan Green Toad (***Anaxyrus debilis***)
- ☐ Red-spotted Toad (***Anaxyrus punctatus***)

Turtles

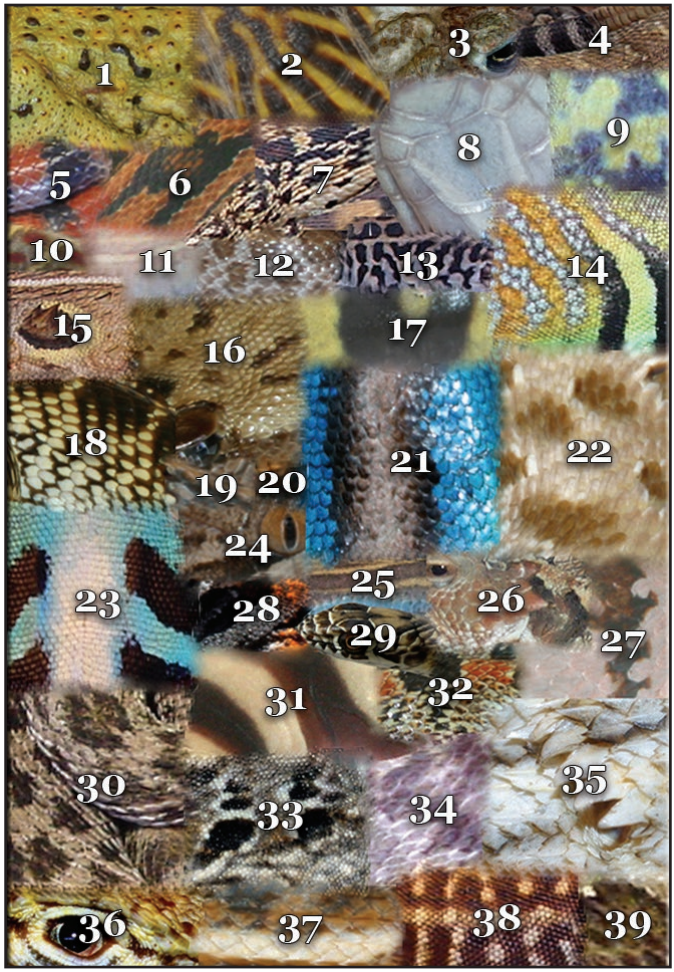
- ☐ Ornate Box Turtle (***Terrapene ornata***)

Lizards

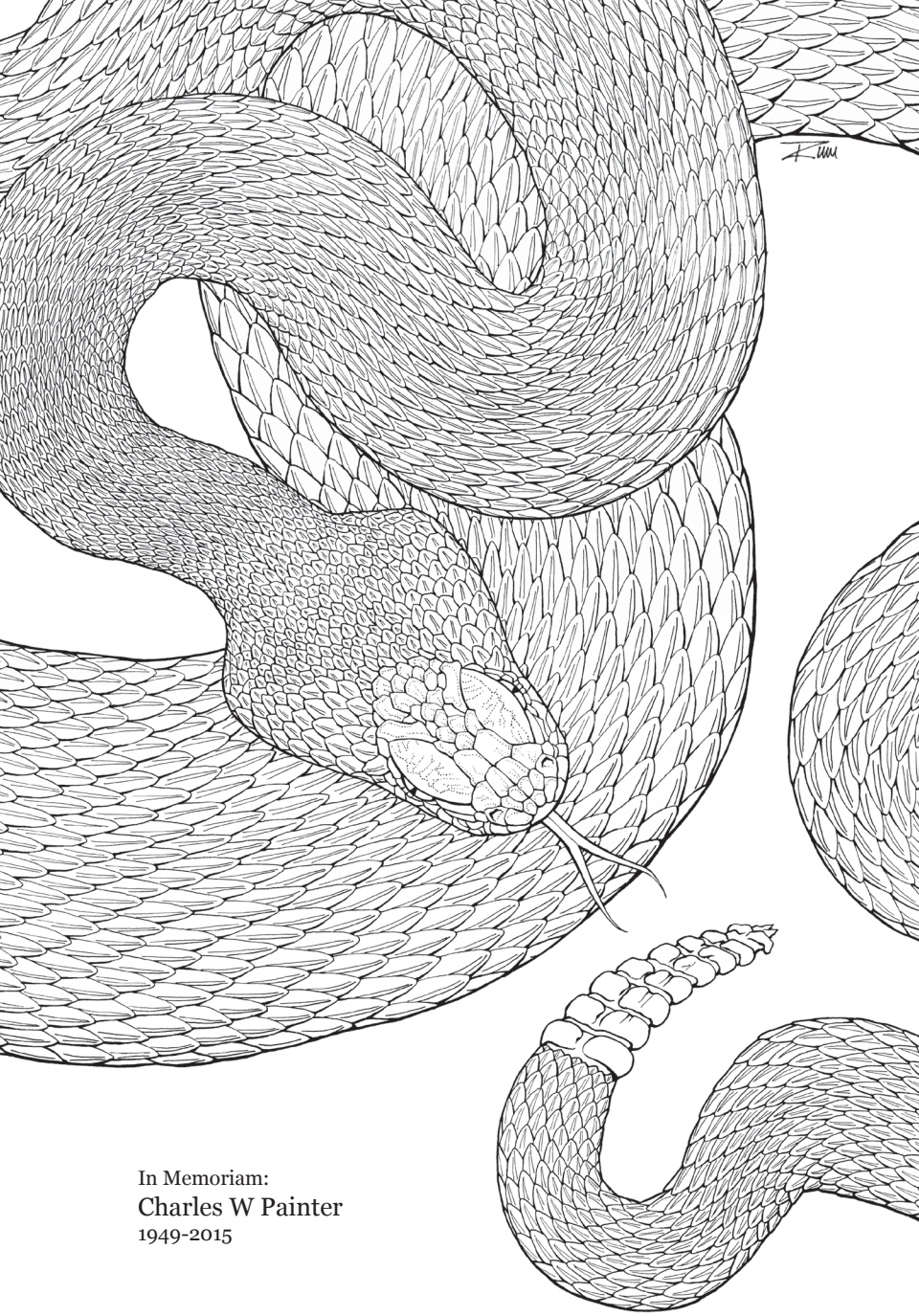
- ☐ Collared Lizard (***Crotaphytus collaris)***
- ☐ Long-nosed Leopard Lizard (***Gambelia wislizenii***)
- ☐ Mediterranean Gecko (***Hemidactylus turcicus***)
- ☐ Texas Banded Gecko (***Coleonyx brevis***)
- ☐ Chihuahuan Spotted Whiptail (***Aspidoscelis exsanguis***)
- ☐ Little Striped Whiptail (***Aspidoscelis inornata***)
- ☐ New Mexico Whiptail (***Aspidoscelis neomexicana***)
- ☐ Checkered Whiptail (***Aspidoscelis tesselata***)
- ☐ Marbled Whiptail (***Aspidoscelis marmorata***)
- ☐ Desert Grassland Whiptail (***Aspidoscelis uniparens***)
- ☐ Greater Earless Lizard (***Cophosaurus texanus***)
- ☐ Lesser Earless Lizard (***Holbrookia maculata***)
- ☐ Texas Horned Lizard (***Phrynosoma cornutum***)
- ☐ Greater Short-horned Lizard (***Phrynosoma hernandesi***)
- ☐ Round-tailed Horned Lizard (***Phrynosoma modestum***)
- ☐ Ornate Tree Lizard (***Urosaurus ornatus***)
- ☐ Common Side-blotched Lizard (***Uta stansburiana***)
- ☐ Desert Spiny Lizard (***Sceloporus magister***)
- ☐ Southwestern Fence Lizard (***Sceloporus cowlesi***)
- ☐ Great Plains Skink (***Plestiodon obsoletus***)

Snakes

- ☐ New Mexico Threadsnake (***Rena dissectus***)
- ☐ Western Threadsnake (***Rena humilis***)
- ☐ Glossy Snake (***Arizona elegans***)
- ☐ Trans-Pecos Ratsnake (***Bogertophis subocularis***)
- ☐ Coachwhip (***Coluber flagellum***)
- ☐ Striped Whipsnake (***Coluber taeniatus***)
- ☐ Chihuahuan Hook-nosed Snake (***Gyalopion canum***)
- ☐ Desert Kingsnake (***Lampropeltis splendida***)
- ☐ Great Plains Rat Snake (***Pantherophis emoryi***)
- ☐ Gophersnake (***Pituophis catenifer***)
- ☐ Long-nosed Snake (***Rhinocheilus lecontei***)
- ☐ Mountain Patch-nosed Snake (***Salvadora grahamiae***)
- ☐ Western Patch-nosed Snake (***Salvadora hexalepis***)
- ☐ Western Groundsnake (***Sonora semiannulata***)
- ☐ Smith's Black-headed Snake (***Tantilla hobartsmithi***)
- ☐ Plains Black-headed Snake (***Tantilla nigriceps***)
- ☐ Texas Lyresnake (***Trimorphodon vilkonsonii***)
- ☐ Ring-necked Snake (***Diadophis punctatus***)
- ☐ Hog-nosed Snake ***(Heterodon nasicus)***
- ☐ Chihuahuan Night Snake (***Hypsiglena torquata***)
- ☐ Black-necked Gartersnake (***Thamnophis cyrtopsis***)
- ☐ Checkered Gartersnake (***Thamnophis marcianus***)
- ☐ Western Diamond-backed Rattlesnake (***Crotalus atrox***)
- ☐ Banded Rock Rattlesnake (***Crotalus lepidus***)
- ☐ Black-tailed Rattlesnake (***Crotalus ornatus***)
- ☐ Prairie Rattlesnake (***Crotalus viridis***)
- ☐ Massasauga (***Sistrurus catenatus***)



1=*Anaxyrus debilis*, **2**=*Terrapene ornata*, **3**=*Anaxyrus cognatus*, **4**=*Crotalus atrox*, **5**=*Sonora semiannulata*, **6**=*Bogertophis subocularis*, **7**=*Pituophis melanoleucus*, **8**=*Tantilla nigriceps*, **9**=*Scaphiopus couchii*, **10**=*Gambelia wislizenii*, **11**=*Aspidoscelis inornata*, **12**=*Arizona elegans*, **13**=*Aspidoscelis tesselata*, **14**=*Cophosaurus texanus*, **15**=*Phrynosoma cornutum*, **16**=*Crotalus ornatus*, **17**=*Ambystoma tigrinum*, **18**=*Lampropeltis splendida*, **19**=*Salvadora hexalepis*, **20**=*Plestiodon obsoletus* (neonate eye), **21**=*Sceloporus cowlesi*, **22**=*Heterodon nasicus*, **23**=*Cophosaurus texanus*, **24**=*Hypsiglena torquata*, **25**=*Aspidoscelis inornata*, **26**=*Phrynosoma hernandesi*, **27**=*Crotalus lepidus*, **28**=*Gambelia wislizenii*, **29**=*Coluber flagellum*, **30**=*Crotalus viridis*, *31*=*Coleonyx brevis*, **32**=*Rhinocheilus lecontei*, **33**=*Urosaurus ornatus*, **34**=*Trimorphodon vilkonsonii*, **35**=*Sceloporus magister*, **36**=*Crotaphytus collaris*, **37**= *Sceloporus cowlesi*, **38**=*Aspidoscelis exsanguis*, **39**=*Crotalus viridis*



In Memoriam:
Charles W Painter
1949-2015