

The Reptiles of the Black Range
and adjacent areas

Version 1.0 - October 2023

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The Covers



The front cover: A Checkered Garter Snake, *Thamnophis marcianus*, photographed along Palomas Creek at the A-Spear Ranch, Sierra County, New Mexico.



The back cover: Texas Horned Lizard. *Phrynosoma cornutum*, photographed in Hillsboro, New Mexico.

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Unattributed material is contributed by the editor.

Introducing the Reptiles of the Black Range

As with the rest of the natural world, any inquiry into the realm of snakes and lizards reveals more than a little mythology, lots of knowledge gaps, and many areas of understanding which are unlikely to stand the test of time. Herpetology in general and ophiology (the study of snakes) specifically have to address the common issues associated with the making of the sausage called "science": a fact today may not be a fact tomorrow. There are some who perceive this as a weakness. To these individuals the world is black or white. There is no room for nuance, there is only the truth. The shortcomings of their mythology are legendary. Others recognize that science is a formative process, one which builds on the knowledge of the past to better the knowledge of the present, recognizing that it will never be complete or perfect, only (hopefully) continually better. False steps happen, human failings shroud "the truth", and the world continues to change. Throughout this work we try to point you to a variety of sources which may be of use to you as you attempt to deepen you understanding of this topic. Trouble is, not all of those sources agree on some of the basics, like what to call something or what its relationship is to others. Sometimes lack of consistency results from a fundamental disagreement about the facts and/or how to interpret them. Sometimes the lack of consistency is simply the result of a lot of people trying to keep up to date on the latest thinking but failing to do so. Or, just as likely, knowing the change but simply not having the time or resource to change the reference material.

We present what we believe to be the latest information in this issue. If you have a deep interest in this topic, please follow the resources we point you to. A work like this journal can tend to be static, but being digital enables more frequent updates than is possible with print media. Look for future versions of this work on the Black Range website. Knowledge is fluid and what is presented here is the river you stepped in when this work hit the ether, not the river you stepped into a week later, even though it had the same GPS coordinate.

Snakes and lizards have been of interest to the people of the Black Range for thousands of years. The petroglyphs of rattlesnakes and the images on Mimbres pottery are simply two reminders of this fact.

The diversity of reptiles in the Black Range is significant. We often find ourselves at the edge of a species range. For a singular species that is interesting. When you have multiples of that happening - you have the Black Range.

Throughout this reference we refer to the range determinations made by the New Mexico Herpetological Society. They maintain county level range maps, snake species reported for Sierra or Grant County may not be found in the Black Range.

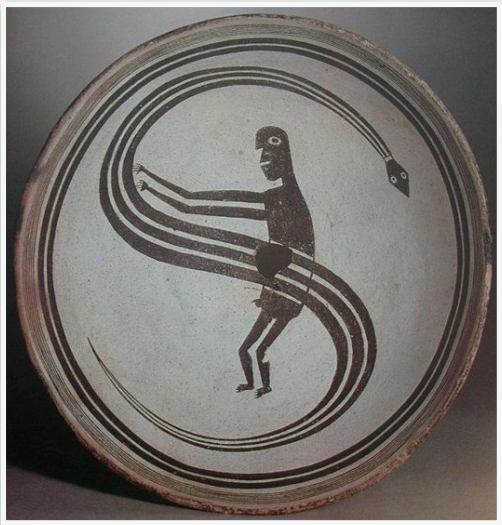
Remember, many snake species are venomous and some have very toxic venom. Don't be afraid, be aware.

We start with a bit of biology.



Rattlesnake glyph at the Pony Hills glyph site southeast of Cooke's Peak. Mimbres culture.







Cycloid Scales

Reptile scales vary by species. For instance, the skink and spiny lizards have dramatically different scales, cycloid in the former and keeled in the later. There are hundreds and hundreds of scales on these lizards, and the type of scale, the arrangement of the scales, their shape, and their color all coalesce into what we perceive as the "look" of the lizard.



Cycloid scales are also found on many fish species. "Cycloid" comes from the Greek *cyclo*, which means circle. The detail, above, shows the round shape of the skink scales but does not show the growth rings which are present on each scale. In some cases, these growth rings can be used to age the creature they came from. If the scales had a fringe of fine protrusions it would be called ctenoid, from the Greek *cteno*, meaning comb.

The dorsal pattern on this skink is even more intricate than it first appears. It is more than lots of little overlapping scales. The light reflection across the middle of the image above picks up a color pattern which is not obvious at first. In the reflected light, the bottom edge of each scale appears to have a white triangular or crescent shape. In the other areas this shape shows up as a dark feature. Each scale has this shape and when lit/unlit exhibits these color differences, creating the dorsal pattern.

Keeled Scales

The spiny lizards have keeled scales. Keeled scales have a ridge down the center. Depending on the species, the ridge may not extend from one end to the other of the scale or it may extend beyond the major part of the scale. Twin-spotted Spiny Lizards exhibit this later variation of the ridge shape (see detailed image below). Depending on the species, a lizard may have several types of keeled scales. Often the dorsal scales will be



stronger and the ridge will be more prominent than is the case for the scales on the side of the body. Laurence Klauber, in Rattlesnakes - Their Habits, Life Histories, and Influence on Mankind, 1984, noted this variation in scale patterns, in reptile species, when he summarized his work on *Crotalus*.

As with cycloid scales, there are many variations in the shape of keeled scales. Some vipers have serrations along the edge of the scale which, when rubbed against other scales with this type of edge, produces a "sizzling sound" which apparently serves the same purpose as the buttons on the tail of *Crotalus*.

Brumation

Brumation is not hibernation. Although it serves the same general purpose, to get the individual through colder periods when there is less food, the metabolic processes are different. Lizards, for instance, will break their brumation to drink water but generally not to eat. Following a bit of water, they will go back to "sleep". Brumation is triggered by lower temperature and shorter days.

Breaking A Tail On Demand

In this work we frequently comment on a species' ability to separate its tail when needed and the characteristics of the new tail when one regenerates. Not all lizards have this ability, or at least it is more difficult for some species.

Other creatures and a certain number of plant species have the ability to separate part of themselves when necessary. The manner in which this occurs is probably not the same for all species.

The shedding of a tail is a phenomenal feat. First of all, a tail is important and many species do not (commonly?) exhibit this behavior (e. g. - Eastern Collared Lizard). Some argue that the tail is used to maintain stability when a lizard is running. The fact that some species are able to shed their tails is generally attributed to a survival strategy.

But how does it work? How does a creature keep its tail from falling off at inappropriate times? How does it assure that it will shed at appropriate times?

The mechanics of tail shedding are explored by Baban et al. in a study they describe in *Science*, "Biomimetic fracture model of lizard tail autotomy", Vol. 375, Issue 6582, Feb. 18, 2022, pp. 770-774. The supplementary material at this link provides a wealth of information about the techniques used in the study.

Science summarizes the material: "Microscopy data of the broken surfaces of the tail showed that the fracture plane consists of mushroom-shaped pillars with nanopores at their tops. These pillars allow for enhanced adhesion of the tail in tension and peeling modes but enable fracture during oscillatory bending."

Snakes of the Black Range - Species Listing

The current USDA, Forest Service checklist for the Gila lists several of the following snakes. The Forest Service checklist does not indicate subspecies. The following listing brings our species checklist up to date. We lead with the species name as it appears in the above checklist in most cases. However, if there appears to be agreement that the species should be known by a separate name we substitute the new name for that found on the checklist. The taxonomy of these species is not always universally agreed to; we try to explain the possibilities, but it can be quite confusing.

References to "checklist" refer to the USFS checklist linked to above. "NMHS" refers to the New Mexico Herpetological Society website. The Reptiles and Amphibians of Arizona website is an additional useful resource. "NAFHA" refers to the listing of species of the snakes of North America maintained by the North America Field Herping Association.

The NMHS website lists several species for Sierra and Grant County that are included in the following listing but are not included on the USFS checklist.

If you know of other species found in the area, please let the editor (rabarnes@blackrange.org) know.

Alphabetical Listing by Latin Binomial (Genus)

***Arizona elegans philipi*, Painted Desert Glossy Snake. This species is not listed on the USFS checklist but is listed on the NMHS website. NAFHA lists eight subspecies of *A. elegans*, Glossy Snake.**

***Bogertophis subocularis subocularis*, Northern Trans-Pecos Ratsnake. This species is not listed on the USFS checklist but is listed on the NMHS website. Randy Gray notes that the species has been reported from near Truth or Consequences but not from the west side of the Rio Grande.**

***Crotalus atrox*, Western Diamond-backed Rattlesnake. This is the rattlesnake which is most likely to be encountered in the Black Range. It is common in desert, oak woodland, and oak-juniper woodland. There are no subspecies of Western Diamond-backed Rattlesnake.**

***Crotalus lepidus*, Rock Rattlesnake. This species is uncommon in oak-juniper, pinyon-juniper, and Ponderosa Pine woodlands. There are four recognized subspecies of Rock Rattlesnake. The one found in our area is the Banded Rock Rattlesnake, *C. l. klauberi*.**

***Crotalus molossus*, Northern Black-tailed Rattlesnake. *C. molossus*, as listed in the USFS checklist, has been split into two species. *C. molossus* and *C. ornatus*. *C. molossus* is found to the northwest of the Black Range and may possibly extend into the Black Range. There are three subspecies of *C. molossus*. The one found in our area is the nominate form, *C. m. molossus*.**

***Crotalus ornatus*, Ornate Black-tailed Rattlesnake. This species is common in oak-juniper, pinyon-juniper, Ponderosa Pine, and spruce-fir woodlands. Several sources have yet to accept these snakes as a full species. See the write-up in the species description.**

***Crotalus viridis*, *Prairie Rattlesnake*. Common in desert, oak woodland, oak-juniper, pinyon-juniper, and Ponderosa Pine woodlands.**



***Diadophis punctatus regalis*, Regal Ringneck Snake. This species is not listed on the USFS checklist but is listed on the NMHS website. NAFHA lists 14 subspecies of *D. punctatus*. This is a species of rocky hillsides, grasslands, and forest edges. Image above by Megan Perry.**

***Gyalopion canum*, Chihuahuan Hook-nosed Snake. Not listed on the USFS checklist, but see NMHS.**

***Heterodon kennerlyi*, Mexican Hog-nosed Snake. Not listed on the checklist but is listed at the NMHS website. The distribution of this and the next species, in this area, is unclear.**

***Heterodon nasicus*, Plains Hog-nosed Snake. Not listed on the USFS checklist, but see NMHS, which lists this species for Sierra County.**

***Hypsiglena jani*, Chihuahuan Night Snake. This species is not listed on the USFS checklist, but see NMHS.**

***Lampropeltis pyromelana pyromelana*, Sonora Mountain Kingsnake. There are two subspecies of Sonoran Mountain Kingsnake; the nominate form is found in our area. Our subspecies is sometimes known as the Arizona Mountain Kingsnake. Uncommon in pinyon-juniper, Ponderosa Pine, and spruce-fir woodlands.**

***Lampropeltis splendida*, Desert Kingsnake. This species is listed as *L. getulus,* the Common Kingsnake, in the USFS checklist. Since publication of that checklist, the specific name of the Common Kingsnake was changed to *Lampropeltis getula*. The snake found in our area is now recognized as a full species, *L. splendida*, the Desert Kingsnake. This species is uncommon in our area, typically found in oak, oak-juniper, and pinyon-juniper woodlands.**

***Lampropeltis triangulum*, Milksnake. This species is not listed on the USFS checklist, but see the NMHS website. Although it is not found in Sierra or Grant County, it is is found in four counties which abut them. Additional survey work is in order.**

***Masticophis bilineatus*, Sonoran Whipsnake. This species is not listed on the checklist, but see NMHS. NMHS indicates the range of this species includes Grant County.**

***Masticophis flagellum*, Coachwhip. Some authorities place these snakes within the genus *Coluber*, in which case it is *Coluber flagellum testaceus*, the Western Coachwhip. NMHS lists**

two subspecies in our area: *M. f. testaceus* (from Sierra County) and *M. f. lineatulus* (from Grant County). Common in oak and oak-juniper woodlands.

Masticophis taeniatus taeniatus, Desert Striped Whipsnake. Some authorities place these snakes within the genus *Coluber*, in which case it is *Coluber taeniatus taeniatus*. This species is common in oak-juniper and pinyon-juniper woodlands.

Micruroides euryxanthus, Arizona Coral Snake. This species is also known as the Sonoran Coralsnake. The NMHS site indicates that this species is found in Grant but not Sierra County, it is very unlikely that this species is found in the Black Range. Within its range it is rare in oak-juniper and pinyon-juniper woodlands.

Pantherophis emoryi, Great Plains Rat Snake. Not listed on the USFS checklist, but see NMHS. NMHS indicates the range of this species includes Sierra County.

Pituophis catenifer affinis, Sonoran Gopher Snake. Not listed on the checklist, but see NMHS. The "Bull Snake" entry on the USFS checklist (see below) probably refers to this species. NAFHA lists ten subspecies of *Pituophis catenifer*.

Pituophis melanoleucus, Bull Snake. (The current common name for this species is Pine Snake.) The Pine Snake is a species of the American southeast. Bull Snake is also the common name used for *Pituophis catenifer sayi,* which is found in the New Mexico counties bordering Texas in the north.

Rena dulcis, New Mexico Blind Snake. The USFS checklist includes *Leptotyphlops dulcis*, Texas Blind Snake. Please see the species account to review how we got from *L. dulcis* to *R. dulcis*. (It was not a straight road.) This species is rare in our area, where it is typically found in oak-juniper and pinyon-juniper woodlands.

Rena segrega, Trans-Pecos Blindsnake. *Leptotyphlops humilis*, Western Blind Snake is listed in the USFS checklist. Please see the species account to review how we got from *L. humilis* to *R. segrega*. This species is uncommon in oak, oak-juniper, and pinyon-juniper woodlands.

Rhinocheilus lecontei, Western Long-nosed Snake. Not listed on the USFS checklist, but see the NMHS website. Photo below by Travis Perry.



Salvadora deserticola, Big Bend Patchnose Snake. The USFS checklist lists these snakes as *Salvadora deserticola*, Western Patchnose Snake. NAFHA lists five subspecies of *S. hexalepis*, the Western Patchnose Snake, one of which is *S. h. deserticola*. NHMS lists this species simply as *Salvadora hexalepis*, the Western Patchnose Snake. This species is fairly common in oak and oak-juniper woodlands. In the Hillsboro area, this species is most commonly found in the desert washes.

Salvadora grahamiae grahamiae, Mountain Patchnose Snake. NAFHA lists two subspecies of *S. grahamiae*. Eastern Patchnose Snake, the nominate form is found in our area and is known as the Mountain Patchnose. This species is uncommon and is typically found in pinyon-juniper woodlands.

Sistrurus tergeminus edwardsi, Desert Massasauga (following NMHS). Not listed on the USFS checklist, but see NMHS. NAFHA lists this group of snakes as a subspecies of *Sistrurus catenatus (edwardsii)*. It also lists a species named *S. c. tergeminus*, Western Massasauga. At least one individual of this species have been found in the grasslands around the Black Range (see species account).

Sonora semiannulata semiannulata, (Variable) Ground Snake. Not listed on the USFS checklist, but see NMHS.

Tantilla hobartsmithi, Southwestern Black-headed Snake. This species is also known as Smith's Black-headed Snake. It is rare in our area and is found in the desert, oak, and oak-juniper woodlands.

Tantilla nigriceps, Plains Black-headed Snake. Uncommon in desert, oak, oak-juniper, and pinyon-juniper woodlands.

Thamnophis cyrtopsis cyrtopsis, Black-necked Garter Snake. This species is common in deciduous riparian areas.

Thamnophis elegans vagrans, Western Terrestrial Garter Snake (subspecies is referred to as the Wandering Gartersnake). Other English common names include Garden Snake, Gardener Snake, and Grass Snake. This species is common in deciduous riparian and coniferous riparian woodlands. NAFHA lists four subspecies of Terrestrial Garter Snake, others list six.

Thamnophis eques, Mexican Garter Snake. Not listed on the checklist, but see NMHS which lists this species from Grant County (but probably not from the Black Range).

Thamnophis marcianus marcianus, Checkered Garter Snake. The subspecies is known as Marcy's Checkered Garter Snake. Fairly common in deciduous riparian woodlands.

Thamnophis rufipunctatus, Narrow-headed Garter Snake. NMHS lists this species for Grant but not Sierra County. This species is uncommon in open marshes and deciduous riparian woodlands.

Thamnophis sirtalis, Common Garter Snake. Not listed on the USFS checklist, but see NMHS. NMHS indicates that the range of this species includes Sierra County.

Trimorphodon lambda, Sonoran Lyre Snake. Not listed on the USFS checklist, but see NMHS. NMHS indicates the range of this species includes Grant County.

Trimorphodon vilkinsonii, Chihuahuan Lyre Snake. Not listed on the checklist, but see NMHS. NMHS indicates the range of this species includes Sierra County.

Snakes of the Black Range - Species Accounts

The following species accounts are arranged in alphabetical order by Latin binomial.

Painted Desert Glossy Snake

Arizona elegans philipi

This species is not listed on the USFS checklist but is listed at NMHS (follow link above). NAFHA lists eight subspecies of *A. elegans,* Glossy Snake. One other subspecies is found in New Mexico and two others are found in Arizona. This subspecies has been found in most of the counties of central and western New Mexico.

The image to the upper right is provided by nmoorhatch, via iNaturalist, under a Creative Commons license. The photograph was taken near El Paso. Note that the coloration of this species will vary with the color of the soil in its native range.

This species is typically found at elevations below 6,000' in desert scrub and grasslands. It is one of the constrictor species and feeds on other snakes, lizards, birds, and small mammals. The Painted Desert Glossy Snake is nocturnal but may sometimes be found during the daylight hours during cool mornings and afternoons.

This species is oviparous (egg laying) and breeds in late spring to early summer. From 10 to 20 eggs are in a clutch.





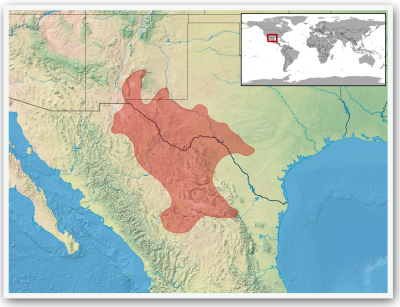
Northern Trans-Pecos Rat Snake

Bogertophis subocularis subocularis

This species is not listed on the USFS checklist but is listed at NMHS (follow link above) for Sierra County. Note the range map to the right for this species, provided by rbrausse under a Creative Commons license. It is doubtful that this species is found in the Black Range. Although reported from near Truth or Consequences it has not been reported from the west side of the Rio Grande. There are two subspecies, a "Northern" and a "Southern".

The "H" markings along its top are diagnostic, so this species should be fairly easy to identify if encountered. The individual directly above was photographed by Richard D. Reams and is shown here via iNaturalist/CC license.

The Northern Trans-Pecos Rat Snake is typically found in rocky areas with deep cracks in the rock. They prefer such cracks for hibernation.



The Rattlesnakes

"Rattlers of the Black Range", by Randall Gray, was published in the very first issue of the Black Range Naturalist. The full text of Randy Gray's article is reprinted below because it has a wealth of information. (Photographs associated with the article are included in the species pages of this work.)

"The most maligned, misunderstood and feared residents of the Black Range are rattlesnakes. However, they are a fascinating group of reptiles that we are still learning more about. For instance, in the past couple of years researchers have documented that female rattlesnakes after giving live birth, stay with their offspring and help protect them along with other social behaviors.

"There are eight species of rattlesnakes now recognized to occur in New Mexico. Four, and just maybe six species of rattlesnakes call the Black Range home. The most often seen is the Western Diamondback (*Crotalus atrox*) easily recognized by its boldly alternating pattern of white and black bands on the tail. Also found in the Range is the Ornate Black-tailed Rattlesnake (*Crotalus ornatus*) whose name "black-tailed" is a good way to identify the species. The Banded Rock Rattlesnake (*Crotalus lepidus*) is not seen as often as the Diamondback or Ornate Black-tailed. It makes its home in rocky areas where it feeds primarily upon lizards. Another common rattlesnake in the Black Range at lower elevations is the Prairie Rattlesnake (*Crotalus viridis*). The fifth rattlesnake that just might be found in some of the lower elevation drainages is the Massasauga (*Sistrurus catenatus*) because a few have been found in the grasslands around the Black Range. The possible sixth species is the Northern Black-tailed Rattlesnake (*Crotalus molossus*) which might occur on the western slopes of the Black Range. However, you might need some DNA to be sure. Several years ago the Black-tailed Rattlesnake (*Crotalus molossus*) was broken into two species (*Crotalus molossus* and *Crotalus ornatus*). The western distribution of the Ornate Black-tailed Rattlesnake was proposed as the southern end of the Black Range. As taxonomy goes, those two snakes may be lumped back together someday.

"The Ornate Black-tailed, Western Diamondback, and Prairie Rattlesnakes are the species most often encountered crossing roads. Unfortunately they often linger on the roads to absorb the heat radiated by the asphalt which raises the chances they will be hit by a vehicle. Sightings are especially common during the monsoons when they are moving around looking for mates. They give live birth the following summer and most breed only every two years.

"There are several common misunderstandings about our rattlesnake residents that are often voiced. First is who's who. Many folks think we have Timber Rattlesnakes (*Crotalus horridus*) in the Black Range. However we don't; the closest populations of Timber Rattlesnakes are in East Texas. The Ornate Black-tailed is the species most often misidentified as a Timber Rattlesnake. You will also hear people say there are Mojave "Green" Rattlesnakes (*Crotalus scutulatus*) in the area. The only documented Mojave Rattlesnakes are in the boot heel of New Mexico just west of Animas and in south central New Mexico along the border with Texas. Some populations of Mojave Rattlesnakes have a green phase as is also the case with Northern Black-tailed rattlesnakes, so maybe seeing a greenish Black-tailed leads to the mistaken conclusion that it is a Mojave.

"Many think you can tell the age of a rattlesnake by the number of buttons on its rattle. This is not reliable because rattlesnakes gain a button (rattle) every time they shed. If the snake is eating well it can shed several times a year. In addition, buttons can be broken off, so they come and go more frequently than assumed.

"Another misunderstanding is that baby rattlesnakes are more deadly. A reason cited is they cannot control the amount of venom injected. However, the bite from a larger rattlesnake is more serious because larger snakes have more venom. However, the best course is to not find out! Avoid being bitten by being mindful of where you put your hands or where you walk when out and about. Rattlesnakes prefer not to interact with you and often rattle to warn of their presence. But sometimes they don't rattle so look for them.

"There is a group, Advocates for Snake Preservation, that is based just west of the Black Range in Silver City, NM that does outreach about snakes. Their web site (www.snakes.ngo) has information about living with rattlesnakes as well as videos showing the social behavior of rattlesnakes.

Rattlesnakes are part of the great biodiversity of the world and are unique residents of the Black Range. They are are a part of the ecology of this remarkable area. More people have learned to respect and appreciate rattlesnakes and avoid killing them. In fact, don't be surprised if you pass somebody on the road that has stopped to move a rattlesnake before it is intentionally or otherwise run over."

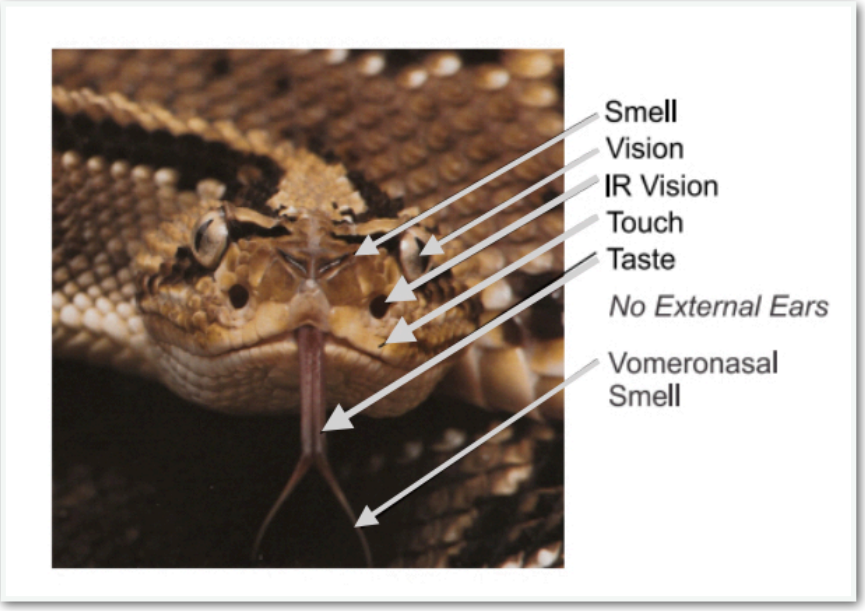
In the January 2020 issue of the Black Range Naturalist, Randy Gray reported that he was assisting others in a genetic study of the speciation questions surrounding the Black-tailed Rattlesnake complex. In personal correspondence with the editor on November 11, 2019, he noted that "I have been collecting blood of *C. ornatus* for DNA analysis to further determine genotype comparison with *molossus*. The researchers are collecting samples from within the integration zone which occurs from our neighborhood (ed: Black Range) to AZ. I have photographed specimens from the bootheel that are visually very *C. molossus*. I believe the specimens identified near Gila Cliff Dwellings are most likely *C. molossus* based on a documented find by one of the researchers if I remember correctly (but note that snake is still being reviewed). However there is still much to learn and we live where the now 2 species come together... though the Mimbres River is indicated as a potential barrier I do not understand that. Water does not stop rattlesnakes."

In the second issue of the Black Range Naturalist, Lloyd Barr published "A Rattlesnake's World" which described the umwelt of rattlesnakes, what they sense and how they sense it. As above, we reprint the article here.

"All an animal 'knows' about the world comes to it via its senses. So to learn something of what a snake's world is like, we need to learn something about the way they sense the external world.

Imagine, you are standing on the side of a dry creek bed watching a Texas Horned Lizard, what kids call horny toads, when ten feet away, a snake slides out from the grass under a mesquite tree and starts across the creek bed. It is "clearly intent" on going straight across and seems to bustle as it creates its sinusoidal way across the sandy, rocky, terrain. You freeze! The snake is big, more than four feet long and has a thick body, more than two inches thick. No need to attract its attention! It is moving so fast it is hard to see the dark brown diamond patterns on the skin of its back. The rest of its skin is blotchy, mottled skin, light, tan even. However, it has a rattle on its tail and just ahead of the rattle are the bright, characteristic black and white stripes of the "coon tail". Definitely a Western Diamondback Rattlesnake. You can't miss the tail because it is waving up and down.

"Let's consider what the two animals, snake and human, are experiencing in this encounter. Doing this will bring us very quickly to matters that border on what we cannot ever know, as well as, those things which we probably will know but just don't know now. Experiencing is a brain process involving millions of little nerve cells talking to each other by way of their nerve impulse messages. The parts of the brains of all vertebrates develop from equivalent parts in their embryos and the fine structures in the parts are similar. Moreover, the main brain parts function in similar ways. In the snake, the brain transitions to the spinal cord just below the head just as ours does. Above the spinal cord, the snake brain parts extend forward toward the nose of the snake, instead of growing up and out like the mushroom shaped brain we have. It's as if a map of the brain parts was



plotted on a printer page and then crumpled up as if to toss away. The parts would still be there with their same neighbors but the overall view might seem very different. So, snake brains are not exactly shaped like miniature versions of ours but one can easily see that many parts of a snake brain are similar to ours and that they carry equivalent information.

"The nerve cell bodies in brains are clumped together into nuclei; different nuclei have different functions. In the nineteenth century neurophysiologists found certain easily distinguishable cells in the rest of the body are especially sensitive to one particular aspect of the environment. These are the receptor cells and they are connected in various ways to nerves that run up to different nuclei. Mostly, the receptor cells are receptive to particular kinds of vibration, sound, light etc.

"As the snake finally turns its head towards you, it brings to bear at least seven senses to collect information about you and determine what to do next. The two extra senses, the sensitivity to pheromones and the sensitivity to infrared light, involve whole organs that we don't have.

"Snake eyes are very similar to ours: lenses, retinas the whole bit. However, the snake eye has far fewer receptors and is not as good an optical device as the human eye. Being blinded would be a death sentence for almost any wild vertebrate. Diamondbacks included, probably, but Diamondbacks also depend heavily on other senses. Nonetheless, they behave as if vision is their primary window to the external world just as it is for most vertebrates. The primary event in snake vision is the absorption of a quantum of light by a pigment molecule in a photoreceptor cell, just as it is in all other vertebrates. Virtually all living things respond in some way to light but vertebrate photoreceptor cells are uniquely sensitive. Their "visual" pigments are members of a very large family of membrane proteins, some of which go back to when life was still in the one cell stage. Light and life have been intertwined almost from the beginning and visual pigments started very early. While some kind of absorption event is a necessary first step, vision is far more than the detection of light quanta. Instead, we should think of vision in terms of creating a perceptual image of the external world.

"The amount of information necessary to create even a fuzzy perception of a piece of the world is huge. Even a snake's small eye sends to its brain the Information from many tens of thousands of photoreceptors with other kinds of sensory information and memory as well. It is not surprising that data-reducing abstraction starts early on. A rattlesnake brain does even more: it integrates its primary light-based visual system with the entirely different infra-red "visual" system. Infra-red quanta have longer

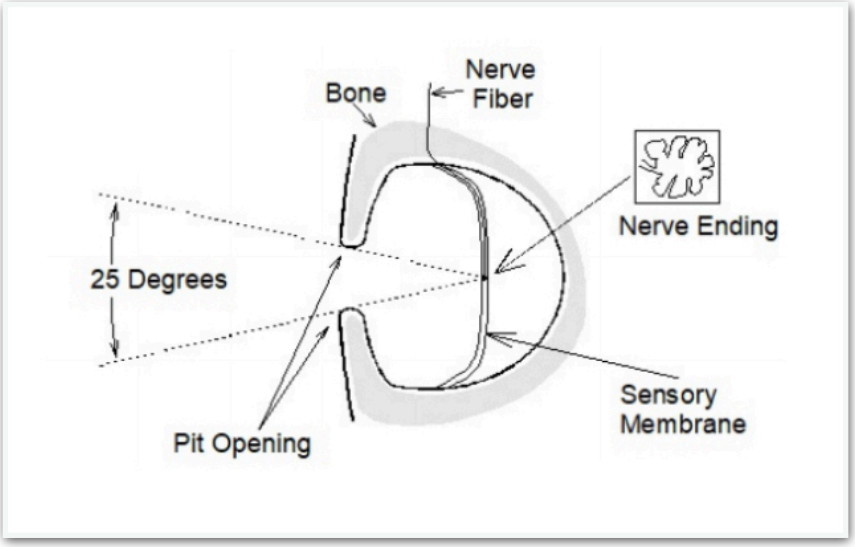
wavelengths and are too weak for visual pigments to detect. How the rattlesnake puts all of this together is unknown. In any event, a Diamondback "sees" with a dual visual system not just with its photoreceptors.

"Like cameras, eyes focus light rays from distant objects on a photo-responsive surface, the retina. There the similarity to cameras stops. What the retina sends to the brain occurs after intense processing of the photo-images and is quite different from the simple image reproduction that a camera provides. The processing involves abstraction of features (lines, etc.) and the perception of objects. The rattler in the creek bed needs to know what are the dangers or opportunities in our encounter; the faster the better, so prior experience is incorporated early in the perception process. At what point the infra red, heat information is incorporated is not now known. Just the overall size of a discernible object is of vital importance and snakes will turn their heads to get different perspectives just as we do.

"Rattlesnakes have special organs which can detect the infrared rays coming from a rodent or a bird. They are unbelievably more sensitive than the heat receptors in our skins. These organs are called pits and since the only animals that have them are certain vipers, these animals are called pit vipers. The organs, themselves, are indeed, little pits in the face about half way down on a line between the eyes and the mouth. In a 4 foot Diamondback, the pits are 4-5 mm. or so in diameter. At a distance, a pit looks like a little black spot. About halfway into the pit from the orifice is an ultra-thin sensory membrane which divides the pit into a front and back. The sensors are simply expanded nerve terminals in the sensory membrane.

"It is likely that a rattlesnake is able to extract very little image information from its pits. What it can extract is the warmness, direction and perhaps size of a little bird or mammal. One

Editor: During the early part of this century, Drs. Lloyd Barr and Matilde Holzwarth conducted extensive research on the the physiology of these pit organs.



should not minimize the value of such information, especially on a dark night when other animals might be almost blind. Finally, one might expect that rattlesnakes have brain mechanisms to distinguish warm animals from warm rocks. This is unclear.

"For air breathers like snakes and humans, airborne molecules carry information about nearby food and dangers. The first event of the process of smelling (i.e. olfaction) involves small airborne molecules binding to molecular receptors in the membranes of some cells of the nose. The sources of these odors are usually other animals and plants. A second chemical sense involves molecules that are not volatile, the pheromones. These large molecules are detected by snakes using an organ humans don't have, the vomeronasal organ. This system provides information about other animals, especially other snakes. This system is also a communication system because the molecules provided by some animals identify themselves and their mating availability to others of the same species. The taste, smell, and vomeronasal receptors are specialized by which chemicals of the environment they detect. Detection of environmental molecules is present in all vertebrates and invertebrates.

"In contrast with smelling, tasting is almost vestigial in rattlesnakes. There are taste receptor cells, but they are organized into just a few taste buds. In humans and other mammals taste probably became so important because mammals eat so many different things. Rattlesnakes tend to be more specialized in their food and once a prey is struck, they tend to try to eat it. Diamondbacks probably have fewer than a couple dozen taste buds, while humans have around 4000.

"The rattlesnake in the creek bed is sampling molecules from its environment not only with its sense of smell but also with another similar system, the vomeronasal system. The paired vomeronasal organs are structurally quite similar to the nasal system but more complex. The molecules detected are now referred to in the scientific literature as vomodors to distinguish them from the volatile molecules, the odors, we associate with the sense of smell. Since the non-volatile vomodors are not carried by air currents to the sensors, they must be transported there in some other way. This involves their tongues working in at least two steps. First consider, rattlesnakes tongues are 1) long, 2) have long forked tines, and 3) are rough on their ventral surfaces. The tongue first, picks up non-volatiles by contact with the environment and then, second, folding the tongue back, deposits them into the fluid of the mouth. Then it flicks the tongue back out. Various kinds of evidence, including x-ray video, indicate that the tongue tines do not go into orifices in the vasonasal organ contrary to what was formerly thought. So currently, the forked nature of the snake tongue has no special role in the transport of vomodors.

So, the rattlesnake has a lot of sensory information to go over before it acts. No wonder it is slow."

In the April 2019 issue of the Black Range Naturalist Cindy Yarmal wrote about her experience of being struck by a Western Diamondback Rattlesnake. Although not a technical discussion (the subject of this article) it is well worth the time it takes to read. It is a great reminder that we need to be careful and lucky.

In the January 2020 issue of the Black Range Naturalist Harley Shaw wrote on the issues associated with having dogs in snake country. We recommend "Dogs and Snakes" if you have a dog and go a wandering the countryside.

The January 2020 issue also included an update on the "Black-tailed Rattlesnake taxonomy" question. That article is included later in this work as part of the species discussion (see also the call-out box on page 6).

Four rattlesnake videos are hosted by the www.blackrange.org website, two of the Northern Black-tailed Rattlesnake and two of the Western Diamondback Rattlesnake. Three are linked to here. To view the videos follow the link (orangish circle with an arrow at the lower right of each image). The video immediately to the right was recorded as part of Lloyd Barr's study of rattlesnake movement. A work which, unfortunately, was never completed.



REPTILES, FISH, & AMPHIBIANS

VIDEO OF VARIOUS REPTILE, FISH, & AMPHIBIAN SPECIES. THIS PORTFOLIO IS MAINTAINED BY BOB BARNES IN SUPPORT OF HIS WEBSITE, ABIRDINGLIFE.ORG. - RABARNES@BLACKRANGE.ORG



Rattlesnake, Northern Black-tailed

3 years ago

This video was recorded at Gila Cliff Dwellings National Monument, New Mexico on August 13, 2019. This is the subspecies Crotalus molossus molossus. There is some disagreement about the taxonomy of this complex. In 2012 a split of Crotalus molossus was proposed, separating the Eastern Black-tailed Rattlesnake, Crotalus ornatus, from the western population (known in some sources as the Western Black-tailed Rattlesnake - but retaining the name Northern Black-tailed Rattlesnake in other sources). We follow that split here.



Rattlesnake, Western Diamond Back



Rattlesnake, Western Diamondback (New Mexico)





Western Diamondback Rattlesnake

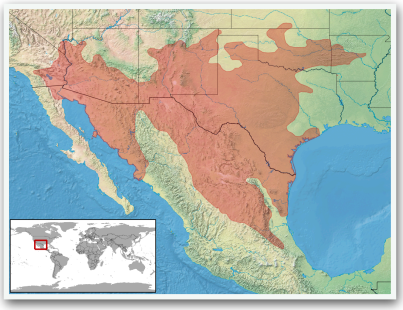
Crotalus atrox

Above and Below: Photographed along Animas Creek by Matilde Holzwarth on July 10, 2012. Right: Percha Box, east of Hillsboro, October 20, 2018.

This is the species you are most likely to encounter in walks in/around the Black Range. Video of this species is found at this *link* and at this *link*. Additional photographs are found at this *link* and at this *link*.



Although the Western Diamondback Rattlesnake is found over a relatively large area, there are no recognized subspecies.



Range map attribution.

Other English common names for the Western Diamondback include "Coontail Rattler, Adobe Snake, Arizona Diamond Rattlesnake, Desert Diamond-back, Desert Diamond Rattlesnake, Fierce Rattlesnake, Spitting Rattlesnake, Texan Rattlesnake, Texas Diamond-back, Western Diamond Rattlesnake, Western Diamondbacked Rattlesnake" (NMHS).

As noted in Randy Gray's article (see earlier) the Mojave Rattlesnake can sometimes be confused with the Western Diamondback Rattlesnake, because the Mojave also has a black and white striped tail. The Mojave Rattlesnake is not known from the Black Range. The white bands of the tail, on the Mojave, are broader than the black bands. In the Western Diamondback the black and white bands are more or less equal in width. A distinction which can be difficult to parse in the field.

The venom of the various rattlesnake species varies. If you are struck, it is important to know what the species was that struck you. The venom of the Western Diamondback is hemotoxic, meaning that it affects blood vessels and the heart. From time to time, reports filter across the landscape which indicate that someone has been struck but they were waiting to see if it was a "dry strike". This is not a good response to a strike for three reasons: 1) In the Black Range we live a long way from anywhere, venom can have severely adverse effects in a short period of time, and those effects may not develop linearly (i.e. the effects may not seem to be very bad at first but then suddenly worsen); 2) Not all hospitals have anti-venom in stock (it is expensive and has a relatively short shelf-life); and 3) Even if not fatal, the strike of a Western Diamondback Rattlesnake can result in the loss of a limb and have serious long-term consequences - not always, but sometimes. The variability of effect (caused by the amount of venom injected, type of venom injected, and the reaction to the venom) and anti-venom availability issues compound the risk of delay in action.

Although most often seen crossing a road or in a lowland wash (a result of observer location not snake distribution) the Western Diamond-back Rattlesnake can be found well into the forests of the Black Range.

Over much of its range (including in the Black Range) the Western Diamondback will hibernate during the cold period. It will often hibernate in communal dens, sometimes with other species - including *Pituophis catenifer* (Gopher Snake). It is suspected that in warmer areas they may not hibernate, and during warm periods they can be seen in the Black Range at any time of year.

This species bears live young, which are usually born in late summer. Females can retain sperm for more than one year.

Be sure to check the latest authoritative advice on the use of kits like those below, before using them.







Banded Rock Rattlesnake

Crotalus lepidus klauberi





Top: This image, by Randall Gray, appeared in the first issue of the Black Range Naturalist.

Middle: These images of a dead snake were taken along Middle Percha Creek, west of Kingston, by Steve Morgan.



NAFHA lists four subspecies of Rock Rattlesnake, two of which are found in New Mexico. The nominate form, the Mottled Rock Rattlesnake, is found as close as Otero County. The nominate form has a dark streak from the eye to the rear of the mouth (see right - attribution of this image can not be verified); *C. l. klauberi*, does not.

Rock Rattlesnake is also known as "Blue Rattlesnake, Green Rattlesnake, Green Rock Rattlesnake, Eastern Rock Rattlesnake, Little Green Rattlesnake, Pink Rattlesnake, Texas Rock Rattlesnake, and White Rattlesnake." (NMHS)

The Smithsonian's National Zoo notes that "The potency of the subspecies klauberi's venom varies throughout its range, suggesting that this snake's habitat and diet could be a factor in venom variations." The venom of this species is a hemotoxin. Potentially nasty stuff, up to and including things like bleeding from the eyes, ears, and nose.

This species is mostly diurnal, is generally found at elevations between 4,000' and 8,500', and bears live young.

Northern Black-tailed Rattlesnake

Crotalus molossus

The US Forest Service checklist was published prior to the split of the Black-tailed Rattlesnake into two species (*Crotalus ornatus* and *Crotalus molossus*, the Northern Black-tailed Rattlesnake).

Both of the *Crotalus molossus* photographs shown here are by Randall Gray. The top photograph appeared in the first issue of the Black Range Naturalist and was taken near the south end of the Animas Mountains in Hildago County, New Mexico. The bottom photograph is of C. ornatus and was taken just north of Lake Valley, N. M.

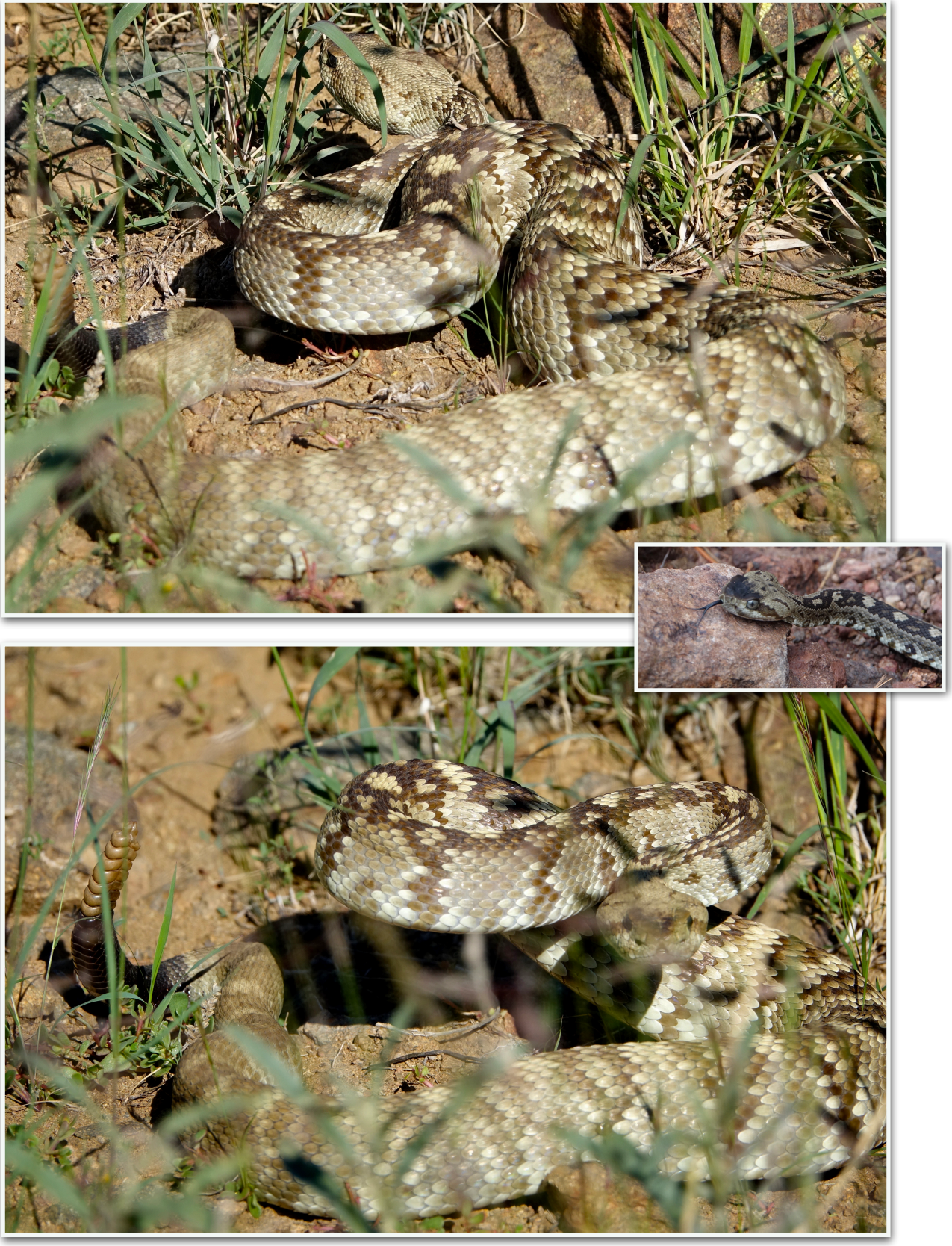




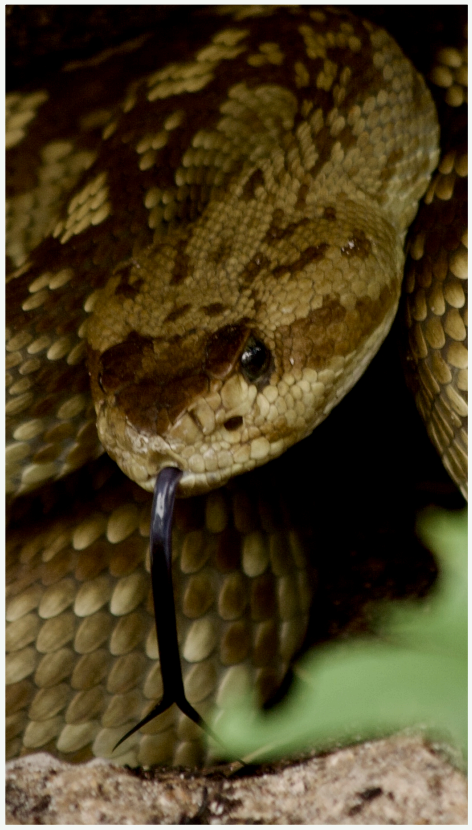
Ornate Black-tailed Rattlesnake

Crotalus ornatus

Crotalus ornatus, **which is shown here and on the next three pages is fairly common in the Black Range. The photographs below were taken near the ruins of Andrews east of Hillsboro, September 11, 2016. A short video, recorded during 2023 can be viewed here. The inset is an individual photographed in Big Bend National Park, for comparison. Additional information about this species is included in the following article.**



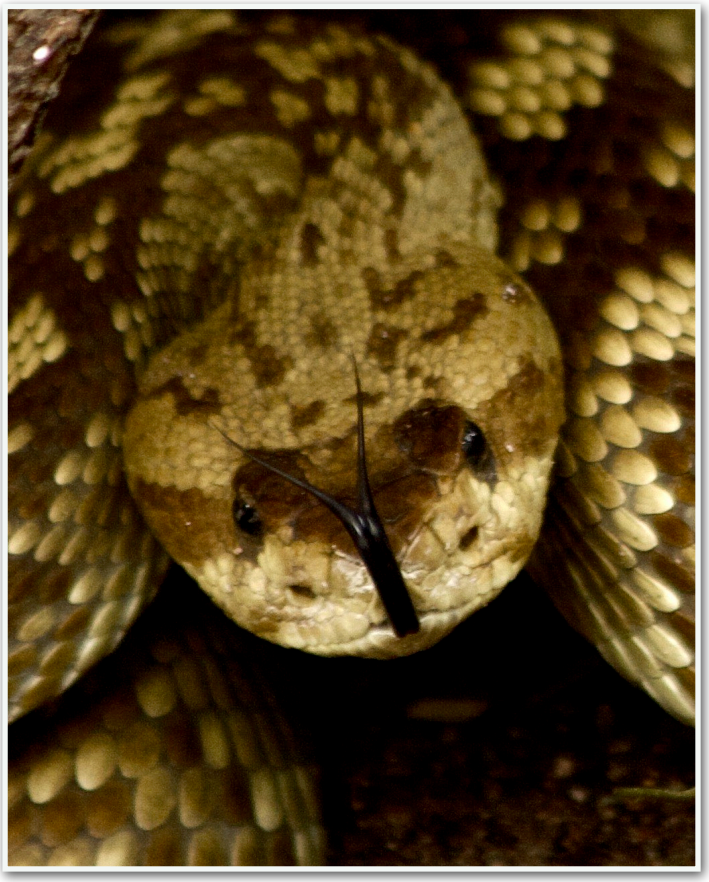






Ornate Black-tailed Rattlesnake
Middle Percha Creek west of Kingston, August 26, 2013.





Above: Ornate Black-tailed Rattlesnake, Middle Percha Creek west of Kingston, August 26, 2013.



***Crotalus ornatus,* Ornate Black-tailed Rattlesnake, Photo by Randy Gray**
This image of a young snake appeared in the first issue of the Black Range Naturalist.



Based on range, the following images are probably *Crotalus ornatus*. They were taken by Gordon Berman at the Soledad/Bar Canyon trailhead on the west side of the Organ Mountains.



***Crotalus ornatus,* Ornate Black-tailed Rattlesnake, Photo by Randy Gray. This image was taken on the southeastern slopes of the Black Range and appeared in the January 2020 issue of the Black Range Naturalist, as part of the following reprint.**

The January 2020 issue of the Black Range Naturalist included additional information about the taxonomic determinations associated with the Black-tailed Rattlesnakes. It is reprinted here.

Ornate (Eastern) and Northern Black-tailed Rattlesnakes

"In our first issue, Randy Gray provided an excellent summary of the rattlesnake species found in the Black Range. In "Rattlers of the Black Range", he noted that the Black-tailed Rattlesnake, *Crotalus molossus*, had recently been redescribed as two separate species by Anderson and Greenbaum.[1] In summary, the authors of the article Randy referred to "resurrect(ed) the name *Crotalus ornatus* Hallowell, 1854 for Black-tailed Rattlesnake populations in the Chihuahuan Desert and central Texas, USA" (paper abstract).

"Prior to the split, the most northerly subspecies of the Black-tailed Rattlesnake (*Crotalus molossus*) group was the one we are familiar with here in the Black Range, *C. m. molossus*. The range map shown at the top of the following page depicts the subspecies distribution prior to the paper; it is from page 20 of the cited publication and is from Campbell and Lamar (2004).[2]

"Rattlesnakes are thought to have originated in central Mexico.[2, 3, 4] The divergence of these creatures into thirty-five (or 32) species is estimated to have begun between 20 and 30 million years ago.[4] This dating was determined by using a variety of techniques including Monte Carlo (Markov Chain) runs, an assessment of fossil records, and morphological investigations. The greatest diversity of rattlesnake species is found on the Mexican plateau and adjacent mountain ranges. The most likely zone of origination lies within the Sierra Madre Occidental.[4]

"It is the most northerly of the subspecies which is of interest to us and the subject of the paper by Anderson and Greenbaum. The analysis performed by the authors found that divergence within *C. molossus* most likely began in the late Miocene, about 7.95 million years ago.

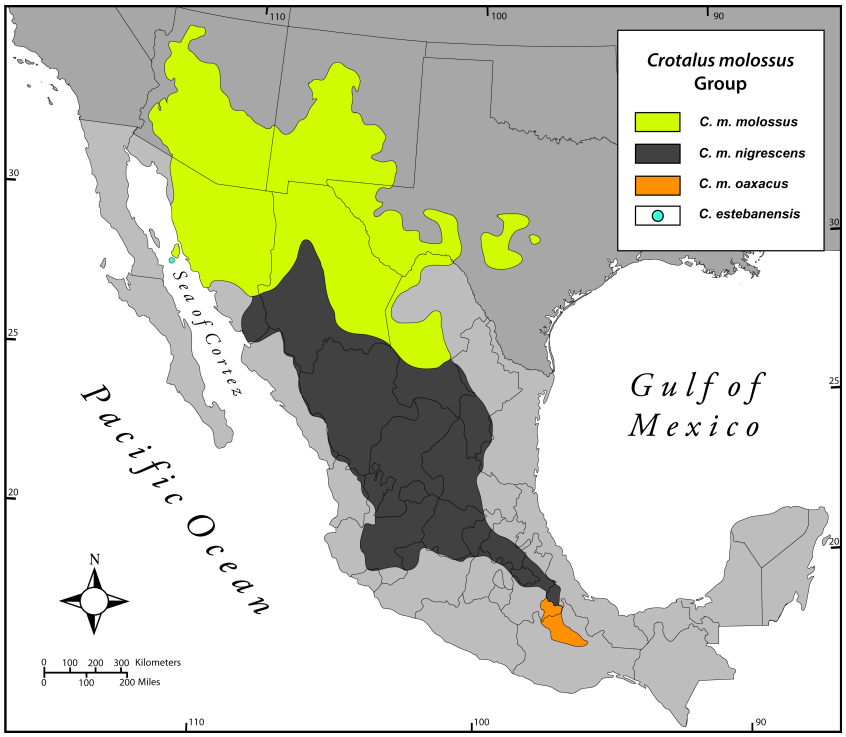
"At page 34 of the subject article, a graphic summary (see following page) of the various clades studies indicated a geographic boundary (the Black Range) between the clades (see arrow - added). The differences between the snakes to the east (the Chihuahuan Desert and central Texas populations) and to the west were significant enough to break the clades into separate species. The Madrean and Sonoran clades to the west remained as a subspecies of

***C. molossus, C. m. molossus*, the Northern Black-tailed Rattlesnake in some sources and the Western Black-tailed Rattlesnake in other sources. A total of 142 (significant) mutations have occurred between the two populations (east and west) since they were last in contact in the early Pliocene.**

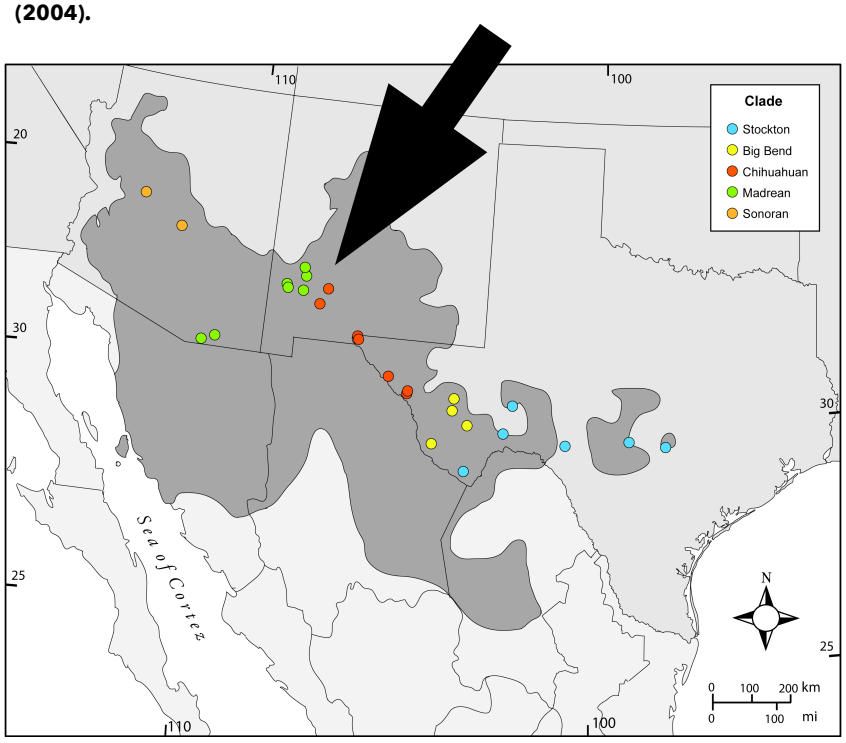
"The eastern population had been described by Hallowell in 1854 as *Crotalus ornatus* - later subsumed into *C. molossus*. The authors proposed that *C. ornatus* be restored as a full species and that the English common name of Ornate Black-tailed Rattlesnake be adopted.

"'*C. ornatus* is present in the Cook's (Ed.: Cooke's Range, but in some sources, Cookes Range) Range, the Mimbres Mountains, and the eastern slopes of the Black Range in south-central New Mexico. *Crotalus molossus* sensu stricto is present in the Madrean Archipelago of southwestern New Mexico, the Mogollon Mountains, and the Pinos Altos Range north of the Deming Planes (sic). The wide swaths of desert grassland that currently provide corridors between Sonoran and Chihuahuan habitats likely prevent dispersal between many of the mountain ranges occupied by *C. molossus* and *C. ornatus* in this region. However, mountain ranges that define the northern border of the Deming Planes (sic) (Mogollon, Pinos Altos, Mimbres, and Black Range) seem relatively well-connected and might allow contact between lineages. In this region, the Mimbres River and western continental divide north of the Mimbres Valley seem to represent the only potential barrier that may explain the apparent lack of introgression between *C. ornatus* and *C. molossus*'" (page 46 of the subject article).

"The zone of separation discussed above is the Cochise Filter Barrier (generally the zone between the Sonoran and Chihuahuan desert ecosystems). This area, and the significance it has for Northern Cardinals, was discussed in Volume 2, Number 2, of this publication ("The Work of Kaiya Smith and Others"). Even in the case of Northern Cardinals, which fly, the barrier has played a significant role in speciation.

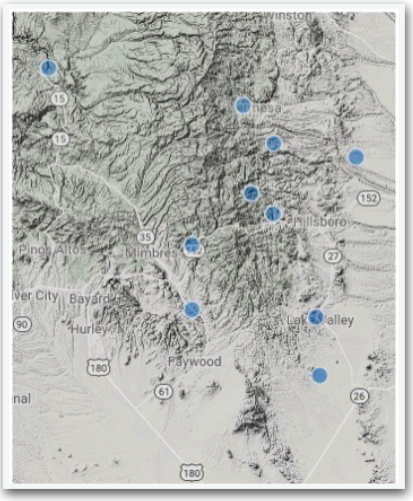


Anderson and Greenbaum, Page 10: Figure 1.5.1 Geographic distribution of the *Crotalus molossus* group. Modified from a map by Campbell and Lamar (2004).



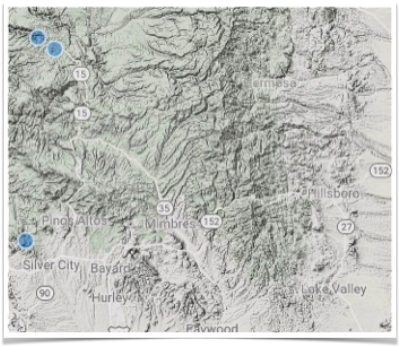
Anderson and Greenbaum, Page 34: Figure 3.1.3 Sampling localities and geographically defined clades recovered in haplotype and phylogenetic analyses of Crotalus molossus. Gray shading depicts the general distribution of C. m. molossus; modified from a map by Campbell and Lamar (2004).

"At page 46 of the Anderson/ Greenbaum article there is a rather good discussion of how the Cochise Filter Barrier developed and why it has had such a significant impact on the plants and animals of this area. The Ornate Black-tailed Rattlesnake (*C. ornatus*) is encountered periodically along the eastern slopes of the Black Range.



"Above: *Crotalus ornatus* sightings documented on the iNaturalist website. The sighting shown in the upper left is from the Middle Fork of the Gila River, not far from where the video of what Bob Barnes identified as a Northern Black-tailed Rattlesnake was taken. The Ornate Black-tailed Rattlesnake is referred to as the Eastern Black- tailed Rattlesnake at iNaturalist.

"The English common name for *Crotalus molossus molossus* is also unsettled with both Northern Black-tailed Rattlesnake and Western Black-tailed Rattlesnake being used. Note that sightings of both species are documented on iNaturalist for the area around the Gila Cliff Dwellings.



Above: *Crotalus molossus molossus sightings documented on the iNaturalist website. The righthand sighting of the two shown in the upper left is in the vicinity where the video mentioned above was recorded.*

"This may represent a misidentification of the Ornate Black-tailed Rattlesnake recorded for that area, it may represent the fact that this is an area where both species are present, or it may represent the possibility of intergrades at this locale.

"It may be fairly safe to assert that a Black-tailed Rattlesnake found in the Black Range will be *C. ornatus*. "

1. "Phylogeography of Northern Populations of the Black- Tailed Rattlesnake (Crotalus molossus Baird and Girard, 1853), With the Revalidation of C. ornatus Hallowell, 1854" by Christopher G. Anderson and Eli Greenbaum, Herpetological Monographs, 26(1):19-57. 2012

2. Campbell, J. A., and W. W. Lamar. 2004, *The Venomous Reptiles of Latin America*. Cornell University Press, USA.

3. Murphy, R.W., J. Fu, A. Lathrop, J. V. Feltham, and V. Kovac. 2002.

4. "Phylogeny of the rattlesnakes (Crotalus and Sistrurus) inferred from sequences of five mitochondrial DNA genes". pp. 69–92 in G.W. Schuett, M. Hoggren, M.E. Douglas, and H.W. Green (Eds.), Biology of the Vipers. Eagle Mountain Publishing, USA.

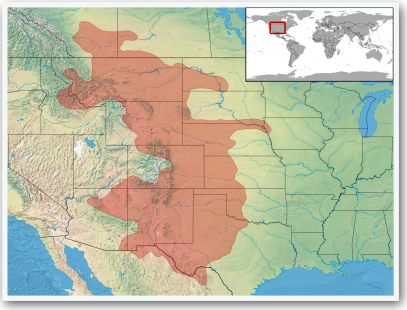
5. "A Quantitative Analysis of the Ancestral Area of Rattlesnakes" by Aaron J. Place and Charles I. Abramson, Journal of Herpetology, Vol. 38, No. 1 (March 2004) pp. 152-156"

Western Prairie Rattlesnake

Crotalus viridis virdis

Listed as Western Rattlesnake on the Gila National Forest Service checklist. In addition to Prairie and Western, it is also known as the Common, Green, and Plains Rattlesnake - and a few more.

NAFHA does not recognize any subspecies of the Prairie Rattlesnake. Other sources recognize two subspecies, the nominate form (known as the Western Prairie Rattlesnake) which is found in our area and the Hopi Rattlesnake, *C. v. nuntius*. Both subspecies are included in the range map which is shown below.



Range

The taxonomic history of this species has been unsettled and at one point included all of the subspecies of *Crotalus oreganus*, the Western Rattlesnake - thus the use of that term on the USFS checklist for the Gila.

The photograph at the top of the following page was taken by Randall Gray and appeared in the first issue of the Black Range Naturalist. The individual shown at the bottom was photographed near Milnesand (eastern NM) on April 17, 2011.

The Prairie Rattlesnake can be aggressive, and may inject from 20 to 55 percent of its venom in one bite. The venom of this species is complex and includes both hemotoxin and neurotoxin (affecting the nervous system). Under no circumstance should a person wait to see if a strike by this species is "dry" before seeking medical treatment.

In the April 2019 issue of the Black Range Naturalist we noted that:

"There is growing evidence that the venom of several rattlesnake species is shifting in composition to be both hemotoxic and neurotoxic. Not good news for those who are struck.

"Some sources attribute the shift to the fact that the prey of many rattlesnake species have evolved more resistance to hemotoxic venom. The rattlesnakes have, in turn, (apparently) begun to develop more complex venoms. In the short term, for humans who have been struck, this means that treatment regimes often involve more vials of antivenom than was previously the case."







Western Prairie Rattlesnake, *Crotalus viridis viridis*, Chaco Culture National Historical Park, New Mexico, Sep 3, 2015





Western Prairie Rattlesnake, *Crotalus viridis viridis*, Milnesand, N.M., April 17, 2011



Regal Ringneck Snake

Diadophis punctatus regalis

This species is not listed on the USFS checklist but is listed for Grant/Sierra County by NMHS. NAFHA lists 14 subspecies of *D. punctatus,* Ringneck Snake.

Other common English names include Red-bellied Snake, Punctated Viper Ring Snake, and Western Ring-necked Snake.

Although the ring around the neck is distinctive, it is often absent in this subspecies.

This is a species of rocky hillsides, grasslands, and forest edges. In Arizona it has been found between 2,200′ and 7,000′ in elevation.

These photographs by Megan Perry were taken along the Ladder Ranch Road on the east side of the Black Range.

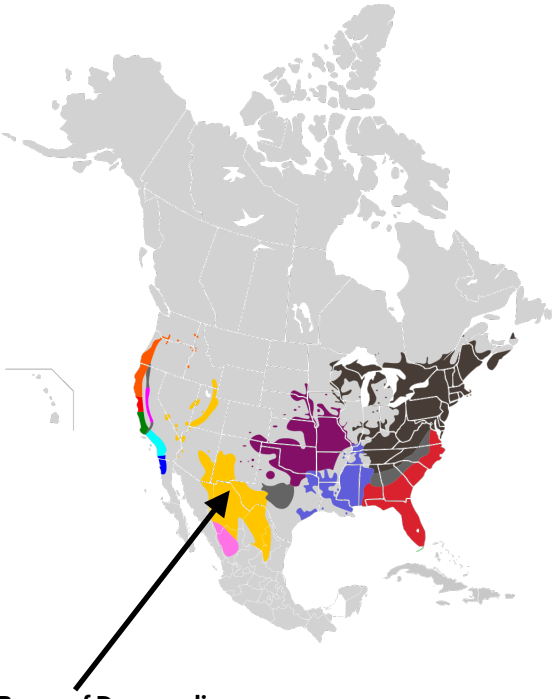




This species has a rather dramatic defensive display: curling up, rolling over, and displaying its beautiful underside. At the same time that all of this is going on the snake will be expelling strongly smelling unpleasant musk.

It is a small snake, but one of the larger ringneck subspecies, generally between 8 and 34 inches in length. It is ophiophagous (it feeds on small snakes) but may also eats lizards and insects. Its small size and secretive behavior have resulted in few sightings in this area.





Range of D. p. regalis.



5. Diadophis regalis, B. & G.—Body above uniform greenish ash; beneath light yellow, scattered all over with small black spots. No occipital ring. Dorsal scales in 17 rows.

Head proportionally short and broad behind; head less depressed than in the preceding species, though flattened above; snout rounded. Eyes very small. Vertical plate subpentagonal, tapering posteriorly. Superciliaries narrower anteriorly. Body long and subcylindrical. Scales proportionally large and elongated, in 17 rows; those of the outer row conspicuously broader. The upper and lower jaws and inferior surface of head maculated with black, on a light ground. Color of the abdomen extending to the outer row of scales, which are dotted with black posteriorly. The black spots on the abdomen extend considerably beyond the anus.

Sonora, Mex. 237+1. 58. 17. 22¾. 3¾. Col. J. D. Graham.

***Description as it originally appeared in the Catalogue of North American reptiles in the Museum of the Smithsonian institution : Part I.–Serpents*, Baird and Girard 1853.**

Chihuahuan Hook-nosed Snake

Gyalopion canum

This species is not listed on the USFS checklist but is listed by NMHS for this area. In Arizona it is typically found at elevations below 6,000'. NAFHA does not list any subspecies of this snake. This species was originally described (1860) by Edward Drinker Cope, of the fossil wars fame. He later lost his fortune in Lake Valley.

Other English common names include the Western Hooknose Snake and Fart Snake, the later because of a rather unique defensive behavior.



Map by R. Brausse.



Photographs by Travis Perry.



Mexican Hog-nosed Snake

Heterodon kennerlyi

This species is not listed on the USFS checklist but is listed by NMHS for this area. Some authorities treat this species as a subspecies of the Western Hognose Snake, *Heterodon nasicus*. Other English common names include Hognose, Puff Adder, and Blow Snake.

This species is mildly venomous, mostly a problem for the toads it eats, but it is unclear if the venom is introduced via contact with the snake's saliva or from its rear-facing fangs.



Range Map from iNaturalist



Photograph of Mexican Hog-nosed Snake by Natalie McNear

NMHS describes the behavior of this species this way: "Nature's actors, these snakes will go through a whole routine if threatened. They will spread their necks and hiss. Then they will strike to the side. Then they will flop over and play dead. They will lie there with their tongue hanging out and will musk and vomit. If turned over, they will immediately turn back over. "

The distribution of the two Hog-nosed Snakes in this area is unclear.

Plains Hog-nosed Snake

Heterodon nasicus

This species is not listed on the USFS checklist but is listed by NMHS for Sierra County. Its other English common names are the same as those applied to the Mexican Hog-nosed Snake. This species and the Mexican Hog-nosed Snake were once considered subspecies of the Western Hognose Snake. This species retained the Latin binomial.

The Plains Hog-nosed Snake is found in Sierra County eastward to Oklahoma, Texas, Missouri, and Illinois. To the north it reaches the Canadian prairie provinces. To the south it is replaced by the Mexican Hog-nosed Snake.

The Plains Hog-nosed Snake is found in sparsely vegetated areas with well-drained soils.

Adult Plains Hog-nosed Snakes can reach 25 inches in length, but note the photograph below. These are small snakes.

When confronted, the first reaction of this snake will be to flee down a burrow or other opening or attempt to bury itself in the soil. Less frequently, or when escape is not possible, it will flatten its head and neck (thus appearing larger), hiss, even strike, typical defensive behaviors. If the first two lines of defense are ineffective it may "play dead". It begins this display by withering on the ground, then it turns belly up and remains still with its mouth open and its tongue hanging out (see photo below) - all of this in the palm of your hand.

Many snake species are venomous in the sense that they posses toxins. In the case of most species the toxin does not have a significantly adverse effect on humans, either because it is not potent enough to have a severe effect and/or there is too little toxin to be effective on a species as large as a human. This is the case with this species: its toxin is effective against its prey but generally will cause only irritation and some swelling on humans. In addition, many species have delivery systems which are ineffective against humans. For instance, they may be small and thus any teeth/fangs are small or the teeth/fangs may be backward facing. In some cases it is not clear if the toxin is delivered as part of the saliva or injected.



Plains Hog-nosed Snake. Attribution

Chihuahuan Night Snake

Hypsiglena jani

This species is not listed on the USFS checklist but is listed by NMHS for this area. This species is nocturnal but may also be found at dusk and dawn. NAFHA lists 3 subspecies of Chihuahuan Night Snake, sometimes called the Texas Night Snake. The subspecies found in our area is *H. j. texana*. The range of the Chihuahuan Nightsnake is shown in yellow on the map to the right.

These snakes grow to about 16" in length.





Photographs of Chihuahuan Night Snake, South of Hillsboro, New Mexico, by Travis Perry,



Western Milksnake

Lampropeltis gentilis celaenops

Not listed on the USFS checklist, but see NMHS. This species is found in four counties which abut Sierra and Grant Counties, but the species is not listed for Sierra and Grant. Additional survey work is in order. At NMHS the species is listed as *Lampropeltis triangulum*. We recognize the split of *L. triangulum* listed in the Reptile Data Base.



Photograph of a Western Milksnake by John Sullivan, via iNaturalist under a Creative Commons license.

Sonoran Mountain Kingsnake

Lampropeltis pyromelana pyromelana

The photographs on this page were taken in Kingston by Tom Lander on May 8, 2022.

In New Mexico, this species has been found only in the southwestern counties. Otherwise it is found from western Utah/eastern Nevada, south into Sonora and Chihuahua. At the time *Amphibians and Reptiles of New Mexico* (Degenhardt, Painter, and Price) was published, verified reports of the species existed as far east as northwestern Sierra County. The individual shown here may be the most easterly verified specimen, by a snake's scale.

It is most easily distinguished from the Milk Snake, *Lampropeltis triangulum*, by its yellow (or white) snout - which is black in the Milk Snake.

There are two subspecies; only the nominate form, known as the Arizona Mountain Kingsnake, is found in New Mexico. All sightings have been between April and October.

According to NMHS, this species can be differentiated in the field from the Madrean Mountain Kingsnake only by range. The Madrean is found in the extreme western portion of the New Mexico boothill.

The Sonoran Mountain Kingsnake is a secretive diurnal snake, thus the population in the Black Range is difficult to determine. It is generally found at elevations between 3,000 and 9,000 feet. The individual shown here was photographed at roughly 7,000'. It is typically found in rocky stream courses.

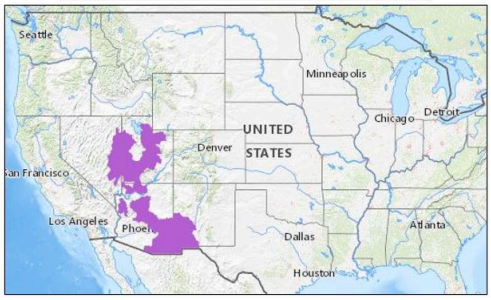


Yellow, not Black, snout.





Sonoran Mountain Kingsnake Range Map



Desert Kingsnake

Lampropeltis splendida

The species is listed as *L. getulus,* the Common Kingsnake, in the USFS checklist. Since publication of the checklist, the specific name of that species has changed to *Lampropeltis getula*. When the checklist was published, the population of this species found in our area was considered a subspecies, *L. g. splendida*. Some sources, for example NAFHA, continue to recognize these snakes as a subspecies of the Common Kingsnake, *L. getula splendida*. The Reptiles and Amphibians of Arizona website also recognizes these snakes as a subspecies of the Common Kingsnake.

In this listing we follow other authorities and consider the snake found in our area as a full species, *L. splendida*, the Desert Kingsnake. English common names for this species include "Splendid Kingsnake, Sonoran Kingsnake, Boundary Kingsnake, Mexican Kingsnake" (NMHS). Not to be confused with "Sonoran Mountain Kingsnake", a different species.

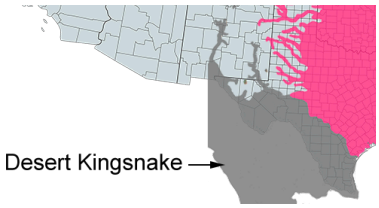
This species is uncommon in our area, typically found in oak, oak-juniper, and pinyon-juniper woodlands. They tend to prefer riparian areas.

Although the diet of this species includes other snakes, including rattlesnakes (they have high resistance to the venom), they are often docile when encountered. Adult diamondbacks will retreat quickly when they encounter the smell of one of these kingsnakes.

This species is typically nocturnal. It mates in spring, eggs (5-12) are laid about 30 days later, and the eggs hatch after about 60 days.

This is one of the species which will feign death when threatened, typically by rolling over onto its back and not moving.

The range map below was developed by the Virginia Herpetological Society.





Photographs of Desert Kingsnake by Travis Perry.



Sonoran Whipsnake

Masticophis bilineatus

Not listed on the USFS checklist, but see NMHS. NMHS indicates the range of this species includes Grant County. Some sources (NAFHA) continue to list this species as *Coluber bilineatus*.

Sightings of this species appear to be in the very southwestern part of New Mexico. The species is not likely to be encountered in the Black Range.



Photograph of a Sonoran Whipsnake by Michael Price, via iNaturalist under a Creative Commons license.

Coachwhip

Masticophis flagellum

Some authorities place these snakes within the genus *Coluber* (NAFHA). *M. f. testaceus,* the Western Coachwhip, is found in Sierra County and *M. f. lineatulus,* the Lined Coachwhip, is found in the southern portions of Grant County (NMHS).

This species is common in oak and oak-juniper woodlands.

The six subspecies of Coachwhip are difficult to distinguish from each other, a problem where ranges overlap.

The photographs below and on the following page were taken by Gordon Berman near where US-70 crosses the Rio Grande. In describing the photographic event, Berman noted that "this coachwhip raced across a dirt road, seemingly flew over a rock wall, then nestled into a mesquite. From spooked to curious, it gave me these photos."











The photograph to the left was taken by Gordon Berman, as described previously.

Areas of distribution are not lines in the sand, despite how they might look on some range maps. On the range map below (from California Herps) most of New Mexico is shown within the range of the Western Coachwhip, with a bit of the range of the Lined Coachwhip (green) in the far southwestern part of the state and a range of inter-grade (gray) on the Arizona-New Mexico border. Gordon Berman's photographs are probably Western Coachwhip, by range. That is how we list it here, but such a determination is imprecise given the location where the photographs were taken. Note, however, the photograph at center left, of a Lined Coachwhip (*Masticophis flagellum ssp. lineatulus*). This image was taken by Edward L. Ruden in eastern Socorro County. Provided here under a Creative Commons license and is considered research grade by iNaturalist.







The photograph above, of a Western Coachwhip, by Michael Jocobi, was taken south of Hillsboro, New Mexico, along NM-27. It is an apparent road kill and is provided here under a CC license.



The Western Coachwhip (*M. f. testaceus*) shown above was photographed in Milnesand (eastern New Mexico) on April 17, 2011.

Desert Striped Whipsnake

Masticophis taeniatus taeniatus

Some authorities place these snakes within the genus *Coluber*, in which case it is *Coluber taeniatus taeniatus*. (NMHS and NAFHA). There are two subspecies; the nominate form is found in our area.

This species is diurnal and quick. It feeds on small things, everything from snakes and lizards to insects.

The female of this species lays its eggs (between 3-12) in June-July and they hatch between 1.5 and 2 months later.

This species is common in oak-juniper and pinyon-juniper woodlands, as well as in the foothills surrounding the Black Range.



Masticophis taeniatus taeniatus
Desert Striped Whipsnake
Photographed at Andrews, which is a ghost town northeast of the Copper Flat Mine near Hillsboro.
July 17, 2015







***Masticophis (Coluber) taeniatus taeniatus* - Desert Striped Whipsnake - Percha Box, East of Hillsboro, NM.**
Aug. 8, 2017

Arizona Coral Snake

Micruroides euryxanthus euryxanthus

The species is known as the Sonoran Coralsnake, the subspecies as the Arizona Coral Snake. (Although it has little to do with taxonomy, you really have to appreciate the fact that the common name has two treatments of "Coral Snake/Coralsnake" in the same species.) The NMHS site indicates that this species is found in Grant but not Sierra County. It is very doubtful that this species is found in the Black Range. There are three recognized subspecies.

"Red on Yellow, Bad for a Fellow". Note, however, that the tail of this species may lack red bands.

Bob Barnes reports that he has been told by some ranchers in the area that they have seen Coral Snake in the Percha Box on the east side of the Black Range. We know of no evidence to support those observations or identifications. This species is rare in oak-juniper and pinyon-juniper woodlands, Chihuahuan scrublands, and semi-desert grasslands.

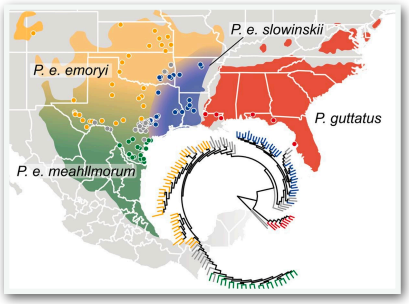


Photograph of an Arizona Coral Snake by Steve Marks, via iNaturalist under a Creative Commons license. Near Rodeo, New Mexico.

Great Plains Ratsnake

Pantherophis emoryi

This species is not listed on the USFS checklist, but NMHS indicates the range of this species includes Sierra County. This species is also known as Emory's Ratsnake and Corn Snake. Randy Gray has photographed this species south of Hillsboro, NM on NM-27.



This species has been treated as a subspecies of *Pantherophis guttatus* at various times in the past. The most recent taxonomic study of these snakes (Thomas L. Marshall, E. Anne Chambers, Mikhail V. Matz, David M. Hillis, "How mitonuclear discordance and geographic variation have confounded species boundaries in a widely studied snake", *Molecular Phylogenetics and Evolution,* Volume 162, September 2021) split *P. guttatus* into two species, the eastern species and *P. emoryi*, which is divided into three subspecies.



Photograph of a Great Plains Ratsnake by LA Dawson, used here under a CC license. At the time this photograph was originally posted on the internet the species was listed as *Pantherophis guttatus emoryi*.

Bullsnake

Pituophis melanoleucus

We make a short deviation from our listing to dispense with *Pituophis melanoleucus*, Bull Snake. The Forest Service checklist indicates that this species is common in desert, oak, oak-juniper, and pinyon-juniper woodlands. This may be an erroneous entry resulting from the use of the common name of Bull Snake for Gopher snake. The Bull (Pine) Snake, *Pituophis melanoleucus,* is a species of the American southeast and is not found in our area.

Note, however, that one of the English common names for *Pituophis catenifer sayi*, which is found in eastern New Mexico, is Bull Snake. On a page 37 we provide photographs of *Pitupohis catenifer affinis* and *P. c. sayi* for comparison.



Sonoran Gopher Snake

Pituophis catenifer affinis

This species is not listed on the checklist, most likely because "Bull Snake" was erroneously listed (see previous page). NAFHA lists ten subspecies of *Pituophis catenifer*. *P. c. affinis,* the Sonoran Gopher Snake, is the subspecies found in our area. Other sources recognize only six subspecies.

This is the longest snake species found in the Black Range; individuals are sometimes six or seven feet in length.

Gopher Snakes are generally calm but can become more aggressive when threatened. At such times they can take on the appearance and behavior of a rattlesnake.

The photograph to the left was taken by Travis Perry on NM-27, south of Hillsboro. This is a common species in our area and is often found crossing roads, especially at night.





Photographs Above: *Pituophis catenifer affinis* in Hillsboro, New Mexico, May 1, 2011.
Below: Sonoran Gopher Snake, *Pituophis catenifer affinis,* Warm Springs Wash, East of Hillsboro, NM, June 25, 2016





Left Center: *Pituophis catenifer sayi*, the Bullsnake. April 26, 2014, Chihuahua Desert Museum, Ft. Davis, TX
Left: Sonoran Gopher Snake, *Pituophis catenifer affinis,* Warm Springs Wash, East of Hillsboro, NM, June 25, 2016







Photographs directly above and upper right from Milnesand, New Mexico. April 17, 2011.
***Pituophis catenifer sayi*, the Bullsnake.**

The Blindsnakes or if you wish the Threadsnakes

On this and the next two pages we summarize our understanding of the natural history and taxonomic relationships of two species of Blind Snake found in the Black Range. As simple as that statement seems, there is more than a little disagreement about several aspects of the statement. What is their proper English common name, Threadsnake or Blindsnake or something else; how many species are actually found here; how are those species placed within the genus and what is the genus?

This is our understanding. The USFS checklist, which was published early in the evolving controversy associated with this genus, lists two species in the Black Range: *Leptotyphlops dulcis*, the Texas Blind Snake; and *Leptotyphlops humilis,* the Western Blind Snake.

In 2009, Adalsteinsson[1] et al. reviewed the genus *Leptotyphlops* (which included species in both the Eastern and Western Hemispheres), and found two distinct clades. The clade found in Central and North America was changed to *Rena,* the genus name originally given this group of species by Baird and Girard[2] in 1853. Thus you will note that in the species listing we refer to the snakes found here as being in the genus *Rena* not *Leptotyphlops*. In doing so, we defer to Flores-Villela[3] et al. who we believe present the most thorough understanding of the taxonomy of this group of snakes. We note, as do Flores-Villela et al., that the genus *Rena* and the placement of various species within the genus is not settled completely. NMHS and NAFHA list these snakes within the genus *Leptotyphlops*. iNaturalist and the Reptile Database place these snakes with *Rena*.

The two most common English names for snakes in this group are Blindsnake (spelled Blind Snake by some authorities) and Threadsnake. Following Flores-Villela we refer to these snakes as Blindsnakes.

All of the Blindsnakes found in our area fall within one of two groups of species. The *Rena dulcis* group (with five species) and the *Rena humilis* group (with either four or five species).

Flores-Villela[3] et al found that the species listed as *L. humilis* in the checklist should (currently) be considered *Rena humilis* and the species listed as *L. dulcis* in the checklist should be considered *R. segrega*.

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1. Adalsteinsson, S. A., Branch, W. R., Trape, S., Vitt, L. J., & Hedges, S. B. (2009). "Molecular phylogeny, classification, and biogeography of snakes of the Family *Leptotyphlopidae (Reptilia, Squamata)*", *Zootaxa*, 2244, 1-50. https://doi.org/10.11646/zootaxa.2244.1.1
2. Baird, S. F., & Girard, C. (1853). *Catalogue of North American reptiles in the Museum of the Smithsonian Institution*. Part I - Serpents. Washington D.C., Government Printing Office. https://doi.org/10.5962/bhl.title.5513
3. Flores-Villela, Oscar, Smith, Eric, Canseco-Márquez, Luis, and Campbell, Jonathan. "A new species of blindsnake from Jalisco, Mexico", *Rev. Mex. Biodiv.* vol.93 México 2022 Epub 30-Mayo-2022

New Mexico Blindsnake

Rena dulcis

This species is also known as the New Mexico Threadsnake, Texas Blindsnake, Texas Threadsnake, and Texas Blind Snake.

The USFS checklist includes *Leptotyphlops dulcis*, Texas Blind Snake. You might think that the current Latin binomial change is simply a change of genus, from *Leptotyphlops* to *Rena*. It turns out to be a bit more convoluted.

The synonym listing at the Reptile Database demonstrates the confusion associated with these little snakes (up to 12" in length):

- ***Rena dulcis*, Baird & Girard 1853**
- ***Stenostoma dulce*, Cope 1861**
- ***Stenostoma (Rena) dulce*, Jan 1863**
- ***Stenostoma tenuiculum*, Garman, 1884**
- ***Stenostoma rubellum,* Garman 1884**
- ***Stenostoma myopicum*, Garman, 1884**
- ***Stenostoma tenuiculum*, Garman, 1887**
- ***Stenostoma rubellum*, Garman, 1887**
- ***Rena tenuicula,* Cope, 1887**
- ***Leptotyphlops dulcis*, Stejneger, 1891**



New Mexico Blind Snake by Brian Box. Photographed just north of Kingston, New Mexico, Black Range. Image used via CC from iNaturalist.

- *Glauconia dulcis,* Cope, 1892
- *Glauconia dulcis*, Boulenger, 1893
- *Glauconia myopica,* Boulenger 1893
- *Glauconia dissecta,* Cope, 1896
- *Leptotyphlops myopica*, Barbour & Loveridge, 1929
- *Leptotyphlops dulcis myopicus*, Klauber, 1940
- *Leptotyphlops dulcis dulcis,* Klauber 1940
- *Leptotyphlops humilis tenuiculus*, Klauber, 1940
- *Leptotyphlops dulcis dissectus,* Klauber, 1940
- *Leptotyphlops myopicus myopicus,* Smith, 1944
- *Leptotyphlops myopicus myopicus,* Smith & Taylor, 1945
- *Leptotyphlops myopicus dissectus*, Smith & Taylor 1945
- *Leptotyphlops myopicus dissectus*, Smith & Sanders, 1952
- *Leptotyphlops dulcis dissectus,* Hahn, 1979
- *Leptotyphlops dulcis myopicus*, Hahn, 1979
- *Leptotyphlops dulcis dulcis*, Hahn 1979
- *Leptotyphlops dulcis*, Stebbins, 1985
- *Leptotyphlops dulcis supraocularis,* Tanner, 1985
- *Leptotyphlops dulcis*, Conant & Collins, 1991
- *Leptotyphlops dulcis*, Liner, 1994
- *Leptotyphlops dulcis*, McDiarmid, Campbell, and Toure, 1999
- *Leptotyphlops dulcis dulcis*, Crother, 2000
- *Leptotyphlops dulcis dissectus*, Crother, 2000
- *Leptotyphlops dulcis dissectus*, Dixon, 2000
- *Leptotyphlops dulcis dissectus*, Tennant & Bartlett, 2000
- *Leptotyphlops dissectus*, Dixon & Vaughan, 2003
- *Rena dulcis rubella*, Dixon & Vaughan, 2003
- *Leptotyphlops myopicus*, Dixon & Vaughan, 2003
- *Rena myopica*, Adalsteinsson, Branch, Trape, Vitt, & Hedges, 2009
- *Leptotyphlops* sp. B, Adalsteinsson et al. 2009
- *Rena* sp. B., Adalsteinsson et al. 2009
- *Leptotyphlops dissectus*, Bateman et al. 2009
- *Rena dissecta*, Adalsteinsson et al. 2009



New Mexico Blind Snake by Brian Box. Photographed just north of Kingston, New Mexico, Black Range. Image used via CC from iNaturalist. Yes, the left part of the image is a human thumb.

- *Leptotyphlops myopicus*, Vite-Silva et al. 2010
- *Rena dulcis*, Crother et al., 2012
- *Rena dulcis rubellum*, Crother et al., 2012
- *Rena dissectus*, Crother et al., 2012
- *Rena dissecta*, Wallach et al. 2014
- *Rena dulcis*, Wallach et al. 2014
- *Rena myopica*, Wallach et al. 2014
- *Rena dulcis rubella*, Crother et al., 2017
- *Rena dissectus*, Crother et al., 2017
- *Rena dulcis*, Flores-Villela, 2022

Having listed the above, I should point out that the list overstates the "confusion". Some of this work represents an attempt to reconcile a previous finding with more recent determinations of others. That said, it is fair to say that it has taken a lot of time and effort to get *Rena dulcis* into its current box. You many encounter any of the synonyms listed above if you research this species.

See the New Mexico Herpetological Society website page for this species for additional details about its natural history. NatureServe also contains an excellent description of this species. As in some other snake species, "mating balls" of several male blind snakes trying to mate with a female blind snake are not uncommon.

This species is rare in our area, where it is typically found in "Chihuahuan desertscrub, semidesert grassland, and the lower reaches of Madrean evergreen woodland communities" (NMHS).



Left: Photographed in the Florida Mountains, east of Deming by mgharvey, used here under a CC license.

Trans-Pecos Blindsnake

Rena segrega

The USFS checklist includes this species as *Leptotyphlops humilis*, the Western Blind Snake. Other common names for this species are Western Threadsnake and Trans-Pecos Threadsnake.

The New Mexico Herpetological Society website page on this species and NAFHA both list this species as *L. humilis*, in the NAFHA listing as a subspecies, *L. h. segregus*. iNaturalist and the Reptile Database follow Flores-Villela (see earlier cite) and refer to the species as *Rena segrega*.

The behavior of this species is characterized by NMHS as "Primarily nocturnal and crepuscular. It spends the majority of its time burrowed underground. It is encountered on the surface crossing roadways on warm spring evenings. When captured this snake exhibits defensive behaviors that include writhing, releasing musk, and poking with its harmless tail spine."



Image above from iNaturalist for *Rena segrega*, Trans-Pecos Blindsnake. Photograph by Diana-Terry Hibbitts. Image used under provision of a Creative Commons License.

Western Long-nosed Snake

Rhinocheilus lecontei

This species is not listed on the USFS checklist, but see the NMHS website for a range map and more specific information on the natural history of this species. To quote the NMHS site, "A terrestrial snake, and a good burrower. It is nocturnal and crepuscular. If alarmed will rattle its tail and may exude blood from the cloaca and nose. Can be found on the highways at night. They have been found in every month in Arizona except February." This species is generally found in the desert scrublands and grasslands in our area.

Two subspecies of this species are recognized by some authorities. NAFHA does not list any subspecies for *R. lecontei*, perhaps following Manier (2004, *Biol. J. Linn. Soc.*, 83: 65–85).

Photographs to the right by Travis Perry.

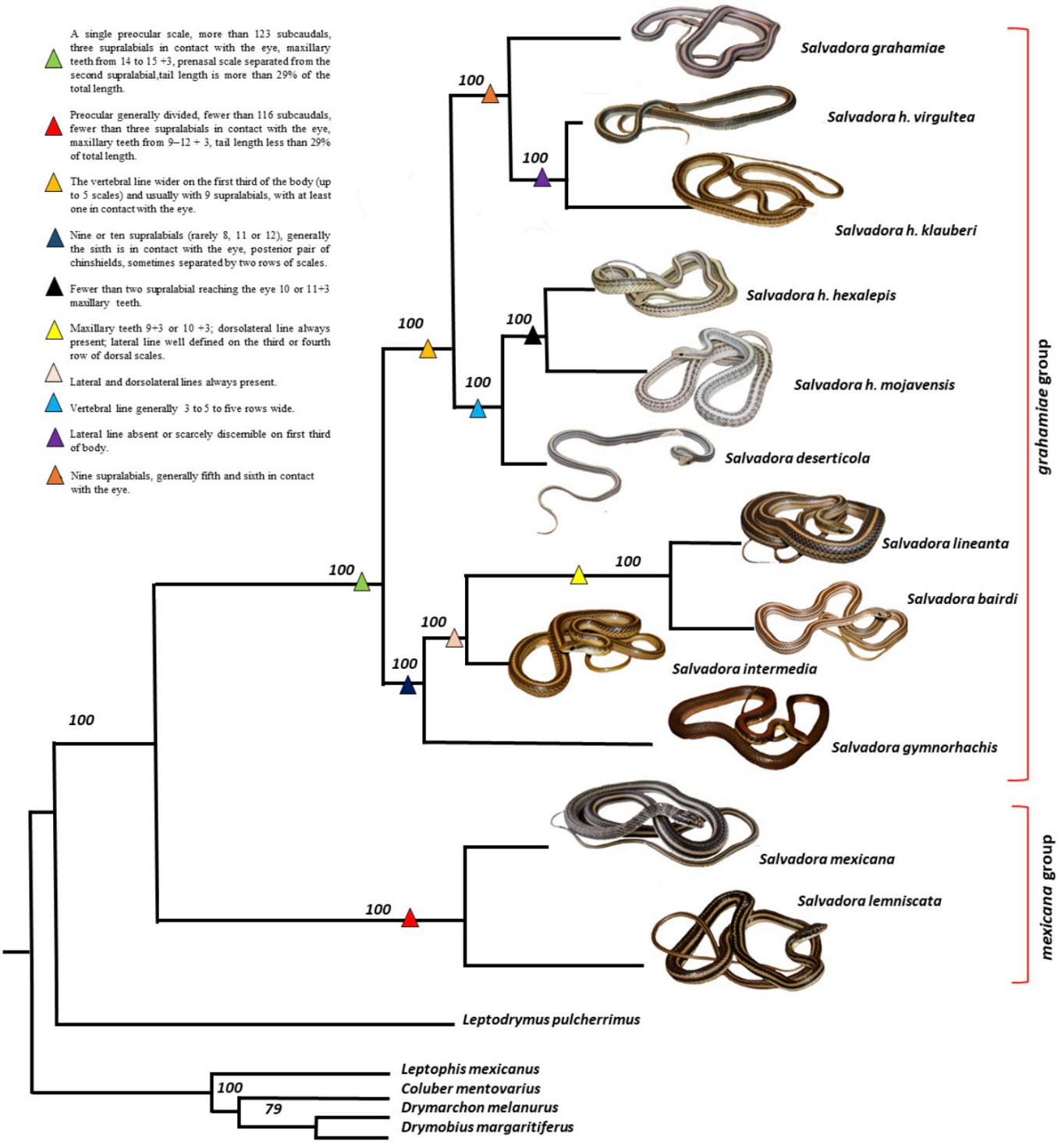




Patchnose Snakes
Salvadora

As with many other genera of snake, the taxonomic relationships of the various species in the genus *Salvadora* are disputed. When reviewing various reference material be sure to check the time of publication, because speciation decisions have been so fluid.

The following phylogenetic relationship tree was published by Hernández-Jiménez C.A., Flores-Villela O., Aguilar-Bremauntz A. & Campbell J.A. 2021. "Phylogenetic relationships based on morphological data and taxonomy of the genus Salvadora Baird & Girard, 1853 (Reptilia, Colubridae)" *European Journal of Taxonomy* 764: 85–118. p. 89. Not only does it depict the relationship between the species of Salvadora but it includes a very useful key to identification.



Big Bend Patchnose Snake

Salvadora deserticola

The USFS checklist lists these snakes as *Salvadora deserticola*, Western Patchnose Snake. NAFHA lists five subspecies of *S. hexalepis*, the Western Patchnose Snake, one of which is *S. h. deserticola*. NHMS lists this species simply as *Salvadora hexalepis*, the Western Patchnose Snake. It is one of two Patchnose snake species found in our area.

This species is fairly common in oak and oak-juniper woodlands. In the Hillsboro area, this species is most commonly found in the desert washes. They are active for somewhat longer periods than some other snake species. They can generally be found at any time between April and November.



***Salvadora deserticola,* Big Bend Patchnose Snake, Ready Pay Gulch, east of Hillsboro, NM, May 27, 2016**

In a study from 1971 ("Physiological responses to temperature in the patch-nosed snake, Salvadora hexalepis", *Herpetologica*, Vol. 27, September 1971) E. R. Jacobson and Walt Whitford found that this species tolerated a wide variance in temperature, more so than many other snake species. This capability matches that of a number of its prey and probably explains the fact that it can be found during two-thirds of the year.



Immediately Above and Below: Big Bend Patchnose Snake, Ladder Ranch, Black Range
Photographs by Megan Perry





Above: Warm Springs Wash, east of Hillsboro, Black Range, August 29, 2016







Gordon Berman took the photographs of Big Bend Patchnose Snake, *Salvadoran desterticola,* on this page. The one below is from September 30, 2019. All of the others were taken along the Sierra Vista Trail, below Bishop's Cap, on March 16, 2022.



Mountain Patchnose Snake

Salvadora grahamiae

NAFHA lists two subspecies of *S. grahamiae,* the Eastern Patchnose Snake. If you follow that taxonomic scheme, the nominate form is found in our area and is known as the Mountain Patchnose. The paper referenced four pages earlier does not recognize any subspecies of *S. grahamiae*.

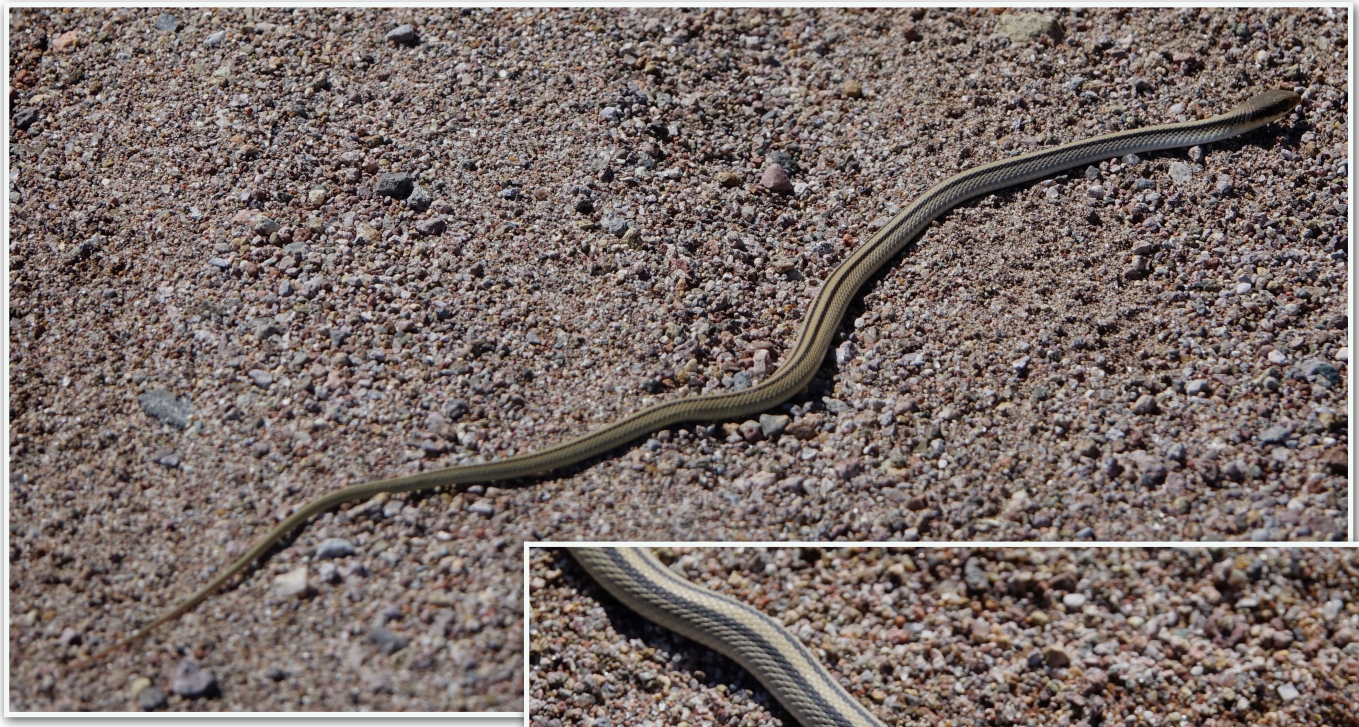
This species is uncommon and is typically found in pinyon-juniper woodlands.



Above: Mountain Patchnose Snake, Bloodgood Spring, South of Kingston, Black Range, July 11, 2017



Above: Mountain Patchnose Snake, Ladder Ranch, Black Range. Photograph by Megan Perry.





Salvadora grahamiae, **Mountain Patchnose Snake, Warm Springs Wash, east of Hillsboro, NM, August 29, 2016**





Massasauga

Sistrurus catenatus

A few individuals of this species have been found in the grasslands around the Black Range. Randy Gray reports that in years of observation he has not seen one in this area. Please report any sightings.

The photograph above was not taken in the wild. There are three 'variants' of Massasauga. The one found in our area is the 'desert variant', which is lighter in color than the individual shown above. These three variants may be three species.

***Sistrurus tergeminus edwardsi*, Desert Massasauga (following NMHS). Not listed on the checklist, but see NMHS. NAFHA lists this group of snakes as a subspecies of *Sistrurus catenatus (edwardsii)*. It also lists a species named *S. c. tergeminus*, Western Massasauga.**

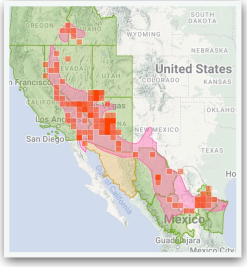


Groundsnake

Sonora semiannulata

This species is not listed on the USFS checklist, but see the NMHS website. NAFHA lists two subspecies. If that taxonomy is accepted, the nominate form is found in our area.

Photographs of this species on this and the following page are by Gordon Berman. Note that this species is referred to as Groundsnake or Ground Snake, depending on source.



Groundsnake range from iNaturalist.





When Gordon Berman provided these images of a Ground Snake, *Sonora semiannulata*, he described the moment before these photographs were taken: "On 8/13/2017, while kneeling about 2/3 up the west slope of Picacho Peak to snap a collared lizard under an overhang, an out of place red lay beneath me in a narrow crevice. As the red/black pattern came into focus, I kept wondering: "red, black, get back?"

This species is found in a "Striped Phase" and a "Banded Phase", and some are of a uniform color. To make things a bit more difficult, the banded phase comes in a black-and-white pattern. In the banded snakes, the black bands may or may not extend all around the body. AND, all forms may be found in the same location.

At one time, there were five recognized subspecies of the Ground Snake (based primarily on the extensive variability described above). It was found, however, that snakes of all of the above variations interbreed freely and successfully. Most sources do not recognize any subspecies at this time. It is also known as the Western Ground Snake. Some sources recognize subspecies, in which case this individual is *Sonora s. semiannulata*, the Variable Groundsnake.

This species tends to be secretive and nocturnal. Sometimes it is found in groups.

This species is not large, generally less than 20 inches in length. It is typically not aggressive and is not venomous.

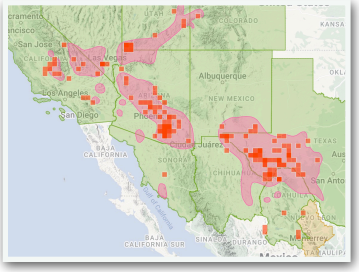
Southwestern Black-headed Snake

Tantilla hobartsmithi

This species is also known as Smith's Black-headed Snake.

It is rare in our area and is found in desert, oak, and oak-juniper woodlands.

Given the range map, it is unlikely that you will run into this species in the Black Range. The photograph shown here is by Philip Kline.



Southwestern Black-headed Snake range from iNaturalist.



Plains Black-headed Snake

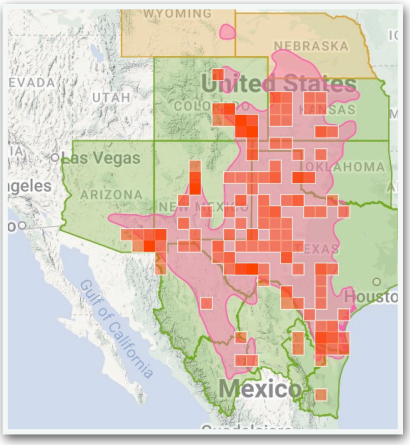
Tantilla nigriceps

Per NMHS, this is "a secretive snake that frequents brushland, grassland, creosote brush, high scrub desert, sagebrush, thornscrub, open chaparral and woodland. Attracted to stream bottoms and river bottoms." It is uncommon in desert, oak, oak-juniper, and pinyon-juniper woodlands.

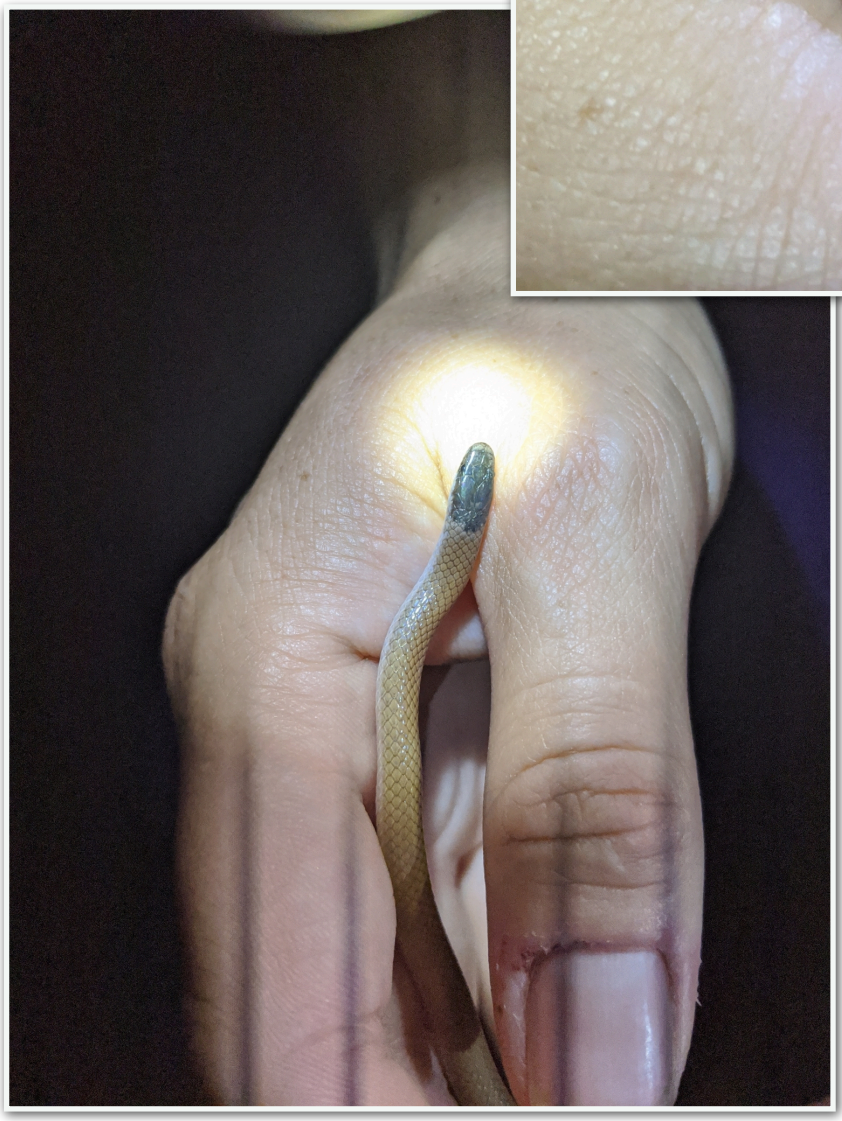
The range map to the right is from iNaturalist. The two photographs, by Travis Perry, are from the Black Range.

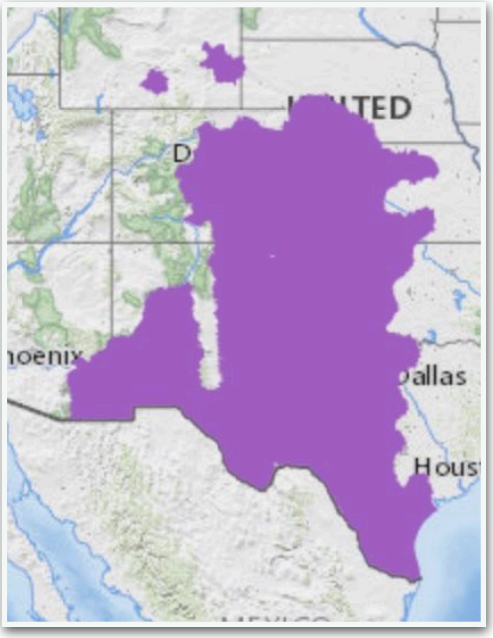
This species is typically 7 to 15 inches in length (18-38 cm). At this length, it is one of the longer species in the genus *Tantilla*. The Plains Black-headed Snake may be especially vulnerable to desiccation and is unlikely to be found in especially dry conditions/locales.

At the moment, there are 66 recognized species of Tantilla. They are known by a variety of common names including centipede snakes, flathead snakes, or as here, blackhead snakes. Note the lack of a hyphen.









The USGS develops and provides range maps for many species within the United States as part of its Gap Analysis Project. This range map was developed as part of that effort.

Western Black-necked Garter Snake

Thamnophis cyrtopsis cyrtopsis



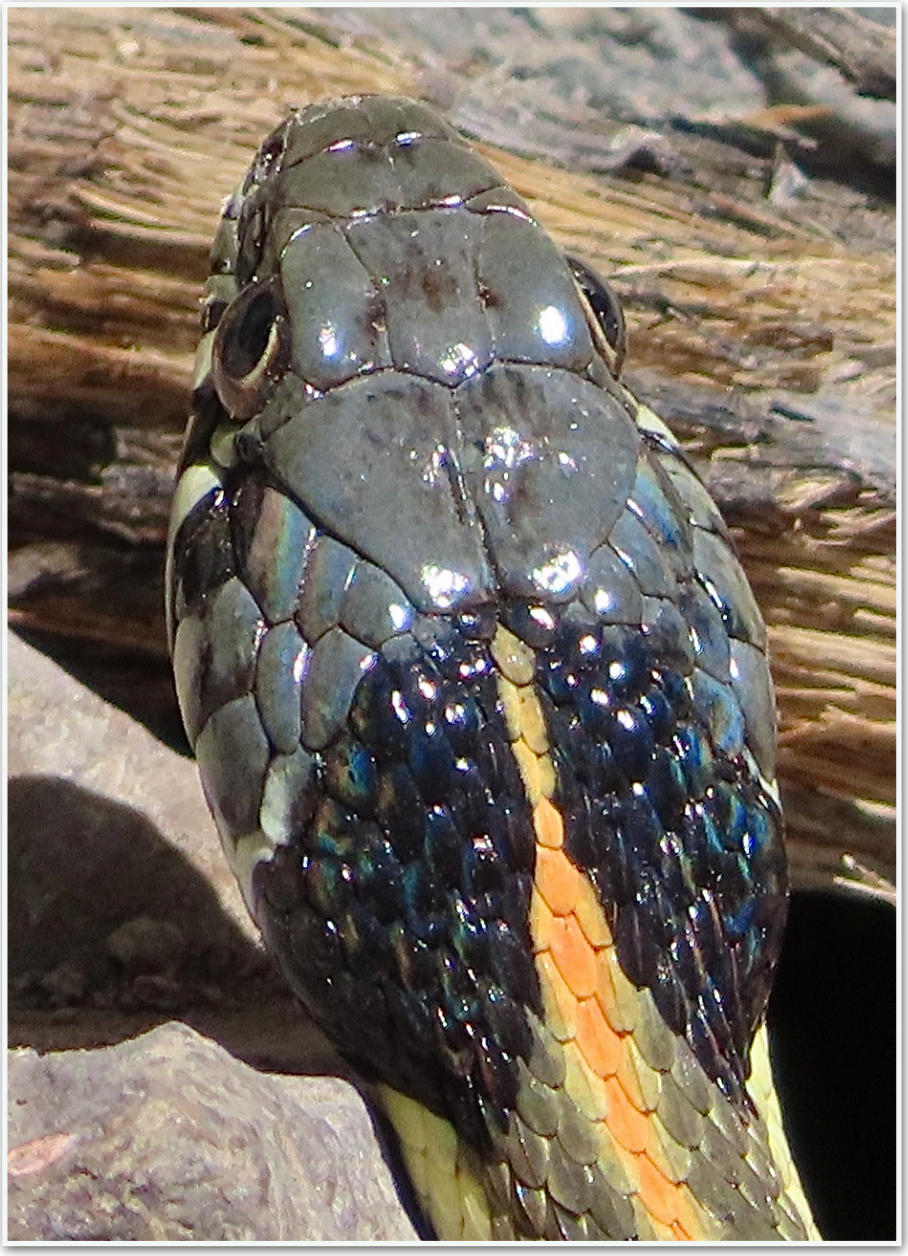


The Blacknecked Garter Snake shown on this page was photographed on July 10, 2017, swimming in Middle Percha Creek east of Kingston. The common name protocol for this species is bothersome; it may be referred to as Blackneck or Blacknecked, with/without a hyphen (Black-neck or Black-necked). The subspecies is known as the Western Black-necked Garter Snake. NAFHA recognizes 3 subspecies.

















Photographs on this page by Gordon Berman

Western Black-necked Garter Snake *Thamnophis c. cyrtopsis*

Above: May 2, 2022, at the base of Fillmore Canyon Waterfall, Organ Mountains.

Left: October 22, 2022, in Valles Canyon.

Western Terrestrial Garter Snake (Wandering Gartersnake)

Thamnophis elegans vagrans

Other English common names include Garden Snake, Gardener Snake, Terrestrial Garter Snake, and Grass Snake. This species is common in deciduous riparian and coniferous riparian woodlands. NAFHA lists four subspecies of Terrestrial Garter Snake, others list six. iNaturalist lists five subspecies. The California Herps map below shows the range of the species within the United States, delineating four subspecies. The subspecies found in the Black Range is *T. elegans vagrans*, Wandering Gartersnake (dark blue on the map).

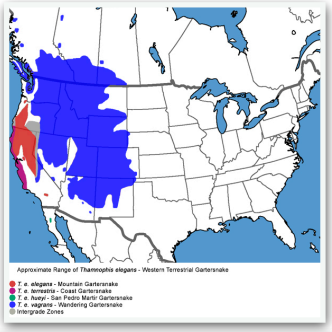
Snakes in this genus are "ovoviviparous" meaning that these snakes produce eggs, but the eggs remain inside the body until they hatch. The mis-application of that term has led to its general disuse in today's literature.

Photographs below are by Megan Perry from the Black Range Crest trail between Reed's Meadow and Squeaky Spring.



The photographs above and at the left on the following page are from Wright's Cabin in the Black Range.





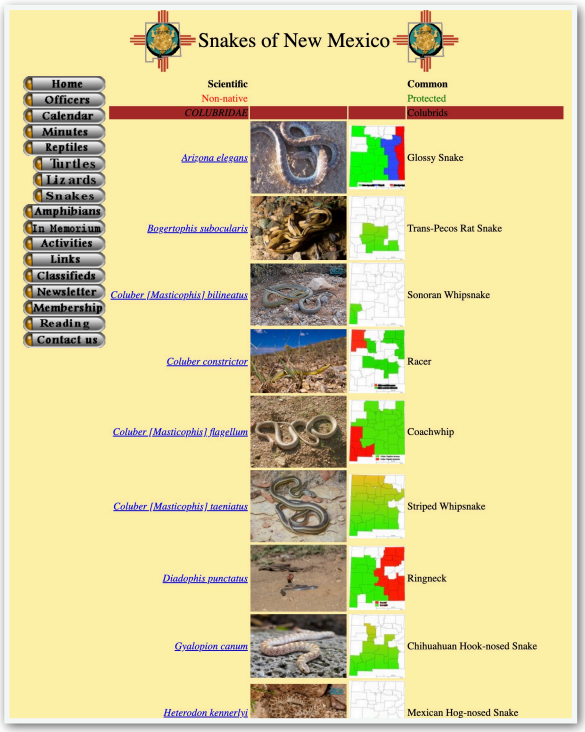








Left: Wandering Gartersnake, Wright's Cabin in the Black Range.



Mexican Garter Snake

Thamnophis eques

This species is not listed on the USFS checklist, but the NMHS website lists this species from Grant County. It is not clear if this species is found in the Black Range. The range map below was produced by the USGS Gap Analysis Project.

The photograph to the right was taken by Kris Ohlenkamp near Sierra Vista, Arizona.

In "Mexican gartersnakes (Thamnophis eques) along the Gila River in southwestern New Mexico", *Western North American Naturalist*, 83 (2), 2023, pp. 296-299, Keith Geluso describes recent observations of this species in southwestern New Mexico.





Checkered Garter Snake

Thamnophis marcianus marcianus

The subspecies is known as Marcy's Checkered Garter Snake. It is fairly common in deciduous riparian woodlands.

There are three subspecies (some say two) of Checkered Garter Snake, or if you wish, Gartersnake. The nominate form is found in the Black Range.

***T. marcianus* produces a mild neurotoxin as a venom which it delivers through a chewing action. The venom is apparently not potent enough, and not enough is produced, to cause significant harm to humans. It probably does affect the small amphibians and fish on which it feeds. If provoked this snake will, like many other species, strike and it produces a smelly liquid from its cloaca as an additional defense.**

This species is typically about 2 feet long but can grow to as much as 3.5 feet long.

The Checkered Garter Snake is ovoviviparous, their fertilized eggs hatch within the body of the female, she gives "live birth". The female emerges from hibernation around the first of April. As soon as she is ready to mate she will stop eating. Males produce pheromones which the female uses to find her mate.

Males may mate several times in a season, with multiple partners, and do so after reaching sexual maturity at about one and a half years. Females reach sexual maturity at about 2 years of age and will breed once a season. (There is some evidence that they may birth twice in a season in the southern parts of the species range). She may store a male's sperm for some period or fertilize her eggs immediately. Gestation will take 95 (+/- 15) days and the female will give birth to a brood numbering from 6 to 35. Young snakes are independent at birth.

Although solitary during most of the year, this species will gather in large groups (up to approximately 100) to maintain a body temperature of 25°-30° Celsius (77°-86° Fahrenheit) during hibernation.



Above: Checkered Garter Snake, in the Black Range by Travis Perry.











The Checkered Garter Snake shown on this page, and at the bottom on the preceding page, was photographed along Palomas Creek at the A-Spear Ranch on the east side of the Black Range, on September 14, 2023.

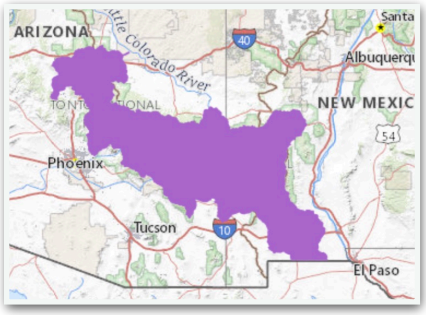
Range map for this subspecies per CaliforniaHerps. Two other subspecies range southward in Mexico to Costa Rica.



Narrow-headed Garter Snake

Thamnophis rufipunctatus

This species is also known as Narrowhead Garter Snake and Narrowheaded Gartersnake. The NMHS website lists this species for Grant but not Sierra County. The USGS range map for this species indicates that it is probably found in Sierra County.



This species is uncommon in open marshes and deciduous riparian woodlands.

There are three subspecies of *T. rufipunctatus* which are recognized by some authorities. All three may be full species.

The NMHS website warns that this species is protected and that it should not be harassed or collected.



Narrowhead Garter Snake, photograph by Kathleen Slocum
Gila River, Grant County.

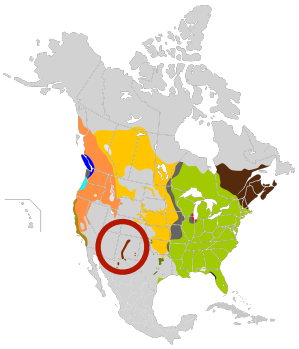
Common Garter Snake

Thamnophis sirtalis dorsalis

This species is not listed on the USFS checklist but the NMHS website indicates that the range of this species includes Sierra County.

The NAFHA website lists twelve subspecies of Common Gartersnake.

The range map below shows the ranges of the subspecies, including that of *T. s. dorsalis*, the New Mexico Garter Snake (circle added).



Among the prey of the Common Garter Snake is the Rough-skinned Newt (*Taricha granulosa*). This newt secretes a toxin which can kill humans, but not the garter snake, if they ingest it. The Common Garter Snake is not totally immune to the tetrodotoxin of the newt, however. When the snake consumes the newt its (the snake's) speed is reduced to the point that it may not move for quite some time and its ability to thermoregulate its body is reduced. The snake is able to incorporate the toxin into its own body, assumedly making it less desirable to those species that might prey on it. There is an evolutionary twist to this story. The newt does not naturally occur within the range of *T. s. dorsalis*. Common Gartersnakes that live in areas where the newt is present have higher tetrodotoxin resistance levels than those snakes which do not live where the newt is present.

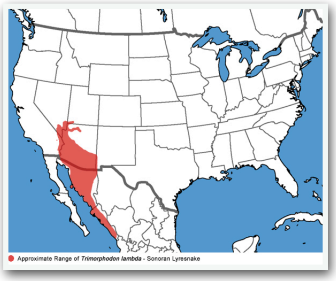


Common (New Mexico) Garter Snake, photograph by Bud Lensing
Bosque del Apache NWR, NM

Sonoran Lyre Snake

Trimorphodon lambda

This species is not listed on the USFS checklist, but the NMHS website indicates the range of this species includes Grant County. The NAFHA website lists this species as a subspecies of *T. biscutatus*, the Western Lyresnake.



Range of the Sonoran Lyresnake. California Herps

The HMHS website states that the two species of Lyre Snake listed here are best distinguished by range. The two species apparently hybridize in the extreme southeast of Arizona/ southwest of New Mexico.



Photograph of a Sonoran Lyre Snake by Nick Pederson. New Mexico Boothill.

Chihuahuan Lyre Snake

Trimorphodon vilkinsonii

This species is not listed on the USFS checklist, but the NMHS website indicates the range of this species includes Sierra County. The NAFHA website uses Texas Lyresnake as the English common name for this species. The range of the Chihuahuan Lyre Snake (Texas Lyresnake) is shown on the USGS map to the right.

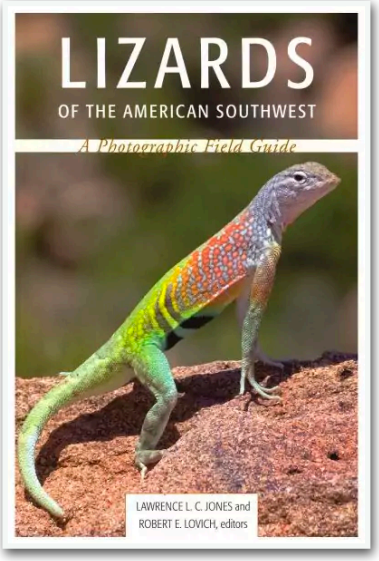


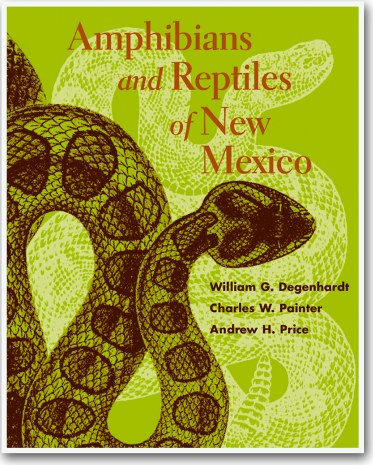


Photograph of a Chihuahuan Lyre Snake by Travis Perry. Black Range.

Lizards of the Black Range

In compiling this summary of the lizard species found in the Black Range we relied on the USFS Gila checklist for reptiles, the iNaturalist tabulation of sightings in the area (Sep. 5, 2022), the Reptiles and Amphibian photo gallery of the Black Range website, *Lizards of the American Southwest: A Photographic Field Guide*, and *Amphibians and Reptiles of New Mexico*.





In the following list; red text is a link to the Black Range photo gallery for the species, black underlined text indicates that both the Gila checklist and the iNaturalist site show that the species is found in the Black Range (but that a photo gallery entry on the Black Range website does not exist). See text for information about entries in black text which is not underlined.

Aspidoscelis exsanguis, Chihuahuan Spotted Whiptail (Cnemidophorus exsanguis on Gila Checklist)

***Cnemidophorus flagellicaudus, Gila Spotted Whiptail* (Gila Checklist Only). Some authorities subsume the Gila Spotted Whiptail into *Aspidoscelis sonorae* as *A. s. flagellicaudus*. Others, like *Lizards of the American Southwest,* treat it as a full species. It does not reach the Black Range; however, the eastern portion of its range does extend into the Mogollon of western New Mexico.**

Aspidoscelis inornatus, Little Striped Whiptail

***Aspidoscelis marmoratus,* Marbled Whiptail (iNaturalist indicates sightings in Truth or Consequences). Some authorities consider this species to be a subspecies of *A. tigris*.**

Aspidoscelis neomexicanus, New Mexico Whiptail

Aspidoscelis tesselatus, Common Checkered Whiptail

***Aspidoscelis tigris,* Western Whiptail (*Cnemidophorus tigris* on Gila Checklist)**

Aspidoscelis uniparens, Desert Grassland Whiptail (Cnemidophorus uniparens on Gila Checklist)

***Aspidoscelis velox,* Plateau Striped Whiptail (iNaturalist indicates sightings in/near Silver City.)**

***Coleonyx variegatus,* Western Banded Gecko**

Cophosaurus texanus, Greater Earless Lizard

***Crotaphytus collaris,* Eastern Collared Lizard**

Elgaria kingii, Arizona Alligator Lizard (Madrean Alligator Lizard on Gila Checklist). The subspecies found here is E. k. nobilis, the Arizona Alligator Lizard - the type specimen is from the Santa Rita Copper Mine.

Gambelia wislizenii, Long-nosed Leopard Lizard

***Heloderma suspectum,* Gila Monster**

***Hemidactylus turcicus,* Mediterranean House Gecko (iNaturalist indicates sightings in Deming and in/near Truth or Consequences.)**

***Holbrookia maculata,* Western Earless Lizard Also known as the Common Earless Lizard. The taxonomic determinations made about this genus are in flux.**

Phrynosoma cornutum, Texas Horned Lizard

***Phrynosoma douglassii,* Short-horned Lizard (Gila Checklist Only) This species was once lumped with *P. hernandesi*. They are now split, and *P. douglassii,* the Pygmy Short-horned Lizard, is found in the Pacific Northwest of the United States, not in this area.**

Phrynosoma hernandesi, Greater Short-horned Lizard

Phrynosoma modestum, Roundtail Horned Lizard

***Plestiodon multivirgatus,* Many-lined Skink (*Eumeces multivirgatus* on Gila Checklist)**

Plestiodon obsoletus, Great Plains Skink (Eumeces obsoletus on Gila Checklist)

Sceloporus bimaculosus, Twin-spotted Spiny Lizard

Sceloporus clarkii, Clark's Spiny Lizard

Sceloporus cowlesi, Southwestern Fence Lizard

***Sceloporus jarrovii,* Yarrow's Spiny Lizard (iNaturalist indicates sightings north of Silver City, but not in Black Range.)**

***Sceloporus magister,* Desert Spiny Lizard This species once included *S. bimaculosus* and *S. uniformis*. Subspecies within each are argued about.**

Sceloporus poinsettii, Crevice Spiny Lizard

Sceloporus undulatus, **Eastern Fence Lizard (Gila Checklist Only). This species is now split. *S. cowlesi*, the Southwestern Fence Lizard, is the species found here. Several authorities argue that much more work needs to be done on the species determinations within this group.**

Sceloporus virgatus, **Striped Plateau Lizard (Simply Plateau Lizard on Gila Checklist). This species probably does not exist in the Black Range.**

Urosaurus ornatus, Ornate Tree Lizard (Simply Tree Lizard on Gila Checklist)

Uta stansburiana, **Common Side-blotched Lizard (iNaturalist lists sightings in the Caballos and Floridas but not in the Black Range.)**

Among other things, the above list may clear up some of the nomenclature issues you may encounter. Two major changes which have occurred in taxonomic nomenclature in the recent past are:

- **Lizards formerly in the *Cnemidophorus* genus are now known as *Aspidoscelis* (a change challenged by some); and**
- **Lizards formerly known as *Eumeces* are now in the genus *Plestiodon*.**

Whiptails

Several whiptails (*Aspidoscelis*) species are clonal: all individuals of these species are females, and reproduction occurs absent males. In fact, there are no males in the species. These species developed when hybridization occurred between two sexual species. In some cases the prodigy was a different species, one which did not practice sexual reproduction.

An encounter with one of these species should lead to fairly easy identification. Right? You guessed it, wrong! Not only is there general similarity between the species, there is a general lack of strong distinguishing characteristics. Two other factors confound things: Each of the species goes through ontogenetic changes (their appearance changes) and at various "stages" the mix of characteristics complicates identification significantly. Oh, and their ranges often overlap.

The genus *Aspidoscelis* is the only genus in the family *Teidae* found in the United States. Some members of the *Teidae* family, like the Gold Tegu, *Tupinambis teguixin,* which is found in northern South America, can be quite large, up to 4' long and weighing up to 9 pounds (photo below). They can be quite aggressive. The tail of some lizard species will break off when the lizard has been grabbed by the tail. I often associate this ability with smaller lizards like the whiptails, which readily demonstrate this capability. But the Gold Tegu also has this capability. The tail will break off along fracture planes associated with the vertebrae.

Horned Lizard

What is this lizard stuff? When I (Bob Barnes) was a boy growing up south of Roswell, New Mexico, we called them Horned Toads. Never could figure out why they were called toads. Clearly they were not. But what kind of a name is horned lizard? (The adult says "descriptive".)

Species of this genus are a young boy's delight. Not only are they cryptic and hard to find, but they have wonderful horns, and when you hold them in your hand and gently stroke their stomachs they go to sleep. And, of course, when you are digging up an ant colony to make your own ant farm you can place the horned toads near your efforts and watch them eat ants. How cool is that!

Parthenogenesis

At the time ant colonies were being dug up to make ant colonies in a jar, sexual reproduction, or anything with that word in it, was not taught to



elementary school kids in Dexter, New Mexico. A couple of years later, at Ramey Air Force Base, Puerto Rico, I began to run into discussions of that topic. But the official school syllabus was limited to "there is sexual reproduction and there is asexual reproduction". Apparently really small things practiced asexual reproduction and big things practiced sexual reproduction. But all the drawings showed some type of cell biology, no mechanics.

Much later I was introduced to more nuanced concepts, but the whiptails are an eyeopener when it comes to concepts of reproduction and "sexuality". If you have issues with the public discussion of these topics DO NOT READ ANY FURTHER. Flip forward to the discussion of individual species, or it may be safer to flip to the back cover.

Here we go, grab a beer and ready yourself for some "wild talk".

Except for those little drawings which are asexual, all other reproduction is based on the concept of male and female.

Wrong. As a foundational concept this one is all wrong, it is full of cracks. Certainly, many of the world's species practice sexual reproduction, most of the animal kingdom for example (see human example at the center of the page). But a substantial amount of life on earth is based on other models - and who knows what the rest of the universe holds.

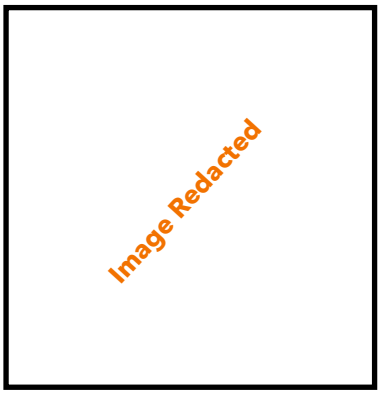
If it is a "higher animal" (meaning, I think, multicellular - but perhaps vertebrates) the species will practice sexual reproduction.

Wrong. (Don't despair, I will get to something "right" in a moment, hopefully.) Rather than continue this logic tree any further, let us jump to the whiptails and discuss specifics.

All Whiptails Are "Abnormal" (meaning, I think - sorry, I don't have a clue)

Since I don't know what we are talking about, I do not know if it is right or wrong (told you we would get away from all those definite wrongs).

About a third of the recognized whiptail species are unisexual, all of the individuals in these species being female. Little Amazons racing across the sand and gravel. All of these species are thought to have resulted from hybridization, as discussed earlier (but see below). When it comes to reproduction, the individual will lay eggs which hatch into little whiptails which are all clones of herself. Unisexual reproduction of this type is called parthenogenesis.



Some authorities will assert that parthenogenesis is an asexual mode of reproduction. However, eggs are produced in this process, something which does not occur in asexual reproduction. It is okay to have more boxes; everything does not have to fit into a few.

Because this is not mind-altering enough, it is important to note that the hybridization process is not as simple as stated earlier. Two sexual species mating to produce a unisexual species is an accurate description of the process if the parents are diploid. If the offspring is triploid, there was an additional stage in which mating occurred between a unisexual individual and a member of a bisexual species.

When it comes to determinations of species, the processes described above (like many other processes) throw a wrench into the good 'ole Linnean model. Some, perhaps most, of the people who study parthenogenesis have concluded that each successful act of hybridization results in a new species (in the cases of the process discussed above). Yes, each act of successful hybridization. Two species might hybridize at different times, and as long as different individuals were involved, they might (probably would, they argue) produce different species.

Successful hybridization of this type is assumed to be fairly rare. If not, the taxonomy of this genus is a lot more complex than anyone imagines. One of the problems with this line of thought originates from where we draw the line, what we consider a different species from a base type. In the case of two hybridization events there are arguably four individuals involved, but there could be only three. Of the four, what happens if each species is represented by a brother and sister pair, or close cousins, or . . . . Genetic differences occur from such hybridization events (and not just the differences which lead to unisexual reproduction versus sexual reproduction), but they may be more or less significant. Clinal differences may be all over the place or it may be that all of the successful hybridizations occurred well in the past and we now have only the multi-generational offsprings.

Parthenogenesis as a type of reproduction does not always produce females. Bird species generally produce males, for instance. This is a complex process governed by chromosome constitution, whether meiosis has been suppressed or not, and other factors. The drones of bee species are produced by haploid parthenogenesis while the females are produced via sexual fertilization, for instance.

Reproduction, gene flow, cross-fertilization, sexual, asexual, unisexual, bisexual, etc., etc., are all fascinating but well beyond the scope of this effort.

Here, we simply wish to point out that the lizard scurrying away from you is a wonder which has carved out a niche for itself in a very diverse world.



Chihuahuan Spotted Whiptail, *Aspidoscelis exsanguis*
Synonym: *Cnemidophorus exsanguis*
Gila Wilderness, New Mexico



Chihuahuan Spotted Whiptail
Aspidoscelis exsanguis
North Wicks Canyon (Black Peak)
East of Hillsboro, New Mexico

Aspidoscelis exsanguis
Chihuahuan Spotted Whiptail

The Chihuahuan Spotted Whiptail is one of the unisexual species of *Aspidoscelis*. All of the whiptails of this species are female and all are sisters, clones of each other.

The tail of this species is longer than the rest of the body. Note the pattern and coloration of the tail of the individuals shown here. The differences between tail and body indicate that the tail was probably lost at some time in the past and has regrown. The light spots on its back tend to be lighter (brighter) in color nearer the tail than the head. Spots are typically found on the rear legs.

Some of the unisexual whiptails will assume "pseudocopulatory postures that mimic mating among sexually reproducing species" (*Lizards of the American Southwest*, p. 340); this is one of those species. Whether an individual "assumes" the male or female role depends on the stage of egg development in its body. Apparently this behavior stimulates the lizard to lay more eggs than if the "pseudomating" did not occur.



Little (Plains) Striped Whiptail, *Aspidoscelis inornata llanuras*
Snake Mine Road East of Hillsboro, New Mexico

Aspidoscelis inornata llanuras
Little (Plains) Striped Whiptail

The Little Striped Whiptail is a bisexual species of *Aspidoscelis*. Among other traits, the males can be strikingly blue when and where that color is present.

This species is typically found at elevations between 2,700′ and 7,000′.

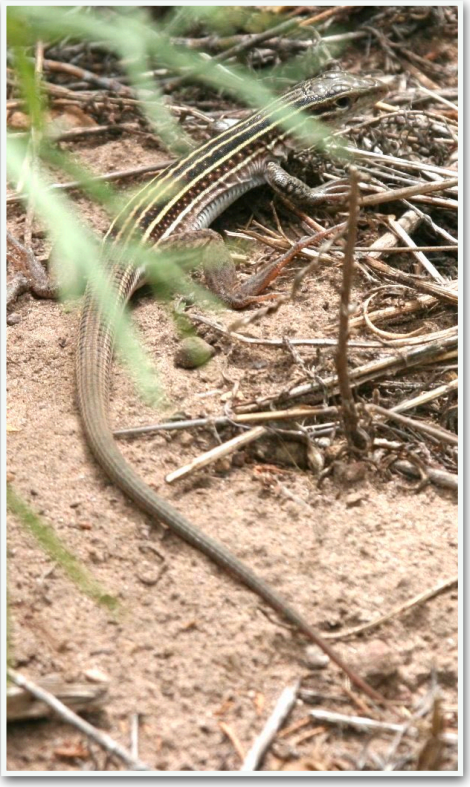
Seven subspecies of the Little Striped Whiptail are currently recognized; three of these subspecies are found in New Mexico. The subspecies shown here is the only one of the three to be found in our area.

This species is typically found between April and the end of September.

Note the lack of spotting on the body, six or seven stripes.

Aspidoscelis neomexicana
New Mexico Whiptail

The New Mexico Whiptail is another of the unisexual species of Whiptail. It has a limited range, basically the Rio Grande Valley from northern New Mexico into the area just southeast of El Paso - with a bit of southwestern New Mexico thrown in for measure.



New Mexico Whiptail, *Aspidoscelis neomexicana*
Synonym: *Cnemidophorus neomexicana*
Gila Wilderness, New Mexico

The mid-dorsal line on the back of this species appears wavy and at its terminus at the head appears to form a "Y" - caused by the lines on either side being longer. Spots are present within the dark lines of the body. Juveniles will have dark lines which are more defined and darker, but the spots within those lines will be less well defined.

The New Mexico Whiptail is typically found at elevations between 3,000′ and 6,000′ feet in areas of mesquite, creosote, and saltbush.

This species is active between April and October. It overwinters in a burrow it digs roughly a foot below the surface, plugging the entrance with dirt. In mid-summer (June-July) this species will lay eggs; sometimes there will be a second clutch. Clutch size is typically two eggs.

This species is thought to have originated from a single hybridization event between a female *Aspidoscelis marmorata* and a male *Aspidoscelis inornata*. Since there is little genetic variation within this species, it (the species) is assumed to have originated recently (within long-term biological time-scales).

Aspidoscelis tesselatusaka
Common Checkered Whiptail

The Common Checkered Whiptail is a unisexual species; all individuals in the species are female. We are at the western edge of the range of the Common Checkered Whiptail.

The checkered pattern of *A. tesselatusaka* is distinctive but not unique. It is most easily confused with the other "checkered" whiptails (Marbled, Gray, and Colorado), none of which are found in the Black Range. The taxonomic history of this species is complicated, and it may be identified by a variety of names in the references you have.

The Common Checkered Whiptail is thought to have originated from mating between *A. m. marmorata* and *A. scalaris*. If their ranges have remained stable, this event would have occurred in the Big Bend area of Texas or northeastern Chihuahua.







Photographs above and to the left:
Common Checkered Whiptail, *Aspidoscelis tesselatusaka*
Synonym: *Cnemidophorus tesselatusaka*
Near Summit of Black Peak, East of Hillsboro, NM

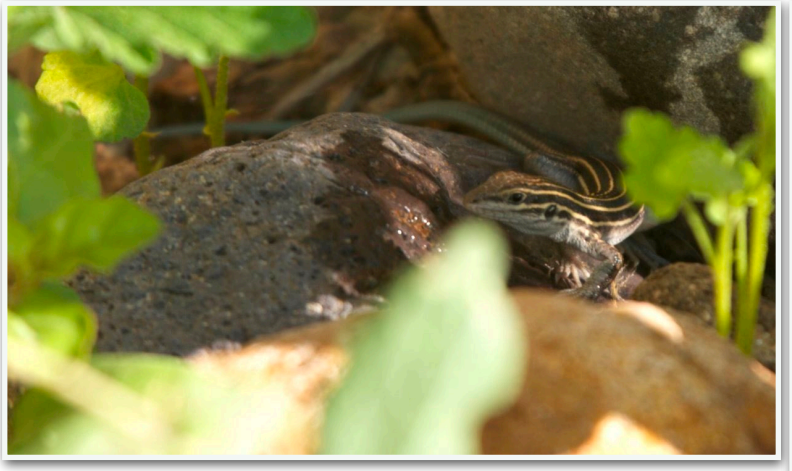
Aspidoscelis uniparens
Desert Grasslands Whiptail
(Photos on Following Page)

The Desert Grassland Whiptail is a unisexual species; all individuals in the species are female. It has a limited distribution ranges; we are centrally located within its range.

The short central stripe near the head is helpful (not necessarily diagnostic) when identifying the Desert Grasslands Whiptail.



All photographs from Hillsboro, New Mexico











Cophosaurus texanus scitulus
(Chihuahuan) Greater Earless Lizard

The adult Greater Earless Lizard is one of the "poster lizards" of our area, gracing the covers of field guides and depicted regularly in a prominent position on anything having to do with lizards.

The genus *Cophosaurus* is one of the "sand lizard" groups. There is only one species in this genus. There are three subspecies of Greater Earless Lizard; only *Cophosaurus texanus scitulus* is found in our area.

The ventral (bottom) side of the tail is white with strongly marked black bands or spots (see the following page). This is a characteristic that many other sand lizards possess.

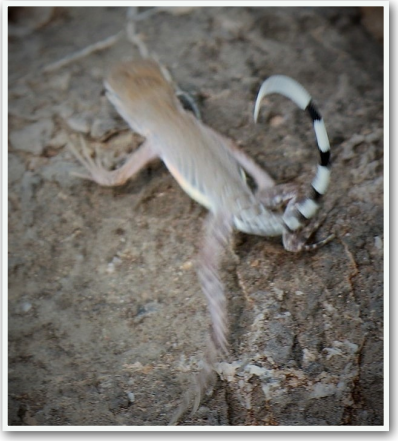
At night, this species will typically bury itself in sand, sometimes in loose rock.

This species likes to perch. Look for it on top of a high rock when walking in a wash or similar habitat.



Photograph by James Von Loh





The images here and those on the next three pages were taken by James Von Loh on Tortugas Mountain, Las Cruces, New Mexico. He photographed them on the west-facing middle and upper portion of the mountain. He took the bottom image on this page in July 2022 near Las Cruces (Bar Canyon/Soledad Canyon).









Photographs by James Von Loh

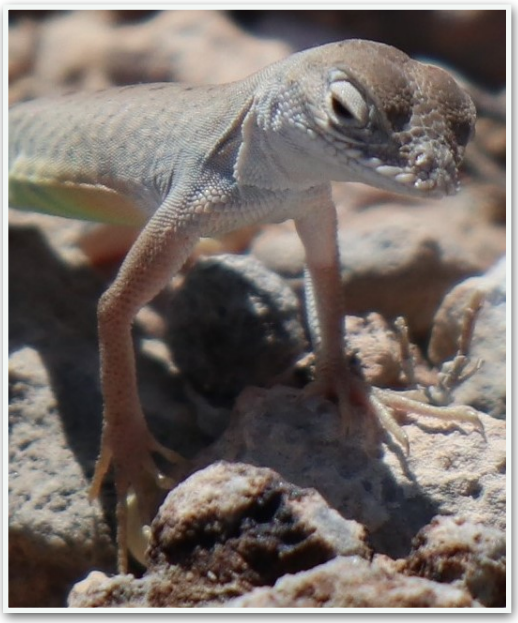








Photographs by James Von Loh







Photographs by James Von Loh





(Chihuahuan) Greater Earless Lizard, *Cophosaurus texanus scitulus*
Hillsboro, New Mexico





Crotaphytus collaris
Eastern Collared Lizard

These images were taken by Gordon Berman, on the east and northeast side of Tortugas Mountain, near Las Cruces.

Identification Aids: Two black collars around the neck, hind legs longer than the front ones, males are larger than females, females can be bright red/ orange during breeding period, with coloration fading after eggs are laid. This species likes to perch on higher ground.

In addition to the normal array of invertebrates, the Eastern Collared Lizard will also take on small mammals and birds, and other lizards.

Males display with head bobbing and "push-ups". Confrontations between males do occur, but displays apparently diminish such activity.

This species is found in most of New Mexico. It is found as far east as Missouri and south into Mexico. To the west it is found in Arizona and southeastern Utah. To the north it is found in parts of Colorado and Kansas.

Taxonomy: Take your pick. Wikipedia says five subspecies are recognized, *Lizards of the American SW* says that some authorities recognize six subspecies, some none, some consider some of the former subspecies to be full species.



Photographs by Gordon Berman





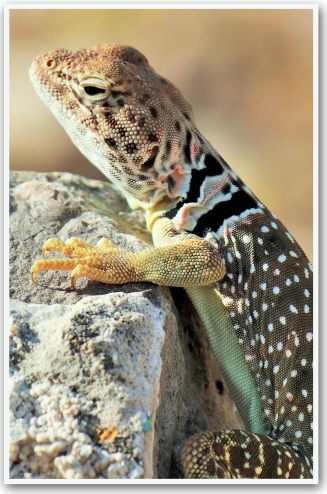


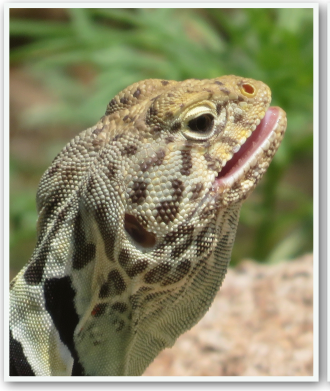
The photograph below was taken in the Canyon of the Ancients in Colorado. It shows the range of color variation in this species. Compare to other photos from this area. Photographs to the left, above, and immediately below are by Gordon Berman.



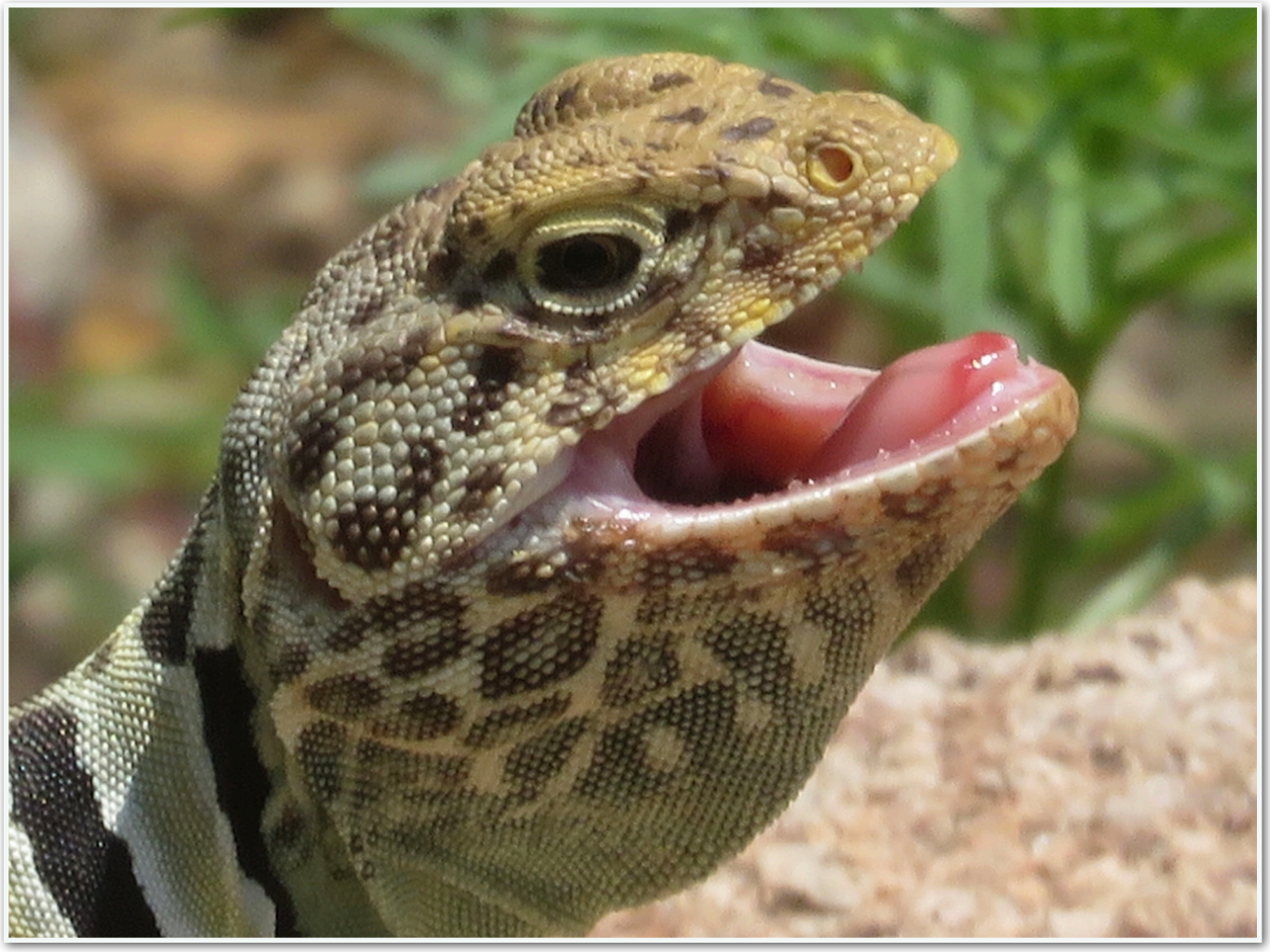
Amphibians and Reptiles of New Mexico **says there are six subspecies, four of which are found in New Mexico. When it comes to common names, this species is sometimes simply Collared Lizard. The photograph below is by James Von Loh.**






Top Row: Photographs by James Von Loh
Left and Below: Photographs by Gordon Berman



Elgaria kingii nobilis
Madrean Alligator Lizard

Despite being "cute", Alligator Lizards can be tenacious fighters. If you wish to handle one, remember that they bite and hang on. As is true of many other lizards, their tails will separate from the rest of the body, along fracture planes, during combat or other physical encounters. Unlike in some other species, however, the tail rarely grows back to its prior length, and the new tail does not have the bands found on the original tail.

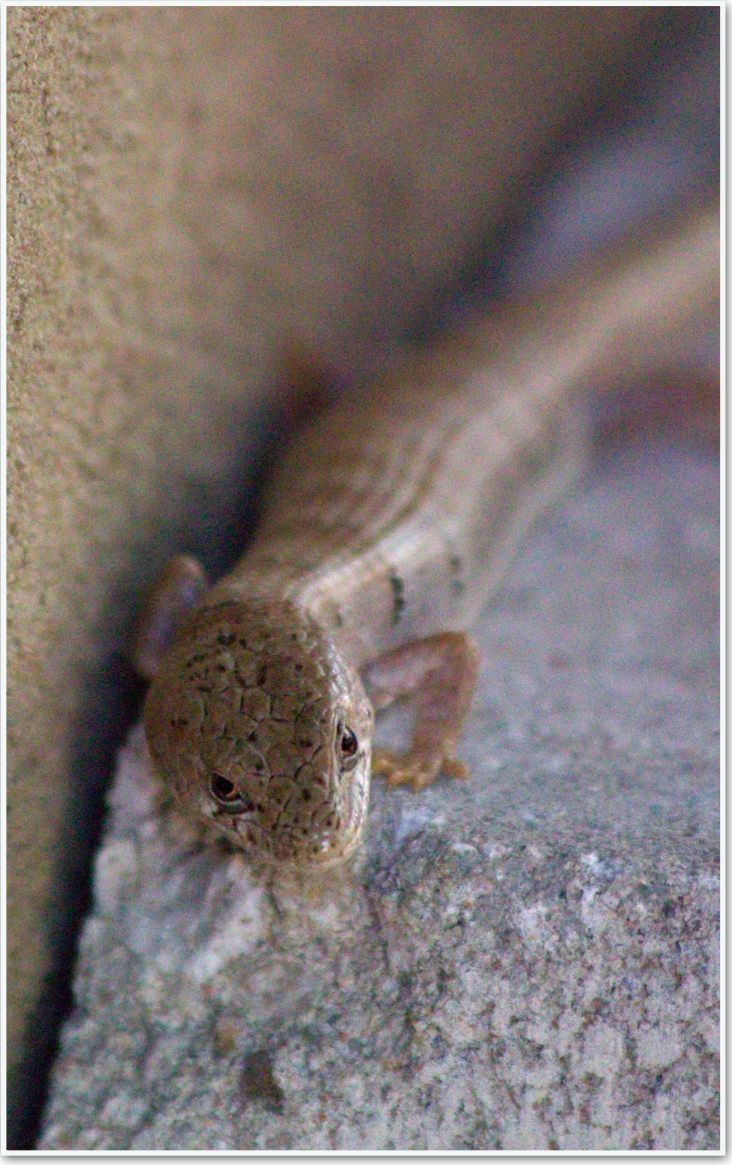
Alligator Lizards tend to be found in wetter environments than the other lizards living in this area. But beware the skinks.

The subspecies found in our area, and shown here, is generally known as the Arizona Alligator Lizard.

Its movement is reminiscent of that of a snake because of its small legs. In fact, it will sometimes fold its legs against its body and slither like a snake.



Several authorities believe that some Mimbres Pottery (like this Classic Black-on-White, Style III, made between 1000 and 1150 CE), depict Alligator Lizards.



Madrean Alligator Lizard
Elgaria kingii nobilis
Hillsboro, New Mexico



Madrean Alligator Lizard - *Elgaria kingii nobilis*
Kingston, New Mexico
Photograph by Tom Lander



Madrean Alligator Lizard
Elgaria kingii nobilis
Hillsboro, New Mexico





Gambelia wislizenii
Long-nosed Leopard Lizard

Including its tail, which can be as long as the rest of its body, the Long-nosed Leopard Lizard is about 10 inches long. That makes it one of the larger lizards in our area, an advantage for it since it eats (among other things) other lizards.

This species was previously known as *Crotaphytus wislizenii* (Baird & Girard, 1852), *Crotaphytus gambelii*, *Crotaphytus fasciatus*, *Leiosaurus halloweii*, and *Crotaphytus fasciolatus*.



Long-nosed Leopard Lizard, *Gambelia wislizenii*, Juvenile
Photographs above and below by Gordon Berman, from west side of Picacho Peak, Summer 2021.





Long-nosed Leopard Lizard from Cooke's Spring, Luna County, May 3, 2018.



Long-nosed Leopard Lizard, by Gordon Berman. This photograph was taken on the west side of Picacho Peak near Las Cruces, Summer 2021.



Long-nosed Leopard Lizard from Cooke's Spring, Luna County, May 3, 2018.



Texas Horned Lizard, *Phrynosoma cornutum*. Photo by Randall Gray.

Phrynosoma cornutum
Texas Horned Lizard

In the Volume 2, Number 1 (January 2019) issue of The Black Range Naturalist, Randall Gray discussed the "Horned Lizards of the Black Range".

When identifying the Texas Horned Lizard, note the two rows of spines on its sides (abdominal fringe scales). Gordon Berman's photos on the following page and the photo on the back cover show this well. The base color of its back may vary from red to tan. The black spots on its back are bordered in a lighter color.

Horned Lizards take their name from the bony extensions of the cranium which project from the top and back of the head.

This species is found at elevations between sea level and 5,800'.

Texas Horned Lizards are able to negate the effects of ant venom and that of velvet ants and blister beetles. Most of their diet (almost 70%) consists of ants.



Texas Horned Lizard, *Phrynosoma cornutum*
New Mexico Highway 27 South of Hillsboro



Gordon Berman took these photographs during 30 minutes of observation at the Baylor Canyon west side trailhead near Las Cruces. Mating Texas Horned Lizards may be in this type of amplexus for a couple of hours. During this time the male may grasp one of the female's horns, as shown at the right. See "The Breeding Habits of the Texas Horned Toad, Phrynosoma cornutum" by Alvin Cahn, *The American Naturalist* , Nov. - Dec., 1926, Vol. 60, No. 671, pp. 546-551. Female Texas Horned Lizards lay large clutches of eggs, averaging 25 (range 13-50), in mid summer to early fall.



Being a true naturalist, Gordon spent these 30 minutes "lying unaware on a bovine excretory site". The editor believes these photographs are worthy of that extraordinary effort.





Phrynosoma hernandesi
Greater Short-Horned Lizard



Volume 2, Number 1 **(January 2019) of The Black Range Naturalist included Randall Gray's "Horned Lizards of the Black Range". In his article, Gray described the range and natural history of horned lizards and noted that in our area we have three species: Texas Horned Lizard, Roundtail Horned Lizard, and Short-horned Lizard. Good reference material is also cited in his article.**

On July 13, 2022, Kathleen Blair and Jan Richmond reported seeing all three species on a hilltop on the western edge of Hillsboro. A mini bio-blitz.

The Greater Short-Horned Lizard has one row of spines on its sides (abdominal fringe scales). Note that the horns protruding from the head of this species look almost like fans, rather than distinct large horns. These horns are generally reddish in color. The head is broader than it is long, giving this horned lizard a distinctive look.

The photographs shown on this page were taken on September 2, 2023 on the trail from Emory Pass to Hillsboro Peak at about 9,000'







Above: Greater Short-Horned Lizard, *Phrynosoma hernandesi,* Percha City Site, Carbonate Creek, Black Range, NM

Left: At Hillsboro, by Steve Elam

Bottom Left: Hillsboro Peak Trail

Bottom Right: Gallinas Canyon

There is significant sexual dimorphism in this species, with the females being much larger than the males. In the northern parts of its range this difference is more noticeable. The Black Range is in the south central part of the range of the Greater Short-Horned Lizard.

This horned lizard species lives at higher elevations than some of the other lizards in the genus, at roughly 1,800' to 9,500'. It live birth to a litter that averages 16.







Phrynosoma modestum
Roundtail Horned Lizard

A small lizard with a round tail, *Phrynosoma modestum* is found in the Chihuahuan Desert and parts of the southern Great Plains. This species has been extirpated from parts of its former range, e. g., Oklahoma.

The Round-tailed Horned Lizard lays from 6 to 19 eggs per clutch. They hatch from July-October.

Round-tailed Horned Lizards prefer the smaller ant species but will eat larger harvester ants. Ants make up the vast majority of their diet.

Round-tailed Horned Lizard
Phrynosoma modestum
Hillsboro, New Mexico







Roundtail Horned Lizard, *Phrynosoma modestum*. Photo by Randall Gray.



Round-tailed Horned Lizard
Phrynosoma modestum
Hillsboro, New Mexico



Great Plains Skink, *Plestiodon obsoletus*, Hillsboro, June 9, 2018



Plestiodon obsoletus
Great Plains Skink

This species is readily identified because of its long and slender shape, short legs, (sometimes) orangish feet, and intricate pattern which extends from the neck to the end of the tail. Note, however, that the juvenile of the species looks very different. It is black with small white spots around the edges of its mouth. The adult and juvenile forms are so different that they were once considered separate species.

The Many-lined Skink, *Plestiodon multivirgatus*, is possible in this area, and the Mountain Skink, *Plestiodon callicephalus*, can be found in the far western part of the New Mexico boot heel. Otherwise, we are devoid of skinks. There are, however, more than 1600 skink species worldwide.

The scales of the Great Plains Skink are cycloid and completely encircle the body (there are no other scale types on the body). Cycloid scales have smooth outer edges and overlap. (The part of the scale closest to the head overlaps the adjacent scale closer to the tail.) This scale arrangement results in very smooth skin which creates less drag than other scale forms. Reptiles may have three types of scales: cycloid, the more bumpy "granular" (also called beaded), and the keeled, which has a central ridge and is generally pointed at the end.

Although something of a generalist when it comes to habitat selection, the Great Plains Skink is almost always found in moist conditions. It is a fossorial species, meaning that it spends much of its life in burrows or underground. Females (after age 3) will lay, and guard, their clutches of eggs in their burrows.

Despite its apparent cuteness, this species will bite with a force that is painful to humans.

Older resources place this species in the genus *Eumeces*.



Juvenile photographed by Gordon Berman, August 5, 2022.
Ice Canyon above the Dripping Springs Visitor Center, Organ Mountains.



Great Plains Skink, Plestiodon obsoletus, Hillsboro, June 9, 2018



Juvenile, photograph by Debora Nicoll, Lake Valley, NM







Photographs by James Von Loh
Soledad Canyon, Organ Mts.





James Von Loh took the photographs on this page on Picacho Mountain near Las Cruces. Note the strongly keeled scales on the individual in the photograph at the top.

Sceleoporus bimaculosus
Twin-spotted Spiny Lizard

The Twin-Spotted Spiny Lizard was once considered, and still is by some, a subspecies of the the Desert Spiny Lizard, *Sceleoporus magister,* found to the west. The ranges of the two species overlap in the southwestern part of the New Mexico Boot Heel.

The Twin-spotted Spiny Lizard is a species of the Chihuahuan Desert and is often found in desert scrub.

Its active season (following winter brumation) is generally from the last part of March through November.









These photographs by Gordon Berman, show the dark line below the eye. The black marking on the neck does not extend across the dorsal side of the body to form a collar. But note (left) that in the male the black marking extends across the throat.



Twin-spotted Spiny Lizard, *Sceleoporus bimaculosus,* juvenile
Bloodgood Spring, South of Kingston, Black Range
July 11, 2017



Sceloporus clarkii clarkii
Clark's Spiny Lizard

The range of the Clark's Spiny Lizard extends into southwestern New Mexico from the west. Its range is thought to extend to the Rio Grande in this area.

Note the bands on the forelegs of the individuals shown on the following pages. The scales of this species are strongly keeled and pointed - giving it the "spiny lizard" look. The black shoulder patches do not meet to make a collar. The tail is not banded, as in the Crevice Spiny Lizard.

Rock Rattlesnakes, some other snake species, and hawks are known to eat Clark's Spiny Lizards. Spiny Lizards eat a variety of invertebrates: ants, caterpillars, grasshoppers, spiders, etc., as well as some smaller lizard species.







The above photograph by Mike Barnes.



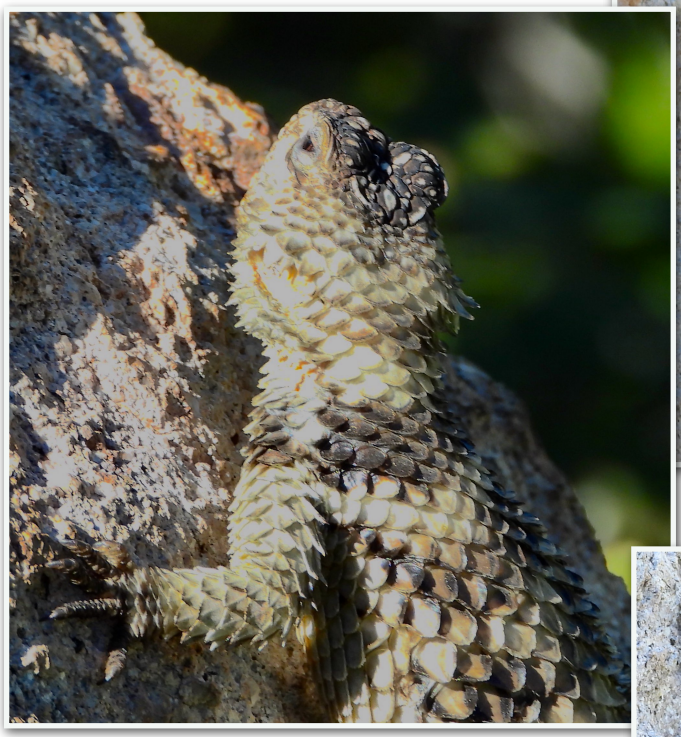
Clark's Spiny Lizard
Sceloporus clarkii clarkii
(ssp known as Sonoran Spiny Lizard)
Hillsboro, NM

Sceloporus poinsettii poinsettii
(New Mexico) Crevice Spiny Lizard

The photographs on this page were taken along the Hillsboro Peak Trail (Black Range Crest Trail between Emory Pass and Hillsboro Peak) on September 6, 2022. On that walk, several individuals of this species were seen but only two were photographed.

There are five subspecies of *Sceloporus poinsettii*, two of which are found in the United States. The nominate form, found in southwestern New Mexico, is distinguished by having white spots on the crown of its head. The other subspecies found in the US occurs in south central New Mexico, southwestern Texas, and the adjacent Mexican states. The other three subspecies are all found in the north central states of Mexico.





All of the diagnostic markings for the subspecies are shown in these photographs, including: the collar at the neck with associated blue marking; the spotting on the crown of the head; the heavy scales; and the strongly banded tail.

Although this species has a reputation for being skittish and heading into rock crevices when disturbed, the one shown here was very calm and seemingly unperturbed by the photographer's presence. The second individual to be photographed was much farther away and appeared, generally, to be unaware that it was being observed.





Southwestern Fence Lizard, *Sceloporus cowlesi*
Silver Creek, Black Range
September 27, 2020



Image by James Von Loh, Rio Grande at Las Cruces.

Sceloporus (undulatus) cowlesi
Southwestern Fence Lizard

In this species, as in many other lizard species, the tail which regenerates after the original one is broken off will be shorter and have a different pattern than the original.

The Southwestern Fence Lizard can be difficult to distinguish from related species. It is a basker, often sunning itself from any suitable perch. Its scales are strongly keeled and pointed. As with scales generally, they overlap.

The Eastern Fence Lizard, *Sceloporus undulatus*, species complex included (but was not limited to) the *S. u. consobrinus, S. u. cowlesi*, and *S. u. tristichus* subspecies, all of which have been subsumed in all or in part into the current *S. cowlesi*.

***Amphibians and Reptiles of New Mexico,* lists this species as a subspecies of the Prairie Lizard, S. undulatus.**



Southwestern Fence Lizard, *Sceloporus cowlesi*
Gallinas Canyon, Black Range, NM



Railroad Canyon, Black Range



Ornate Tree Lizard, *Urosaurus ornatus schottii*
Railroad Canyon, Black Range

Urosaurus ornatus schottii
Ornate Tree Lizard

Six subspecies of Ornate Tree Lizard are currently recognized. The subspecies found here is the Schott's Tree Lizard, *Urosaurus ornatus schottii*. Apparently the species' Latin binomial has been stable for a substantial amount of time, but the subspecies determinations have been in flux.

The range of the Ornate Tree Lizard and that of the Common Side-blotched Lizard probably overlap in the Black Range. (See comment in the Common Side-blotched Lizard entry about the probability of its existence in the Black Range.) That is, they are probably sympatric, which could confuse things.

Disclaimer: Some authorities do not believe that sympatric speciation exists. If it does exist, this is the situation where two species exist in proximity to each other and there are no physical barriers to inter-breeding. Selection in this case is said to depend on specific behavioral traits and environmental conditions.



Ornate Tree Lizard
Urosaurus ornatus schottii
Left: Railroad Canyon, Black Range
Below: Hillsboro, NM





Above: Photographs of Ornate Tree Lizards by James Von Loh, from the Pine Tree Trail near Aguirre Springs, Organ Mountains.

Uta stansburiana stejnegeri
Common (Eastern) Side-blotched Lizard

There are currently five recognized subspecies of *Uta stansburiana*. This subspecies is known as the Eastern Side-blotched Lizard. It is found in much of New Mexico, parts of Texas, and northern Mexico. Some research indicates that this subspecies should be treated as a full species.

Note the two dark "blotches" behind the front legs. and on These markings give the species its common name.

Gordon Berman notes that the side blotches are "often more pronounced on the blue tinged males than the brownish females . . . (this species) is most likely to emerge topside during warmer winter days" compared with other lizard species.





Sources like iNaturalist do not list sightings of this species in the Black Range. The Black Range (especially the eastern foothills) is, however, within the anticipated range of this species. Please send sightings to the published resources.

The photographs shown here were taken in or around Las Cruces by Gordon Berman (right) and James Von Loh (above and on the following page).



Photograph by Gordon Berman









Published in Hillsboro, New Mexico
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