

Lizard Pitfalls (LTER)

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Protocol for Lizard Pitfalls

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Set traps facing north so the shadow falls over the trap, 1-2" opening to let the big boys in, and level the ground around the rim flush with the trap so the lizards can see the shadow from a distance and zip right in without going over an obstacle course. It's not necessary to clear the dirt off the top of the tile during trapping, because you just have to put it back on at the end to bury it. Plus the more times we scrape up new dirt to bury the tile, the more we alter the soil surface around the trap.

I. General Information

Desertification is hypothesized to have altered the spatial and temporal availability of resources required by the biota. Results of desertification on the Jornada include changes to shrub-dominated communities and major soil changes. We hypothesize that these shifts in vegetation have changed resources temporally for many of the consumers. If grassland systems respond to rainfall without significant lags, but shrub systems do not, then consumer species should reflect these differences. In addition, shifts from grassland to shrubland results in greater structural heterogeneity of the habitats. We have hypothesized that consumer populations, diversity, and densities of some consumers will be higher in grasslands than in shrublands. Diversity and/or densities are hypothesized to be related to the NPP of the sites. Data will be collected for the duration of the LTER program in order to provide data to test these hypotheses.

Lizard pitfall studies are conducted in conjunction with net primary production studies. The lizards are live trapped and released in the immediate vicinity of the trapping grid.

II. Experimental Design

A. Location

Pitfall trap grids have been installed in proximity to 11 of the 15 NPP sites. No pitfall grids are associated with the T-TAYL; P-COLL, -SMAL, -TOBO sites due to flooding potential. The following table summarizes the location of each pitfall grid.

SITE	LOCATION	COMMENTS
C-CALI	NE of NPP grid	
C-GRAV	SE of NPP grid	
C-SAND	NW of NPP grid	To the S of the northern E-W road between Powerline and Weather Station roads. E of transects.
G-BASN	S of NPP grid	Within enclosure
G-IBPE	S of NPP grid	S end of IBP enclosure
G-SUMM	S of NPP grid	S of transects & directly W of the southern E-W road between Powerline and Weather Station roads. S of transects.
M-NORT	NE of NPP grid	Within 150 m x 100 m enclosure
M-RABB	SW of NPP grid	Outside Natural Revegetation Exclosure. Just N of small enclosure that is located immediately N of Rabbit Rain Gauge.
M-WELL	W of NPP grid	Within 150 m x 100 m enclosure
T-EAST	SW of NPP grid	Within 150 m x 100 m enclosure
T-WEST	NE of NPP grid	Within 150 m x 100 m enclosure

Each grid consists of 4 x 4 rows of traps at 15 m intervals. The location of each trap is marked by a rebar with a numbered tag.

B. Construction

Each pitfall trap is 40 cm deep and lined with 2 stacked 6" diameter tin can cylinders with ends removed. A container 5" in diameter sets on a 2" x 2" wooden block at the bottom of the pitfall trap. The container has holes punched in the bottom to facilitate draining in case a rain event occurs during a trapping period. The wooden block serves to keep the container above the water to protect the lizards. A 5 1/2" diameter polyethylene funnel is set on the container in each trap. The funnel should have a top diameter that spans the diameter of the tin can cylinders because the funnel seals the trap to prevent escapes. Each trap has an 8" x 8" ceramic tile cover that serves the dual purpose of providing shade during the trapping period and closes the trap during non-sampling periods. During non-sampling periods, the tile is fit closely to the ground surface and then buried to prevent animals from falling in during non-sampling periods. Be sure to mark the buried tile with stones to insure finding its location in the future. During trapping periods, the tile is excavated and propped open 1" – 2" by a block or stone, while minimizing the obstruction of entry to the trap.

C. Collection Times

Trapping periods occur every March, June, August, and November. The traps are open for about 15 days. In June and August, the traps are checked twice a week. In March and November, the traps are checked once a week. For example, if the traps are opened in June on a Friday, they are checked the following 2 Tuesdays and Fridays, and closed on the last Friday. If opened on a Friday in November, they are checked the following 2 Fridays and closed on the last Friday.

III. Lizard Procedure

A. Equipment

Equipment for processing lizards includes a data book, a 30-cm metric ruler, two PESOLA scales 0-10g and 0-100 g), forceps, plastic bags, pencils, and reptile field guides. Also, trowels are used to bury and excavate the ceramic tiles when opening and closing the traps. They are also used during the collection period for repair around traps to maintain the dirt to the level of the can for easy access by lizards. Additionally, extra containers, funnels, and blocks are taken into the field to perform any maintenance (see below) to the traps on site.

B. Lizard Handling

First, remove the ceramic tile and funnel from the trap. If no lizard is in the container, be sure to remove it to see if a lizard is at the bottom of the pitfall trap. If a lizard is in the container, gently grab it by the head and upper body. Unless it is a cold day, this will generally require a quick motion. Care must be taken to ensure they don't jump out of the trap or run up your arm and escape. In order to identify the lizard species, please refer to Reptiles and Amphibians present on the Jornada del Muerto, Reptile Checklist for the NSF/LTER Jornada sites, Pitfall Lizards Names, Codes, Descriptions, and A Key to the Species of Cnemidophorus (Teiidae) found on the Jornada Experimental Range (all included below). Also, the NMSU Department of Biology Vertebrate Museum has a nice collection of lizards to assist in identification.

When processing the lizard, collect the following data:

- 1.) **Date** (mmddyy)
- 2.) **Zone** (C, G, M, T)
- 3.) **Site** (NPP site name)
- 4.) **Plot** (see table)

ZONE	SITE	PLOT
C	CALI	A
C	GRAV	D
C	SAND	B
G	BASN	B
G	IBPE	C
G	SUMM	A
M	NORT	C
M	RABB	A

M	WELL	B
T	EAST	B
T	WEST	A

- 5.) **Pit #** (1-16)
- 6.) **Species Code:** Lizard species are recorded using a four letter code where the first two letters are the first two letters of the generic name and the second two letters are the first two letters of the species name, i.e., *Uta stansburiana* = UTST
- 7.) **Sex:** record an M, F, or J (juvenile) for each lizard. Refer to the Lizard Sexing table below to assist in sexing each lizard, which differs between families.
NOTE: Some lizards (Teiidae) are parthenogenetic. If a juvenile parthenogenetic lizard is captured, record F for the sex of the lizard and comment at bottom of the data sheet that it is a juvenile.
- 8.) **Rec:** If a lizard has previously been marked, record an R (recapture). Record an N for unmarked lizards.
- 9.) **Toe Mark:** Toe marking is no longer performed to indicate captured lizards. Instead, all lizards have a number written on the ventral side of their tail, just below the vent. The number is written onto the lizard with a fine-point black Sharpie. The number is unique for each individual captured of a certain species for that sampling season. Start with the number "1" for each species and number each individual consecutively. Ignore sites in your numbering. For example, if your first UTST is at T-WEST, number it "1". If your second UTST is at T-EAST later that season, number it "2".
- 10.) **S-V Length:** Record length (in mm) from snout apex to vent. Exercise care when handling juveniles for any measurements.
- 11.) **Total Length:** Record total length (in mm) from snout apex to tail tip.
- 12.) **Weight:** Place lizard in plastic bag and clip bag to PESOLA scale. Note weight in grams (subtract bag weight). Juveniles can be estimated at 1 gram, the smallest weight possible.
- 13.) **Tail:** Record as whole (w) or broken (b). If the tail was broken and regrown, make a note at the bottom of the page.

IV. Maintenance

When opening the traps for a trapping period, check the trap to make sure everything is there (tile, funnel, container, wood block or rocks, appropriately sized tile prop). Replace any damaged materials with the extra containers, funnels, and blocks that are taken into the field. Also, be sure to remove any dirt that has fallen into the trap so that the bottom of the container is at least 40 cm below the surface of the tin cans.

Occasionally, ants move into the proximity of the pitfalls. If ant activity is high near a pitfall, remove the tile and smear petroleum jelly on the upper portion of the inside tin can. This should prevent ants from getting into the cup to attack the lizard. If there is ant activity inside the pitfall, do not open the trap and make a note of the closed trap in the data book.

¹REPTILES and AMPHIBIANS of the Jornada and Dona Ana Mountains

ORDER SQUAMATA (snakes & lizards)

FAMILY LEPTOTYPHLOPIDAE

Western Blind Snake	<i>Leptotyphlops humilis</i>
Texas Blind Snake	<i>Leptotyphlops dulcis</i>

FAMILY COLUBRIDAE

Western Hognose Snake	<i>Heterodon nasicus</i>
Coachwhip	<i>Masticophis flagellum</i>
Desert Striped Whipsnake	<i>Masticophis taeniatus</i>
Big Bend Patch-nosed Snake	<i>Salvadora hexalepis</i>
Trans-Pecos Rat Snake	<i>Bogertophis subocularis</i>
Glossy Snake	<i>Arizona elegans</i>
Gopher Snake (Bullsnake)	<i>Pituophis melanoleucus</i>
Desert Kingsnake (Sonora Kingsnake)	<i>Lampropeltis getula</i>
Long-nosed Snake	<i>Rhinocheilus lecontei</i>
Western Hook-nosed Snake	<i>Gyalopion canum</i>
Ground Snake	<i>Sonora semiannulata</i>
Plains Black-headed Snake	<i>Tantilla nigriceps</i>
Lyre Snake	<i>Trimorphodon biscutatus</i>
Night Snake	<i>Hypsiglena torquata</i>

FAMILY VIPERIDAE (poisonous)

Massasauga	<i>Sistrurus catenatus</i>
Western Diamondback Rattlesnake	<i>Crotalus atrox</i>
Rock Rattlesnake	<i>Crotalus lepidus</i>
Black-tailed Rattlesnake	<i>Crotalus molossus</i>
Prairie (Western) Rattlesnake	<i>Crotalus viridis</i>

FAMILY CROTOPHYTIDAE

Collared Lizard	<i>Crotaphytus collaris</i>
Leopard Lizard	<i>Gambelia wislizenii</i>

FAMILY PHRYNOSOMATIDAE

Greater Earless Lizard	<i>Cophosaurus texanus</i>
Lesser Earless Lizard	<i>Holbrookia maculata</i>
Texas Horned Lizard	<i>Phrynosoma cornutum</i>
Roundtail Horned Lizard	<i>Phrynosoma modestum</i>
Desert Spiny Lizard	<i>Sceloporus magister</i>
Eastern Fence Lizard	<i>Sceloporus undulatus</i>
Tree Lizard	<i>Urosaurus ornatus</i>
Side-blotched Lizard	<i>Uta stansburiana</i>

FAMILY SCINCIDAE

Great Plains Skink	<i>Eumeces obsoletus</i>
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FAMILY TEIIDAE

Chihuahuan Spotted Whiptail	<i>Cnemidophorus exanguis</i>
Little Striped Whiptail	<i>Cnemidophorus inornatus</i>
New Mexico Whiptail	<i>Cnemidophorus neomexicanus</i>
Checkered Whiptail	<i>Cnemidophorus tesselatus</i>
Western Whiptail	<i>Cnemidophorus tigris</i>
Desert Grassland Whiptail	<i>Cnemidophorus uniparens</i>

ORDER TESTUDINATA or CHELONIA (turtles)

FAMILY TESTUDINIDAE (EMYDIDAE)

Ornate Box Turtle	<i>Terrapene ornata</i>
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ORDER ANURA (frogs & toads)

FAMILY BUFONIDAE

Great Plains Toad	<i>Bufo cognatus</i>
Green Toad	<i>Bufo debilis</i>
Red-spotted Toad	<i>Bufo punctatus</i>
Woodhouse's Toad	<i>Bufo woodhousei</i>

FAMILY PELOBATIDAE

Couch's Spadefoot	<i>Scaphiopus couchii</i>
Plains Spadefoot	<i>Spea bombifrons</i>
New Mexico Spadefoot	<i>Spea multiplicata</i>

ORDER CAUDATA (salamanders)

FAMILY AMBYSTOMATIDAE

Tiger Salamander	<i>Ambystoma tigrinum</i>
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¹Range verification provided by Paul Hyder (NMSU) and supplemented by Dona Ana County distribution maps in:

Williamson, M.A., P.W. Hyder, J.S. Applegarth. 1994. Snakes, lizards, turtles, frogs, toads, & salamanders of New Mexico. Sunstone Press, Santa Fe. NM. 176 p.

Reptile and Amphibian Checklist for the NSF/LTER Jornada Sites

Scientific Name	Code	Common Name	Family
<i>Arizona elegans</i>	AREL	Glossy Snake	Colubridae
<i>Bogertophis subocularis</i>	BOSU	Trans-Pecos Rat Snake	Colubridae
<i>Bufo cognatus</i>	BUCO	Great Plains Toad	Bufo
<i>Bufo debilis</i>	BUDE	Green Toad	Bufo
<i>Bufo woodhousei</i>	BUWO	Woodhouse's Toad	Bufo
<i>Cnemidophorus exanguis</i>	CNEX	Chihuahuan Spotted Whiptail	Teiidae
<i>Cnemidophorus inornatus</i>	CNIN	Little Striped Whiptail	Teiidae
<i>Cnemidophorus neomexicanus</i>	CNNE	New Mexican Whiptail	Teiidae
<i>Cnemidophorus tesselatus</i>	CNTE	Checkered Whiptail	Teiidae
<i>Cnemidophorus tigris</i>	CNTI	Tiger Whiptail	Teiidae
<i>Cnemidophorus uniparens</i>	CNUN	Desert Grassland Whiptail	Teiidae
<i>Cophosaurus texana</i>	COTE	Greater Earless Lizard	Phrynosomatidae
<i>Crotalus atrox</i>	CRAT	Western Diamondback Rattlesnake	Viperidae
<i>Crotalus lepidus</i>	CRLE	Rock Rattlesnake	Viperidae
<i>Crotalus molossus</i>	CRMO	Black-Tailed Rattlesnake	Viperidae
<i>Crotalus viridis</i>	CRVI	Prairie (Western) Rattlesnake	Viperidae
<i>Crotaphytus collaris</i>	CRCO	Collared Lizard	Crotophytidae
<i>Eumeces obsoletus</i>	EUOB	Great Plains Skink	Scinidae
<i>Gambelia wislizenii</i>	GAWI	Leopard Lizard	Crotophytidae
<i>Gyalopion canum</i>	GYCA	Western Hook-Nose Snake	Colubridae
<i>Heterodon nasicus</i>	HENA	Western Hognose Snake	Colubridae
<i>Holbrookia maculata</i>	HOMA	Lesser Earless Lizard	Phrynosomatidae
<i>Hypsiglena torquata</i>	HYTO	Night Snake	Colubridae
<i>Lampropeltis getula</i>	LAGE	Desert Kingsnake	Colubridae
<i>Lampropeltis triangulum</i>	LATR	New Mexico Milk Snake	Colubridae
<i>Leptotyphlops dulcis</i>	LEDU	Texas Blind Snake	Leptotyphlopidae
<i>Leptotyphlops humilis</i>	LEHU	Western Blind Snake	Leptotyphlopidae
<i>Masticophis flagellum</i>	MAFL	Coachwhip	Colubridae
<i>Masticophis taeniatus</i>	MATA	Desert Striped Whipsnake	Colubridae
<i>Phrynosoma cornutum</i>	PHCO	Texas Horned Lizard	Phrynosomatidae
<i>Phrynosoma modestum</i>	PHMO	Round-Tailed Horned Lizard	Phrynosomatidae
<i>Pituophis melanoleus</i>	PIME	Gopher Snake (Bullsnake)	Colubridae
<i>Rhinocheilus lecontei</i>	RHLE	Long-Nose Snake	Colubridae
<i>Salvadora hexalepis</i>	SAHE	Big Bend Patch-Nose Snake	Colubridae
<i>Scaphiopus couchii</i>	SCCO	Couch's Spadefoot	Pelobatidae
<i>Sceloporus magister</i>	SCMA	Desert Spiny Lizard	Phrynosomatidae
<i>Sceloporus undulatus</i>	SCUN	Eastern Fence Lizard	Phrynosomatidae
<i>Sistrurus catenatus</i>	SICA	Massasauga	Viperidae
<i>Sonora semiannulata</i>	SOSE	Ground Snake	Colubridae
<i>Spea bombifrons</i>	SPBO	Plains Spadefoot	Pelobatidae
<i>Spea multiplicata</i>	SPMU	New Mexico Spadefoot	Pelobatidae
<i>Tantilla nigriceps</i>	TANI	Plains Black-Headed Snake	Colubridae
<i>Terrapene ornata</i>	TEOR	Ornate Box Turtle	Testudinidae (Emydidae)
<i>Thamnophis sirtalis</i>	THIS	Common (Red-Sided) Garter Snake	Colubridae
<i>Trimorphodon biscutatus</i>	TRBI	Lyre Snake	Colubridae
<i>Urosaurus ornatus</i>	UROR	Tree Lizard	Phrynosomatidae
<i>Uta stansburiana</i>	UTST	Side-Blotched Lizard	Phrynosomatidae

Pitfall Lizards -Names, Codes, Descriptions

Scientific Name	Code	Common Name
Cnemidophorus exanguis	CNEX	Chihuahuan Spotted Whiptail
Cnemidophorus inornatus	CNIN	Little Striped Whiptail
Cnemidophorus neomexicanus	CNNE	New Mexican Whiptail
Cnemidophorus tesselatus	CNTE	Checkered Whiptail
Cnemidophorus tigris	CNTI	Tiger Whiptail
Cnemidophorus uniparens	CNUN	Desert Grassland Whiptail
Cophosaurus texana	COTE	Greater Earless Lizard
Crotaphytus collaris	CRCO	Collared Lizard
Eumeces obsoletus	EUOB	Great Plains Skink
Gambelia wislizenii	GAWI	Leopard Lizard
Holbrookia maculata	HOMA	Lesser Earless Lizard
Phrynosoma cornutum	PHCO	Texas Horned Lizard
Phrynosoma modestum	PHMO	Round-Tailed Horned Lizard
Scaphiopus couchii	SCCO	Couch's Spadefoot
Sceloporus undulatus	SCUN	Eastern Fence Lizard
Spea bombifrons	SPBO	Plains Spadefoot
Spea multiplicata	SPMU	New Mexico Spadefoot
Urosaurus ornatus	UROR	Tree Lizard
Uta stansburiana	UTST	Side-Blotched Lizard

Code	Description
CNEX	6 light stripes on brown; spots on both light stripes and dark fields; enlarged postantebrachials
CNIN	7 stripes on dark unspotted fields; center stripe fades in middle and is not wavy and does not split at head; blue throat, sides of neck and chest; tail is bluer than CNNE; postantebrachials slightly enlarged
CNNE	7 stripes, the middorsal stripe is wavy or broken into a series of lines and spots; spots present in dark fields; tail underside is blue; normal postantebrachial scales; extended supraorbital semicircles
CNTE	Checkered dorsal pattern of 6-8 stripes; black stripe extends up to top of both sides of head; ground color may change to yellow or orange posteriorly; supra orbital semicircles present; scales on gular fold enlarged
CNTI	Reticulated dorsal pattern of dark brown on grayish brown; prominent stripes on upper dorsum; gular scales slightly enlarged; supraorbital semicircles extend forward
CNUN	6 light stripes on unspotted dark brown ground field; middorsal stripe may be present, but usually only on neck; enlarged postantebrachials and gular scales
COTE	Color varies from tan-brown-red; speckled dorsum or with a mid-dorsal row of large, unpaired spots; 2 large crescent markings on either side of abdomen; distinct black bars on underside of tail
CRCO	Tan to greenish above; small granular dorsal scales; well-developed hind legs; collar consisting of two black bands split by a white center
EUOB	Adults yellowish-brown with black net-like pattern; neonates are black with white speckles on head and a blue tail
GAWI	Tan to light brown with dark spots scattered over dorsum; light lines suggesting crossbands
HOMA	Brown-tan-gray; dorsum speckled, spotted or striped; pair of dark blotches on either side of abdomen;
PHCO	2 enlarged horns at back of head; 2 rows of fringed scales present at side of body; large sharp scale in dark dorsal markings; light middorsal stripe
PHMO	4 short horns equally spaced along back of head; fringed scales absent; tail is round in cross section
SCCO	Yellow, greenish, brownish-yellow with dark brown-black mottling
SCUN	Pair of white-light gray dorsal stripes; dorsal area patterned with light blue-black speckling; males have large post-anal scales, bright blue throat and belly patches; blue belly patch absent in females
SPBO	Light gray-black with light lines forming hourglass pattern; bony boss between the eyes
SPMU	Light gray-brown with darker blotching or faint lines dorsally; stout and wedge-shaped spade;
UROR	Enlarged scales in 2 rows separated by middorsal area of smaller, granular scales; dorsum marked with crossbands that may be broken up into irregular blotches or spots; reddish-orange area at base of tail
UTST	Blue-black spot behind the axilla (forearm); males have enlarged post-anal scales and distinct blue and yellow spots; females may have orange on throat

Lizard Sexing

This table includes information regarding the differentiation among the young, male and female sexes of lizards in the same species.

FAMILY	SEX	SPECIES	COMMON NAME	LTER CODE
Phrynosomatidae & Crotophytidae		Males in these families often have enlarged postanal scales and, when breeding, a swollen tail base, from which the hemipenes can usually be extruded by gentle squeezing with thumb and forefinger.		
Crotophytidae		<i>Crotaphytus collaris</i>	Collared lizard	CRCO
	Juvenile	Hatchlings about 1½". Broad, dark crossbands or transverse rows of dark spots on body and tail.		
	Male	Throat green, bluish, orange, or yellow. Often with black pigment, which may extend to chest, sides of belly, groin and even base of hind legs. Bluish belly patches.		
	Female	When not breeding, less vividly marked than male. Throat unmarked or lightly spotted with brown or gray. In breeding season develops spots and bars of orange on sides of neck and body.		
Crotophytidae		<i>Gambelia wislizenii</i>	Leopard lizard	GAWI
	Juvenile	In light phase, yellowish with tan crossbars and spots.		
	Male	Ventral surfaces may become suffused with salmon or rust during breeding season.		
	Female	During breeding season, orange color appears on underside of tail and orange spots and bars on side of neck and body.		
Phrynosomatidae		<i>Holbrookia maculata</i>	Lesser Earless lizard	HOMA
	Male	Enlarged postanal scales. Dark dorsal blotches often faint, when present usually light-edged. Belly marks more conspicuous than in female and set off by blue border.		
	Female	Develop vivid orange or yellow on throat during breeding season.		
Phrynosomatidae		<i>Cophosaurus texana</i>	Greater Earless lizard	COTE
	Male	Enlarged postanal scales. Blue belly patches with conspicuous black bars.		
	Female	Blue belly patches with conspicuous black bars faint or absent. May develop pinkish markings and a vivid orange throat patch during breeding season.		
Phrynosomatidae		<i>Phrynosoma cornutum</i>	Texas Horned lizard	PHCO
	Male	Enlarged postanal scales. When breeding, a swollen tail base.		
	Female	No enlarged postanal scales.		
Phrynosomatidae		<i>Phrynosoma modestum</i>	Round-tailed Horned lizard	PHMO
	Male	Enlarged postanal scales. When breeding, a swollen tail base.		
	Female	No enlarged postanal scales.		
Phrynosomatidae		<i>Sceloporus magister</i>	Desert Spiny lizard	SCMA
	Juvenile	1¼ - 1½". Crossbands usually conspicuous.		
	Male	Enlarged postanal scales. When breeding, a swollen tail base. Blue patch on throat and on each side of belly. Belly patches edged with black and sometimes joined at midline.		
	Female	Blue markings are weak or absent.		

Lizard Sexing (Continued)

FAMILY	SEX	SPECIES	COMMON NAME	LTER CODE
Phrynosomatidae		<i>Sceloporus undulatus</i>	Eastern Fence lizard	SCUN
	Juvenile	No blue on throat; blue belly markings faint or absent; no yellow or orange on limbs		
	Male	Enlarged postanal scales. When breeding, a swollen tail base. Blue patch on throat that's divided; blue belly patches edged with black		
	Female	No blue or green color dorsally. Dark crescents or bars on back. Ventral blue markings usually less vivid or absent.		
Phrynosomatidae		<i>Urosaurus ornatus</i>	Tree lizard	UROR
	Male	Vivid blue or blue-green throat patches, sometimes united and occasionally connected with blue throat patch. Throat sometimes yellow, greenish, or pale blue-green.		
	Female	Throat whitish, orange or yellow; no belly patches		
Phrynosomatidae		<i>Uta stansburiana</i>	Side-blotched lizard	UTST
	Male	Enlarged postanal scales. When breeding, a swollen tail base. In light phase, speckled above with pale blue		
	Female	Blotched with brown and whitish, occasionally striped; no blue speckling.		
Scincidae		<i>Eumeces obsoletus</i>	Great-Plains skink	EUOB
	Juvenile	Black above, dark gray below; tail blue; orange and white spots on head		
	Male	May have black and red spots on head during breeding season. Heads may be larger than females. May extrude hemipenes during breeding season.		
	Female	Both sexes are very similar in appearance		
Teiidae		<i>Cnemidophorus exsanguis</i>	Chihuahuan Spotted whiptail	CNEX
	Juvenile	Tail orange or reddish		
	Male	Unknown		
	Female	Parthenogenetic		
Teiidae		<i>Cnemidophorus inornatus</i>	Little Striped whiptail	CNIN
	Juvenile	Less blue ventrally than adult		
	Male	Chin and belly more bluish than female. More vivid blue on underside of tail than on remaining underparts. Hemipenes may be extruded.		
	Female	More vivid blue on underside of tail than on remaining underparts.		
Teiidae		<i>Cnemidophorus neomexicanus</i>	New Mexico whiptail	CNNE
	Juvenile	Ground color of body black, stripes yellow, well-defined whitish spots in dark fields on sides; greenish to greenish-blue tail		
	Male	Unknown		
	Female	Parthenogenetic		
Teiidae		<i>Cnemidophorus tesselatus</i>	Checkered whiptail	CNTE
	Male	Extremely rare		
	Female	Parthenogenetic		
Teiidae		<i>Cnemidophorus tigris</i>	Western whiptail	CNTI
	Juvenile	Above spotted, marbled, striped with black; black fields alternating with narrow orange-yellow ones. Tail bright blue in young.		
	Male	Hemipenes may be extruded. Tail is gray.		
	Female	Tail is gray.		

Lizard Sexing (Continued)

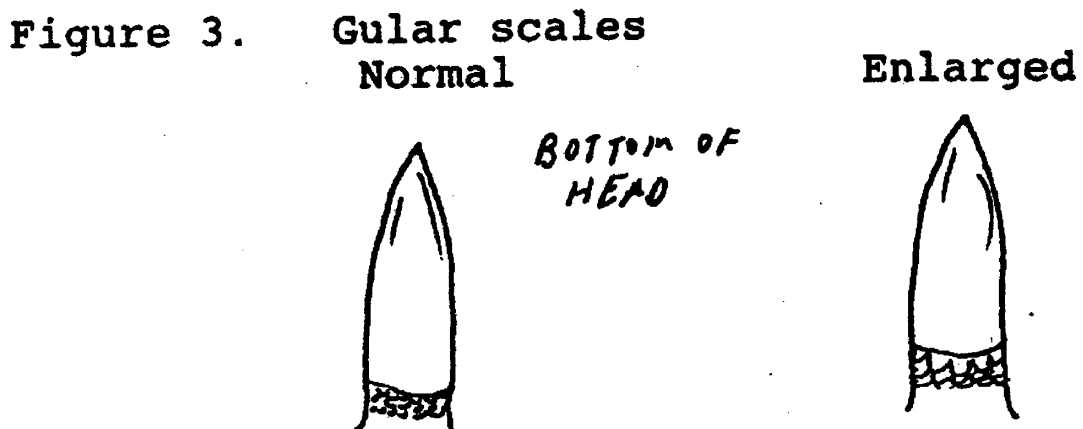
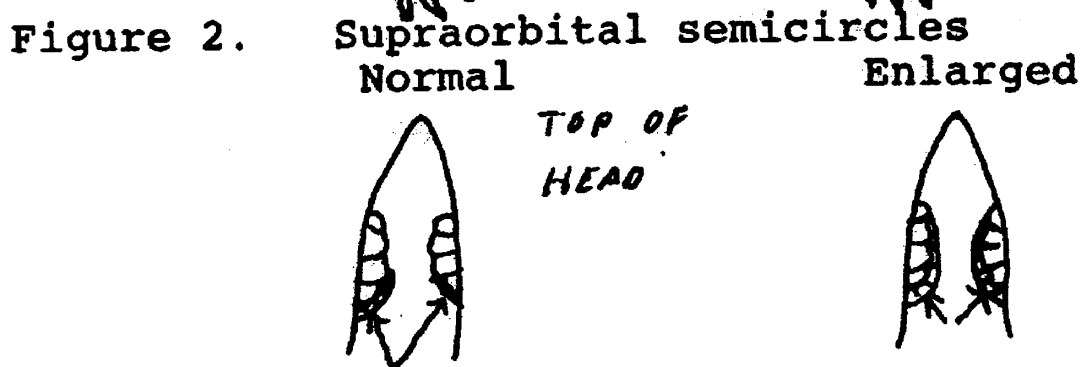
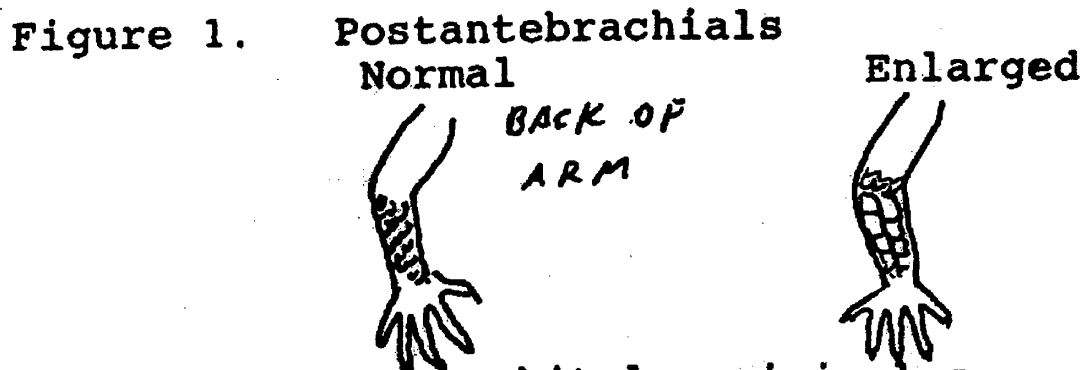
FAMILY	SEX	SPECIES	COMMON NAME	LTER CODE
Teiidae		<i>Cnemidophorus uniparens</i>	Desert Grassland whiptail	CNUN
	Male	Unknown		
	Female	Parthenogenetic		

A Key to the Species of *Cnemidophorus* (Teiidae)
found on the Jornada Experimental Range

by
P.W. Hyder (8/93)

- | | | |
|----|--|---|
| 1a | Spots present in dark fields | 2 |
| 1b | No spots in dark fields | 5 |
| 2a | Postantebrachial scales enlarged (Fig. 1)
<u><i>Cnemidophorus exanguis</i></u> (Chihuahuan Spotted Whiptail) CNEX
Supraorbital semicircles normal (Fig.2), 6 stripes, spots present in both dark fields and stripes, gular scales enlarged (Fig. 3), 4.4 – 10 cm snout – vent, parthenogenetic. | 3 |
| 2b | Postantebrachial scales not enlarged | 3 |
| 3a | Pattern consists of 7 stripes on a dark, spotted background with a wavy mid-dorsal line.
<u><i>Cnemidophorus neomexicanus</i></u> (New Mexican Whiptail) CNNE
Supraorbital semicircles enlarged, gular scales not enlarged, 5.9 – 8.4 cm snout-vent, parthenogenetic. | 4 |
| 3b | Pattern consists of checkering or light bars connecting light lines | 4 |
| 4a | Anterior gular scales distinctly enlarged
<u><i>Cnemidophorus tessellatus</i></u> (Checkered Whiptail) CNTE
Supraorbital semicircles enlarged, pattern of stripes in young usually breaking up into checkered pattern in adult, yellowish orange toward rear of body, 6.2 – 10.6 snout-vent, parthenogenetic. | |
| 4b | Anterior gular scales only slightly enlarged
<u><i>Cnemidophorus tigris</i></u> (Tiger Whiptail) CNTI
Supraorbital semicircles enlarged, pattern of stripes in young usually breaking up into a dusky grey or brown pattern of lines, spots, and bars in adult, may be spotted or darkened on throat and anterior of chest 5.9 – 11.2 cm snout-vent. | |
| 5a | Postantebrachial scales distinctly enlarged
<u><i>Cnemidophorus uniparens</i></u> (Desert Grassland Whiptail) CNUN
Supraorbital semicircles normal, 6 – 7 stripes, gular scales enlarged, tail greenish blue, 5 – 7.5 cm snout-vent, parthenogenetic. | |
| 5b | Postantebrachial scales only slightly enlarged
<u><i>Cnemidophorus inornatus</i></u> (Little Striped Whiptail) CNIN
Supraorbital semicircles normal, 6 – 8 stripes, gular scales enlarged slightly (if at all), tail bright blue, 5 – 6.9 cm snout-vent. | |

Figures associated with "A Key to the Species of Cnemidophorus (Teiidae)"
found on the Jornada Experimental Range



Change Log

11/27/2000

(Stephanie Richmond) Information compiled from various sources.

03/20/2003

(John Anderson) Created table of contents after changing style structure in MS WORD.