

Sceloporus graciosus arenicolus

(AKA, Sand Dune Lizard, Dunes Lizard, Sands Lizard, Dunes Sagebrush Lizard)

1960 *Sceloporus graciosus graciosus* is described by Michael Sabath from specimens collected in Chaves County, New Mexico and in Ward County and Winkler County, Texas.

1961 research begins in the Mescalero Sands by Calvin Smith.

1967 Smith spent the Summer in the three main dunes collecting specimens, recording natural history behavioral patterns and establishing archaeological (both pre-historic and historic) parameters

NOTE: During this time period several small not descript lizards were collected by Smith and preserved and placed in the Eastern New Mexico Biology collection. They were keyed out to be *Sceloporus graciosus* but no further work on their identification was pursued.

1968, the holotype for *Sceloporus graciosus arenicolus* collected from the Mescalero Sands by Kirkland Jones.

Portions of the winters of 1969 and 1970 spent in the Mescalero Sands by Smith resulting in the capture and release of two Sandhill Whitetail deer (now extinct). Measurements and taxonomic indices were recorded, pictures taken and blood samples retrieved but inconclusive serological results as to unique sub-speciation as no DNA analysis was possible at the time.

1970 and 1971, Smith develops a telemetry system to determine natality or mortality in Lesser Prairie Chicken populations in Roosevelt County, New Mexico. Netting grounds sprayed with 2-4-D during the second season resulting in mile wide strips of Shinnery eradication.

1972, William Degenhardt and Kirkland Jones identify *Sceloporus graciosus arenicolus* as a new sub-species.

Approximately, 1975, the Mescalero Sands Outstanding Natural Area (proposed by Smith) was established encompassing the three main dunes located with the Culp, Lee and Graham ranches with an agreement to let the ORV's have the dunes just south of US 380.

CURRENT RESEARCH:

Over 50 references (not including Smith's publications) encompassing:

- I.) ½ dozen MAJOR studies:
 - USDA
 - BLM
 - USF&WS
 - NMDG&F
 - UNM
 - PhD Dissertation
- II.) Scientific justification of sub-species and related range and gene flow differences.
- III.) Other regions and examples including Kuwait, Mexico, California, etc.
- IV.) Encroachment, e.g. ditches, roads, suburban sprawl, etc.
- V.) Climate, both prehistoric and historic, dispersal inhibition, extinction risks, etc.

- VI.) Rangeland studies, "brush" control, livestock impact, burning, etc.
- VII.) Popular articles, including, "Are Lizards Toast?" and "What Good Is This Lizard?"
- VIII.) Over a dozen reports specific to *S. g. arenicolus* e. g. ½ dozen by the NMDG&F also from TX Parks & Wildlife, BLM and UNM.
- IX.) Ecology, including modern, historic and Paleo.
- X.) Management, especially the "Final" report, ADDENDUM No. 1 and ANNOTATED RECOMMENDATIONS by Painter, Fitzgerald, Snell, Sias and Pierce.

FACTS ACCORDING TO CURRENT RESEARCH:

Second most restricted range of any North American native lizard (the most restricted by far, only 30 is the Fringe-toed Lizard of California).

Currently listed as "Threatened" in Group 2 by the NMDG&F, in Category 2 by the USF&WS and "Sensitive" by the BLM.

Found in "tightly grouped clusters" from Kenna and Milnesand on the north to the New Mexico/Texas State Line and Monahans Sands on the south.

NOTE: Unknown to the east across the Texas State Line at this time.

For reporting purposes there are four areas described encompassing approximately 655 square miles of which 70% is State and Federal and 30% is private.

Area 4, identified as the most prevalent occupation by *S. g. arenicolus* according to existing investigations is 62% BLM, 17% State and 21% private.

CRP and other intrusive flora have stabilized dune areas and eliminated "hard pan" blowouts (needed as the current research indicates) and the dunes are "less deep, less active and more vegetated".

Trained biologists could not visually discern microhabitat differences between habitats occupied by *S. g. arenicolus*, however, there was 50% occupation in all of the sites tested in Southeastern New Mexico.

One report states that areas where TEBUTHIURON was used showed a 70-94% reduction in populations compared to untreated areas but another said that spraying 100,000 acres resulted in a 25% reduction.

NOTE: Unclear as to which areas were being compared, e.g. "flats" vs. dunes or dunes vs. dunes or without regard to specific habitat observations?

There is an average of 39% less populations around well/tank battery sites or 25% less where there were 14 wells/section and 50% reduction where there were 25 wells/section.

However, "moderate density of petroleum related activity does not pose an imminent threat if pads and roads are concentrated in the Shinnery flats and not dune blowouts".

Therefore, "at least in the short term these populations are tolerating oil and gas field development albeit at a reduced level.

"Pipeline cuts create a microhabitat similar to natural dune blowouts and may serve as important corridors".

Grazing, in fact, may benefit the survival of the Shinnery and in all probability even with high densities does not increase bare or packed ground and/or increase dune formation.

