

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Sceloporus arenicolus*

COMMON NAME: Sand dune lizard

LEAD REGION: Region 2

INFORMATION CURRENT AS OF: March 2004

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: 6/6/2002

90-day positive - FR date:

12-month warranted but precluded - FR date:

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP:

New LP:

Latest date species first became a Candidate: 10/17/2001

Candidate removal: Former LP:  (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Reptilia: Iguanidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: New Mexico;  
Texas

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: New  
Mexico; Texas

LEAD REGION CONTACT (Name, phone number): Susan Jacobsen, 505-248-6641

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Jennifer Parody, (505) 761-4710.

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

NOTE: The information in this candidate form is primarily a result of a multiyear study of the sand dune lizard funded through section 6. Additionally, information contained in our files and the petition received on June 6, 2002, was reviewed and considered.

The information below is based on the draft management plan for the sand dune lizard, *Sceloporus arenicolus* in New Mexico (Painter *et al.* 1999) and communications with the principal investigator: Charlie Painter, New Mexico Department of Game and Fish. An addendum to the management plan was submitted to the Service in 2002.

The sand dune lizard has been reviewed taxonomically and is recognized as a distinct species (Smith *et al.* 1992, cited in Snell *et al.* 1997; Degenhardt *et al.* 1996). The sand dune lizard is endemic to a small area in southeastern New Mexico (Chaves, Eddy, Lea, and Roosevelt Counties) and adjacent west Texas (Andrews, Crane, Ward, and Winkler Counties). It has the second-most restricted range of any native lizard in the United States (Degenhardt *et al.* 1996). Within this area, the known occupied and potentially occupied habitat is only 1,697 kilometers<sup>2</sup> (655 miles<sup>2</sup>) in New Mexico, and an unknown amount in west Texas. The lizard occurs in areas owned by the Bureau of Land Management (BLM), the states of New Mexico and Texas, and private lands. In New Mexico, about 70 percent of the lizard's range is on land owned by the State or Federal government and about 30 percent is on private lands.

The sand dune lizard is active between April and September. Females can reach sexual maturity during their first spring following hatching. Females produce one to two clutches per year, averaging about five eggs each. Hatchlings appear between July and September. Sand dune lizards feed on ants, small beetles, crickets, grasshoppers, and spiders. Most feeding takes place within or adjacent to patches of vegetation (e.g., shinnery oak). Individuals are extremely wary and when disturbed, take shelter in burrows, under the sand, or beneath leaf litter.

The lizard's distribution is localized and fragmented (i.e., known populations are separated by vast areas of unoccupied habitat), and the species is restricted to sand dune blowouts associated with active sand dunes with shinnery oak (*Quercus harvardii*) and scattered sandsage (*Artemisia filifolia*). Sand dune lizards are not found at sites lacking shinnery oak dune habitat. Fitzgerald *et al.* (1997) observed isolated areas of apparently suitable habitat that did not contain sand dune lizards. It is possible that these observations are the result of local extinction events in isolated areas where recolonization is either impossible or has not yet occurred (Snell *et al.* 1997). Therefore, increased fragmentation of shinnery oak dune habitat from removal of shinnery oak and oil and gas development may isolate sand dune lizard populations, making extinction of the species likely (Snell *et al.* 1997). In fact, significant amounts of habitat disturbance have already occurred within the range of the sand dune lizard, and there is little doubt that the current distribution and range is a small, but unquantified part of its historical range (Snell *et al.* 1997). The potential to renew a shinnery oak removal program and continued oil and gas development on public and private lands makes the current status of the lizard alarming. In fact, Snell *et al.* (1997) concluded that there may be no management or conservation activity that can prevent the extinction of the sand dune lizard.

The limited geographic range of the sand dune lizard poses a significant threat of extinction for this species given the loss and degradation of suitable habitat and increased risks of extinction from the present or threatened destruction of its habitat and random or human-caused events.

Considering the magnitude and imminence of threats and the vulnerability of extant localities, the lizard is likely in danger of extinction in all or a significant portion of its range (Snell *et al.* 1997).

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. **If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change**):

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Extensive surveys, conducted in conjunction with a 5-year study, documented sand dune lizards at only half of the sites surveyed (Painter *et al.* 1999). It is clear that shinnery oak removal (e.g., by treating with herbicides) results in dramatic reductions and extirpation of sand dune lizards (Snell *et al.* 1997). For example, extirpation of sand dunes lizards was repeatedly confirmed by Snell *et al.* (1997) from areas that were treated with herbicides to remove shinnery oak. Painter *et al.* (1999) estimate that about 25 percent of the total sand dune lizard habitat in New Mexico has been eliminated in the last 10 years.

Similarly, oil and gas extraction activities have destroyed and fragmented shinnery oak dune habitat and resulted in widespread population reductions. Sias and Snell (1998) reported a negative relationship between oil well density and sand dune lizard abundance and an environmental sensitivity not found in sympatric reptile species. Extensive oil field development, residual toxic contamination, and reduced and fragmented habitat increase the risk of extinction for the sand dune lizard (Painter *et al.* 1999).

In 2002, a series of pitfall trap transects were set in the interdune areas of shinnery oak flats to determine if the hatchling sand dune lizards used these areas for dispersal. A few juvenile sand dune lizards were trapped in these areas indicating that these shinnery oak flats between the sand dunes habitat may be important for dispersal. In the past oil and gas development has been directed to into the shinnery oak flats and out of the dune complexes to lessen the impact to the lizard. However, development in the shinnery oak flats may be affecting dispersal of the sand dune lizards from one dune complex to another (C. Painter, New Mexico Department of Game and Fish, pers. comm. 2003).

Oil and gas development in southeastern New Mexico has accelerated in recent years. Currently, 60% of land within the NM range of the sand dune lizard has been leased by BLM or the State Land Office (SLO) for oil and gas exploration (Gregory Homan, BLM, pers. comm. 2004). Of particular concern is the dense development of two sections in Lea County (T17S, R31E, S36 and T17S, R32E, S31, managed by the SLO and BLM, respectively) since 2002. This location once had one of “the most reliable populations of lizards in the state” and was used for years as an observation site for students and researchers. As of summer 2003, over 40 oil wells had been placed on these sections, many of them directly on top of dunes. Research has demonstrated that at 13 wells per section, lizard populations decline by a minimum of 25%; 40 wells, in all likelihood decimated this population (C. Painter, New Mexico Department of Game and Fish, pers. comm. 2004).

It is unknown whether cattle grazing directly threatens the sand dune lizard. Nevertheless, range improvement programs are the main impetus for shinnery oak removal; thus, livestock grazing can result in a significant indirect affect to the species.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

The sand dune lizard is not a commercially valuable species, but may be increasingly sought by collectors with its increasing rarity. Areas inhabited by this species are open to public access, and its populations are thought to be small and localized. Although scientific collecting is not thought to represent a significant threat, localized populations could become impacted and possibly extirpated by over collecting.

C. Disease or predation.

Not known to be a factor threatening the sand dune lizard.

D. The inadequacy of existing regulatory mechanisms.

The sand dune lizard occurs on lands managed by the BLM, SLO, State of Texas, and private entities. There are no regulatory mechanisms in effect to provide protection for this species or its habitat on any of these lands. The BLM has the authority to manage the land and activities under their administration to conserve the lizard. For example, the lizard is listed as a species of concern by the Roswell and Carlsbad BLM Field Offices, and they have minimized potentially adverse impacts to the lizard by reducing the amount of shinnery oak removal within these resource areas. However, it is unknown whether this reduction will continue. The BLM currently does not have a management plan that addresses threats to the species (e.g., shinnery oak removal, oil and gas development, grazing, etc.) or specific conservation and recovery needs of the sand dune lizard.

Privately-owned lands and SLO-managed lands where this species occurs each constitute an estimated 30 percent of the estimated range of the lizard (Painter *et al.* 1999). These lands play a substantial role in the lizard's continued existence. There are no local or state regulatory mechanisms pertaining to the sand dune lizard on State or non-Federal lands. Nor is there SLO policy in place to protect sensitive species in Eddy or Lea County. Much of the range of the lizard falls within proven oil and gas areas that are under intense pressure for development (David Coss, SLO, pers. comm. 2004). The sand dune lizard is listed as threatened under the New Mexico Wildlife Conservation Act (i.e., the State Endangered Species Act) which affords it no protection from take. The sand dune lizard is not state listed as threatened or endangered in Texas. Finally, there are no other federally-listed species within the range of the sand dune lizard that might provide umbrella protection for the species.

E. Other natural or manmade factors affecting its continued existence.

The geographically restricted range of the sand dune lizard increases the possibility that a human- caused or natural event could eliminate this species.

BRIEF SUMMARY OF REASONS FOR ADDITION, REMOVAL OR LISTING PRIORITY  
CHANGE: n/a

FOR RESUBMITTED PETITIONS: n/a

- a. Is listing still warranted? yes
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? yes
- c. Is a proposal to list the species as threatened or endangered in preparation? no
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

In Region 2, all Fiscal Year 2004 listing program funding is being expended to comply with court-ordered critical habitat designations and listings. We will continue to monitor the status of this species as new information becomes available; this review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners): The sand dune lizard occurs on Bureau of Land Management, State of New Mexico, State of Texas, and private lands. In New Mexico, lands under State or Federal government jurisdiction account for approximately 70 percent of the lizard's range, whereas private lands represent approximately 30 percent. The land ownership within sand dune lizard's range in Texas is unknown.

PRELISTING (Describe status of conservation agreements or other conservation activities): Status assessment of the sand dune lizard throughout its range in New Mexico is ongoing with inventory efforts being coordinated between the New Mexico Department of Game and Fish and the Service. Field research efforts have concluded following a 5-year study funded through section 6. We received and reviewed a management plan from New Mexico Department of Game and Fish for the sand dune lizard in 1999, as part of these studies. A revised management plan was received in June of 2002.

Since February 2003, the Southeast Stakeholder Group has been meeting "*to create a conservation strategy for the conservation of shinnery oak habitat that offers a range of specific actions for the recovery of the Lesser Prairie-chicken and sand dune lizard and takes into account other uses of the land.*" The group has broad representation from the oil and gas industry, livestock growers, conservation/environmental interests, local governments, sportsmen/recreation, State and Federal agencies (SLO, New Mexico Department of Agriculture, Natural Resources Conservation Service, USFWS, and BLM), and independent technical advisors. The group has created a Draft Conservation Strategy document that outlines broad policies and strategies for land management, and a set of voluntary efforts by stakeholders. This Strategy is expected to be finalized by June 2004.

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

Degenhardt, W. G., C. W. Painter, and A. H. Price. 1996. The amphibians and reptiles of New Mexico. University of New Mexico Press, Albuquerque. 431 pp.

Fitzgerald, L. A., C. W. Painter, D. S. Sias, and H. L. Snell. 1997. The range, distribution, and habitat of *Sceloporus arenicolus* in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6-01 31 pp.

Painter, C. W., D. S. Sias, L. E. Fitzgerald, L. J. S. Pierce, and H. L. Snell. June 15, 1999. Management plan for the sand dune lizard, *Sceloporus arenicolus*, in New Mexico.

Sias, D. S., and H. L. Snell. 1998. The sand dune lizard *Sceloporus arenicolus* and oil and gas development in southeastern New Mexico. Final report of field studies 1995-1997. Final report to New Mexico Department of Game and Fish. Contract #80-516.6-01 27 pp.

Smith, H. M., E. L. Bell, J. S. Applegarth, and D. Chiszar. 1992. Adaptive convergence in the lizard Superspecies *Sceloporus undulatus*. Bulletin of the Maryland Herpetological Society 28:123-149.

Snell, H. L., L. W. Gorum, L. J. S. Pierce, and K. W. Ward. 1997. Results from the fifth year (1995) research on the effect of shinnery oak removal on populations of sand dune lizard, June 15, 1999. Management plan for the sand dune lizard, *Sceloporus arenicolus*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6-01 13 pp.

LISTING PRIORITY (place \* after number)

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	<u>2</u> *
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

**Rationale for listing priority number:**

*Magnitude:* The population of sand dune lizards has been impacted by the spraying of the herbicide, Tebuthiuron, to control shinnery oak and by oil and gas field development. For example, it is estimated that 25 percent of the total sand dune lizard habitat in New Mexico has been eliminated in the past 15 years from the application of Tebuthiuron (Painter et al. 1999). An estimated 50 percent decline in sand dune lizard populations can be expected in areas with 30 oil and/or gas wells per section (Sias and Snell 1998). The distribution of sand dune lizards is localized and fragmented and this species is a habitat specialist; therefore, impacts to its habitat will most likely greatly decrease populations. If current herbicide application continues and oil and gas development progresses as expected, the magnitude of threat to sand dune lizards remains high.

*Imminence:* The two main threats to sand dune lizards include the application of herbicides to control shinnery oak and oil and gas exploration/development. We are unable to predict when or where future herbicide application will occur. Therefore, it is assumed that herbicide treatment threats are not imminent. However, continued pressure to develop oil and gas resources in areas with sand dune lizards poses an imminent threat to the species.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Geoffrey Haskett March 11, 2004  
Acting Regional Director, Fish and Wildlife Service Date

Concur: Steve Williams April 5, 2004  
Director, Fish and Wildlife Service Date

Do not concur: \_\_\_\_\_  
Director, Fish and Wildlife Service Date

Director's Remarks: \_\_\_\_\_  
\_\_\_\_\_

Date of annual review: March 9, 2004  
Conducted by: Jennifer Parody

Comments: \_\_\_\_\_  
\_\_\_\_\_