

**REQUEST FOR EMERGENCY LISTING OF
THE SAND DUNE LIZARD
(*SCeloporus arenicolus*)
UNDER THE ENDANGERED SPECIES ACT**



Photo: Courtesy of William Radke

Submitted to the U.S. Secretary of Interior and the U.S. Fish and Wildlife Service on
April 9, 2008



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April 9, 2008

Dirk Kempthorne, Secretary of Interior
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Dale Hall, Director
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Re: Emergency Petition to List and Notice of Intent to Sue

VIA FAX & CERTIFIED MAIL

Dear Secretary Kempthorne and Director Hall,

Pursuant to the Endangered Species Act (“ESA”) and the Administrative Procedure Act (“APA”), WildEarth Guardians hereby petitions you to list the sand dune lizard (*Sceloporus arenicolus*) on an emergency basis under the ESA. 16 U.S.C. § 1533(b)(3)(C)(iii) and § (b)(7) (emergency listing authority of the ESA) and; 5 U.S.C. § 553(e) (right to petition under the APA). Under the ESA, the Secretary “shall implement a system to monitor effectively the status of all species,” such as the sand dune lizard, which the Secretary has determined are warranted, but precluded from listing, 16 U.S.C. § 1533(b)(3)(C)(iii), and “shall make prompt use of the authority under [16 U.S.C. § 1533(b)(7) (emergency listing authority)] to prevent a significant risk to the well being of any such species.” 16 U.S.C. § 1533(b)(3)(C)(iii). The APA allows any citizen to petition an agency for the issuance of a rule or regulation within the agency’s power.

In addition, we hereby provide you with formal 60-day notice of our intent to file suit under the citizen suit provision of the ESA, 16 U.S.C. § 1540, contending that your finding in the December 6, 2007 Candidate Notice of Review, 72 *Fed. Reg.* 69034-69106, that the sand dune lizard does not warrant emergency listing under the ESA was arbitrary and capricious in violation of the ESA and APA. 16 U.S.C. § 1533(b)(3)(C)(iii) and § (b)(7); 5 U.S.C. § 706(2)(A). If you do not reverse this arbitrary finding or indicate firm plans to list the sand dune lizard immediately, WildEarth Guardians intends to file suit, no sooner than 60-days from today’s date, to address your violations of the law.

While Director Hall stated to Congress on February 28, 2008 that the Service would issue a proposed listing determination for the sand dune lizard in 2008 and a final listing determination in 2009, we have no basis for believing that the sand dune lizard will actually be listed under the ESA within this timeframe given the U.S. Fish and Wildlife Service’s (Service’s) past behavior. The Service is unlikely to meet self-imposed deadlines for action and offers only the possibility of protection in 2009 rather than certainty that the lizard will actually be listed. Our petition and potential lawsuit seek to force certain protection in 2008.

Moreover, based on information already in the Service's files it is clear that there will be "significant risk to the well being" of the sand dune lizard if it is not immediately listed under the ESA. This significant risk stems from ongoing impacts to lizards and their habitat due to poorly regulated oil and gas exploitation, shinnery oak removal, off-road vehicle use, toxic fumes, and other factors that are compounded by the extremely narrow range of this species.

In short, as leading scientific researchers and agency biologists have recognized (e.g., Snell et al. 1997), every month that goes by in which the lizard does not enjoy the protections of the ESA pushes this rare reptile closer to extinction.

Sincerely,

Nicole J. Rosmarino, Ph.D.
Wildlife Program Director
WildEarth Guardians

I. Introduction

WildEarth Guardians hereby requests that the Service grant immediate emergency protection under the ESA for the sand dune lizard (*Sceloporus arenicolus*) (hereinafter “sand dune lizard,” “dunes sagebrush lizard,” or “lizard”) in order to prevent this species’ extinction. This lizard is found nowhere else on earth but southeastern New Mexico and southwestern Texas, in fragmented and isolated populations within shinnery dune habitat. That habitat has been severely diminished and continues to decline due to multiple land uses, and oil and gas extraction is the primary threat. There is no question about whether the species deserves ESA protection: the Service has agreed that it does since 2001 and has consistently found that it indeed faces high-magnitude, imminent threats to its very survival (Attachments 1-3: FWS 2002, 2004, 2007 candidate forms).

However, the Service has refused to take timely action to avert the sand dune lizard’s extinction. A perspective on preventing the lizard’s extinction was summed up by New Mexico Department of Game and Fish (NMDGF) staff *fourteen years ago*,

We’ve been asked, ‘Exactly how many lizards are needed to preserve the species to avoid extinction?’ and, ‘Exactly how much lizard habitat do we need for this purpose?’

Our answer is an analogy. Exactly how far can you lean over a cliff before you will surely fall? There’s only one sure way to prove exactly how far that is, and it is unacceptable, unless one is suicidal. So we might estimate the limit by using physics theory – invoking the center of gravity, inertia and moments of forces. Someone who wants desperately to look over the cliff (rather, someone who wants desperately for someone *else* to look over the cliff) might argue with the theory. But the non-suicidal person would use the best available theory and then be a little conservative, just in case.

It’s the same with the endangered dunes sagebrush lizard. We’ll never know exactly how much lizard habitat is necessary to preserve the species unless it becomes too late to know. If we want to save the lizard, however, we should use the best available biological information and theory – and be a little conservative, just in case (Attachment 4: Bailey and Painter 1994).

Each month that passes without ESA protection for the sand dune lizard, this species angles farther over the cliff and closer to extinction. Each month, the New Mexico State Land Office leases more lizard habitat to oil and gas companies. Each month, the U.S. Bureau of Land Management (BLM) approves more oil and gas wells in lizard habitat. Each month, more and more wells in the lizard’s range emit a toxic gas called hydrogen sulfide, at levels this sensitive lizard may not be able to bear. And each month brings with it the potential for catastrophic herbicidal control of the shinnery oak (*Quercus havardii*) habitat to which the lizard’s fate is tied.

The sand dune lizard is already so endangered that its survival cannot be ensured. Accordingly, the Service must immediately take all possible steps to try to prevent its extinction. The Service must therefore emergency list the sand dune lizard so that the risk of excessive delay is not borne further by this species. While the species enjoys emergency protection, the Service should issue a final listing rule for the lizard.

II. The Sand Dune Lizard's Protection Has Been Delayed Too Long

We are requesting emergency listing for the sand dune lizard because further delay in providing this species with federal protection will result in its extinction, and the Service has already delayed its protection for far too long. The standard for emergency listing a species under the Endangered Species Act (ESA) is that delay will cause "a significant risk to the well being" of a species. 16 USC § 1533(b)(3)(C)(iii). In the case of the sand dune lizard, this standard is exceeded: the significant risk to the sand dune lizard is extinction or such extreme endangerment that extinction will be unstoppable.

A. History of the Lizard's ESA Candidacy

The Service has long known that the sand dune lizard faces an uphill battle for its survival, yet the agency has refused to take action. In 1982, the sand dune lizard, which at that time was considered a subspecies of the broader ranging sagebrush lizard (*Sceloporus graciosus*), was classified as a Category 2 ESA candidate under its scientific name of *S.g. arenicolous*. 47 *Fed. Reg.* 58457. Category 2 was defined to include:

...taxa for which information now in the possession of the Service indicates that proposing to list as Endangered or Threatened is possibly appropriate, but for which substantial data are not currently available to support a proposed rule. 47 *Fed. Reg.* 58454.

The Service later acknowledged that some species in this category may "be found to be in greater danger of extinction than some taxa already found in Category 1 [species for which proposed rules are warranted]." 59 *Fed. Reg.* 58982. In 1985, the sand dune lizard was classified as a Category 3c species 50 *Fed. Reg.* 37963. Category 3c was defined as including:

..taxa that are now considered to be more abundant or widespread, and/or substantially less subject to identifiable threats, than previously thought. Should new information suggest that any such taxon is experiencing a numerical or distributional decline, or is under a substantial threat, it may be considered for transfer to category 1 or 2. 50 *Fed. Reg.* 37959.

In 1991, NMDGF, which had listed the lizard as a state-threatened species since 1975, stated that the Service's Herpetological Advisory Team had recommended the lizard be elevated to Category 2 under the federal ESA (Attachment 5: 1991 Painter letter).

In 1993 the Service still categorized the lizard as a 3c candidate, but its assessment form indicated cause for concern, as the Service described research showing lizard declines from herbicidal control of shinnery oak. The Service considered a status review to be urgent and described the species as declining (Attachment 6: FWS 1993 candidate form). By this time, the sand dune lizard had the new scientific name of *S. arenicolus*, in light of scientists' recognition that it is a full species (Smith et al. 1992). The Service also alerted the BLM in 1993 that it was concerned about impacts to the lizard from oil and gas development and stated that the species was recommended for Category 2 candidate status (Attachment 7: 1993 FWS memo).

The sand dune lizard was then reclassified to Category 2 candidate status in 1994. 59 *Fed. Reg.* 58982. The Service told the NMDGF that it hadn't previously placed the lizard in the Category 2 candidate status due to a "typographical error" (Attachment 8: NMDGF letter to Moran dated May 17, 1995). The sand dune lizard's status as a Category 2 candidate was short-lived, however, as the Service eliminated the Category 2 and 3 species from the candidate list altogether in 1996. 61 *Fed. Reg.* 7596, 7597.

Prompted by a 1999 report on the status of the sand dune lizard from the NMDGF, the Service commenced a status review to evaluate ESA listing. In an internal June 2000 briefing statement to New Mexico Ecological Services Field Supervisor Joy Nicholopoulos, Service staff wrote that the state's report "indicates that this species has the potential to go extinct in the relatively near future," "there may be no management plan that can prevent the extinction of this lizard", and "there is a real possibility of local extirpation leading to *extinction* of this animal" (Attachment 9: 2000 FWS Briefing Statement, emphasis in the original).

The Service then formally recognized that the sand dune lizard warranted listing under the ESA in its Candidate Notice of Review (CNOR) issued on October 17, 2001. It described the species as endemic to a small area in Texas and New Mexico, where it faces threats from herbicide spraying of its shinnery oak habitat, other activities that destroy or fragment its habitat, overcollection,¹ and a lack of regulatory mechanisms to protect either the lizard or its habitat. It assigned the sand dune lizard a listing priority number of 2, meaning that it faces high-magnitude, imminent threats to its survival. 66 *Fed. Reg.* 54807, 54811. This is the highest rank possible for a full species under the Service's listing priority system (Table 1).

¹Scientific reports on this species do not consider overcollection to be a threat, and this request for emergency listing therefore does not address this factor. However, some field studies have entailed shooting sand dune lizards in order to identify them. A working draft of another study suggested that visual observation through binoculars can result in 100% accuracy (Attachment 10: Sias and Snell Feb 1997). The Service should evaluate whether shooting lizards is a threat to the species.

Table 1: Listing Priority System. 48 Fed. Reg. 43098-43105. The sand dune lizard has been recognized as a “2” since its candidacy in 2001, meaning it faces high-magnitude, imminent threats to its survival.

Threat		Taxonomy	Priority
Magnitude	Immediacy		
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies or population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies or population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies or population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies or population	12

The sand dune lizard was petitioned for listing by the Center for Biological Diversity and the Chihuahuan Desert Conservation Alliance on June 6, 2002 (Attachment 11: Center for Biological Diversity 2002). On December 27, 2004, the Service determined that the sand dune lizard warranted listing under the ESA but was precluded by higher priorities. 69 Fed Reg. 77167-77173. In that finding, the Service stated that herbicide application and oil and gas development posed high-magnitude threats to the lizard’s habitat, and oil and gas development was an imminent threat. *Id.* at p. 77172.

From the 2001 CNOR through the latest CNOR, issued on December 6, 2007, the sand dune lizard has been assigned a listing priority rank of 2. 72 Fed. Reg. 69034, 69061. In each CNOR, the Service has determined that the sand dune lizard does not warrant emergency listing. In the candidate assessment form for 2007, the Service explicitly stated that this species does not warrant emergency listing:

Given the information we currently have on the status of the populations, threats, and conservation actions in New Mexico and Texas, we do not believe this species warrants emergency listing. The New Mexico Lesser Prairie-Chicken/Sand Dune Lizard Working/Implementation Group has developed a Conservation Strategy for the conservation of shinnery oak habitat and the sand dune lizard. It outlines broad policies and plans for land management and a set of voluntary efforts by stakeholders. Once this plan is in place and being implemented, the current level of habitat

destruction and fragmentation may be reduced or become stabilized in New Mexico (FWS 2007 at p. 9).

The Conservation Strategy was not adopted in the Carlsbad/Roswell Resource Management Plan Amendment for Special Status Species. Moreover, the Service is here depending on “broad policies and plans” and “voluntary efforts” that have no guarantee of being enforced and are therefore not a substitute for ESA listing, under the Service’s own policies (e.g., Policy for Evaluation of Conservation Efforts: 68 *Fed. Reg.* 15100-15115).

In candidate assessment forms since 2001, the Service has also stated that the situation is so desperate for the lizard that it may be impossible to prevent its extinction:

The two main threats faced by the sand dune lizard are the removal of shinnery oak by herbicide application, and disturbance of dune areas by roads and infrastructure from activities such as oil and gas development. Therefore, increased fragmentation of 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 researchers believe that the current distribution and range is a small, but important part of its historical range (Snell et al. 1997). The potential to restart a shinnery oak removal program and the continued oil and gas development on public and private lands makes the current status of the sand dune lizard precarious. In fact, Snell et al. (1997) concluded that *management or conservation activity may not prevent the extinction of the sand dune lizard.*²

Despite the clear urgency in addressing the threats to the lizard’s very survival, the Service has refused to protect this species, in violation of the ESA’s requirement that species must be protected from extinction and must be emergency listed if required to prevent a significant risk to their well being. The Service must now use its emergency listing authority to redress the long delay in listing the sand dune lizard.

B. Service Announcement of Intended Listing Proposal for Sand Dune Lizard in 2008

While Service Director Dale Hall told Congress on February 28, 2008 that a proposed listing determination would be issued for the lizard in 2008 and a final listing determination would be issued in 2009 (Attachment 12: Winter 2008), petitioners have no basis for believing this promise. Indeed, this type of promise has been made – and broken – before.

²See Service candidate assessment forms for the sand dune lizard for 2002 (unnumbered pp. 2-3), 2004 (unnumbered p. 2), and 2007 (pp. 4-5).

Many of the species included in Hall's February 2008 announcement had been promised listing proposals in the 2007 CNOR issued on December 6, 2007. In December, the Service promised proposals for:

- 3 Southeastern aquatic species
- 2 Oahu plants
- 31 Kauai species
- 4 Hawaiian damselflies
- *Phyllostegia hispida* (a Hawaiian plant)

Nearly four months later, only one of these species has been proposed for listing: *Phyllostegia hispida*. 73 Fed. Reg. 9078-9085. So far, only 1 of 41 of these species has progressed toward federal protection. Reaching back further, in its 2006 CNOR, issued on September 12, 2006, the Service promised proposed listing for:

- Arctic grayling
- Georgia pigtoe
- Interrupted rocksnail
- *Astelia waialealae*
- *Cyrtandra kaulantha*
- *Phyllostegia hispida*

71 Fed. Reg. 53756, 53772-73. While the Arctic grayling was promised a proposed listing determination, instead the Service issued a "not warranted" finding for this critically imperiled fish on April 24, 2007, despite it having a listing priority number of 3 (See Table 1, above). 72 Fed. Reg. 20305-20314. As a result, it was removed from the candidate list altogether. No action was taken on the other species until February 19, 2008, when *Phyllostegia hispida* was proposed for listing. Only 1 of 6 of these species has progressed toward federal protection and this listing proposal took nearly 1.5 years from the time the promise was made. 5 of these 6 species were included in Hall's February 2008 announcement, which shows that his promise, at least for these five species, is an old promise.

Previously, in its 2005 CNOR, issued on May 11, 2005, the Service described work on proposed listings for:

- Boreal toad (Listing Priority Number of 3)
- Salt Creek tiger beetle (LPN of 3)
- Cactus ferruginous pygmy owl (already listed)
- Gunnison sage-grouse (LPN of 2)

The results were that the boreal toad was removed from the candidate list on September 29, 2005 (70 Fed. Reg. 56880-56884), the Gunnison sage-grouse was removed from the candidate list on April 18, 2006 (71 Fed. Reg. 19953-19982), the cactus ferruginous pygmy owl was delisted on April 14, 2006 (71 Fed. Reg. 19452-19458), and the Salt Creek tiger beetle was listed as endangered (70 Fed. Reg. 58335-58351). Only the beetle

made it through to the finish line of federal protection. Only 1 of 4 promises of proposed listings actually resulted in federal protection.

The Service has not promised to list the sand dune lizard by 2009, rather it has promised to decide on a listing determination for this species, which could result in a negative determination. Even if the Service fully intends to propose the sand dune lizard for listing in 2008 and issue a final listing rule in 2009, the emergency listing authority of this agency is required to address the lizard's continued decline. This species simply cannot afford to suffer further delay: it needs emergency protection in the interim.

III. The Sand Dune Lizard Meets Multiple Factors for ESA Listing

Any additional delay in listing the lizard exposes it to continued declines from multiple threats thrusting this species closer to extinction. The sand dune lizard qualifies for listing under three of the five listing factors (any one of which justifies listing) (16 U.S.C. § 1533(a)(1)):

1. *The present or threatened destruction, modification, or curtailment of habitat or range;*
2. Overutilization for commercial, recreational, scientific, or educational purposes;
3. Disease or predation;
4. *The inadequacy of existing regulatory mechanisms; and*
5. *Other natural or manmade factors affecting its continued existence.*

(Italicized factors are met for the sand dune lizard).

The most important known threats to the lizard are activities which degrade or fragment its sand shinnery habitat. These include, in order of importance and imminence, oil and gas extraction, shinnery oak removal, and off-road vehicle (ORV) use. There is also growing awareness of the potential threat to lizards from the toxic gas, hydrogen sulfide, a result of oil and gas extraction. Regulatory mechanisms are inadequate to reduce or eliminate these threats. Finally, the narrow geographic range of the species renders it vulnerable to extinction from all of the threats it faces within its small range.

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

Oil and gas extraction

Oil and gas operations are a severe threat to the sand dune lizard, and they occur throughout the range of this species. *See* discussion in Center for Biological Diversity (2002) at pp. 9-11. If the lizard was protected under the ESA, oil and gas extraction could be limited on both federal and non-federal lands. The potential for lizard listing to constrain oil and gas operations is likely the principal reason the Service has delayed protection for the species for so long. Evidence of this comes from a controversy sparked

when, in early 1994, NMDGF sent comments to the BLM on its Resource Management Plans for the Carlsbad and Roswell Field Offices, where it expressed alarm about the impacts of shinnery oak control and oil and gas development on the sand dune lizard. On January 11, 1994, NMDGF wrote,

Because of the unique and limited habitat of the dunes sagebrush lizard, actions which result in direct loss, modification, or fragmentation of its habitat will likely jeopardize the future of this species. Therefore, the Department recommends the following:

- all suitable habitat within the known or potential range of this species be protected. Suitable habitat is defined as shinnery oak which includes active or semi-stabilized dunes with 'blowout areas.'
- where ground disturbing activities are being proposed in potential habitat, field surveys should be conducted to determine habitat suitability and occupancy. Systematic surveys should follow established protocol, and if the species is discovered within a site, the site should be dropped from consideration for future development.

These recommendations may seem too conservative, however in recent studies the Department has documented a 77% reduction in population numbers of this species where active chemical treatment programs (brush control) have eliminated habitat. Therefore, the Department believes we need to be very conservative in allowing the 'take' of any habitat or individuals (Attachment 13: Jan 11, 1994 NMDGF letter at p. 3).

Reports were also coming in from scientists analyzing the impacts of shinnery oak removal on sand dune lizards that oil and gas operations could also be a problem:

...in light of the small and discontinuous range of this species we feel it would be prudent to avoid any new developments in prime dunes sagebrush lizard habitat...until investigations to determine the effects of such development are completed (Attachment 14: Snell et al. 1994 at p. 12).

In response to NMDGF's comments and a subsequent late January meeting with NMDGF herpetologist Charles Painter, BLM decided to withhold issuance of all tracts proposed for leasing (48) in the Mescalero Sands ecosystem, where the lizard resides (Attachment 15: Feb 2, 1994 BLM memo).

The response from oil and gas operators and New Mexican politicians was swift. On February 15, an aide to Senator Pete Domenici visited the Roswell Field Office of the BLM to report that she had been informed the agency was "'shutting down' operations in the oil patch" due to the lizard (Attachment 16: Feb 16, 1994 BLM Memo). Letters rolled in from oil and gas companies, state legislators, and others who warned about

severe economic impacts from BLM limitations on drilling and other activities (Attachment 17: 1994-95 Oil and Gas letters).

The BLM, NMDGF, and oil and gas companies met on February 28 and March 1 to discuss lizard habitat management. NMDGF backed off of its earlier conservative posture, stating in a March 3 letter to BLM that, “limited loss of lizard habitat...will not threaten persistence of the lizard so long as no subpopulations within isolated dune complexes are lost.” Politicians and oil and gas industry members were copied on that letter (Attachment 18: March 3, 1994 NMDGF letter). A day later, NMDGF wrote to BLM (copying even more politicians and oil and gas industry members) that,

Our intent was not to restrain or shut down oil and gas leasing activities in the area, as has been the case, and we are disappointed that our recommendations have been used in that context...

We do not believe that the available data can be used to assume that significant negative impacts on the dunes sagebrush lizard will result from oil and gas leasing activities (Attachment 19: March 4, 1994 NMDGF letter).

While NMDGF had previously promoted a reclassification of the lizard to state-endangered, on March 3, the NMDGF reported to the Service that the State Game Commission was considering holding an emergency session to remove the lizard from the state threatened list altogether because of “pressure from the oil and gas industry” (Attachment 20: 1994 FWS Telephone Record). The lizard was not subsequently removed from the state list, but it would have to wait for more than a decade before it was reclassified to endangered in 2005.

All parties involved agreed that more information on the impacts of oil and gas to the lizard was necessary. In April 1994, NMDGF, BLM, and the New Mexico Oil and Gas Association signed a cooperative agreement to fund studies which investigated the total geographic distribution of the sand dune lizard in order to inform land use management decisions (Attachment 21: 1994 Cooperative Agreement). Sen. Domenici pursued Congressional funding given that the lizard’s “potential habitat lies directly in major oil and gas development areas in southeastern New Mexico and has caused great concern for the oil and gas industry” (Attachment 22: Domenici 1994 memo to Byrd).

In order to move forward with leasing, the BLM developed a lease information notice in August 1994 called “R51” which it attached to the Mescalero Sands parcels. Notice R51 alerted the lessee that the lease might contain lizard habitat, that the company may be required to conduct lizard surveys, and restrictions on the lease may result. While Sen. Domenici, other politicians, and many oil and gas operators complained about R51, BLM responded that it was only a notice, rather than a stipulation and had “no legal consequences.” BLM stated to industry that it had not cancelled any leases or denied any new wells for the sand dune lizard’s protection (1994-95 Oil and Gas letters at unnumbered pp. 11, 24).

Subsequent studies found that the impacts from oil and gas wells to lizards were indeed significant. A key finding from 1995 field studies was that sand dune lizards were found in significantly greater numbers in the plots farthest from oil and gas wells. There were an average of 37% fewer sand dune lizards in areas within 80 meters of a well pad than in control areas 190-230 meters from a well pad (Attachment 23: Sias and Snell 1996). While sand dune lizards still occurred around active wells, they did so at much lower population densities. The researchers could not identify the cause, but described possibilities as habitat loss or alteration, hydrogen sulfide emissions, pollution, and human activity. *Id.*

An important finding from the next year's (1996) field studies was that when oil and gas wells were absent, sand dune lizards were much greater in abundance than when any wells were present. Indeed, areas with wells had populations that were approximately half of those where wells were absent (Attachment 24: Sias and Snell July 1997).

The final report for the 1995-1997 studies stated that, in both 1995 and 1996, there was a negative relationship between well-density and sand dune lizards, shinnery oak habitat with wells present supported 31-52% fewer sand dune lizards than areas with no wells, and the cause of the population reductions was likely habitat destruction (Attachment 25: Sias and Snell 1998). They further reported that densities of 29.82 wells per square mile would result in 50% reductions of sand dune lizards, and densities of 13.64 wells per square mile would result in 25% reductions. The impact of a single well was a 47% reduction of sand dune lizards in an area extending 253 meters around the well, representing 50,152 square meters. While these authors had previously reported that sand dune lizard used the sandy corridors created by pipeline cuts, in the final report they stated that sand dune lizards using pipelines may periodically be killed off by pipeline leaks. This was due to the frequency with which they observed pipeline leaks in the field. *Id.* This was backed up by their earlier observation of a number of side-blotched lizards (*Uta stansburiana*) trapped in oil seepages (Sias and Snell 1996).

However, according to their multi-year study, no other reptile species was impacted by oil field development on the same order of magnitude as the sand dune lizard (Sias and Snell 1998). They recommended "permanent management attention to the issue of oil and gas development" given that high densities of oil and gas pads were substantially increasing the probability of local extirpations. *Id.* at p. 2.

The Service recognizes that oil and gas activities are a significant threat to the lizard. It wrote in the 2007 candidate form:

Oil and gas development in southeastern New Mexico has accelerated in recent years. Currently, more than 60 percent of land within the New Mexico range of the sand dune lizard has been leased by the BLM or the State Land Office for oil and gas exploration (Gregory Homan, BLM, pers. comm. 2004). Research has demonstrated that, at 13 wells per section, sand dune lizard populations decline by a minimum of 25 percent.

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). In two sections of occupied sand dune lizard habitat in New Mexico, approximately forty wells have been built, and this density has very likely impacted this population (C. Painter, NMDGF, pers. comm. 2005). 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). Similar observations of fragmented and reduced habitat availability and low numbers of sand dune lizard detections have come from a preliminary study of the Texas population (L. A. Fitzgerald, Texas A & M University, pers. comm. 2007)

(FWS 2007 at p. 4).

Laurencio et al. (2007) (Attachment 26) also found that oil and gas development had degraded suitable lizard habitat in Crane County, Texas.

In the most recent candidate assessment form for the lizard, the Service recognizes that while oil and gas development has been increasingly redirected to the shinnery oak flats between sand dunes, presumably to help lizards, these areas may be important to lizard dispersal (FWS 2007). Researchers are currently investigating this (Attachment 27: Fitzgerald et al. 2005).

In addition to harms from well-pads and leaking pipelines, seismic exploration is an oil and gas activity that can harm sand dune lizards by crushing them or their nests (FWS 2007). This is discussed further in the ORV section below.

Finally, a 2007 study conducted by the Service indicates that a toxic gas, hydrogen sulfide, is occurring in sand dune lizard habitats at ambient concentrations sufficient to have adverse impacts on actively ventilating sand dune lizards. Negative impacts to lizards would be expected at hydrogen sulfide levels greater than 14 parts per million, but the gas is being measured at levels more than twice that high. *Id.* As early as 2000, the Service had recognized toxic gas fumes as a threat to the lizard as well (Attachment 28: FWS Hein 2000 memo). Exposure to toxic gas is just one of the many threats sand dune lizards are facing in their narrow range, and there are no regulatory mechanisms provided by the agencies to address this threat.

Oil and gas development is the leading reason that the Service considers the lizard to be facing a high-magnitude, imminent threat to its survival (FWS 2007). Petitioners discuss below the inadequacy of regulatory mechanisms to address these impacts from oil and gas development, and the consequent need for the Service to promptly emergency list this species.

Herbicidal control of shinnery oak

Herbicidal control is also known to be a significant threat to the lizard. *See* discussion in Center for Biological Diversity (2002) at pp. 7-9. As early as 1984, a BLM biologist recognized that poisoning shinnery oak negatively impacted the lizard (Attachment 29: 1984 Howard notes). In 1991, the BLM and NMDGF agreed to fund a five-year study on the impact of shinnery oak control (with the herbicide Tebuthiuron) on the sand dune lizard. The report from the 1991 field study indicated that sand dune lizard populations were 70% lower in areas where shinnery oak was herbicidally treated (removed) (Attachment 30: Snell and Landwer 1992). In the second year of study (1992), the researchers reported an even higher reduction level, of 77%. They also tested for the possibility that heavier grazing in treated pastures was responsible for the decline of lizards, but the results were inconclusive. Consequently, the researchers concluded that shinnery oak removal itself appeared to be the primary reason for the population declines (Attachment 31: Snell et al. 1993). The following year (1993), the researchers reported 94% reduction in sand dune lizards on sites where shinnery oak had been killed with herbicide (Snell et al. 1994 (Attachment 14)). These multiple years of studies showed that shinnery oak removal results in lizard declines of 70-94%.

The scientists considered these results alarming and searched for an explanation. It appeared that, because the more recently treated sites showed lower magnitudes of reduction than the old treated sites (most of which no longer contained any sand dune lizards), the real cause of the reductions was the homogenous vegetated grassland that was created through shinnery oak removal. Another theory was that side-blotched lizards had a competitive advantage over sand dune lizards in treated areas. *Id.*

In the fourth year of study (1994), the researchers reported that sand dune lizards were 84% lower on treated sites versus untreated sites, and they also reported reductions on recently treated sites, of 72%. This was the first year that those recently treated sites showed significant declines (Attachment 32: Gorum et al. 1995). They stated,

We feel that the consistent, significant reductions of dunes sagebrush lizard abundance in treated sites, despite fluctuations in relative abundance between treatments in other species, indicate a strong relationship between shinnery oak removal and the decline of the dunes sagebrush lizard. *Id.* at p. 6.

Gorum et al. (1995) also commented that the BLM is leaving large dunes out of their spraying program, but it may be that smaller open blowouts are even less able to sustain sand dune lizards after the shinnery oak is removed.

In the final year of research (1995), Snell et al. (1997) (Attachment 33) reported that sand dune lizard numbers on treated sites were 78% lower than on untreated sites. The trend of recently treated sites also showing declines continued, with those sites treated in 1991 having sand dune lizard levels 69% lower than on untreated locations. Overall, they reported consistent, significant declines of lizards on treated sites since the study began.

They concluded that the reduction in sand dune lizard numbers on treated sites was not due to the use of the herbicide Tebuthiuron but due to the long-term effects on the vegetative community from removing shinnery oak. After five years of monitoring declines in lizards, the researchers further stated that, “because of the biological situation of sand dune lizards there is no guarantee that they won’t go extinct in the relatively near future.” *Id.* at p. 2. Describing an average lizard life-span of less than 2 years, and a lifetime reproductive output of 6-20 eggs, they elaborated further:

...the extinction of *Sceloporus arenicolus* is a real possibility...the combination of a small geographic range characterized by a patchy distribution associated with a single plant species is a tenuous situation at best. The short lifespan and relatively reduced reproductive output of sand dune lizards further compounds the possibility of extinction. Adding the potential renewal of a shinnery oak removal program makes the situation alarming. *Id.* at p. 10.

As discussed previously, Snell et al.’s (1997) warning has been included in the Service’s candidate forms since 2002 (FWS 2002, 2004, 2007).

Snell et al. (1997) state that the best management option would be to adopt a permanent policy prohibiting further shinnery oak removal, restoring degraded habitat, and improving ranching practices that are compatible with shinnery oak. They describe alternative approaches which only remove shinnery oak in areas apparently devoid of sand dune lizards or designating reserves where shinnery oak would not be removed as “less certain of preventing the extinction of sand dune lizards” than total cessation of shinnery oak removal. *Id.* at pp. 11-12.

Despite clear warnings from these scientists of the danger of this activity to sand dune lizards, shinnery oak control continued long after this five-year study was complete (Attachment 34: Painter et al. 1999), with subsequent federal proposals to remove shinnery oak in the 2000s, including a 2007 plan to apply herbicides to 1,000,000 acres,³ as discussed below. The impacts from shinnery oak removals performed decades ago are still felt today. Stated Fitzgerald et al. (2005 at p. 12),

We visited the study plots used by Snell et al. (1995) to evaluate effects of shinnery oak removal on sand dune lizard populations. The shinnery oak sand dune habitat in areas treated with tebuthiuron herbicide in the 1980s and 1990s have not recovered, and we did not detect sand dune lizards on the herbicide study plots. We captured only 2 sand dune lizards in the blowouts that persist on transect 2, that was located in a pasture treated with herbicides in 1994 and is close to large, pristine blowout complexes...

³While the 2007 plan does not target shinnery oak, shinnery oak occurs in the project area and tebuthiuron is one of the herbicides to be used, at rates of up to 0.75 lbs/acre. This application rate results in permanent kill of this plant.

The impact to sand dune lizards from shinnery oak may therefore be viewed as permanent, or at least long-term. Petitioners discuss below the inadequacy of regulatory mechanisms in addressing the threat to lizards from past and future shinnery oak control and the consequent need to emergency list this species.

Off-road vehicle use

Off-road vehicles (ORVs) may pose a threat to sand dune lizards. *See* discussion in Center for Biological Diversity (2002) at p. 11. ORV use can crush sand dune lizards and their eggs and destroy or degrade their shinnery dune habitat. NMDGF describes the impacts from ORVs (and seismic exploration) on the lizard:

Sand dune lizards hibernate during colder temperatures (October – April). During hibernation or seasons of inactivity, they are immobile and unable to move about and escape. Seismic exploration in occupied habitat during these periods of inactivity could result in direct killing of individual lizards. Direct kills also could occur during summer months when they are laying eggs in underground nests that could be crushed (Attachment 35: NMDGF 2007 at p. 19).

Laurencio et al. (2007) observed the degradation of habitat in an historic lizard locality by ORVs in Texas. In New Mexico, the BLM-designated Mescalero Dunes ORV area is in the heart of the lizard's habitat and is heavily used. The Square Lake ORV area is also within lizard habitat, as is a portion of the Hackberry Lake ORV area. In addition, ORV management is rife with enforcement issues, where ORV-users recreate in unauthorized areas. In its 2007 RMPA for the Carlsbad and Roswell Field Offices, BLM states that ORV use has increased substantially over the last decade (Attachment 36: 2007 RMPA at p. 2-11). The BLM also acknowledges that, despite designating particular areas for ORVs, given increased foreseen visitor use, "there is a possibility that [ORV] use outside these areas would occur and would lead to degradation of special status species habitat." *Id.* at p. 4-35.

Although the Service recognizes that ORV use can harm sand dune lizards and their dune habitats, it appears to dismiss this threat in the 2007 candidate assessment form, "Apart from one designated ORV-use area at Mescalero Dunes, ORV use is thought to be relatively limited" in the lizard's range in New Mexico (FWS 2007). But given the BLM's acknowledgement of increasing ORV use in the sand dune lizard's range, and given documentation of harms to lizards from this activity in Texas, the Service should not dismiss its significance as a threat to the sand dune lizard.

Other causes of habitat loss

Laurencio et al. (2007) reported that potential lizard habitat in southwestern Cochran and northwest Yoakum counties in Texas had been modified by agriculture and no longer contained quality shinnery dune habitat. It is not yet known whether livestock grazing negatively impacts the lizard (Painter et al. 1999), but further research is required given

the negative impacts on livestock grazing on other lizards (Center for Biological Diversity 2002 at p. 12).

Cumulative impacts on habitat

The Service considers the narrow geographic range to be an additional threat to the lizard (FWS 2002, 2004, 2007). Indeed, different injurious land uses are threatening the sand dune lizard and likely intersecting within its very small range. For instance, researchers investigating impacts of oil and gas have commented that their research does not address the combined impacts of herbicide spraying and oil and gas development. They state, “[t]hroughout the southern region of *S. arenicolus* range are extensive oil fields that have been sprayed with the herbicide Tebuthiron [sic]” (Sias and Snell 1997 at p. 41). Painter et al. (1999) note the potential loss of a source population to recolonize nearby herbicide-treated areas due to oil and gas development.

B. Inadequacy of existing regulatory mechanisms

In New Mexico, approximately half of the lizard’s range occurs on private and state lands. Populations in Texas appear to exist largely on private land. The majority of the lizard’s habitat is therefore non-federally managed, with no regulatory mechanisms protecting its habitat (FWS 2007). Of the four isolated areas where the lizard exists in New Mexico, Area 1 is primarily privately held (62.1%), Area 2 is primarily privately held (76.9%), Area 3 is primarily state held (68.1%), and Area 4 is primarily BLM land (62.1%). Only one of the four populations in New Mexico occurs primarily on federal (BLM) land, Mescalero Sands (Area 4). As petitioners demonstrated below, the BLM has not sufficiently reduced threats to lizards on lands it manages. *See* also discussion in Center for Biological Diversity (2002) at pp. 12-18.

The sand dune lizard has never been listed as a state-endangered or threatened species by Texas, and there are no known regulatory mechanisms protecting the species in Texas. Therefore, the Service should conclude that regulatory mechanisms in Texas are inadequate to protect the lizard from oil and gas and other threats it faces in this state, given its total lack of regulatory mechanisms (FWS 2007).

State Policies

In 1975, the sand dune lizard was listed under the New Mexico Wildlife Conservation Act as threatened. In 1994, NMDGF was poised to reclassify the species to endangered in order to protect it from take, and in light of growing evidence that shinnery oak control and oil and gas was harming the reptile. As discussed earlier, the proposal to uplist caused a fire-storm among oil and gas operators, who lobbied the state not to list the lizard as endangered (1994-95 Oil and Gas letters (Attachment 17)). The state obliged, and the species was not reclassified to endangered until 2005, more than a decade later (Attachment 37: NMDGF 2006 Biennial Review). The Service notes that while this endangered designation protects the species from direct killing, it does not protect the

species from habitat degradation and loss, which is the primary threat it faces (FWS 2007).

In 1999, NMDGF finalized a management plan for the lizard. It recommended the following:

Herbicide: cease all Tebuthiuron use in occupied lizard habitat, provide an untreated buffer zone of 500 meters around all occupied habitat, and survey all potential habitat for lizards prior to Tebuthiuron use. If lizards are found, the area should not be treated.

Oil and gas development: well density should not exceed 25 wells/section, new wells should not be placed in occupied or potential habitat, and no refineries or other large industrial installations should be constructed in potential or occupied habitats. BLM should require regular inspections of pipeline leaks. In addition, avoid constructing caliche roads and well pads in lizard dune habitat, reduce the overall amount of roads built through shinnery oak habitat, reduce the size of caliche roads and well pads, and strictly limit the oil well density in shinnery oak habitat. Locate caliche pads and individual wells in shinnery flats. Install enhanced well and battery pollution control measures in areas of high density. Oil field developments that sacrifice some areas are discouraged because of potential to create large holes of unsuitable habitat in occupied shinnery dunes. Especially protect the most dense and largest lizard population, in the Loco Hills to Eunice area.

ORVs: restrict ORV use when possible in occupied or potential habitat. Consider waivers for range maintenance, pipeline construction or maintenance, geophysical exploration, access for individuals, or oil and gas operations. Do not allow extensive use in occupied or potential habitat, and limit activities to period of the year when lizards are active (May-Sept).

Livestock grazing: presume that grazing plans with moderate stocking rates and no chemical shinnery oak removal will not harm lizard populations.

Fire: additional research is needed, but prescribed fires may provide range management alternative to chemical shinnery oak control.

See Painter et al. 1999. The plan called for conservation of all existing populations of lizards and reiterated Fitzgerald et al.'s (1997) (Attachment 38) assertion that unoccupied habitat should not be discounted. However, the Service found that the 1999 plan will “not significantly contribute to the conservation of the sand dune lizard” and requested an addendum to the state’s plan (Attachment 39: Painter 2002). Deficiencies in the 1999 plan are discussed in Center for Biological Diversity (2002) at pp. 13-14. As Figure 1 shows, the Loco Hills to Eunice area has not been protected. Rather, this is one of the densest areas of oil and gas development within the lizard’s range in New Mexico.

The 2002 addendum included the following specific recommendations pertaining to the major threats:

Herbicide: herbicide spraying should not occur within 500 meters of occupied or suitable habitat, and dispersal corridors at least 500 meters wide should be retained between occupied or suitable habitat.

Oil and gas: oil and gas density should be limited to less than 13 miles per square mile within suitable habitat; pipelines and wells should be inspected regularly to minimize pollution; control measures should be installed to reduce hydrogen sulfide emissions; new well pads and well pad size should be minimized; well pads, roads, and pipelines should be reclaimed with sand; new oil and gas wells should not be placed in dunes but moved to adjacent shinnery oak flats; thumper trucks should be limited to times of year when lizards are active; research should be conducted on impacts to lizards from hydrogen sulfide; and no refineries or large installations in lizard habitat on state or federal lands.

ORV: recommendations were the same as the 1999 plan.

Additional measures were included pertaining to research, livestock grazing, and fire. The 2002 addendum provided for a review at least every ten years to evaluate whether the measures prescribed had achieved lizard persistence. *Id.* Subsequently, Painter synopsisized the management recommendations of the 1999 plan and 2002 addendum (Attachment 40: Painter 2004).

While many of these prescriptions would result in forward steps for the lizard, it is not binding for private or state lands, which comprise half of the species' habitat in New Mexico (FWS 2007). Nor does it appear to be binding for the BLM, although some of the mitigations in the state plan have been adopted by the BLM. The prescription of moving oil and gas disturbance to shinnery oak flats is now being questioned by scientists, given the potential importance of flats for dispersal. *Id.*, see also Fitzgerald et al. 2005. Most importantly, as demonstrated below, it is clear that well densities of 13 wells per square mile are being exceeded. The mitigations also do not address the threat of hydrogen sulfide, which is concentrating in dangerous levels⁴ in sand dune lizard habitat (FWS 2007). Overall, a fundamental problem in the state's plan and addendum is that they conflict with earlier scientific findings that even one well would significantly reduce lizard populations and fail to adequately protect unoccupied as well as occupied habitat (Fitzgerald et al. 1997, Sias and Snell 1998).

Oil and gas extraction

The severe impacts to lizards from oil and gas extraction have been well-documented, as discussed above. The Service has acknowledged in the candidate assessment forms for the lizard that there are inadequate regulatory mechanisms to protect the lizard from oil and gas. In fact, it states that there are *no* such mechanisms to protect the lizard from *any* habitat destruction on half of its range in New Mexico, namely on private and state lands:

In New Mexico, private and State lands where this species occurs constitute an estimated 50 percent of the range of the sand dune lizard (Painter et al. 1999). These lands have a substantial role in the conservation of the sand dune lizard. Moreover, while oil, gas, and minerals under Federal jurisdiction constitute 55 percent of sand dune

⁴The gas is dangerous to both humans and lizards. Researchers carry gas sensors to detect whether hydrogen sulfide concentrations are too high for human safety.

lizard range in New Mexico, non-Federal jurisdiction over oil, gas, and minerals is maintained in up to 45 percent of the species' range (Steve Bird, BLM, electronic mail message 2007). There are no local or State regulatory mechanisms pertaining to the sand dune lizard on State or non-Federal lands, and there is not a State Land Office policy in place to protect sensitive species in Eddy or Lea counties. Much of the range of the sand dune lizard falls within proven oil and gas areas that are under intense pressure for development (David Coss, SLO, pers. comm. 2004) (FWS 2007 at p. 6).

The pressure for development is indeed intense. State lands are being rapidly leased in New Mexico, with more than 1.6 million acres leased just since 2000 (Table 2). Most of this leasing is occurring in the four counties within the sand dune lizard's range in the state.

Table 2: New Mexico State Lands Oil & Gas Leasing, 2000-2007. State land leasing in New Mexico is occurring at a large scale; most of the leasing occurs in counties within the sand dune lizard's range.

Year	Acres Leased	Comment
2000	186,793.79	Only includes May-Dec 2000
2001	213,478.38	
2002	179,723.20	
2003	348,278.01	
2004	204,275.30	
2005	197,142.69	
2006	150,320.67	
2007	134,994.76	
Total	1,615,006.80	

Bureau of Land Management: pressure to drill oil and gas wells on BLM lands within the lizard's range is likewise intense. The recent Resource Management Plan Amendment for Special Status Species (2007 RMPA) covers portions of the Carlsbad and Roswell Field Offices. These portions amount to 1.9 million acres (2007 RMPA at p. 1-2). Overall, 90% of the Carlsbad Field Office federal mineral acreage is already leased, as is 44% of the Roswell Field Office. The portion leased across the two field offices is 72%. *Id.* at Table 2-2. There are approximately 10,000 oil and gas wells in these two field offices, with additional wells on adjacent state and private lands as well. In the planning area, there are 2,000 oil and gas wells on BLM lands. *Id.* at p. 4-13. Approximately 49 more wells will be drilled every year (980 wells over the next 20 years), a decrease from 61 wells per year at present. *Id.* at p. 4-38. The total acreage disturbance from the 49 wells is 6,174 acres annually, and 123,480 acres over the next 20 years. *Id.* at p. 4-41.

While the RMPA closes 19% of the total federal mineral acreage (221,456) in the planning area to new leasing, it leaves 923,867 acres open to leasing. Moreover, this

closure would end when special status species (the lesser prairie-chicken and lizard) are no longer considered for federal listing. The closure is therefore not permanent. *Id.* at 2-22. Moreover, the leasing closure also appears to be temporary given that the biological assessment states that the closure would last "...until BLM determines that development of tracts nominated for leasing can be developed without impacting dune complexes." *Id.* at p. 11.

The BLM's plan for mitigating oil and gas impacts on lizards is as follows:

New oil/gas well pads would not be placed in dune areas within occupied or suitable habitat, or within 100 meters of such dune areas. Well sites proposed in these areas would be moved to adjacent shinnery oak flats. Where a dune complex that contains occupied or suitable habitat is large and well pads cannot be placed exterior to the complex, new well pads should be located at the periphery of the complex, avoiding the center of the complex. Locating well pads exterior to the dune areas would provide protection to the sand dune lizard habitat. Maintaining well densities less than or equal to 13 well pads per square mile in the shinnery oak flats between dune complexes would reduce potential impacts to dispersal corridors. *Id.* at p. 4-33.

These mitigations fail to consider concerns voiced by scientists over development in shinnery oak flats, given the potential value of these areas for dispersal (FWS 2007). In addition, placing well pads at the periphery of a dune complex may still impact lizards. In addition the standard of well densities to 13 or fewer wells per square mile will still reduce lizard populations by 25%. Indeed, the presence of any wells at all will harm lizards (Sias and Snell 1998).

Petitioners are also concerned that the BLM will retreat on these promises to mitigate impacts to lizard habitat. The RMPA states, "In general, development of oil and gas resources on existing leases would continue" (*Id.* at p. 2-22) and while it lists mitigation measures, their implementation will be based on consultation with industry:

Surface disturbing activities would not be authorized in occupied and suitable dune complexes to protect sand dune lizard habitat. For existing oil and gas leases within sand dune lizard habitat, a survey for occupied and or suitable habitat, by a qualified biologist approved by the BLM, would be required prior to authorization of further development. *Based on survey results, BLM and the lease holder would work together to produce a plan of development to avoid occupied and suitable sand dune lizard habitats.* *Id.* at p. 2-22 to 2-23, emphasis added.

In the biological assessment for the lizard, a Plan of Development (POD) is also emphasized:

Existing leases would require PODs which incorporate the results of the lizard surveys. The purpose of a POD is to assist the operator and BLM

with planning for orderly development as a means to reduce or eliminate impacts to special status species habitat. *Id.* at Appendix 10, p. 50.

While the BLM is attaching No Surface Occupancy stipulations to some new parcels of sand dune lizard habitat being offered for lease, it is only requiring PODs for other parcels (Attachment 41: 2008 Lease Sale Notices). The protection of sand dune lizard habitat cannot be delegated to the POD stage, rather the avoidance of sand dune lizard habitat – both unoccupied and occupied – must be categorical and non-negotiable in order to reduce the threat of oil and gas.

Most importantly, the adequacy of existing regulatory mechanisms in addressing oil and gas should be evaluated in light of the actual level of activity occurring on the ground. As discussed above, Snell et al. (1997) found that well densities of more than 13 wells per square mile will result in lizard population reductions of approximately 25%. Well densities greater than 30 wells per square mile will result in population reductions of approximately 50%.

Researchers have documented that such high well densities indeed exist in lizard habitat. Sias and Snell (1998) found four such areas. *See* discussion in Center for Biological Diversity (2002) at pp. 10-11. The New Mexico management plan for the lizard quotes these researchers (Painter et al. 1999: 28),

These regions are so densely developed that increases in the number of wells will undoubtedly reduce *S. arenicolus* populations over large areas to a marginal state, if for no other reason than such a high percentage of habitat would be destroyed and covered with caliche.

Indeed, the Service acknowledges that oil and gas destruction of lizard habitat is ongoing. For example, as we described in the threats section above the Service described the likely recent extirpation of important lizard populations in two sections of occupied sand dune lizard habitat in New Mexico, where approximately forty wells had been built (FWS 2007).

More recently, petitioners conducted GIS analysis which shows that such high well densities are in fact occurring in lizard habitat. Out of the 587,632 acres of expected range for the sand dune lizard in New Mexico, 147,845 acres (25%) have an oil and gas well density 13 wells or more wells per square mile. Moreover, 357,763 acres (61%) have one or more wells per square mile (Figure 1). As discussed above, and as the Service recognizes, well densities of more than 13 wells per square mile can result in population reductions of 25% (FWS 2007). In addition scientists have shown that even one well can have a significant, deleterious impact on lizard populations (Sias and Snell 1998). In New Mexico, the majority – 61% - of the lizard's range is compromised by oil and gas development (Figure 1).

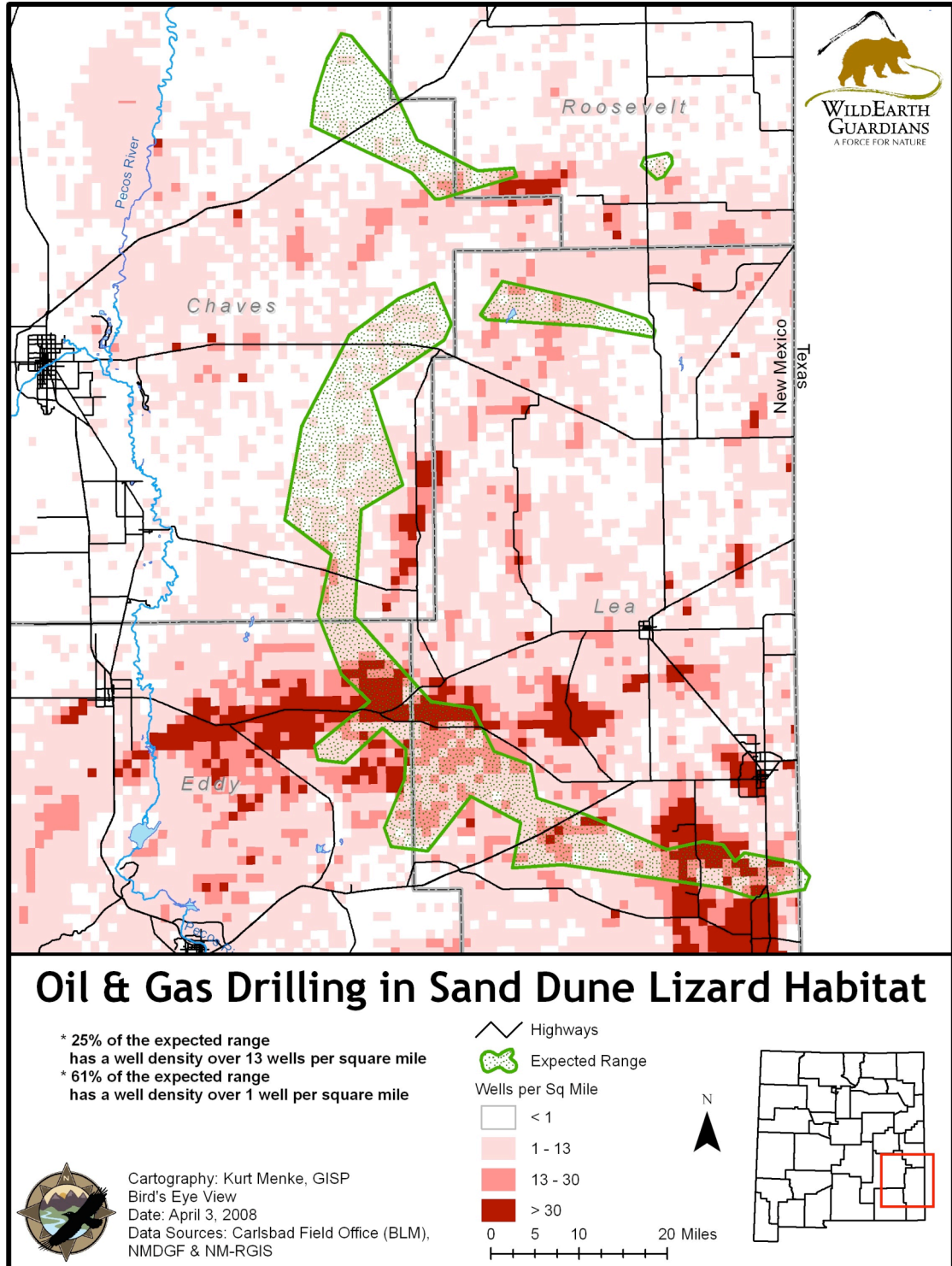


Figure 1: Map showing oil and gas drilling in the sand dune lizard's range in New Mexico. The majority of its narrow range in the state is compromised by drilling.

Moreover, the development is occurring in such a way as to badly fragment the core of the lizard's habitat in the state – the largest area, called Mescalero Sands. Figure 1 shows how the northern and southern portions of Mescalero Sands may be severed from each other due to a band of extremely high-density development in northeast Eddy County. Moreover, southern Mescalero Sands is covered with high-density development and significant range shrinkage of the lizard may therefore be underway.

The extent of oil and gas development that has already compromised lizard habitat, the rapid pace at which additional land in the lizard's range is being leased, and the failure of state and federal agencies to adopt regulatory mechanisms to reduce this threat, collectively provide a clear basis for emergency listing the sand dune lizard.

Shinnery oak control

As discussed previously, the impacts to lizards from shinnery oak control are long-lasting, enduring for decades. Because agencies are not able – even if they are willing – to eliminate these impacts (because they have already been set in motion), regulatory mechanisms are not available to reduce ongoing harm to the sand dune lizard from past shinnery oak control. In other words, the damage is permanent. However, we demonstrate that there is little evidence that agencies have truly reformed on the issue of shinnery oak control, and this unique ecosystem – and the sand dune lizard – are presently jeopardized by new herbicide projects. Moreover, at least half of the lizard's range is privately or state held, and there are no limitations on herbicide spraying on these lands.

Bureau of Land Management: despite the early recognition that shinnery oak control was harming sand dune lizards, the BLM did not suspend the use of herbicide on shinnery oak until 1992 (Attachment 42: BLM 1995 letter). From 1989-1999, herbicidal control of shinnery oak resulted in the elimination of approximately 25% of the lizard's habitat in New Mexico (Painter et al. 1999, FWS 2007). At least 100,000 acres of Mescalero Sands shinnery have been removed (Peterson and Boyd 1998).

As discussed above, multi-year field studies showed that shinnery oak removal resulted in lizard reductions of 70-94%. However, even recently, the BLM Roswell Field Office proposed shinnery oak removal within occupied sand dune lizard habitat in 2002. After receiving criticisms from NMDGF, conservationists, and biologists, the BLM appeared to have tabled the proposal, although the Service is not certain whether that project proceeded (Eric Hein, FWS, pers. comm., March 31, 2008) (Attachment 43: Correspondence on 2002 BLM Spray Proposal).

A portion of the project did proceed, as, in 2004, the BLM approved the application of the herbicides tricopyr and clopyralid to 2,160 acres of public lands in allotments 65077 and 65074, both of which contain sand dune lizard habitat (Attachment 44: BLM Mescalero Sands EA). In addition to harmful effects on shinnery oak, these herbicides can kill insects, with consequent repercussions for the sand dune lizard, which is insectivorous. (Attachment 45: Forest Guardians comments on Mescalero Sands EA).

While the BLM often states that it is targeting other plants rather than shinnery oak, the agency continues to develop and approve projects that apply tebuthiuron in sand dune lizard habitat. In April 2007, Carlsbad BLM approved the Upper Pecos River Watershed Restoration – East project, which involves applying herbicides to *1,000,000 acres* over the long-term in the Carlsbad Field Office, targeting mesquite, creosote, acacia, and tarbrush (Attachment 46: Restoration East EA and FONSI). To remove mesquite, the herbicides clopyralid and triclopyr would be applied at the rate of 0.25 lbs. of active ingredient per acre; for acacia, tebuthiuron would be applied at the rate of 0.75 lbs. of active ingredient per acre; for creosote and tarbrush, tebuthiuron would be applied at 0.5 lbs. per acre; and where acacia and creosote occur together, the higher rate of tebuthiuron application would be used. *Id.* at p. 3. The EA identifies shinnery oak as occurring in the project area and analyzes impacts on the sand dune lizard but states that it is unknown whether occupied habitat lies in the proposed treatment areas. The EA states,

...it is vitally important that the CFO take every precaution to ensure that *occupied* dune complexes are protected. Subsequently, only after survey efforts during the summer months are conducted, will it be known whether an active dune complex is in close proximity (within one hundred meters) of the proposed location or not. *Id.* at p. 13, emphasis added.

The BLM here neglected the importance of protecting unoccupied sand dune lizard habitat. However, the EA included the following mitigations for the lizard,

Due to the unknown direct effects on lizards, triclopyr and clopyralid would not be applied within 500 meters (to account for overspray) of known occupied sand dune lizard habitat. Tebuthiuron would not be applied within 500 meters of suitable sand dune lizard habitat, also refraining from treating a 500 meter wide dispersion corridor between suitable dune complexes separated by less than 2000 meters. *Id.* at p. 32.

These mitigations may not be adequate to protect the lizard, given that such heavy rates of herbicide application may result in a total kill of shinnery oak (even if it is a non-target plant) and given the need to protect unoccupied habitat across a shifting landscape (see discussion below). In comments to the Natural Resources Conservation Service on a 2000 tebuthiuron proposal, NMDGF expressed particular concerns that the 500-meter for the dispersal habitat was inadequate, stating, “dispersal corridors of untreated habitat [should] be 0.5 mi (0.8 km) wide at a minimum, although the width of these corridors may need to be larger depending upon the size of the occupied habitat patch and the distance between patches” (Attachment 47: NMDGF 2000 at p. 3). NMDGF also noted that they consulted experts on the sand dune lizard who suggested an even larger dispersal corridor area, of 3.1 miles (5 km). *Id.* Similarly, although the 2002 New Mexico state plan addendum recommended a 500-meter wide buffer for dispersal corridors, the addendum also stated that some experts suggested that,

...because sand dunes are a dynamic feature that move across the landscape through time it would be imprudent to consider *any* currently unoccupied patches of suitable habitat within the overall range or along the edge of the range as being useless to Sand dune lizards (Painter 2002, emphasis in the original).

The herbicide mitigations in the 2007 EA were also adopted in the RMPA that covers the Carlsbad and Roswell Field Offices (2007 RMPA at p. 2-39, Figure 3). While these mitigations follow the recommendations of the 1999 New Mexico state plan and the plan's addendum, the Service had earlier criticized the plan for not providing data to substantiate whether the 500-meter buffer was adequate (Center for Biological Diversity 2002 at p. 13).

Indeed, the buffer areas fundamentally fail to consider the shifting nature of sand dune lizard habitat. If shinnery oak is removed from an area, it likely will never be lizard habitat. If it remains unpoisoned, over time it may provide the large, deep blowouts surrounded by shinnery oak on which the lizard depends.

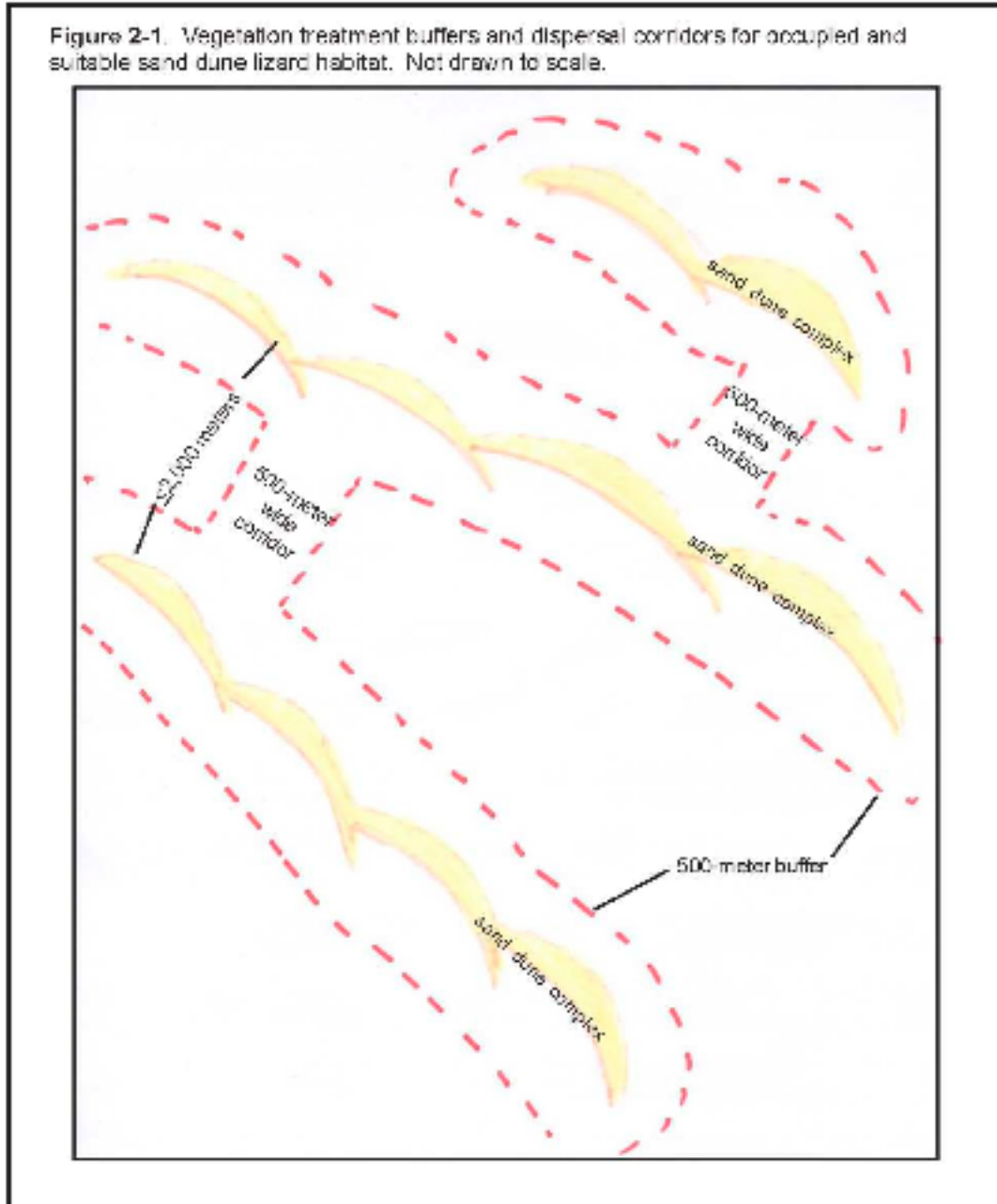


Figure 2: Shinnery oak herbicide buffers, excerpted from the 2007 RMPA at p. 2-39. This mitigation plan fails to consider the dynamic nature of lizard habitat and the need to abandon shinnery oak control altogether.

The 2007 RMPA envisions large-scale use of defoliant in shinnery oak habitat, based on the presumption that there is too much shinnery oak in some areas:

...treatment of shinnery oak is recommended when necessary to achieve vegetative standards for plant composition and canopy cover--for example, when shinnery oak cover still exceeds guidelines after grazing management has been applied (2007 RMPA at p. 2-36).

The threshold for when shinnery oak can be controlled is when it composes more than 40% of the vegetative cover. Sand dune lizard studies have not established this threshold, and it is therefore arbitrary from the standpoint of lizard conservation. It is also important to note that the mitigations for herbicide use in lizard habitat terminate if the species is no longer a candidate:

Treatments may be conducted to achieve DPC [Desired Plant Community] objectives in areas that are not considered suitable or occupied habitat for special status species (e.g., the sand dune lizard). Suitable and occupied habitat would not be chemically treated unless the species is removed from State or Federal listing, or a chemical application rate is developed that would not impair habitat (2007 RMPA at p. 2-48).

The Service has the ability to eliminate species from ESA candidacy whenever they choose, and the BLM's mitigations must therefore be seen as temporary.

A presumption elsewhere is that killing mesquite will help shinnery oak communities. For instance, the RMPA states at p. 4-43,

Mesquite control in shinnery oak vegetation community would result in positive impacts on lesser prairie-chicken habitat (approximately 4,000 acres per year for a total of 80,000 acres over the life of the plan). This would be a 100 percent increase of vegetative treatments over alternative A and a 400 percent increase over the No Action Alternative. These prescriptions would have short-term effects in the form of defoliating shinnery oak, but not killing it which would allow native grasses, forbs and shrubs to reestablish in areas that were once mesquite dominated.

The BLM is therefore envisioning a large amount of average to be treated with herbicide, with harmful consequences to shinnery oak. This ambitious mesquite plan pales in comparison with the RMPA's goal of controlling both mesquite and shinnery oak:

The treatments prescribed under this alternative to reduce mesquite and shinnery oak to meet composition/canopy standards would reduce competition with more desirable vegetation for water...The focus of these treatments would be within the Planning Area. This would allow more acres to be treated in the Planning Area, so the benefits could be realized sooner than under the No Action Alternative. Should funding levels hold consistent for the life of the plan, as many as 640,000 acres could be treated for brush control. Assuming that 3 years are funded at current levels, with the remaining years funded at normal levels, then approximately 140,000 acres could be treated for brush control (RMPA at p. 4-29).

The alternative described is Alternative A. The preferred alternative, Alternative B, adopted the vegetative prescriptions in Alternative A with the proviso that herbicide

projects would be sped up: “[t]he impacts would be similar to Alternative A, but would allow more treatments to be completed in a shorter time frame.” *Id.*

Tebuthiuron treatments are indeed proceeding on BLM lands in New Mexico as part of the Interior Department’s “Restore New Mexico” program. There were 21,000 acres under contract for treatment as of August 15, 2007, and another 145,000 on track for treatment (Attachment 48: BLM 2007 Tebuthiuron Projects).

In the rush to spray herbicides within the lizard’s range, the BLM has neglected to consider Snell et al.’s (1997) statement that the best management option – better than carving out no-spray areas that aren’t thought to be usable to sand dune lizards – would be to adopt a permanent policy prohibiting further shinnery oak removal. Clearly, the BLM’s continuing programs to spray tebuthiuron across vast acreages that include shinnery oak does not comport with these scientists’ recommendations.

Natural Resource Conservation Service: in July 2000, the Natural Resource Conservation Service (NRCS) issued a Finding of No Significant Impact on its proposal to remove 250,000 acres of shinnery oak in New Mexico. 65 *Fed Reg.* 42335. Both NMDGF and the Service were highly alarmed. The Service stated its concern to the NRCS over the failure of the EA to consider impacts to the lizard and noted that, “further declines and/or habitat impacts to the species may result in its consideration for protection under the Endangered Species Act” (Attachment 49: FWS 2000 Letter to NRCS at p. 3). A NMDGF staffperson wrote after reviewing the proposal, “It may also be appropriate to recommend emergency federal listing to USFWS” (Attachment 50: NMDGF Klingel 2000 Memo at p. 2). The Service’s concern over this proposal, which it stated would have “devastating consequences” and noted Snell et al.’s (1997) finding that local extirpation could lead to the lizard’s extinction, prompted a status review to evaluate ESA listing (FWS Hein 2000, FWS 2000 Briefing statement). NMDGF recommended the following to NRCS for state or federal lands: 1) no Tebuthiuron treatments in habitat occupied by the sand dune lizard; 2) no treatment of a buffer zone of at least 500 meters around occupied habitat; 3) surveys for sand dune lizards prior to any spraying; and 4) untreated travel corridors between occupied habitat in order to allow dispersal (2000 NMDGF Stevenson letter (Attachment 48)).

In a June 2000 briefing statement, the Service stated, “NRCS has ignored our previous concerns about shinnery oak removal and will likely continue this eradication program” (FWS 2000 briefing statement). The Service is unaware of whether this project proceeded, whether wholly or in part (Eric Hein, FWS, pers. comm., March 31, 2008). The project was approved by NRCS and can proceed at any time (or may have, in whole or in part, already proceeded), regardless of Service recommendations because the lizard is not listed. On this basis alone, as NMDGF suggested, the lizard could be emergency listed.

NRCS may continue to engage in shinnery oak control. In April 2002, the Service wrote that “A variety of Federal agencies (BLM, NRCS) and non-Federal entities threaten the shinnery oak in an attempt to improve the land for cattle grazing” (Attachment 51: FWS

Hein 2002 email). In its 2007 listing form for the lizard, the Service acknowledges that it is “unable to predict when or where future herbicide application will occur” (FWS 2007).

Emergency listing would ensure that the sand dune lizard would ensure protection from federal projects that continue to remove shinnery oak in sand dune lizard habitat, despite the known, severe threat this poses to the lizard.

Off-road vehicles

As discussed above, ORVs can cause direct and indirect impacts on sand dune lizards. There are no known regulatory mechanisms restricting their use on private and state lands within the lizard’s range. On federal lands, their use is not being sufficiently regulated to protect the lizard.

Bureau of Land Management: the BLM’s 2007 RMPA fails to adequately address the threat from ORVs to the lizard. It authorizes the Mescalero Dunes, Hackberry Lake, and Square Lake ORV areas. The Mescalero Dunes ORV area is in the heart of the lizard’s habitat, but the BLM plans to expand it, from 562 acres to 1,674 acres. The Square Lake ORV area is also within lizard habitat, as is a portion of the Hackberry Lake ORV area. In addition, ORV management is rife with enforcement issues, where ORV-users recreate in unauthorized areas. For the Mescalero Dunes area, BLM states that prior to its expansion BLM will confirm there are no conflicts with special status species (2007 RMPA at p. 2-53). The Hackberry Lake ORV area is 22,673 acres, including the Shugart Dunes area, and BLM includes no pledge to analyze conflicts with special status species. The Square Lake ORV area measures 5,974 acres and includes sand dunes. For this area, BLM states that it will confirm there are no conflicts with special status species prior to “development” but presumably not prior to continued ORV use. *Id.* As discussed below, BLM also acknowledges the potential for ORVs to cause damage outside of designated areas.

However, petitioners question whether BLM will accurately identify conflicts between ORVs and lizards, given the RMPA’s baseless assertion that impacts to “highly mobile” wildlife species will be “minimal.” The RMPA states,

Wildlife species that are highly mobile, such as the lesser prairie-chicken, would evacuate the area during times of OHV use, and potentially return to the area once activities have ceased. Potential impacts to sand dune lizards would be minimal as well. Sand dune lizards are a mobile species that utilize sand and shinnery oak for cover. Impacts would be associated with the duration of use in an area and impacts would be directly tied to the area being used. Due to the nature of the sand dune lizard and the habitat requirements of shinnery oak overhangs and the avoidance of open un-vegetated dunes impacts would be minimal. *Id.* at p. 4-44.

In its discussion of seismic exploration, the BLM similarly dismisses the threat based on the lizard’s mobility but does acknowledge that this activity will “reduce the area of

undisturbed wildlife habitat” and could create new roads (*Id.* at p. 4-10). The mitigation provided is that these new roads would be signed (and possibly blocked off) to prevent access. *Id.* While blocking access (when it occurs) would help prevent continued use of these new roads, in general the BLM’s analysis of ORVs and seismic exploration indicate that the agency is not taking seriously the consequences of this land use to lizards. The BLM does not fully consider the degradation ORVs are causing to the lizard’s shinnery dune habitat, the displacement of lizards who avoid ORVs, the lizards, eggs, and nests that may be crushed by this activity, or the intersection of this threat with other harms the lizard faces from oil and gas activities and herbicide use, compounded by its narrow range. The BLM has therefore failed to adopt adequate regulatory mechanisms to mitigate this threat to lizards and their habitat.

C. Other natural or manmade factors affecting its continued existence

The Service recognizes that the extremely narrow range and distribution of the sand dune lizard is an additional threat to its survival (FWS 2002, 2004, 2007). Habitat requirements for this species are very specific: they are not found where shinnery oak is lacking, and they occur exclusively within blowouts in active dunes associated with shinnery oak. They prefer large, deep blowouts, medium-grained sands (250-354 μm), relatively cool air and substrate temperatures, and northeastern-facing slopes (Fitzgerald et al. 1997). Within New Mexico, the sand dune lizard is found only within a crescent-shaped area, from the vicinity of Milnesand in Roosevelt County and northwest of Kenna in Chaves County to west of the Mescalero Ridge, and extending southeast to the border with Texas south of Hobbs in Lea County. They do not appear to inhabit broad, seemingly suitable shinnery dune habitat south of US Hwy 62/180 in Eddy County and south of NM 176 in Lea County, from the WIPP site southeast to Jal. *Id.* The total range of this lizard in New Mexico is 893 square miles, but potential habitat within that range measures only 655 square miles. Its range measures only 10-16 miles across at its widest points. In addition to the very small size of its range, its distribution within that range is patchy: the lizard was found to be absent from 25% of sites within its range and in suitable habitat. *Id.*

Painter et al. (1999) noted that the lizard occurs in localized, fragmented populations within four geographically isolated areas within its total range in New Mexico. One of these areas, Mescalero Sands, comprises 71.3% of the lizard’s range in the state. The other three populations are therefore subject to higher extinction risks and lower probabilities of long-term survival given the small areas they occupy. Another impact from its narrow range is apparent in an area near Monument, New Mexico, where the lizard’s habitat is less than a mile wide. Painter et al. (1999) warn that fragmentation of shinnery oak in this area from oil and gas extraction may create a barrier to lizard movement and gene flow. This is also true in a location near Maljamar, where oil fields extend across the entire width of the lizard’s range, and another location near Eunice, where continued development could sever the habitat corridor between New Mexico and Texas. *Id.*

Scientists recently attempted to map the distribution and range of the sand dune lizard in Texas as well (Laurencio et al. 2007). Surveys were conducted in 6 counties in west Texas: Andrews, Crane, Cochran, Edwards, Ward and Winkler, which all contain shinnery oak. They suggested that the range of the sand dune lizard in Texas may be smaller than predicted: it may now be restricted to a large band of sand dunes in Ward, Winkler, and Andrews counties. Lizards were sighted on only 3 of 27 sites surveyed (11%). Laurencio et al. (2007) stated that the number of lizards observed was low when compared with similar surveys conducted in New Mexico and concluded that sand dune lizards were either absent or uncommon in most sites surveyed. *Id.*

Researchers who established the range and distribution of the lizard in New Mexico commented that the value of unoccupied habitat should not be dismissed, given the dynamic character of the landscape. Fitzgerald et al. (1997 at p. 27) state, “Anyone who visits the Mescalero Sands immediately grasps the dynamic nature of the shinnery dunes landscape. The habitat moves.” They therefore underscore the importance of currently unoccupied lizard habitat,

We recommend for the long-term conservation of *S. arenicolus*, the view must be embraced that the range, distribution, and even the populations of the lizards themselves are dynamic entities that move across the landscape. Considering together the dynamic nature of the shinnery dunes landscape, the habitat specificity of the lizards, and the finding that they were absent from more than 25% of suitable locations surveyed within their present range, it is imprudent to consider currently unoccupied patches of habitat within the range or along the edge of the range as useless to *S. arenicolus*. *Id.* at p. 29.

It is therefore vital to protect both occupied and unoccupied sand dune lizard habitat, and studies are also investigating the importance of habitats linking occupied lizard areas for dispersal (Fitzgerald et al. 2005). Echoing the recommendations from previous research on shinnery oak removal, the researchers establishing the range of the species in New Mexico commented, “We feel it is prudent to limit the size and location of alterations to shinnery dunes habitat” and also recommended study of the feasibility of habitat restoration (Fitzgerald et al. 1997 at p. 30). However, as petitioners have demonstrated, current regulatory mechanisms are inadequate to safeguard threats against lizard’s habitat, which are compounded by its extremely narrow range.

III. Protection for the Sand Dune Lizard Protects the Unique Sand Shinnery Ecosystem

The sand dune lizard should be immediately listed under the emergency listing provision of the ESA. This action is required to prevent its extinction. However, the plight of the sand dune lizard must be considered in the context of the ecosystem in which it dwells. The sand dune lizard is the only reptile restricted to shinnery oak habitat. This highly specialized lizard has the second most geographically restricted range of any lizard in

North America (Fitzgerald et al. 1997).⁵ The sand dune lizard's nearest relatives inhabit the Great Basin and Colorado Plateau (Bailey and Painter 1994).

A survivor of massive climate changes 15,000 years ago, the sand dune lizard may not be able to survive us. The sand dune lizard is found in areas of open sand, especially in large blowouts, but requires the unique shinnery oak, a miniature tree (Fitzgerald et al. 1997). Scientists don't know for certain why the shinnery oak is so important for the lizard – maybe for the role it plays in interacting with dunes to create a unique habitat, perhaps it provides refuge, or key habitat for the insects that the lizards eat. Regardless of the reason why, sand dune lizards are seldom found more than six feet from a shinnery oak plant (Peterson and Boyd 1998), but humans have steadily eroded the low-growing oak forest that creates the unique world in which the lizard can live. The fate of the lizard and shinnery oak are therefore delicately and irrevocably intertwined.

The sand dune lizard broke away from the wider-ranging sagebrush lizard (*S. graciosus*), which ranges throughout many states in the western U.S. The sand dune lizard evolved into a full species in its own right given its geographical separation from other subspecies of the parent species. The sand dune lizard is an excellent example of evolution in action, as a life form that so adapted to its specialized habitat as to become a unique type distinct from related lizards found in other habitat. In this way, sand dune lizards also serve as an indicator of the health of shinnery oak ecosystems. Given that sand dune lizards face extinction, they indicate that sand shinnery habitat is in serious trouble.

The Service notes on the listing form for the sand dune lizard, “there are no other federally listed species within the range of the sand dune lizard that might provide umbrella protection for the species” (FWS 2007 at p. 7). This is true, as another resident of shinnery oak, the lesser prairie-chicken (*Tympanuchus pallidicinctus*), has been a candidate awaiting ESA listing since June 1998. 63 *Fed. Reg.* 31400-31406. But the prairie-chicken has been denied protection alongside the lizard. Protection for either would help protect both, but protection has been refused.

NMDGF classifies 4 amphibians, 29 reptiles, 25 birds, and 61 mammals (some of which have been extirpated) as associated with the unique sand shinnery community (NMDGF Klingel 2000 memo). All are impacted from land uses that remove or degrade shinnery oak and sand dunes, whether through herbicides, oil and gas development, or ORVs.

Advocating for a reclassification of the lizard to state-endangered, Bailey and Painter of NMDGF wrote in 1994,

If we lose the dunes sagebrush lizard, it will be because we have lost its unique habitat in the Mescalero sands. That habitat consists of an unusual physical environment, the dunes and blowouts; it harbors a unique biotic community of plants and animals. The little-known Mescalero sands white-tailed deer lives there. Listing the dunes sagebrush lizard as

⁵The most geographically restricted lizard in North America is the Coachella Valley fringe-toed lizard (*Uma inornata*), which was listed under the ESA in 1980. 45 *Fed. Reg.* 63812-63820.

endangered is really a warning that a unique environment of the New Mexico landscape is endangered. The issue of lost habitat involves more than one species (p. 23).

The sand shinnery community is considered threatened in both New Mexico and Texas (Bailey and Painter 1994, Dhillion et al. 1994, Painter et al. 1999). This rapidly dwindling ecosystem must be protected in order to give the sand dune lizard, the prairie-chicken, the myriad wildlife found in this special place, and the unique shinnery dunes ecosystem itself a chance at survival. The Service can embark on the course to ecosystem protection by emergency listing the sand dune lizard.

IV. Conclusion: the Sand Dune Lizard Must Be Immediately Protected Under the ESA

In 2000, a year before the Service designated the lizard a candidate warranting ESA listing, NMDGF pondered the need for emergency federal listing for the species, given a federal proposal to kill 250,000 acres of shinnery oak. The Service was aware at least a year prior that the lizard “has the potential to go extinct in the relatively near future” yet the agency has refused to act.

Research throughout the 1990s demonstrated that shinnery oak removal and oil and gas development was greatly harming the lizard. Oil and gas activities are now considered the leading threat driving the lizard to extinction. Current research is showing that the lizard’s range in Texas may be narrower than predicted, and that the toxic gas, hydrogen sulfide constitutes an additional threat to the lizard.

The misfortune of the sand dune lizard is that its highly specialized shinnery dune habitat overlies the Permian basin, one of the most active oil fields in the country. But the rush to convert the fragile and unique shinnery oak community to wellpads and pipelines has resulted in biological imperilment of not only the sand dune lizard, but the lesser prairie-chicken, and the rich shinnery oak ecosystem that both – and many others – depend upon. Prompt listing of the lizard will be one important step toward safeguarding this irreplaceable landscape.

It is apparent that listing must indeed be prompt. The ESA requires that the Service take emergency listing action when there is a significant risk to the well-being of a species. The risk to the lizard lies in delayed regulatory protections. Its habitat is routinely destroyed from oil and gas, herbicides, and off-road vehicles. Compounding this is the threat from pollution, from leaking pipelines and an air-borne danger in the form of hydrogen sulfide. None of these threats are adequately reduced by existing regulatory mechanisms. The greatest threat of all may be that these acute dangers occur within the lizard’s extremely small range so that this rare reptile literally has nowhere to turn.

WildEarth Guardians hereby requests immediate emergency listing of the sand dune lizard under the ESA. Emergency listing is necessary for interim protection, especially as

scientists suggest it might already be too late to prevent the lizard's extinction. While the species is emergency listed, the Service should issue a final rule to list the species.

List of Attachments (provided on CD)

Attachment 1: U.S. Fish and Wildlife Service. 2002. Candidate assessment and listing priority assignment form for sand dune lizard. Dated March 2002.

Attachment 2: U.S. Fish and Wildlife Service. 2004. Candidate assessment and listing priority assignment form for sand dune lizard. Dated March 2004.

Attachment 3: U.S. Fish and Wildlife Service. 2007. Species assessment and listing priority assignment form for sand dune lizard. Dated March 2007.

Attachment 4: Bailey, J., and C. Painter. 1994. What good is this lizard? New Mexico Wildlife. July/August 1994.

Attachment 5: Painter, Charles. 1991. Letter to the U.S. Fish and Wildlife Service, dated December 20, 1991.

Attachment 6: U.S. Fish and Wildlife Service. 1993a. Category and listing priority assignment form for the dunes sagebrush lizard. Dated December 30, 1993.

Attachment 7: U.S. Fish and Wildlife Service. 1993b. Memorandum on the status of the dunes sagebrush lizard. Dated November 23, 1993.

Attachment 8: New Mexico Department of Game and Fish. 1995. Letter to Chuck Moran, Yates Petroleum, dated May 17, 1995.

Attachment 9: U.S. Fish and Wildlife Service. 2000. Briefing statement on the status of the sand dune lizard. Dated June 29, 2000.

Attachment 10: Sias, Don S., and Howard L. Snell. 1997a. Populations of the sand dune lizard *Sceloporus arenicolus* in relation to oil and gas fields in southeastern New Mexico. Final report for 1996 field studies. Working Draft. Submitted by University of New Mexico researchers to New Mexico Department of Game and Fish on February 28, 1997.

Attachment 11: Center for Biological Diversity. 2002. Petition to List the Sand Dune Lizard *Sceloporus arenicolus* as a Threatened or Endangered Species under the U.S. Endangered Species Act. Dated May 2002.

Attachment 12: Winter, Allison. 2008. Interior will decide 71 listing proposals this year, FWS says. Greenwire, February 29, 2008.

Attachment 13: New Mexico Department of Game and Fish. 1994a. Letter to the Bureau of Land Management dated January 11, 1994.

Attachment 14: Snell, Howard L., Larry W. Gorum, Mark W. Doles, Chris K. Anderson. 1994. Results of the third years (1993) research on the effect of shinnery oak removal on

the sand dune lizard, *Sceloporus graciosus arenicolous*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6.-01. Dated February 9, 1994.

Attachment 15: U.S. Bureau of Land Management. 1994a. Memorandum dated February 2, 1004.

Attachment 16: U.S. Bureau of Land Management. 1994b. Memorandum dated February 16, 1004.

Attachment 17: Multiple letters related to 1994-95 oil development controversy.

Attachment 18: New Mexico Department of Game and Fish. 1994b. Letter to the Bureau of Land Management dated March 3, 1994.

Attachment 19: New Mexico Department of Game and Fish. 1994c. Letter to the Bureau of Land Management dated March 4, 1994.

Attachment 20: U.S. Fish and Wildlife Service. 1994. Telephone conversation record dated March 3, 1994.

Attachment 21: Cooperative agreement for sand dune lizard research, signed by New Mexico Department of Game and Fish, U.S. Bureau of Land Management, and New Mexico Oil and Gas Association. Signed April 1994.

Attachment 22: Domenici, Pete. 1994. Memorandum to Sen. Robert Byrd, dated May 20, 1994.

Attachment 23: Sias, Don S., and Howard L. Snell. 1996. The dunes sagebrush lizard *Sceloporus arenicolus* and sympatric reptile species in the vicinity of oil and gas wells in southeastern New Mexico. Final report for 1995 field studies. Submitted by University of New Mexico researchers to New Mexico Department of Game and Fish on February 27, 1996.

Attachment 24: Sias, Don S., and Howard L. Snell. 1997b. Populations of the sand dune lizard *Sceloporus arenicolus* in relation to oil and gas fields in southeastern New Mexico. Final report for 1996 field studies. Submitted by University of New Mexico researchers to New Mexico Department of Game and Fish in July 1997.

Attachment 25: 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.

Attachment 26: Laurencio, David, Laura R. Laurencio, and Lee A. Fitzgerald. 2007. Geographic distribution and habitat suitability of the sand dune lizard (*Sceloporus*

arenicolus) in Texas. September 30, 2007.

Attachment 27: Fitzgerald, L.A., M.W. Sears, and C.W. Painter. 2005. Interdune dispersal of sand dune lizards (*Sceloporus arenicolus*) in the Mescalero Sands ecosystem. Report to New Mexico Department of Game and Fish. February 2005.

Attachment 28: Eric Hein, U.S. Fish and Wildlife Service, memo dated June 29, 2000.

Attachment 29: Howard, Mike. 1984. Notes on sand dune lizard study, U.S. Bureau of Land Management.

Attachment 30: Snell, H.L., and A. Landwer. 1992. Results of preliminary research on the effect of shinnery oak removal on the sand dune lizard, *Sceloporus graciosus arenicolous*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6.-01.

Attachment 31: Snell, H.L., B. Gorum, and A. Landwer. 1993. Results of second years research on the effect of shinnery oak removal on the sand dune lizard, *Sceloporus arenicolus*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6.-01. Dated January 20, 1993.

Attachment 32: Gorum, Larry W., Howard L. Snell, Leland J.S. Pierce, and Tobias J. McBride. 1995. Results form the fourth year (1994) research on the effect of shinnery oak removal on the sand dune lizard, *Sceloporus graciosus arenicolous*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6.-01. Dated January 23, 1995.

Attachment 33: 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, *Sceloporus graciosus arenicolous*, in New Mexico. Final report to New Mexico Department of Game and Fish. Contract #80-516.6.-01. Dated April 1997.

Attachment 34: Painter, C. W., D. S. Sias, L. E. Fitzgerald, L. L. S. Pierce, and H. L. Snell. 1999. Management plan for the sand dune lizard, *Sceloporus arenicolus*, in New Mexico. 45 pp. Dated June 15, 1999.

Attachment 35: New Mexico Department of Game and Fish. 2007. Oil and Gas Development Guidelines Conserving New Mexico's Wildlife Habitats and Wildlife. Rachel Jankowitz, primary author. August 2007.

Attachment 36: U.S. Bureau of Land Management. 2007. Special Status Species Proposed Resource Management Plan Amendment/Federal Environmental Impact Statement. Final released November 2007.

Attachment 37: New Mexico Department of Game and Fish. 2006. Threatened and

endangered species of New Mexico. 2006 Biennial Review. July 14, 2006.

Attachment 38: Fitzgerald, L.A., C.W. Painter, D.S. Sias, and H.L. Snell. 1997. "The range, distribution, and habitat of Sceloporous arenicolus in New Mexico." Final report to New Mexico Department of Game and Fish. Contract #80-516.6-01. 31 pp.

Attachment 39: Painter, Charles. 2002. Management plan for sand dune lizard *Sceloporus arenicolus* in New Mexico. Addendum No. 1.

Attachment 40: Painter, Charles. 2004. Conservation of the sand dune lizard *Sceloporus arenicolus* in New Mexico. Recommendations based on the management plan for the sand dune lizard. February 2004.

Attachment 41: U.S. Bureau of Land Management, Oil and Gas Lease Sale Notices, 2007-2008.

Attachment 42: U.S. Bureau of Land Management. 1995. Letter to New Mexico Department of Game and Fish dated September 18, 1995.

Attachment 43: Correspondence on 2002 BLM Spray Proposal.

Attachment 44: U.S. Bureau of Land Management. 2004. Environmental Assessment and Finding of No Significant Impact for Mesquite Control within the Mescalero Sands. EA# NM-060-04-072.

Attachment 45: Forest Guardians. Comments on Mescalero Sands EA# NM-060-04-072. Letter to the U.S. Bureau of Land Management dated March 10, 2004.

Attachment 46: U.S. Bureau of Land Management. 2007. Environmental Assessment and Finding of No Significant Impact for Upper Pecos River Watershed Restoration – East EA# NM-520-07-0482.

Attachment 47: New Mexico Department of Game and Fish. 2000. Letter to the Natural Resource Conservation Service dated August 7, 2000.

Attachment 48: U.S. Bureau of Land Management Record on Tebuthiuron treatments for 2007.

Attachment 49: U.S. Fish and Wildlife Service. 2000. Letter to the Natural Resources Conservation Service dated November 8, 2000.

Attachment 50: Jon Klingel, New Mexico Department of Game and Fish, memo dated June 29, 2000.

Attachment 51: Eric Hein, U.S. Fish and Wildlife Service, email chain dated March and April 2002.

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