

All coordinates are listed in the table reference Datum NAD 1983.

During the enforcement periods, as reflected in § 100.1302, if you are the operator of a vessel in the regulated area you must comply with directions from the Patrol Commander or any official patrol vessel. Vessels may not transit the regulated areas without approval from the Patrol Commander. Vessels permitted to transit must operate at a no wake speed, in a manner which will not endanger participants or other crafts in the event. Spectators or other vessels shall not anchor, block, loiter, or impede the transit of event participants or official patrol vessels in the regulated areas during the effective dates and times, or dates and times as modified through Local Notice to Mariners, unless authorized by an official patrol vessel. In addition to this notice of enforcement in the **Federal Register**, the Coast Guard will provide notification of these enforcement periods via the Local Notice to Mariners and marine information broadcasts.

Dated: May 13, 2024.

J.W. Noggle,

Captain, U.S. Coast Guard, Captain of the Port Sector Columbia River.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R2-ES-2022-0162; FXES1111090FEDR-245-FF09E21000]

RIN 1018-BG22

Endangered and Threatened Wildlife and Plants; Endangered Species Status for the Dunes Sagebrush Lizard

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered species status under the Endangered Species Act of 1973 (Act), as amended, for the dunes sagebrush lizard (*Sceloporus arenicolus*), a lizard species found only in southeastern New Mexico and west Texas. This rule extends the protections of the Act to this species. Because we have concluded that the designation of critical habitat for the dunes sagebrush lizard is prudent but not determinable at this time, we will consider critical habitat for the species in a separate, future rulemaking.

DATES: This rule is effective June 20, 2024.

ADDRESSES: This final rule, supporting materials we used in preparing this rule (such as the species status assessment report), and comments and materials we received on the July 3, 2023, proposed rule are available on the internet at <https://www.regulations.gov> under Docket No. FWS-R2-ES-2022-0162.

FOR FURTHER INFORMATION CONTACT: Shawn Sartorius, Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, 2105 Osuna NE, Albuquerque, NM 87113; telephone 505-346-2525. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act (16 U.S.C. 1531 *et seq.*), a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the dunes sagebrush lizard meets the Act's definition of an endangered species; therefore, we are listing it as such. As explained later in this document, because the designation of critical habitat for the dunes sagebrush lizard is prudent but not determinable at this time, we will consider critical habitat for the species in a separate, future rulemaking. Listing a species as an endangered or threatened species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 *et seq.*).

What this document does. This rule lists the dunes sagebrush lizard as an endangered species under the Act.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (A) The

present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that the dunes sagebrush lizard is endangered due to the following threats: (1) Habitat loss, fragmentation, and degradation from development by the oil and gas and the frac sand (high-purity quartz sand that is suspended in fluid and injected into wells to blast and hold open cracks in the shale rock layer during the fracking process) mining industries; and (2) climate change and climate conditions, both resulting in hotter, more arid conditions with an increased frequency and greater intensity of drought throughout the species' geographic range.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, to designate critical habitat concurrent with listing. As explained later in this rule, we find that the designation of critical habitat for the dunes sagebrush lizard is not determinable at this time. The Act allows the Service an additional year to publish a critical habitat designation that is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

Previous Federal Actions

Please refer to the proposed listing rule (88 FR 42661; July 3, 2023) for a detailed description of previous Federal actions concerning the dunes sagebrush lizard.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the dunes sagebrush lizard. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species.

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review in listing actions under the Act, we solicited independent scientific review of the information contained in the dunes sagebrush lizard SSA report. The peer reviews can be found at

<https://www.regulations.gov>. In preparing the July 3, 2023, proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which was the foundation for the proposed rule and this final rule. A summary of the peer review comments and our responses can be found in the proposed rule (88 FR 42661 at 42663–42664; July 3, 2023).

Summary of Changes From the Proposed Rule

Based upon our review of the public comments, State agency comments, peer review comments, and relevant information that became available since the July 3, 2023, proposed rule published, we updated information in our SSA report, including:

- Adding references on the impact of frac sand mining on groundwater (USFWS 2024, pp. 70–80).
- Adding information and references on human population growth in the Permian Basin, which is likely to exacerbate the threats of habitat loss and fragmentation (USFWS 2024, p. 127).
- Adding information (Chan 2023, pers. comm.) regarding estimates of genetic effective population size for dunes sagebrush lizard populations (USFWS 2024, pp. 40–41, 106–107).
- Adding information on the effects of climate change on future groundwater levels (USFWS 2024, p. 75).
- Updating enrollment numbers in existing conservation agreements (USFWS 2024, p. 84).

We also made changes as appropriate in this final rule. In addition to minor clarifying edits, this determination differs from the proposal in the following ways:

(1) We received a comment regarding the impact of fugitive road dust on the dunes sagebrush lizard and its habitat. This comment indicated that the impact of fugitive road dust on the species is uncertain. After reconsidering the impact of fugitive road dust on the species, we decided to remove the statement referencing road dust from the explanation of the listing decision presented below. This change does not impact the final conclusion that the dunes sagebrush lizard is in danger of extinction throughout all of its range (*i.e.*, that it meets the Act's definition of an endangered species).

(2) We updated the language in the explanation of the listing decision and SSA report to address confusion regarding the terms “well density” and “well pad density.” These changes demonstrate that our focus is on well pads, and the associated construction of road infrastructure, as they are central components of ground disturbance, and

therefore species impacts, in oil and gas drilling and extraction.

Summary of Comments and Recommendations

In the proposed rule published on July 3, 2023 (88 FR 42661), we requested that all interested parties submit written comments on the proposal by September 1, 2023. Following requests from several members of the public, on August 30, 2023, we published a document in the **Federal Register** (88 FR 59837) extending the public comment period on our July 3, 2023, proposal to October 2, 2023. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the *Albuquerque Journal*, *Midland Reporter*, and *Carlsbad Argus*. We held a public informational session and a public hearing on July 31, 2023. All substantive information we received during the comment periods has either been incorporated directly into this final determination or is addressed below.

Federal Agency Comments

(1) *Comment:* One Federal agency, one State agency, and several public commenters suggested that the Service list the dunes sagebrush lizard as a threatened species in order to issue a rule under section 4(d) of the Act (a “4(d) rule”) that exempts from take those activities that occur pursuant to CCAAs, noting this framework would complement existing conservation efforts.

Our response: We conclude that the dunes sagebrush lizard is currently in danger of extinction, and not in danger of extinction within the foreseeable future. Therefore, the species currently meets the Act's definition of an endangered species, not the definition of a threatened species. The commenters did not provide supporting evidence as to why the dunes sagebrush lizard should be listed as a threatened species. We cannot consider regulatory implications, such as the flexibility provided by a potential 4(d) rule, in determining the status of a species.

Comments From States

(2) *Comment:* We received several comments regarding critical habitat designation for the dunes sagebrush lizard. One State agency expressed that not designating critical habitat at the time of listing calls into question the Service's conclusions, and they requested that the Service not delay

designating critical habitat and the associated analysis of the economic impact of a critical habitat designation for the species. Other commenters expressed concern over a delay in designating critical habitat, noting either the need for an evaluation of economic impacts or concern that the delay will lead to additional destruction of dunes sagebrush lizard habitat. Another State agency indicated that they plan to assist with any necessary analysis in the development of a critical habitat designation for this species.

Our response: As described below under II. Critical Habitat, we find the designation of critical habitat to be prudent but not determinable at this time. Because the evaluation of economic impacts comes into play only in association with the designation of critical habitat under section 4(b)(2) of the Act, we did not engage in any evaluation of economic impacts to inform this final listing rule. We recognize that designation of critical habitat would create an additional layer of protection; however, we are still in the process of assessing the information needed to analyze the impacts of the designation. The Act allows the Service an additional year to publish a critical habitat designation if we find that critical habitat is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

(3) *Comment:* Two State agencies and several public commenters expressed concern for the impacts this listing rule will have on the economy, agriculture industry, and energy independence. One State agency also expressed concern for the impact listing will have on funding for education in Texas due to impacts to revenues from oil and gas.

Our response: We acknowledge these concerns and, separate from this listing action, have worked with partners to develop voluntary conservation agreements to mitigate the impacts of industrial activities. We remain committed to continuing to do so. However, regarding this listing, the Act requires that listing determinations be made solely on the basis of the best scientific and commercial data available and the Congressional record is clear that economic analysis requirements of Executive Order 12291 and such statutes as the Regulatory Flexibility Act do not apply to any phase of determining the listing status of an entity under the Act.

(4) *Comment:* Two State agencies and several individuals commented that the Service's analysis and listing determination disregard voluntary conservation efforts now and into the future. Several argued the candidate

conservation agreement (CCA) in New Mexico and the candidate conservation agreements with assurances (CCAAs) in both New Mexico and Texas offer sufficient protections and conservation such that listing of the species is not warranted. One State agency commented that listing the dunes sagebrush lizard as endangered undermines the voluntary conservation efforts put in place and will have detrimental impacts to the species by discouraging future voluntary conservation efforts.

Our response: The Act requires us to make a determination using the best available scientific and commercial data after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species within any area under its jurisdiction. In line with that requirement, we considered all current and projected future impacts of conservation efforts on the status of the dunes sagebrush lizard. In addition, the listing of the species does not prevent the existing conservation agreements from operating or obstruct the development of additional conservation agreements or partnerships to conserve the species. The conditions of the CCA and CCAAs will remain in place for enrollees now that the dunes sagebrush lizard is listed as an endangered species. Once a species is listed as either endangered or threatened, the Act provides many additional tools to advance the conservation of listed species. Conservation of the dunes sagebrush lizard is dependent upon working partnerships with a wide variety of entities, including the voluntary cooperation of non-Federal landowners. Building partnerships and promoting cooperation of landowners are essential to understanding the status of species on non-Federal lands and may be necessary to implement recovery actions such as reintroducing listed species, restoring habitat, and protecting habitat. Once a species is listed, for private or other non-Federal property owners, we offer voluntary safe harbor agreements (SHAs) that can contribute to the recovery of species, habitat conservation plans (HCPs) that allow lawful activities to proceed while minimizing effects to species, funding through the Service's Partners for Fish and Wildlife Program to help promote conservation actions, and grants to the States under section 6 of the Act.

The existing CCA and CCAAs in New Mexico and Texas have provided, and continue to provide, many conservation

benefits for the dunes sagebrush lizard. However, based on the information we reviewed in our assessment, we conclude that the risk of extinction for the dunes sagebrush lizard is high despite these efforts. For example, advances in mapping dunes sagebrush lizard habitat have allowed the Service to gain a better understanding of the extent of habitat loss and fragmentation for the species rangewide. We have quantified these habitat impacts with the mapping effort described in chapter 5 of the SSA report (USFWS 2024, pp. 88–111). Furthermore, these conservation agreements have not eliminated the loss of dunes sagebrush lizard habitat. The current buffer around duneland habitat in New Mexico is 30 meters. As a result, development continues in close proximity to duneland habitat. This has led to increased habitat fragmentation and a loss of connectivity between important habitat patches. In Texas, the CCAAs promote avoidance and minimization of impacts to dunes sagebrush lizard habitat. However, these CCAAs still allow development within dunelands when mitigation measures are applied, although some of these mitigation measures, such as mesquite removal, have been shown to provide little conservation benefit (USFWS 2024, pp. 86–87). Thus, continued development in dunelands contributes to increasing fragmentation, which has failed to be offset by mitigation. Also, the accomplishments and level of success of the existing CCA and CCAAs differ between Texas and New Mexico, as pointed out by several commenters. Enrollment in the Texas Conservation Plan (TCP), one of the two CCAAs, in Texas, has declined significantly over the past several years and the plan has not performed as expected due to several factors, including implementation errors, low enrollment, activities of non-Participants, and stratification of enrolled and non-enrolled properties. The CCAA signed in 2020, which is the second CCAA in Texas, also currently has similar issues, such as low enrollment, stratification of properties, and lack of clarity to date on conservation measures and other activities. While conservation measures are a requirement of participation in the certificates of inclusion, we are unsure of the extent of conservation measure implementation in Texas, as well as the locations of areas where conservation is occurring. Thus, while we continue to coordinate with the plan administrators, based on performance reporting to date, it has not yet been demonstrated that these agreements will be adequate or

effective at protecting the dunes sagebrush lizard or its habitat in Texas into the future. Therefore, the measures implemented by these agreements are not enough to reduce the risk of extinction of the dunes sagebrush lizard such that it does not meet the definition of an endangered species.

(5) Comment: One State agency recommended the Service provide additional information regarding interpretation of a population viability analysis. Several public commenters also requested additional information on why modeling habitat is reliable for inferring dunes sagebrush lizard demographics. One public commenter suggested that the results of the population viability model from Leavitt and Acre (2021, p. 29) support a threatened listing determination.

Our response: Our assessment of the viability of the dunes sagebrush lizard was based on the quantity and quality of habitat across its range. We chose this approach for several reasons. First, it provided a consistent methodology to assess populations rangewide, which was not available for any of the demographic data. Since the habitat assessment was based on aerial imagery and land cover data available across the entire species' range, and was not limited by State lines, we were able to generate comparable data to assess habitat. As noted in the SSA report, there are no rangewide data on population abundance and trends for the dunes sagebrush lizard (USFWS 2024, pp. 35–41). Leavitt and Acre (2021, entire) provide population estimates for the New Mexico portion of the range only. There are no equivalent population estimates for Texas. Without consistent demographic data, our approach ensures that comparable data available across the species' range were used to provide a comprehensive assessment of the dunes sagebrush lizard's status.

Second, given the habitat specificity of the dunes sagebrush lizard, we determined that an assessment of habitat is appropriate to evaluate the status of the species. There is ample evidence that loss and degradation of the habitat result in declines and extirpations of the dunes sagebrush lizard. As referenced in the SSA (USFWS 2024, pp. 57–60), multiple studies have documented the impact of increasing well pad density on the species, providing a consistent metric to assess viability of dunes sagebrush lizard populations (Sias and Snell 1998, p. 1; Leavitt and Fitzgerald 2013, p. 9; Ryberg et al. 2015, p. 893; Johnson et al. 2016, p. 41; Walkup et al. 2017, p. 9).

Although Leavitt and Acre (2021, entire) provide estimates of population abundance, this study has several limitations relevant to our assessment. Again, the study is limited to just the dunes sagebrush lizard's range in New Mexico. Second, density estimates were based on lizard surveys at several locations, noted as trapping grids. The spatial distribution of these grids is heavily biased: most are concentrated in a single analysis unit (southern Mescalero 1). The remaining analysis units had just one grid, except for northern Mescalero 4, which had none. This spatial bias may impact population density estimates. Third, the population estimates for each analysis unit were based on the assumption that all potentially suitable habitat is occupied at all times, which is likely an overestimate of true habitat occupancy. Numerous studies have revealed that given the colonization and source-sink dynamics of dunes sagebrush lizard populations, not all patches of adequate habitat may be occupied (USFWS 2024, p. 36). The study did not consider where a block of habitat was of sufficient size to support a population of dunes sagebrush lizards, or whether they were fragmented and isolated to the point that colonization of these patches was unlikely. It also did not incorporate the well pad density thresholds that are correlated with decreases in dunes sagebrush lizard abundance in estimating population abundance. The survey grids used to inform the density estimates are located in relatively undisturbed, intact habitat and may not reflect dunes sagebrush lizard abundance in degraded habitat. Thus, the population estimates of Leavitt and Acre (2021, entire) are likely overestimates of the number of dunes sagebrush lizards on the landscape. We conclude that these estimates are insufficient for inferring population resiliency and that our habitat modeling provides a more reliable approach.

Leavitt and Acre (2021, pp. 6–11) also performed a population viability analysis to estimate the probability of extirpation for each analysis unit in New Mexico. However, we do not rely on this analysis for several reasons. First, as noted above, the population estimates used as input for the model are biased and likely to be overestimates. Second, the population viability analysis uses two different model frameworks to estimate probability of extinction. Notably, these two models provide drastically different estimates; one model, which is based on the Vortex modeling framework, predicts the probability of extirpation to

be less than 1 percent for all analysis units, whereas the other model predicts the probability is greater than 50 percent for all analysis units. These discrepancies are due to the differing analytical assumptions and data inputs for the two models. The difference in the outcome of these models reinforces our decision that a habitat model is the best way to avoid the apparent biases in existing survey data and to examine the threats to the species from habitat loss and fragmentation, which are the most impactful threats to the species. Hence, we did not rely on this model in our listing determination.

(6) Comment: Two State agencies and several other commenters suggested that the Service did not appropriately consider population trends and population estimates for the dunes sagebrush lizard. They further expressed that these population estimates do not justify listing and that the Service failed to explain observed population increases. Commenters cited several studies referencing population estimates and trends, including Leavitt and Acre (2021, entire) and Acre and Hill (2023, entire).

Our response: As discussed in section 2.6.3 of the SSA report (USFWS 2024, pp. 38–41), rangewide population data for the dunes sagebrush lizard do not exist to enable us to estimate abundance and population trends. As noted in comment response (5), the population estimates for New Mexico produced by Leavitt and Acre (2021, entire) are likely overestimates based on the assumptions embedded in the analysis. The survey data completed in New Mexico (*i.e.*, Acre and Hill 2023, entire), which are discussed in section 2.6.4 of the SSA report (USFWS 2024, pp. 41–43), only cover specific locations within the species' range where the dunes sagebrush lizard is known to occur. These studies represent targeted surveys in high-quality habitat to discern localized trends in the species, and, as such, we are unable to extrapolate these data to look at population trends universally or infer the status of the species rangewide. These data are also not representative of habitat across the species' range and do not provide companion surveys of fragmented habitat. Other studies have shown that habitat fragmentation is correlated with declines of the dunes sagebrush lizard, as discussed in the SSA report (USFWS 2024, pp. 54–55). Additionally, the data referenced in the public comments (*e.g.*, Acre and Hill 2023, entire) only covers a brief time period (5 years), which is not sufficient to infer long-term population trends. As such, surveys limited to high-quality habitat across a

short time period provide too narrow of a dataset to infer rangewide populations trends. Our quantitative assessment of habitat condition provided a more comprehensive and consistent way to assess the status of the dunes sagebrush lizard rangewide.

(7) Comment: One State agency commented the Service incorrectly used the terms “well density” and “well pad density” interchangeably, and, as such, conclusions concerning impacts to the dunes sagebrush lizard at certain well pad densities now and into the future are unclear, are unsupported, and should not form the basis for the listing. The commenter claims the studies referenced by the Service also use the terms interchangeably, and that the Service should not rely on Sias and Snell (1998, entire) to conclude that a density of 13 well pads per square mile should be considered degraded habitat because the study preceded the advent of horizontal drilling.

Our response: We agree that the terms “well density” and “well pad density” are not interchangeable and are a source of confusion. Our focus is on well pads, and the associated construction of road infrastructure, as they are central components of ground disturbance in oil and gas drilling and extraction. Appropriate clarifications have been made in the SSA report and this final rule. We also agree that Sias and Snell (1998, entire) conducted their study before the widespread implementation of more advanced horizontal drilling technologies and thus employed a more conflated definition of wells and well pads, essentially drawing no distinction between the two meanings. The term “well(s)” used by Sias and Snell (1998) is, however, equivalent to the more recent usage of “well pad(s).”

With these clarifications, we continue to conclude the best available science demonstrates that a density of 13 well pads per square mile constitutes degraded habitat for the species. Johnson et al. (2016, pp. 41, 51) provides an independent analysis that shows important declines in dunes sagebrush lizard densities at more conservative values of 5 and 8 well pads per square mile, with additional declines at 18 well pads per square mile. Leavitt and Fitzgerald (2013, p. 9) document consistently fewer captures of dunes sagebrush lizards in fragmented sites, which they define as 13 well pads or more per square mile. Even when the species was present, it was found in lower abundance when there were 13 or more well pads per square mile. This study also found that the dunes sagebrush lizard was one of the first species to disappear from areas with 13

well pads or more per square mile. Further, this study notes that trapping grids located in areas that were more fragmented by development had fewer large dune blowouts, a key feature of dunes sagebrush lizard habitat and ecology, compared to non-fragmented areas. Walkup et al. (2017, pp. 5, 9, 10) confirmed that habitat fragmentation, again areas defined as having more than 13 well pads per square mile, resulted in very low capture rates and that the demographic structure of dunes sagebrush lizard populations in fragmented grids was clearly disrupted compared to unfragmented grids. The study concludes that too few dunes sagebrush lizards were present in fragmented areas to support a self-sustaining population. We, therefore, elected to use 13 well pads per square mile to describe degraded habitat due to the strong consensus in the literature from 1998–2017 and because there is clear evidence it is an appropriate measure of degraded habitat (USFWS 2024, p. 60).

Our assessment of future habitat conditions is based on a comprehensive analysis by Pierre et al. (2020, entire) that modeled landscape alterations from oil and gas well pad construction through the year 2050. Via the application of three discrete scenarios that project different levels of landscape-level impacts (low, medium, and high impact) across the Permian Basin, this study incorporated many of the trends and market forces that influence oil and gas development. In addition, to inform the placement and characteristics of modeled well pads, Pierre et al. (2020, pp. 3–5) accounted for the size and technological advances in horizontal drilling, which is capable of clustering multiple well heads on an individual well pad. We have concluded that both the current and future characterizations of well pad impacts and degraded habitat conditions presented in our analysis are based solely on the best scientific and commercial data available (USFWS 2024, pp. 111–112, 187).

(8) Comment: Two State agencies and several members of the public commented that the Service's conclusions about future impacts of oil and gas activities are exaggerated, are highly speculative, are based on antiquated data, and have high levels of uncertainty, which cause them to be insufficient to justify listing the dunes sagebrush lizard. Some of the commenters believe the SSA report and proposed rule fail to account for several technological advancements that significantly reduce impacts of oil and natural gas activities on the dunes

sagebrush lizard and its habitat. The commenters identified these advancements as including three dimensional (3D) seismic surveys, horizontal and directional drilling, multi-well pads, centralized facilities, shorter drilling and well completion timeframes, closed-loop drilling fluid systems, and enclosed liquid gathering systems.

Our response: We agree that advances in oil and gas drilling and extraction technologies represent a significant reduction in ground disturbance relative to historical practices. To account for this, we derived a set of future impact scenarios that empirically modeled both trends that drive demand and technologies that cluster multiple wells on a given well pad (Pierre et al. 2020, p. 4; USFWS 2024, p. 111). This analysis is presented in the SSA report (USFWS 2024, pp. 118–126) and represents the best available projections of future oil and gas drilling based on past well placement, market forces, and technological innovation. Our analysis demonstrates that across all three scenarios there will be continued loss of dunes sagebrush lizard habitat by 2050, although there were differences in the magnitude of overall habitat loss among the three scenarios.

Nonetheless, our listing determination that the dunes sagebrush lizard meets the Act's definition of an "endangered species" is supported by the current condition of the habitat and the risk that condition poses to the dunes sagebrush lizard throughout all of its range. The existing landscape includes a vast number of historical and unrestored well pads, as well as their associated road infrastructure. This enduring legacy of the oil and gas industry, spanning over a century of vertical drilling practices, represents a significant hindrance to dunes sagebrush lizard dispersal and drastically compromises habitat quantity and quality (USFWS 2024, pp. 56–60). We recognize that horizontal drilling has been implemented since 2008, but that does not allay the myriad issues with the degree and extent of historical well pads or the small proportion of well pads that have been reclaimed and returned to adequate dunes sagebrush lizard habitat. Further, we understand that many historical well pads are being reutilized for horizontal drilling; therefore, they are not currently considered to be candidates for future habitat restoration efforts and remain a source of ground disturbance.

In summary, the current condition of the dunes sagebrush lizard's habitat is highly fragmented and of diminished quality. As a result of the present

destruction and modification of dunes sagebrush lizard habitat, which has resulted in substantial reductions in the resiliency of populations, the species meets the Act's definition of an "endangered species," and we are listing it as such in this rule.

(9) Comment: One State agency commented that the Service failed to provide meaningful data to justify the reversal of the Service's 2012 finding that the dunes sagebrush lizard does not meet the statutory definition of an endangered or threatened species under the Act (see 77 FR 36872; June 19, 2012).

Our response: The 2024 decision to list the dunes sagebrush lizard as an endangered species relies on the recently completed SSA, which takes into account the best scientific data available on the species, including updated mapping efforts and additional research on the species and its habitat conducted or published after 2012. Between 2012 and 2024, mapping efforts by Natural Heritage New Mexico and Hardy et al. (2018, entire) (discussed in the SSA report's appendix B) have provided a resource for assessing dunes sagebrush lizard habitat rangewide (USFWS 2024, pp. 182–189). This resource was not available at the time of the 2012 listing decision. There has also been additional research published since 2012 on the dunes sagebrush lizard's population biology, such as factors influencing dispersal and population genetic structure (USFWS 2024, pp. 35–43), and the negative effects of habitat degradation on the species' persistence (USFWS 2024, pp. 55–59). With this additional information, we were able to re-evaluate the viability of the species more fully on these factors. This process revealed that the species' current condition places it in danger of extinction due to identified threats, including oil and gas development in dunes sagebrush lizard habitat. Data from the U.S. Census Bureau between 2010 and 2020 (Permian Basin Regional Planning Commission 2023, entire) indicate that there was continued human population growth in the Permian Basin Region. This growth is likely connected to increased industry development. Further, several studies project continued growth of extraction-related jobs in both Texas (Texas Oil and Gas Association 2023, entire) and New Mexico (New Mexico Department of Workforce Solutions 2023, p. 36). Again, this projection of continued growth of the oil and gas development industry indicates that there will continue to be impacts to the habitat of this species.

Oil and gas development, along with other threats like frac sand mining, continue to contribute to habitat loss and fragmentation, the primary threats to the dunes sagebrush lizard. Because restoration of shinnery oak duneland is not currently feasible, loss of habitat within duneland complexes must be viewed as a potential permanent impact to the species. In addition, the 2012 withdrawal was based on the implementation of newly developed conservation agreements, specifically the TCP in Texas (77 FR 36872). These agreements now have a track record that can be fully considered in evaluating the current and future viability of the dunes sagebrush lizard. As discussed below, the conservation efforts in place have not mitigated or ameliorated the threats to the dunes sagebrush lizard such that it does not require the protections of the Act.

(10) Comment: One State agency and several individuals commented that the Service exaggerated the threat of sand mining and associated surface disturbance in the proposed decision to list the dunes sagebrush lizard. The comments noted that sand mining only occurs in a small portion of the species' range, there are no peer review studies on the effects of sand mining on the dunes sagebrush lizard or its habitat, and the Service failed to demonstrate that frac sand mining is expanding or increasing now or that it will do so into the future.

Our response: After reviewing information regarding the industry, we concluded that frac sand mining poses a threat to dunes sagebrush lizard habitat due to extensive surface disturbance caused by the mining process. There are currently no peer-reviewed studies on the impacts of sand mines on the dunes sagebrush lizard. This is because frac sand mines only became prevalent in the area in 2017. Regardless, the best available science supports the conclusion that the excavation of sand is detrimental to the species. This is because frac sand mining results in the complete removal of surface habitat, including shinnery oak and sand dunes. Aerial imagery shows no shinnery oak duneland habitat remaining after a sand mine disrupts the surface for sand extraction and infrastructure. In our habitat analysis, we treated the footprint of sand mines as complete non-habitat for the dunes sagebrush lizard (USFWS 2024, pp. 62–63). These footprints were determined using aerial imagery obtained for each of the 18 known sand mines within the range of the dunes sagebrush lizard (USFWS 2024, pp. 110–111). Manually digitizing these features, while far more

time consuming, is often more accurate than remote sensing methods, as depositional sand may obscure some features and blend them with non-anthropogenic landforms.

Our use of only the mine footprints, rather than a larger mining area, to estimate impact to the dunes sagebrush lizard likely is an underestimation of effects. We did not categorize habitat surrounding the footprint of a mine as degraded or disturbed due to its proximity to these facilities. Thus, we treated habitat surrounding these mines as intact, unless other disturbances were present (e.g., well pads). The impacts of the mines themselves likely extend beyond their footprint by, for example, deflating surrounding sand dunes and damaging nearby vegetation (USFWS 2024, pp. 60–61). Also, several mines are notably located in areas that represent pinch-points in the dunes sagebrush lizard's range in Texas (USFWS 2024, p. 97), which may restrict dispersal between habitat patches.

We based our estimates on the best available information regarding observed sand mine growth rates since the inception of the industry in west Texas, mainly imagery from the National Agricultural Imagery Program and MAXAR Technologies. Table C–1 in appendix C of the SSA report (USFWS 2024, pp. 194–195) presents sand mine growth estimates from the Texas State government, nongovernmental organizations, various contractors, and the sand mining industry itself. The range and distribution of these estimates track closely with our independent, empirical analysis; in fact, our high impact estimate of sand mine growth (74 acres per year) is notably less than several of the high estimates from the body of information compiled in the SSA report (86.5–145.8 acres per year). In addition, the 2020 CCAA in Texas authorizes up to 60 acres per year of habitat loss (considered to be take of the species) per mine, within any habitat class, which is roughly 10 percent more than our medium impact scenario (54 acres per year). Lastly, our low impact scenario (39 acres per year) is comparable with the lowest value (37.1 acres per year) from table C–1 in the SSA report (USFWS 2024, pp. 196–197). Our analysis is in line with multiple previous estimates of sand mine growth from a wide variety of sources.

Also, market analysis indicates that the frac sand mining industry in west Texas has additional opportunity for growth. Mace (2019, p. 42) indicates that the current frac sand capacity is meeting roughly 40 percent of the total market demand and more than 30

potential mine sites can be identified within the Monahans Sandhills region. This study also notes that the total acreage purchased by individual operators is far greater than what is currently reported as disturbed. These future projections indicate that our model of 18 sand mines is a conservative estimate and additional habitat loss is likely.

(11) Comment: Two State agencies and several other individuals commented that the Service's analysis on climate change impacts on the dunes sagebrush lizard are speculative, arguing the Service does not provide scientific literature or data to demonstrate impacts of climate change on the species.

Our response: The Act requires that we use the best scientific data available when we make decisions to list a species, and we followed all Service policies and standards on data and information quality in our SSA report and this final rule. We concluded that the direct impacts of climate change on the dunes sagebrush lizard, its food, and its habitat are somewhat uncertain; there are no studies available that have examined the specific response of the dunes sagebrush lizard to a changing climate. However, we have presented a thorough assessment of likely future impacts of climate change in chapter 4.3 of our SSA report (USFWS 2024, pp. 72–75) based on our knowledge of the species and its habitat. Drought has become more frequent over the past several decades across the species' range (U.S. Drought Monitor 2022, unpaginated), which not only affects the dunes sagebrush lizard, but also the shinnery oak that is the foundation of the entire ecosystem. During drought, shinnery oak can lose its leaves or not even leaf-out (Peterson and Boyd 1998, p. 9). Recent droughts have resulted in a lack of the typical spring green-up for shinnery oak, instead occurring later with the seasonal summer monsoons (Johnson et al. 2016, p. 78). The timing of this green-up is important, as it provides shelter for adults as they become active in the spring and food for invertebrates that are consumed by the dunes sagebrush lizard.

Effects of drought on shinnery oak can also have broader consequences for duneland habitat. Shinnery oak clones may reach 15 meters (50 feet) in diameter, making large areas of duneland habitat vulnerable in the event of drought-induced oak mortality (Gucker 2006, p. 7). Any disruption to the groundwater in these ecosystems (e.g., drought) that lowers the water table may destabilize the dunes such that the system experiences a net loss in sand (Newton and Allen 2014, p. 4).

Furthermore, periods of low rainfall are likely to inhibit shinnery oak colonization of disturbed areas, limiting potential for restoration and natural ecological dynamics. Ultimately, given the close association between the dunes sagebrush lizard and shinnery oak, decline or loss of this habitat would have ramifications for dunes sagebrush lizard viability.

Climate change is likely to increase the frequency and magnitude of drought in this region. On average, surface air temperatures across Texas are predicted to increase by 3 degrees Celsius (°C) (5.4 degrees Fahrenheit (°F)) by 2099 (Jiang and Yang 2012, p. 238). In the southwest United States, temperature increases will be concentrated in the summer months. In Texas, the number of days exceeding 35 °C (95 °F) may double by 2050 (Kinniburgh et al. 2015, p. 8). According to climate change predictions, west Texas will experience greater variability in seasonal precipitation patterns with the greatest net loss experienced in winter (Jiang and Yang 2012, p. 238). An increase in drought frequency and intensity has been shown to be occurring throughout the range of the dunes sagebrush lizard (Kinniburgh et al. 2015, p. 62). Projections under future climate change indicate that groundwater resources will be further depleted with more extreme drought and increasing summer temperatures (Nielsen-Gammon et al. 2020, pp. 5–7; Yoon et al. 2018, entire). Based on this information, we conclude that climate change will reduce the viability of the dunes sagebrush lizard due to the effects of drought on the species and its habitat.

(12) Comment: Two State agencies commented that the Service's analysis and listing determination do not provide enough evidence or justification to warrant an endangered finding.

Our response: We are required to make our determination based on the best scientific and commercial data available at the time of our rulemaking. We considered the best scientific and commercial data available regarding the dunes sagebrush lizard to evaluate its potential status under the Act.

Also, in accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited peer review of the SSA report from knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. Additionally, we requested comments or information from other concerned governmental agencies, Native American Tribes, the scientific community, industry, and any

other interested parties concerning our July 3, 2023, proposed rule. Comments and information we received helped inform this final rule. Further, information provided in comments on the proposed listing rule were evaluated and taken into consideration in the development of this final determination, as appropriate.

Public Comments

(13) Comment: Several commenters suggested creating tailored prohibitions for the dunes sagebrush lizard, presumably through a rule promulgated under section 4(d) of the Act. Other commenters suggested that we did not provide information that would satisfy the Service's policy on section 9 prohibitions (59 FR 34272; July 1, 1994), which specifies that at the time of listing the Service will list specific activities that will not be considered likely to result in violation of section 9 of the Act.

Our response: Tailored prohibitions promulgated under section 4(d) of the Act apply only to species listed as threatened; because we have determined that the dunes sagebrush lizard is an endangered species, the section 4(d) provisions do not apply to this species.

Section 9 of the Act makes it illegal for anyone to "take" (defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt any of these actions) an endangered species. At this time, we are unable to identify specific activities that will not be considered likely to result in a violation of section 9 of the Act beyond what is already clear from the descriptions of prohibitions or already excepted through our regulations at 50 CFR 17.21. We estimate that most activities that result in surface disturbance or disruption of existing habitat conditions in identified habitat may be likely to result in take of the species. We provide further information regarding section 9 prohibitions under Available Conservation Measures, below.

However, the mere promulgation of a regulation, such as listing a species under the Act, does not take private property, unless the regulation on its face denies the property owners all economically beneficial or productive use of their land, which is not the case with the listing of this species. Programs are available to private landowners for managing habitat for listed species, and permits can be obtained to protect private landowners from the take prohibitions when such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Private landowners may contact their local Service field office to

obtain information about these programs and permits.

(14) Comment: One commenter suggested the SSA report and proposed rule do not use the best available science on habitat suitability, probability of occurrence mapping, and species distribution based on presence data from Walkup et al. (2022, entire).

Our response: In assessing the status of the dunes sagebrush lizard, we developed a model that categorized and quantified habitat consistently across the species' range. We used the Hardy et al. (2018, entire) model in Texas because that model uses a methodology that can be consistently applied with the Natural Heritage New Mexico model (Johnson et al. 2016, entire) across the species' range using publicly available spatial data. In contrast, the Walkup et al. (2022, entire) models are limited to only a portion of the range (*i.e.*, Monahans Sandhills in Texas), rely on data only available for a subset of that range, and rely on assumptions that limit applicability to our rangewide assessment. Walkup et al. (2022, entire) developed fine-scale occupancy models evaluating the probability of occurrence of the dunes sagebrush lizard across the species' range in Texas. Their occupancy model is not analogous to our habitat model, as it estimates the likelihood that dunes sagebrush lizard may be present in a certain area, rather than assessing the quality or quantity of habitat. While the LiDAR (Light Detection and Ranging) data used to develop these occupancy models present a novel inclusion of high-resolution data for fine-scale habitat modeling of dunes sagebrush lizard presence, their model predicted the likelihood of the species being present in a given area based on correlations between presence data (*i.e.*, locations where the species has been detected) and environmental factors. The authors point out an inherent bias of their model in that areas closer to presence points have an inherently larger probability of occurrence. Unfortunately, the models are based on only 67 presence points obtained from 122 dunes sagebrush lizard observations (USFWS 2024, pp. 38–41). The limited survey data are due to lack of access to private land with missing or underrepresented counties within the range in Texas. Due to these data limitations, these models are based on data that are not random or evenly distributed across the potential range, likely biasing the model. Walkup et al. (2022, pp. 357–358) caution interpretation of low predicted probabilities of occurrence, citing that low probability of occurrence is likely inflated in their modeling approach due

to geographic gaps in the available dunes sagebrush lizard occurrence data. The authors point out issues with this modeling method that can contribute to bias and under-prediction of habitat. Walkup *et al.* (2022, pp. 357–358) emphasize the importance of validation in this type of modeling. Without validation with an independent data set, the modeling approach should be viewed simply as exploratory and not truly predictive modeling (see Tredennick *et al.* 2021, entire). Exploratory modeling helps in the process of identifying important habitat variables for species like the dunes sagebrush lizard but cannot be applied predictively across the range without the critical validation step. Thus, Walkup *et al.* (2022, pp. 357–358) call for the importance of obtaining more survey data for the dunes sagebrush lizard to address the importance of validation. In light of these limitations, we found the Hardy *et al.* (2018, entire) model to be a more reliable predictor of species occupancy across the entire range of the dunes sagebrush lizard.

(15) Comment: Several commenters suggested that the Service inappropriately interpreted the impacts of habitat loss or disturbance on dunes sagebrush lizard abundance and density. Commenters suggested the Service does not demonstrate that oil and gas production and sand mining are impacting the dunes sagebrush lizard's population, and that habitat fragmentation does not mean habitat vanishes or decreases long term but that it may shift in space. Several commenters further expressed that the Service does not know how much habitat is critical to the species' survival and that our analysis overinflates the areas that should be considered habitat.

Our response: As discussed in section 4.1 of the SSA report, the largest threat to the dunes sagebrush lizard is habitat loss and fragmentation, and dunes sagebrush lizard population declines in fragmented landscapes have been repeatedly observed (USFWS 2024, pp. 56–71).

Dunes sagebrush lizard habitats may shift spatially over geological time; however, as discussed in section 2.5.7 of the SSA report (USFWS 2024, pp. 34–35), this is a slow process that takes decades, centuries, and even millennia to occur and does not happen during a biologically meaningful time period for dunes sagebrush lizard populations (Fitzgerald *et al.* 1997, p. 28; Dzialak *et al.* 2013, p. 1371–1372, 1379–1383; Hardy *et al.* 2018, p. 27). Additionally, as discussed in section 2.6.2 of the SSA report (USFWS 2024, pp. 36–38), the dunes sagebrush lizard may not occur in

all areas of suitable habitat due to natural extinction-colonization dynamics (Fitzgerald *et al.* 1997, p. 28; Painter *et al.* 1999, p. 51; Fitzgerald *et al.* 2005, p. 1; Walkup *et al.* 2022, pp. 358; Acre and Hill 2023, p. 11). However, the fragmentation that exists on the landscape and the species' limited dispersal ability often prevent dunes sagebrush lizards from moving amongst disconnected patches of habitat. In some cases, due to fragmentation, the dunes sagebrush lizard may have once existed within a patch or patches of suitable habitat, but, because of stochastic events, the species may have disappeared there, and the fragmentation that currently exists on the landscape can prevent dispersal to these unused patches of habitat. Due to the habitat requirements of the dunes sagebrush lizard, these patches of habitat that may be considered suitable habitat but may be unoccupied, or may have low levels of occupation that may be difficult to detect, could be important areas in future recovery actions restoring connectivity between occupied and unoccupied sections of habitat.

(16) Comment: Several commenters note well drilling data from the New Mexico Energy, Minerals and Natural Resources Department and the Texas Railroad Commission often include wells that are abandoned or plugged and can contain multiple log entries for the same well over time. Commenters claim that the Service does not indicate whether duplicate well entries were removed in the refined habitat model, and they note that, if the Service did not conduct such a screening, the Service might be over-classifying areas as disturbed or degraded.

Our response: We agree that the New Mexico Energy, Minerals and Natural Resources Department and the Texas Railroad Commission databases contain records of wells now plugged or abandoned. That does not, however, indicate a lack of ground disturbance on either historical or more contemporary well pads. Our focus is on ground disturbance, as that is a key element of dunes sagebrush lizard habitat condition. We, therefore, visually reconciled the above databases with recent aerial imagery and remotely sensed land cover modeling to validate the spatial coincidence between the well locations and persistent ground disturbance, which showed a high degree of agreement. Further, there has been little well pad reclamation for plugged, abandoned, or otherwise non-active wells in this area; while there may be no drilling equipment present at a given site, the installed caliche well pad and associated road infrastructure

often remain intact, which leads to habitat loss and fragmentation for the species.

We did evaluate these databases for duplicate well entries. Within Texas, including the area adjacent to the New Mexico border (Mescalero 7 analysis unit), there were 8,316 total well records but only a single record (0.01 percent) was coincident. Similarly, in southeast New Mexico, there were 82 spatially identical records (0.6 percent) out of 13,283 total well records. In addition, there are many instances, in both New Mexico and Texas, where a well pad exists with no record in the State databases of well installation or drilling activity.

(17) Comment: Several commenters suggested the analysis in the SSA report does not sufficiently consider the different components of the oil and gas lifecycle, the temporary nature of the impacts, and the process of decommissioning and removal of well infrastructure. These comments suggested that the Service improperly assumes that ongoing and future oil and gas development will have deleterious effects on the dunes sagebrush lizard.

Our response: While the infrastructure from oil and gas development placed on the landscape may be limited to a lifecycle of 20–30 years and disturbance from human activity primarily occurs during the beginning stages of well development, the impact to the landscape, and loss of dunes sagebrush lizard habitat, is effectively permanent. Once the infrastructure, including all the physical infrastructure and the caliche used for the well pads and roads, are removed, the physical form of the landscape remains altered. The shinnery oak dunelands that the dunes sagebrush lizard relies on for habitat are flattened and removed during development. Even if a well pad is completely reclaimed, the sand dunes are lost until long-term geologic processes that take centuries and even millennia to occur can recreate the dunes (USFWS 2024, p. 34). Due to the dunes sagebrush lizard's reliance on this very specific and restricted habitat of shinnery oak dunes within the Mescalero and Monahans Sandhills, the species is highly susceptible to habitat loss and fragmentation, with loss of this habitat being the greatest threat to the species, as described in detail in the SSA report (USFWS 2024, pp. 55–70). Removal of shinnery oak dunelands can impair breeding, feeding, sheltering, dispersal, and survival, causing declines in abundance or even loss of populations. Degradation and fragmentation of shinnery oak dunelands may be irreversible; once

disturbed, these dunelands shift to alternative stable states of other habitat type and, to date, attempts to restore this habitat have been unsuccessful at a large scale (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34). Reclaiming unused well pads is beneficial to the dunes sagebrush lizard because it allows for improved connectivity between dunelands. However, to date, there have been no successful efforts to recreate lost habitat.

(18) Comment: Commenters requested clarification on the relative importance of various habitat types to the dunes sagebrush lizard and justification on how they were classified and summed. One commenter believed the dunes sagebrush lizard is not associated with open sand dunes, grass dunes, mesquite shrublands, and mesquite grasslands, and that these land covers are not described as suitable habitat for the species.

Our response: The habitat categories we developed for the SSA, namely shinnery oak duneland and shinnery oak supportive habitat, were based on published information regarding habitat use by the dunes sagebrush lizard (Johnson et al. 2016, entire; Hardy et al. 2018, p. 21). As described in section 5.1.2 of the SSA report (USFWS 2024, pp. 89–91), shinnery oak duneland is the top-quality habitat that the species uses most for breeding, feeding, and sheltering. This category includes areas with less than 10 percent mesquite cover in New Mexico, and less than 5 percent mesquite cover in Texas. The difference between the two States is due to data availability and the resulting habitat categories defined by the separate mapping efforts for each portion of the dunes sagebrush lizard's range. Johnson et al. (2016, entire) and Hardy et al. (2018, entire) found declines in the dunes sagebrush lizard at these levels of mesquite density. Also, shinnery oak sand dunes begin to lose their structure at mesquite densities above these levels (USFWS 2024, p. 68). Most known dunes sagebrush lizard observations have been within shinnery oak duneland.

Shinnery oak supportive habitat includes habitat around the shinnery oak dunelands that the species may use for dispersal, feeding, and sheltering; however, no breeding has ever been recorded in this habitat. Shinnery oak supportive habitat also serves to stabilize shinnery oak duneland habitat against threats from anthropogenic disturbance. Dunes sagebrush lizards have been observed within this habitat type, although to a lesser degree than in shinnery oak dunelands. For a more detailed description, refer to the SSA

report's section 5.1.2 (USFWS 2024, pp. 89–91) and appendix B.

Commenters suggested that areas of open sand dunes are not associated with the dunes sagebrush lizard. This assertion is inconsistent with the data we have reviewed for the species. Open sand dunes were included as suitable habitat in all of the habitat modeling to date (*i.e.*, Fitzgerald et al. 2011, entire; Johnson et al. 2016, entire; Hardy et al. 2018, entire; Walkup et al. 2022, entire). As noted in Fitzgerald et al. (2011, p. 3), an important component of the habitat is open spaces clear of all vegetation, which are used for foraging. In Walkup et al. (2022, p. 355), both models showed a high probability of dunes sagebrush lizard occurrence in the large open sand dunes of Winkler County, Texas. As noted in Hardy et al. (2018, pp. 21–22), historical and current survey data have documented dunes sagebrush lizards within the interior of large open dune fields having an absence of vegetation. While both Hardy et al. (2018, p. 22) and Johnson et al. (2016, p. 85) document the majority of species location data in shinnery oak dunefields (which we include in the shinnery oak dunelands habitat class), both note that this is not always the case and observations are documented within the large open dunes in both New Mexico and Texas. We agree that the dunes sagebrush lizard may not always be present in a given suitable habitat class, but unoccupied areas support future dispersal and formation of new populations (USFWS 2024, pp. 35–43) and provide structural support to the sand dunes that the species depends on (USFWS 2024, pp. 28–35).

(19) Comment: Commenters questioned the reliability of the geospatial analysis methods we used and requested validation exercises be performed to confirm reliability. One commenter believed the Hardy et al. (2018, entire) map should not have been used as a starting point for the SSA habitat map because it is a pre-existing landcover map that had minimal ground-truth analysis and the occurrence and suitability assumptions in the Hardy et al. (2018, entire) map were based on environmental data and expert opinion without the use of dunes sagebrush lizard detection/non-detection data.

Our response: For species with limited data or where there are geographical gaps in data collection, habitat-based maps provide a mapping approach that is unbiased relative to available occurrence data. Habitat-based mapping using environmental variables, previously peer-reviewed literature, and expert input is a commonly used

approach in wildlife biology and conservation, especially for species, like the dunes sagebrush lizard, that have limited survey data. Much of the current observational data for the species, including the data that were used to build the models underlying Walkup et al. (2022, entire), are based on surveys where the methods employed have been inconsistent, lack sufficient survey effort, and result in a low detection probability, which can lead to a considerable error rate (Leavitt 2019, pp. 6–11; USFWS 2024, p. 87). The habitat-based approach that we used avoids these biases.

In addition, the Hardy et al. (2018, p. 10) effort did incorporate survey data from several sources in their evaluation and categorization of habitat classes. We also funded an accuracy assessment (Jensen and Hardy 2021, entire) that evaluated the Hardy et al. (2018, entire) map. While this accuracy assessment was not able to secure property access and is thus not a ground-based approach, it utilized ultra high-resolution imagery obtained from small unmanned aerial system (sUAS) data collected in 2017 and 2018. Assessment by an independent, experienced analyst found an overall accuracy of the map to be over 70 percent, which is considered an acceptable level of accuracy for remote sensing (Jensen and Hardy 2021, entire).

(20) Comment: One commenter suggested that evidence of past tebuthiuron (a broad-spectrum herbicide) treatment alone fails to justify the Service's characterization of areas as degraded habitat. The commenter claims that regardless of historical treatments, if areas have the necessary landscape structures determined to be highly important to the dunes sagebrush lizard, then they should not be categorized as greatly reduced or nonexistent resources for breeding, sheltering, feeding, and dispersal.

Our response: The degraded habitat classification describes a condition where resources for the dunes sagebrush lizard are greatly reduced. Specifically, constituent habitat elements that support breeding, feeding, sheltering, and dispersal have been functionally compromised. The degraded habitat class is a combination of (1) well pad densities of 13 well pads or more per square mile and (2) areas of herbicide treatment. Dunes sagebrush lizard abundance has been documented to be between 70 and 94 percent lower in sites previously treated with herbicides (*e.g.*, tebuthiuron) as compared to non-treated sites (Snell et al. 1994, p. 11). Further, more recent examples from both aerial imagery and ground-based photos demonstrate the fundamental

alterations to the landscape where known treatments have occurred (Johnson et al. 2016 *e.g.*, pp. 22, 30, 31, 92–94). This demonstrates the enduring impacts that herbicide treatments completed in the 1980s and 1990s represent to the fragile shinnery oak duneland ecosystem and thus dunes sagebrush lizard ecology.

In combination with data provided by the Bureau of Land Management (BLM), the remote sensing analysis of current vegetation in New Mexico (Johnson et al. 2016, entire) identified areas where herbicide treatments have occurred. Within these areas, it is evident that the vegetation community has typically transitioned to grasslands or mesquite-grasslands and the sand dune structure necessary for the dunes sagebrush lizard has been generally destabilized. Several similar areas were noted in Texas but tended to be less pronounced; however, to be consistent across the species' entire range, we contacted the Texas State University team who conducted the habitat mapping in Texas (Hardy et al. 2018, entire) to address potential additions to their original habitat model. Based on aerial photo interpretation, we then submitted a series of proposed changes (*i.e.*, herbicide-treated areas) to the Texas State University team for review and concurrence. We subsequently incorporated the agreed-upon changes into the Texas habitat mapping.

(21) *Comment:* One commenter suggests the Service failed to include two recent studies demonstrating that herbicide and grazing can restore shinnery oak and shinnery-oak prairies (Zavaleta et al. 2016, entire; Carroll et al. 2019, entire).

Our response: Zavaleta et al. (2016, entire) analyzed the impacts of combinations of tebuthiuron treatments and moderate-intensity grazing on shinnery oak prairie restoration. The goal of this study was to reduce the proportion of shinnery oak, thereby increasing the available forage for grazing cattle. Zavaleta et al. (2016, pp. 229–231) deals with monotypic stands of shinnery oak that have a limited availability of grasses and forbs but does not address shinnery oak restoration in duneland complexes. In fact, Zavaleta et al. (2016, p. 227) point out that they deliberately avoided sand dunes and blowouts “to minimize the potential for subsequent erosion.” While the Service acknowledges the beneficial contribution of science related to restoration of prairie grasses and forbs, especially in the specific context of improving grazing potential, this study does not address the gap in scientific knowledge relating to restoration of

shinnery oak duneland complexes that would improve and expand degraded habitat for the dunes sagebrush lizard.

Carroll et al. (2019, entire) conducted a 1-year laboratory study on shinnery oak emergence and rhizome survival in which field-collected samples were exposed to shade and cold treatments. The narrow scope of the study prevents any broad assumptions or inference to be made about large-scale shinnery oak restoration. The authors did not attempt to demonstrate the potential for their methods to be used in an applied context. Carroll et al. (2019, p. 632) note that shinnery oak samples were collected from one location in western Oklahoma (Packsaddle Wildlife Management Area), which may not be representative of the entire range of shinnery oak, especially concerning native soils and precipitation. In fact, the location of this study represents the easternmost portion of the shinnery oak range, an area that receives greater and more consistent precipitation with soils that are not susceptible to erosion. These conditions are not representative of conditions throughout the dunes sagebrush lizard's range in New Mexico and Texas. Furthermore, Carroll et al. (2019, p. 634) assert that, in nature, shinnery oak regeneration primarily occurs via rhizomatous growth rather than sexual reproduction (*i.e.*, acorns). The low survival rate of rhizomes in their experiment prevented analysis on the effects of temperature and shade on rhizome survival; therefore, the findings do not support a basis for applied shinnery oak restoration within the range of the dunes sagebrush lizard.

(22) *Comment:* Several comments suggested there is confusion regarding the numbers of enrollment in conservation agreements across the dunes sagebrush lizard's range. Several commenters stated that there are several millions of acres of dunes sagebrush lizard habitat enrolled in these agreements.

Our response: Through the public comment process, the Service received updated enrollment numbers for existing CCA and CCAAs provided by the commenter. We have updated the SSA report, and we consider that current enrollment data in this final rule.

According to our habitat analysis, there are 505,857 hectares (1.25 million acres) of dunes sagebrush lizard habitat rangewide, which include both duneland and supportive habitat. There are multiple overlapping explanations for the discrepancy between the size of the range of the dunes sagebrush lizard and the amount of land enrolled in the agreements. In some cases, multiple

species are covered in the conservation agreements; as such, enrollment acreages may reflect areas outside of the dunes sagebrush lizard's range. Additionally, multiple types of enrollment (ranchers and oil and gas, surface and subsurface) can occur on the same acreage. This could cause specific acres to be enrolled, or to be considered to be enrolled, multiple times through different enrollment types. Also, habitat for other species may be enrolled in agreements. Finally, some of the CCAAs have enrolled areas that are outside of the dunes sagebrush lizard's range, resulting in total enrolled acreages greater than the acreage of dune sagebrush lizard habitat being covered by those CCAAs. The numbers stated by the permit holders are included in the SSA report, but there are not more acres of habitat enrolled than are present across the range of the dunes sagebrush lizard.

(23) *Comment:* Several commenters suggested the Service failed to evaluate conservation efforts under the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) (68 FR 15100; March 28, 2003), and the proposed listing fails to sufficiently account for conservation agreements and their benefits to the dunes sagebrush lizard now and into the future.

Our response: PECE was developed to assess whether formalized conservation efforts that have not yet been implemented or demonstrated effectiveness may make listing of a species under the Act unnecessary or result in a species meeting the definition of a threatened species instead of an endangered species. Indeed, an evaluation of conservation efforts under PECE was used to support the withdrawal of the proposed rule to list the dunes sagebrush lizard following the adoption of the TCP in 2012 (see 77 FR 36872; June 19, 2012). Since then, the CCA/CCAA in New Mexico and the TCP in Texas have been implemented for more than a decade. The 2020 CCAA in Texas has had 3 years of implementation. They all now have a documented track record both of implementation and effectiveness, which we discuss in the SSA report (USFWS 2024, pp. 81–87). Because these conservation efforts all have a documented track record, a PECE analysis was unnecessary and inapplicable, and they were considered in full in the SSA. We evaluated the performance, history, and projected future contributions to the species' conservation of these plans in our listing determination.

An important aspect of our assessment is the quantification of dunes sagebrush lizard habitat using remotely sensed, publicly available data. These data indicate that large quantities of dunes sagebrush lizard habitat have been degraded and much of the species' range is fragmented by human development. Even with current conservation efforts in place, we determined that the reduction and fragmentation of habitat has elevated the risk of extinction for the dunes sagebrush lizard. Further implementation of these conservation efforts will be essential to protect the remaining habitat for the species.

(24) *Comment:* Several commenters suggested that the listing determination requires analysis under the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*).

Our response: Regulations adopted pursuant to section 4(a) of the Act are exempt from the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations. In a line of cases starting with *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), the courts have upheld this position.

(25) *Comment:* Several commenters requested an economic analysis regarding the impacts of listing the dunes sagebrush lizard as an endangered species.

Our response: Section 4(b)(1) of the Act (16 U.S.C. 1533(b)(1)) requires us to make our listing determinations "solely on the basis of the best scientific and commercial data available." Therefore, the Act does not allow us to consider the economic impacts of a listing whether over the short term, long term, or cumulatively. Please also see our response to (2) *Comment*, above.

(26) *Comment:* We received several comments requesting that we designate the portions of the dunes sagebrush lizard's range in New Mexico and Texas as separate distinct population segments (DPSs) since those portions of the range are isolated from each other.

Our response: Under the Act, any DPS of any species of vertebrate fish or wildlife which interbreeds when mature is a listable entity (see 16 U.S.C. 1532(16) and 1533(a)(1)). We have a policy that outlines the criteria we use in determining whether an entity qualifies as a DPS (61 FR 4722; February 7, 1996). The original petition to list the

dunes sagebrush lizard requested the listing at the scale of the full range of the species; it did not request different listing actions for New Mexico and Texas. Congress has indicated that we should designate DPSs "sparingly and only when the biological evidence indicates that such action is warranted" (Senate Report 151, 96th Congress, 1st Session). Therefore, based on the intent of the original petition and Congress, we determined that identifying separate population segments is not appropriate in this situation.

I. Final Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of the dunes sagebrush lizard is presented in the SSA report (version 1.3; USFWS 2024, pp. 16–42). Since the publication of the July 3, 2023, proposed rule (88 FR 42661), we updated the SSA report to provide the most current information available on the dunes sagebrush lizard. We updated enrollment figures for the CCA/CCAAs in New Mexico and Texas, as well as providing clarification on the geographical coverage of these enrollments (USFWS 2024, pp. 84–87). During the proposed rule's public comment period, we received new information on effective population estimates for the dunes sagebrush lizard (USFWS 2024, pp. 40–41) and several threats, notably groundwater pumping, sand mines, and human population growth (USFWS 2024, pp. 75–80, 127). This finding takes into account those changes made in the SSA report in reaching the conclusion that the dunes sagebrush lizard is at risk of extinction.

The dunes sagebrush lizard is a species of spiny lizard endemic to the shinnery oak dunelands and shrublands of the Mescalero and Monahans Sandhills in southeastern New Mexico and western Texas. Most dunes sagebrush lizard adults live for 2 to 4 years and reproduce in the spring and summer (Degenhardt and Jones 1972, p. 216; Cole 1975, p. 292; Snell et al. 1997, p. 9; Fitzgerald and Painter 2009, p. 200; Hibbitts and Hibbitts 2015, p. 156). Males are territorial and compete to attract and mate with females (Fitzgerald and Painter 2009, p. 200). Females establish nests underground in shinnery oak duneland vegetation, where they lay an average of five eggs per clutch and lay either one or two clutches in a year (Hibbitts and Hibbitts 2015, p. 156; Hill and Fitzgerald 2007, p. 30; Ryberg et al. 2012, p. 583). Hatchlings emerge approximately 30 days after eggs are laid (Ryberg et al. 2012, p. 583; Fitzgerald and Painter

2009, p. 200). Eggs and young dunes sagebrush lizards are susceptible to natural mortality from environmental stress and predation.

This species is a habitat specialist that depends on shinnery oak duneland habitat to provide appropriate substrate for nests, cover for young, and food resources as juvenile lizards mature into adults (Fitzgerald et al. 1997, p. 4; Hibbitts et al. 2013, p. 104; Hardy et al. 2018, p. 10). The Mescalero and Monahans Sandhills ecosystems are composed of ancient sand dune fields formed and maintained by wind and shifting sand, and they are partially stabilized by shinnery oak (Ryberg et al. 2015, pp. 888, 893; Walkup et al. 2017, p. 2). These ecosystems are characterized by a patchy arrangement of narrow, almost linear sand dunes embedded in a matrix of shinnery oak shrubland flats (Fitzgerald and Painter 2009, p. 199; Ryberg et al. 2015, p. 890). Within the sand dunes themselves, dunes sagebrush lizards rely on open dune blowouts, which typically form on the leeward side of established vegetation (Walkup et al. 2022, pp. 13–14). Dune blowouts are bowl-shaped depressions in the sand dunes that form when disturbance removes stabilizing vegetation.

The landscape created by the shinnery oak duneland ecosystem is a spatially dynamic system in which the location and presence of sand dunes is not static and shifts over time (Dzialak et al. 2013, entire). Spatial variation within habitat patches can drive regional population dynamics by shaping movement, behavior, and habitat selection (Ryberg et al. 2015, p. 888). Dunes sagebrush lizards form small, localized populations called neighborhoods that are interconnected through dispersal (Ryberg et al. 2013, entire). Long-term population stability is maintained through interconnected neighborhoods experiencing localized colonization and extirpation (Fitzgerald et al. 1997, p. 28; Fitzgerald et al. 2005, p. 1).

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. On April 5, 2024, jointly with the National Marine Fisheries Service, the Service issued a

final rule that revised the regulations in 50 CFR 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (89 FR 24300). On the same day, the Service published a final rule revising our protections for endangered species and threatened species at 50 CFR 17 (89 FR 23919). These final rules will be in effect on May 6, 2024 prior to the effective date of this final rule for the dunes sagebrush lizard. Our analysis for this decision applied the 2024 regulations. Given that we proposed listing this species under our prior regulations (revised in 2019), we have also undertaken an analysis of whether our decision would be different if we had continued to apply the 2019 regulations and we concluded that the decision would be the same. The analyses under both the regulations currently in effect and the 2019 regulations are available on <https://www.regulations.gov>.

The Act defines an "endangered species" as a species that is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term "threat" to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term "threat" includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or

required resources (stressors). The term "threat" may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an "endangered species" or a "threatened species." In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an "endangered species" or a "threatened species" only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term "foreseeable future," which appears in the statutory definition of "threatened species." Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The foreseeable future extends as far into the future as the Services can make reasonably reliable predictions about the threats to the species and the species' responses to those threats. The Services will describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability. The Services need not identify the foreseeable future in terms of a specific period of time.

When evaluating the status of the species, we must review the degree of certainty and foreseeability concerning each of the threats to the species and the species' responses to those threats. We must assess the nature of the best scientific and commercial data available concerning each threat and the degree to which the data allow us to make reliable predictions. Predictions about the occurrence of an event or a response in the future are inherently uncertain. We look not only at the foreseeability of

threats, but also at the foreseeability of the impact of the threats on the species. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors. In some cases, a species' responses to a foreseeable threat will manifest immediately; in other cases, it may be multiple generations before a foreseeable threat's effect on the species can be observed. But in each case, we must be able to make reliable predictions about the future impact to the species from the foreseeable threat. The further into the future that we assess threats to a species or a species' responses to threats, the greater the burden on the Services to explain how we can conclude that those future threats or responses remain foreseeable—that is, that our assessments of them are based on reasonably reliable predictions out to that point in the future. In making these predictions, we must avoid speculation and presumption. Thus, for a particular species, we may conclude, based on the extent or nature of the best data available, that a trend has only a certain degree or period of reliability, and that to extrapolate the trend beyond that point would constitute speculation. The foreseeable future extends only so far as those predictions are reliable. "Reliable" does not mean "certain"; it means sufficient to provide a reasonable degree of confidence in the prediction, in light of the conservation purposes of the Act.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent our decision on whether the species should be listed as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess the dunes sagebrush lizard's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy is the ability of the species

to withstand catastrophic events (for example, droughts, large pollution events); and representation is the ability of the species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

The following is a summary of the key results and conclusions from the SSA report; the full updated SSA report (version 1.3) can be found at Docket No. FWS-R2-ES-2022-0162 on <https://www.regulations.gov>.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future conditions, to assess the species' overall viability and the risks to that viability.

Species Viability

The key requirement for long-term viability of the dunes sagebrush lizard is large, intact, shinnery oak duneland ecosystems that facilitate completion of the species' life history and maintain healthy populations (Texas A&M University (TAMU) 2016, p. 3). Shinnery oak duneland habitat provides the primary features necessary to support neighborhoods of dunes sagebrush lizards, particularly sand dune blowouts that are essential for reproduction and other aspects of the species' life history (Fitzgerald et al.

1997, p. 4; Hibbitts et al. 2013, p. 104; Hardy et al. 2018, p. 10; Walkup et al. 2022, pp. 13–14). The shinnery oak duneland and shrubland habitat that surrounds these blowouts are important to facilitate dispersal and maintain the structure of the sand dune formations (Machenberg 1984, p. 23; Kocurek and Havholm 1993, pp. 401–402; Gucker 2006, p. 14; Dhillion and Mills 2009, p. 264).

Since the Mescalero and Monahans Sandhills are dynamic ecosystems, habitat patches for the dunes sagebrush lizard can shift over time (Fitzgerald et al. 1997, p. 28; Dzialak et al. 2013, pp. 1371–1372, 1379–1383; Hardy et al. 2018, p. 27). Long-term resiliency of the dunes sagebrush lizard is maintained through interconnected neighborhoods experiencing localized colonization and extirpation (Ryberg et al. 2013, p. 1). A dunes sagebrush lizard population, even within a contiguous patch of habitat, is itself composed of aggregations of localized neighborhoods that interact with each other. That means dunes sagebrush lizards may not occur in all areas of suitable habitat due to natural extinction-colonization dynamics (Fitzgerald et al. 1997, p. 28; Painter et al. 1999, p. 51; Fitzgerald et al. 2005, p. 1), and the current state of occupancy may not necessarily reflect the future state at a site (Walkup et al. 2018, p. 503). Thus, it is important to include the consideration of currently unoccupied but potentially suitable habitat patches within the species' range, especially since dispersal rates and their mechanisms are not well understood (Painter et al. 1999, p. 36; Hardy et al. 2018, p. 20). Scaling up to the species' range, the dunes sagebrush lizard is subdivided into three primary evolutionary lineages that are spatially discrete and have evolved in isolation since their initial founding (Chan et al. 2009, p. 136; Chan et al. 2020, pp. 6–7). Two are found in Mescalero Sandhills, with one occurring in the northern portion of the sandhills (Northern Mescalero) and the second in the southern portion (Southern Mescalero). The third is exclusive to the Monahans Sandhills of west Texas. Despite a narrow contact zone between the Northern and Southern Mescalero lineages (Chan et al. 2020, p. 7), there is no evidence of intermixing or gene flow between these lineages. These three lineages cover different portions of the species' range and, therefore, are subject to different environmental conditions. For example, a latitudinal gradient in precipitation and temperature exists from north to south within the Mescalero and Monahans

Sandhills. In general, moving 1° latitude from north to south across the dunes sagebrush lizard's range results in a mean annual maximum temperature increase of 1.1 °C (2 °F) and a total annual precipitation decrease of 5 centimeters (cm) (2 inches (in)) (Leavitt 2019, pp. 7–8; USFWS 2024, pp. 45–47). Potential evapotranspiration also increases from north to south (Holliday 2001, p. 101). The combination of isolation and environmental variation has likely facilitated adaptive differences between these lineages.

These lineages are further subdivided into at least 10 different genetic groups, delineated primarily by mitochondrial DNA haplotypes and corroborated by nuclear microsatellite data (Chan et al. 2014, p. 9; Chan et al. 2020, entire). These groups correspond to notable breaks and pinch points in the dune formations and reflect historical differentiation based on limited connectivity between contiguous habitat patches (Chan et al. 2020, p. 2). Within these groups, there appears to be varying levels of connectivity and gene flow, with evidence of isolation by distance and resistance in several areas in New Mexico (Chan et al. 2014, pp. 33–41; Chan et al. 2017, pp. 9–22). Despite evidence of some gene flow between these groups based on nuclear microsatellite data (Chan et al. 2020, p. 7), they appear to function as independent units with intermixing restricted to narrow contact zones. Thus, there is limited potential for natural recolonization should one or more of these groups become extirpated.

Threats

We identified risk factors that have influenced the dunes sagebrush lizard and its habitat in the past and may continue to do so into the future. These include habitat destruction, modification, and fragmentation (Factor A); predation (Factor C); human-caused mortality (Factor E); invasive species (Factors A and E); pollution (Factors A and E); groundwater depletion (Factor A); and extreme weather and climate change (Factors A and E) (USFWS 2024, pp. 53–85). However, in this final rule, we will discuss only those factors in detail that could meaningfully impact the status of the species. Risk factors such as predation, pollution, invasive species, groundwater depletion, and human-caused mortality have more localized effects on the dunes sagebrush lizard, but, on their own, they are unlikely to significantly affect overall species viability. The primary risk factors affecting the current and future status of the dunes sagebrush lizard are habitat loss, fragmentation, and

degradation associated with oil and natural gas production and frac sand mining. Climate change is also likely to lead to more extreme weather events, particularly drought, that will further impact the dunes sagebrush lizard and its habitat. For a detailed description of the threats analysis, please refer to the SSA report (USFWS 2024, pp. 53–85).

Habitat Destruction, Modification, and Fragmentation

Due to its reliance on a very specific and restricted habitat type, the dunes sagebrush lizard is highly susceptible to habitat loss and fragmentation (Walkup et al. 2017, p. 2). At the individual level, the removal of shinnery oak vegetation and destruction of sand dunes has multiple negative effects on the dunes sagebrush lizard. The species is dependent on this habitat type for all aspects of its life history, including breeding, feeding, and sheltering (Young et al. 2018, p. 906). Shinnery oak vegetation provides sheltering habitat for thermoregulation and refuge from potential predators (Machenberg 1984, pp. 16, 20–21; Degenhardt et al. 1996, p. 160; Snell et al. 1997, pp. 1–2, 6–11; Fitzgerald et al. 1997, p. 26; Peterson and Boyd 1998, p. 21; Painter et al. 1999, pp. 1, 27; Sartorius et al. 2002, pp. 1,972–1,975; Painter 2004, pp. 3–4; Dhillion and Mills 2009, p. 264; Leavitt and Acre 2014, p. 700; Hibbitts and Hibbitts 2015, p. 157). It also provides habitat for the prey (e.g., insects and other terrestrial invertebrates) consumed by the dunes sagebrush lizard (Degenhardt et al. 1996, p. 160; Degenhardt and Jones 1972, p. 217; Fitzgerald and Painter 2009, p. 199; Leavitt and Acre 2014, p. 700). Dunes sagebrush lizards move exclusively through shinnery oak vegetation to disperse between the sand dune blowouts that support nesting and reproduction (Fitzgerald et al. 1997, p. 24). Since the dunes sagebrush lizard breeds exclusively in sand dune blowouts, loss of sand dunes eliminates breeding habitat for the species.

At the population level, habitat destruction and fragmentation can affect the dunes sagebrush lizard's viability in multiple ways. Loss of habitat can lead to the reduction or even loss of populations, and those populations that do remain are likely smaller and more isolated, elevating their vulnerability to stochastic events (Henle 2004, p. 239; Devictor et al. 2008, p. 511; Hibbitts et al. 2013, p. 111; Leavitt and Fitzgerald 2013, p. 6; Walkup et al. 2017, p. 2). Fragmentation may also result in degradation of dune-blowout landforms beyond the immediate footprint of developed areas (Leavitt and Fitzgerald

2013, p. 9; Walkup et al. 2017, p. 11). Fragmented sites are often of lower quality, possessing fewer, more dispersed large dune blowouts as well as more large patches of flat open sand and barren ground (Leavitt and Fitzgerald 2013, pp. 9–10), which are less likely to support robust populations.

As populations and habitat patches disappear across the landscape, there are fewer “stepping-stones” to connect remaining populations through dispersal and colonization (Young et al. 2018, p. 910). Dunes sagebrush lizards are not known to disperse across large expanses of unsuitable habitat. Thus, a given population may have little chance of receiving immigrating individuals across areas where suitable habitat has been removed (Fitzgerald et al. 1997, p. 27). Movements of individual dunes sagebrush lizards between populations are hindered or precluded by fragmentation and do not occur at rates sufficient to sustain demographics necessary to prevent localized extirpations (Leavitt and Fitzgerald 2013, p. 11; Ryberg et al. 2013, p. 4; Walkup et al. 2017, p. 12; Young et al. 2018, p. 910). Over time, fragmentation isolates populations and results in a progressive decline in population abundance until, ultimately, the species becomes extirpated (Leavitt and Fitzgerald 2013, p. 12). Loss of habitat may be irreversible: once shinnery oak dunelands are disturbed, these landforms tend to shift to alternative stable states that are not prone to self-regeneration through ecological succession (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34).

Oil and natural gas production—The dunes sagebrush lizard's range overlaps with the Permian Basin, a geologic province that hosts multiple basins each with multiple stratigraphic units from which hydrocarbons, water, or minerals are extracted. Oil and gas development involves many activities, such as surface exploration, exploratory drilling, oil field development, and facility construction, including access roads, well pads, and operation and maintenance. These activities can all result in direct habitat loss by disturbance and removal of shinnery oak duneland. Indirect habitat loss occurs from fragmentation of larger habitat into smaller parcels of suitable habitat. As habitat becomes fragmented, the overall stability of the shinnery oak sand dune formations decreases, promoting wind erosion and deflation of the dunes (Carrick and Kruger 2007, pp. 771–772; Breckle et al. 2008, pp. 442, 453–454; Mossa and James 2013, pp. 75, 88, 92; Engel et al. 2018, pp. 1–13;

Forstner et al. 2018, pp. 3–21). Fragmentation can also result in edge effects in which the habitat directly adjacent to the converted areas is of lower quality. For example, habitat fragmentation can increase air temperatures and solar radiation, along with reducing the availability of microhabitats that can serve as thermal refugia for the dunes sagebrush lizard (Jacobson 2016, pp. 3–4, 10).

Several studies have demonstrated a negative relationship between oil well pad density and the number of dunes sagebrush lizards present at a site (Sias and Snell 1998, p. 1; Leavitt and Fitzgerald 2013, p. 9; Ryberg et al. 2015, p. 893; Johnson et al. 2016, p. 41; Walkup et al. 2017, p. 9). A regression analysis that predicted a 25 percent reduction in the abundance of dunes sagebrush lizards at well pad densities of 13.64 per square mile, and a 50 percent reduction at well pad densities of 29.82 well pads per square mile (Sias and Snell 1998, p. 23). Based on that study, the proposed recommendation became that well pad densities in New Mexico be limited to 13 well pads per square mile (Painter et al. 1999, p. 3). Further research found that areas with 13 or more well pads per square mile have considerably lower abundance of dunes sagebrush lizards than unfragmented sites (Leavitt and Fitzgerald 2013, p. 9). Further, high well pad and road densities at the landscape scale result in smaller, fewer, and more dispersed sand dune blowouts that are less suited to dunes sagebrush lizard persistence (Leavitt and Fitzgerald 2013, p. 9). Marked declines in dunes sagebrush lizard occurrence in New Mexico have also been observed at well pad densities of 5 and 8 well pads per square mile, with no lizards found at well pad densities greater than 23 well pads per square mile (Johnson et al. 2016, p. 41). These results support the recommendation that 13 well pads per square mile should be considered “degraded” habitat as a standard in the scientific literature. This effect extends to population persistence, as research has found that dunes sagebrush lizard populations have a relatively high susceptibility to local extinction in landscapes with 13 or more well pads per square mile (Walkup et al. 2017, p. 10). The network-like development of well pads and their connecting roads both isolate populations and disrupt the underlying geomorphologic processes required to maintain the shinnery oak dune formations.

In many areas of oil and gas development, caliche roads are constructed in a grid-like network (Young et al. 2018, p. 6). Roads fragment

habitat and impede dunes sagebrush lizard movement, reducing access to habitat, mating opportunities, and prey, and decreasing population size and the likelihood of population persistence. Both field experiments and radio tracking studies have revealed that dunes sagebrush lizards will avoid crossing caliche roads (Hibbitts et al. 2017, p. 197; Young et al. 2018, p. 910).

Frac sand mining—Frac sand is a naturally occurring sand used as a proppant (*i.e.*, a solid material used to keep fissures beneath the Earth's surface open) during hydraulic fracturing of oil and gas wells to maximize production of unconventional reservoirs (Mossa and James 2013, pp. 76–79; Benson and Wilson 2015, pp. 1–50; Engel et al. 2018, pp. 1–13; Forstner 2018, pp. 1–19; Mace 2019, entire). Sand mining involves the use of heavy equipment and open-pit methods to mechanically remove vegetation and fine sediments from near-surface deposits of sand (*e.g.*, sand dunes and sand sheets) (Breckle et al. 2008, pp. 453–454; Benson and Wilson 2015, pp. 7–8, 49; Mossa and James 2013, pp. 76–80; Forstner et al. 2018, pp. 2–17; Mace 2019, pp. 42–61). Construction of sand mine facilities, which include processing plants and related infrastructure, in dunes sagebrush lizard habitat removes shinnery oak and degrades and compacts shinnery oak dunelands. The sand mine facilities replace the shinnery oak dunelands with paved surfaces, buildings, open pit mines, spoil areas, processing pools, and other structures (Boyd and Bidwell 2002, p. 332; Ryberg et al. 2015, pp. 888–890, 895–896; Forstner et al. 2018, pp. 1–5). Sand mining operations in dunes sagebrush lizard habitat can remove entire shinnery oak duneland landforms, or portions thereof; alter dune topography; and produce large, deep, unnatural pits in the land surface (Breckle et al. 2008, pp. 453–454; Mossa and James 2013, pp. 77–79, 85; Engel et al. 2018, pp. 1–13; Pye 2009, pp. 361–362; Forstner et al. 2018, pp. 2–21). The effects of sand mining can extend beyond the footprint of the actual mine itself. Removal of a portion (or portions) of a sand dune promotes the loss and degradation of the entire landform (*i.e.*, the remaining unmined segments) by undermining its stability and promoting wind erosion and deflation (Carrick and Kruger 2007, pp. 771–772; Breckle et al. 2008, pp. 442, 453–454; Mossa and James 2013, pp. 75, 88, 92; Engel et al. 2018, pp. 1–13; Forstner et al. 2018, pp. 3–21).

Frac sand mining is a recent occurrence in this region: the first sand mine was developed in early 2017, and by the end of 2018, 17 facilities had

registered with the Texas Commission on Environmental Quality for operations in the region (Mace 2019, pp. 1, 42–43, 78). Sand mines have only been developed in the Texas portion of the dunes sagebrush lizard's range, specifically the Monahans Sandhills. Currently, most mines are in Winkler and Ward Counties; these two counties contain 11 and 2, respectively, of the 17 existing facilities (Mace 2019, pp. 43–44, 56; USFWS 2024, pp. 108–109). Sand mining is expected to continue in these counties given the current location and density of mines in the counties, the average rates of surface mining, and the anticipated plans and growth of the oil and gas industry in the area (Mace 2019, pp. 42–54; Benson and Wilson 2015, pp. 1–8, 54–57; Latham and Watkins 2020, pp. 12–13).

Extreme Weather and Climate Change

The dunes sagebrush lizard occurs in a semiarid climate that experiences extreme heat and droughts, but the species is adapted to contend with such environmental variability. In the 1920s and 1930s, northern shinnery oak ecosystems averaged 1 to 2 years of drought every 10 years, and southern portions of those ecosystems averaged 2 to 3 years of drought every 10 years (Peterson and Boyd 1998, p. 14). In the past 20 years, moderate to exceptional drought has occurred every 1 to 2 years, in the southern and northern shinnery oak ecosystems (U.S. Drought Monitor 2022, unpaginated). Climate change is likely to increase the frequency and severity of drought in this region since, on average, surface air temperatures across Texas are predicted to increase by 3 °C (5.4 °F) by 2099 (Jiang and Yang 2012, p. 238). In the southwest United States, temperature increases are predicted to be concentrated in the summer months, and in Texas, the number of days exceeding 35 °C (95 °F) may double by 2050 (Kinniburgh et al. 2015, p. 8). According to climate change predictions, west Texas will experience greater variability in seasonal precipitation patterns, with the greatest net loss experienced in winter (Jiang and Yang 2012, p. 238).

The impacts of extreme heat and drought on individual dunes sagebrush lizards is relatively unknown. Drought could impact food resources, which would then impact lizard productivity. The marbled whiptail (*Aspidoscelis marmoratus*), another lizard species found in the Monahans Sandhills, showed a decline in density during a period of drought (Fitzgerald et al. 2011, p. 30). If drought restricts available food resources, it could negatively affect the

dunes sagebrush lizard's recruitment and survival.

The relationship between these weather events and dunes sagebrush lizard habitat (*i.e.*, shinnery oak) is more established. While shinnery oak is highly adapted for arid conditions, prolonged periods of drought inhibit growth and reproduction. For example, during drought, shinnery oak can lose its leaves or not even leaf-out (Peterson and Boyd 1998, p. 9). Additionally, recent droughts have delayed typical spring leaf-out for shinnery oak, with leaf-out instead occurring with the seasonal summer monsoons (Johnson et al. 2016, p. 78). The timing of the spring leaf-out is important, as it provides shelter for adult dunes sagebrush lizards as they become active in the spring and food resources for invertebrates that are consumed by dunes sagebrush lizards. Furthermore, continued alterations to the landscape are likely to exacerbate the impacts of climate change on the dunes sagebrush lizard. For example, habitat fragmentation can already increase air temperatures and solar radiation, along with reducing the availability of microhabitats that can serve as a thermal refugia (Jacobson 2016, pp. 3–4, 10). Habitat fragmentation also restricts natural patterns of dispersal and colonization that could buffer against extreme weather impacts.

Conservation Efforts and Regulatory Mechanisms

Because we are considering the best available information and because the discussion above primarily addresses the viability of the dunes sagebrush lizard in relation to the threats and factors affecting its viability, here we will discuss regulatory mechanisms and conservation actions that potentially have influenced or will influence the current and future viability of the species.

New Mexico

The dunes sagebrush lizard is listed as an endangered species within the State of New Mexico by the New Mexico Department of Game and Fish, which makes it “unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship” the species (17–2–41 C. New Mexico Statutes Annotated 1978). It is considered a sensitive species by the BLM, which means the agency will work cooperatively with other Federal and State agencies and nongovernmental organizations to proactively conserve these species and ensure that activities on public lands do not contribute to the need for their listing under the

Endangered Species Act. In 2008, the BLM developed a Special Status Species Resource Management Plan Amendment (hereafter Amendment) (BLM 2008, entire) to guide management of lands within dunes sagebrush lizard habitat in New Mexico. The plan addresses concerns and threats of oil and gas development and shinnery oak removal due to herbicide spraying by outlining protective measures and basic guidelines for development in the vicinity of dunes sagebrush lizard habitat. The plan provides for specific conservation requirements, lease stipulations, and the removal of 42,934 ha (106,091 ac) of dunes sagebrush lizard habitat from future oil and gas leasing (BLM 2008, entire). Since the Amendment was approved in 2008, the Bureau of Land Management has closed approximately 120,000 ha (300,000 ac) to future oil and gas leasing and closed approximately 345,000 ha (850,000 ac) to wind and solar development (BLM 2008, p. 3). From 2008 to 2020, the BLM has reclaimed 1,416 ha (3,500 ac) of abandoned well pads and associated roads. Additionally, the BLM continues to implement control efforts for invasive mesquite.

Following approval of the Amendment, a team including the Service, BLM, Center of Excellence, and participating cooperators drafted both a CCA and CCAA (Center of Excellence (CEHMM) 2008, entire) for the dunes sagebrush lizard and lesser prairie-chicken (*Tympanuchus pallidicinctus*) in New Mexico. The CCA addresses the conservation needs of the dunes sagebrush lizard and lesser prairie-chicken on BLM lands in New Mexico by attempting habitat restoration and enhancement activities, conducting activities like removing unused well pads, and minimizing habitat degradation. The CCAA was developed to facilitate conservation actions for the two species on private and State lands.

The CCA and CCAA are umbrella agreements under which individual entities participate. In New Mexico, an estimated 35 percent of the occupied range of the dunes sagebrush lizard is on privately owned and State-managed lands. There are no local or State regulatory mechanisms pertaining to the conservation of dunes sagebrush lizard habitat on private or State lands in New Mexico, nor is there New Mexico State Land Office policy in place to protect sensitive species. The only mechanism for the preservation of dunes sagebrush lizard habitat on lands administered by the New Mexico State Land Office is by having those lands enrolled in the CCAA.

Since the CCA and CCAA were finalized in December 2008, 40 oil and gas companies and 37 ranchers have enrolled a total of 218,144 ha (539,046 ac) of shinnery oak duneland habitat and 258,018 ha (637,577 ac) of the surrounding supportive matrix habitat. The total area of habitat enrolled by industry, private landowners, New Mexico Department of Game and Fish, and New Mexico State Land Office currently covers around 85 percent of the range of the dunes sagebrush lizard within New Mexico. By enrolling lands in these agreements, participants agree to avoid disturbing shinnery oak duneland habitat, forgo spraying of herbicides on shinnery oak, and relocate projects to avoid dunes sagebrush lizard habitat (CEHMM 2016, pp. 1–2). We received updated enrollment numbers for 2023, however, these updated numbers were not broken out by habitat type and ownership type. Updated enrollment numbers include a total of 104 ranches (33 new since 2022), 13 parcel-by-parcel (1 new since 2022), 50 all-activities, and 31 linear development enrollees. Areas enrolled as of 2023 includes 946,810 ha (2,339,619 ac) for ranching and 1,314,722 ha (3,314,722 ac) for industry, resulting in a total of 2,288,231 ha (5,654,341 ac). It is important to note that these enrollment numbers are for the joint lesser prairie chicken-dunes sagebrush lizard programs, so enrollee numbers and acreage do not necessarily reflect dunes sagebrush lizard-specific coverage.

Texas

In Texas, the dunes sagebrush lizard is listed as a “species of greatest conservation need” by the Texas Parks and Wildlife Department. This designation does not afford the species any legal protection, but it guides nongame conservation efforts, including regional efforts to conserve these species. Additionally, there are no local or other State mechanisms regulating impacts or pertaining to the conservation of dunes sagebrush lizard habitat on private lands. Nearly all dunes sagebrush lizard habitat in Texas is privately owned. Monahans State Park is the only public land on which the dunes sagebrush lizard is known to exist in Texas.

Texas Conservation Plan—In 2011, the Texas Comptroller of Public Accounts (Comptroller) led a group of stakeholders to develop the TCP for the dunes sagebrush lizard, which finalized a CCAA in 2012. The TCP authorizes impacts to dunes sagebrush lizard habitat (*i.e.*, incidental take of lizards) resulting from oil and gas development, agriculture, and ranching activities (*i.e.*,

covered activities) and established a conservation program focused on avoiding these activities in dunes sagebrush lizard habitat. If avoidance of habitat cannot be accomplished, participants enrolled in the TCP must implement conservation measures that minimize and mitigate for habitat impacts via restoration or enhancement of dunes sagebrush lizard habitat (Texas Comptroller of Public Accounts (CPA) 2012, entire).

Approximately 1,847 ha (4,564 ac) of dunes sagebrush lizard habitat was negatively impacted by the TCP between 2012 and 2018. However, after 6 years of implementation, the Comptroller sought to revise the TCP to address issues preventing the plan from achieving its conservation and protection goals (Gulley 2017a, entire; Gulley 2017b, entire; Koch 2018, entire; Hegar 2018a, entire; Hegar 2018b, entire; Gulley 2018a, entire; Gulley 2018b, entire; Hegar 2018d, entire; CPA 2019, entire). In 2018, the Comptroller submitted these proposed revisions to the Service in the form of a new CCAA to replace the existing TCP and subsequently ended their administration of the permit (Ashley 2018a, entire; Ashley 2018b, entire; Hegar 2018a, entire; Hegar 2018b, entire; Hegar 2018c, entire). The Service did not approve the proposed new CCAA submitted by the Comptroller. Rather, in 2020, the Service revised and transferred the permit for the TCP to a new permit holder, the American Conservation Foundation (Falen 2019, entire; Fleming 2020a, entire; Fleming 2020b, entire). Of the 29 participants enrolled in the 2012 TCP, only 8 expressed interest in maintaining enrollment under the revised 2020 TCP. Subsequently, the area enrolled in the TCP decreased significantly, from 120,193 ha (297,004 ac) in 2012, to 28,489 ha (70,397 ac) in 2020 (an approximately 76 percent decrease). Per the TCP 2023 annual report, as of December 31, 2023, a total of seven participants are enrolled in the TCP. The total acreage enrolled by these seven participants is 135,296 ha (334,323 ac). Of this total acreage, 20,565 ha (50,816 ac) are located in dunes sagebrush lizard habitat, according to the range maps used by the TCP (Fitzgerald et al. 2011, p. 10) An additional 6,132 ha (15,153 ac) are located in the 200-meter buffer of dunes sagebrush lizard habitat. However, acreage can be enrolled separately as surface and subsurface, and the same acreage can be enrolled by different enrollees and follow different conservation measures for different activities in the same location.

Additionally, while conservation measures are a requirement of participation in the certificates of inclusion in Texas, we are unsure of the extent of conservation measure implementation and the locations of all areas where conservation is occurring because specific data on enrolled locations are not available. The Service remains in discussions with the American Conservation Foundation and remaining participants to consider and implement changes to the TCP.

2020 CCAA—In 2020, a separate applicant, led primarily by mining companies, applied for a separate CCAA that covers oil and gas activities, sand mining, linear infrastructure (such as utilities and pipelines), wind and solar energy development, local governments, and agriculture and ranching (Canyon Environmental, LLC 2020, entire). The Service approved this CCAA in 2021. Using habitat as a surrogate for quantifying the amount of incidental take, the total amount of take authorized during the permit term (23 years) is 14,140 ha (34,940 ac). Because it was not possible to determine how much dunes sagebrush lizard habitat would be disturbed or destroyed by the 2020 CCAA’s participants (versus nonparticipants), this estimate, which was formulated based on a variety of factors (Canyon Environmental, LLC 2020, pp. 45–49), is the expected total impacts to habitat in Texas over the permit term, including from the TCP.

The 2020 CCAA describes the goal and objectives of the CCAA observation strategy. The one overarching goal is to contribute, directly or indirectly, to the conservation of the dunes sagebrush lizard by reducing or eliminating threats on enrolled properties. This goal is then followed by a list of objectives that emphasize, in part, conserving dunes sagebrush lizard habitat, restoring and reclaiming impacted areas, reducing habitat fragmentation, and addressing surface impacts from the development of stratified mineral estates. Each industry has various avoidance and minimization measures that they are encouraged to implement. Each industry also has various fees based on the dunes sagebrush lizard habitat type to be

impacted. These fees are expected to support administration of the 2020 CCAA, as well as conservation actions and research.

The permit was issued on January 20, 2021, and the permit administrator is currently coordinating implementation with the Service. As of February 29, 2024, we received seven certificates of inclusion for the 2020 CCAA from the Permit holder, which enrolled a total of 99,616 ha (403,232 ac). Of these 99,616 ha (403,232 ac), only 8,417 ha (34,061 ac) are reported to be in dunes sagebrush lizard habitat as mapped by Hardy et al (2018, entire). While each certificate of inclusion has a requirement for implementing avoidance and conservation measures, no specific actions have been reported to date; thus, we remain unaware of the specific conservation measures being implemented by each participant per their certificate of inclusion.

Current Condition

We assessed the current condition of the dunes sagebrush lizard using geospatial analysis to estimate the current quantity and quality of available habitat (USFWS 2024, pp. 86–109). Our approach was rooted in the findings by numerous studies that the dunes sagebrush lizard experiences reductions in abundance and density as habitat is lost or becomes disturbed (Leavitt and Fitzgerald 2013, p. 11; Ryberg et al. 2013, p. 4; Walkup et al. 2017, p. 12; Young et al. 2018, p. 910). The results of our geospatial analysis indicate that across our analysis area there is approximately 210,506 hectares (ha) (520,161 acres (ac)) classified as shinnery oak duneland, which is the primary habitat type required by the species for breeding, feeding, and sheltering. Of this shinnery oak duneland habitat, about 50 percent is minimally disturbed by human development, whereas 35 percent has been degraded to the point that it is likely unable to support populations of the dunes sagebrush lizard. The remaining 15 percent has moderate levels of disturbance, where we project there have been reductions in dunes sagebrush lizard viability.

Since the dunes sagebrush lizard exhibits divisions between population areas and restricted gene flow across its range (Chan et al. 2020, entire), we identified 11 analysis units to assess resiliency. These units correspond to sections of the overall range of the dunes sagebrush lizard that are demographically and genetically independent from each other and logical breakpoints for analysis based on habitat distribution and potential barriers to movement (*i.e.*, highways). Levels of habitat degradation and disturbance were not equal across the 11 analysis units; therefore, we developed a system to rank the viability of dunes sagebrush lizard populations within these units based on habitat metrics. Each analysis unit was classified as being in high, moderate, or low condition. Those in high condition possess enough undisturbed habitat that we project they will support robust, interconnected populations of the dunes sagebrush lizard. Moderate condition defines units that have experienced habitat loss and disturbance to such an extent that abundance and the potential for natural patterns of dispersal and colonization are expected to be reduced. Units in low condition have experienced such extensive habitat loss that they are expected to experience substantial population losses (USFWS 2024, pp. 92–94).

Of the 11 analysis units, we found 2 that are high condition, 5 that are moderate condition, and 4 that are low condition (see table 1, below). All analysis units in the Northern Mescalero Sandhills are in either high (two units) or moderate (three units) condition. In contrast, both analysis units in the Southern Mescalero Sandhills are in low condition. Two analysis units in the Monahans Sandhills are in low condition and two in moderate condition. Although two analysis units are in high condition according to our analysis (North Mescalero 2 and 4), they are physically disconnected from any other sand dune formations and contain the least amount of shinnery oak duneland habitat. Thus, despite being relatively undisturbed, they are isolated and small, making them at increasing risk of extirpation.

TABLE 1—CURRENT HABITAT CONDITION FOR THE 11 ANALYSIS UNITS DEFINED FOR THE DUNES SAGEBRUSH LIZARD SSA

Representation unit	Analysis unit	Proportion of total area minimally disturbed	Proportion of duneland minimally disturbed	Proportion of duneland degraded	Current condition
N Mescalero	N Mescalero 1	0.74	0.80	0.14	Moderate.
	N Mescalero 2	0.76	0.93	0.01	High.

TABLE 1—CURRENT HABITAT CONDITION FOR THE 11 ANALYSIS UNITS DEFINED FOR THE DUNES SAGEBRUSH LIZARD SSA—Continued

Representation unit	Analysis unit	Proportion of total area minimally disturbed	Proportion of duneland minimally disturbed	Proportion of duneland degraded	Current condition
S Mescalero	N Mescalero 3	0.62	0.65	0.31	Moderate.
	N Mescalero 4	0.61	0.58	0.03	High.
	N Mescalero 5	0.70	0.71	0.28	Moderate.
S Mescalero	S Mescalero 1	0.17	0.17	0.51	Low.
	S Mescalero 2	0.40	0.28	0.59	Low.
Monahans	Monahans 1	0.36	0.40	0.56	Low.
	Monahans 2	0.62	0.73	0.13	Moderate.
	Monahans 3	0.66	0.65	0.16	Moderate.
	Monahans 4	0.26	0.37	0.51	Low.

Using the total size of each analysis unit, we projected the proportion of the total dunes sagebrush lizard range that falls into these different condition categories. Only 6 percent of the species' range is considered to be in high condition, 47 percent is considered to be in moderate condition, and 47 percent is considered to be in low condition.

For redundancy, all 11 analysis units have some habitat classified as minimally disturbed, meaning they are capable of support dunes sagebrush lizards. Given the size of the range, it is unlikely that a single catastrophe would eliminate the entire species. The resiliency scores of some analysis units, however, suggests that they are potentially vulnerable to extirpation. Loss of the low condition analysis units would reduce the total number to 7, with those remaining concentrated in North Mescalero Sandhills. It is a vulnerability to the species that the analysis units in the strongest condition are clustered geographically: North Mescalero Sandhills also includes some of the smallest units. An extreme event centered in that area could reduce abundance in the last strongholds for the species, leaving its viability tied to low condition areas in Southern Mescalero and Monahans Sandhills.

For representation, all analysis units and representation units contain dunes sagebrush lizards, meaning that the genetic lineages identified by Chan et al. (2020, entire) are still represented. The mere existence of these lineages on the landscape suggests there is still raw genetic variation present within the species that can support adaptive capacity. However, some representation units are composed of populations with low resiliency. Both analysis units in the Southern Mescalero Sandhills are in low condition. The low viability of these units suggests that an entire genetic lineage is currently at high risk for extirpation. Two of the four analysis

units in the Monahans Sandhills are also in low condition. Importantly, these two units cover the northern and southern extremes of the dunes sagebrush lizard range in the Monahans Sandhills. Loss of these analysis units could result in the loss of genetic variation associated with extremes in the environmental variation experienced by the species in Texas, reducing adaptive capacity. In fact, a general pattern is that analysis units are in better condition in the northern part of the species range (Northern Mescalero Sandhills). Southern populations experience higher temperatures and drier conditions and may have higher capacity to withstand climate change (Leavitt 2019, pp. 7–8). However, their poor condition limits their potential to contribute to long-term adaptation of the species.

For a more thorough discussion of the current status of the dunes sagebrush lizard, see the SSA report (USFWS 2024, pp. 86–109).

Future Scenarios

As part of the SSA, we also developed several future-condition scenarios to forecast the condition of the species under different projections of threats. We used our existing assessment of current habitat as the starting point for our future scenarios. We then incorporated projections of factors likely to impact the viability of the dunes sagebrush lizard into the future. Although there are several factors that may influence the condition of the species in the future, we focused on oil and gas development and frac sand mining as the threats most likely to impact the dunes sagebrush lizard's habitat and long-term viability. Because we determined that the current condition of the dunes sagebrush lizard is consistent with an endangered species (see Determination of Dunes Sagebrush Lizard's Status, below), we

are not presenting the results of the future scenarios in this final rule. Please refer to the SSA report (USFWS 2024, pp. 110–129) for the full analysis of future scenarios.

Cumulative Effects

We note that by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have analyzed the cumulative effects of identified threats and conservation actions on the species. To assess the current and future condition of the species, we evaluate the effects of all the relevant factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of these factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Determination of Dunes Sagebrush Lizard's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an "endangered species" as a species in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of endangered species or threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational

purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

Status Throughout All of Its Range

Among the threats we evaluated in our SSA report (USFWS 2024, entire), the most consequential to the long-term persistence of the dunes sagebrush lizard are habitat loss, fragmentation, and degradation due to the industrial extraction of oil, gas, and frac sand (Factor A) and climate change (Factor E). Because these activities have so thoroughly degraded habitat across large portions (47 percent) of shinnery oak duneland habitat, much of that habitat is no longer capable of supporting populations of the dunes sagebrush lizard. Even though these degraded areas may continue to support the dunes sagebrush lizard in small, isolated patches, the species in these areas has limited recruitment, has higher mortality, and is disconnected from other populations. In highly degraded areas, remnant populations may persist over the next several decades; however, as they become extirpated, there is little potential for recolonization due to habitat fragmentation. Therefore, the dunes sagebrush lizard is functionally extinct across 47 percent of its range. This includes the entire Southern Mescalero Sandhills portion of the range, which reduces the species' adaptive capacity and, therefore, reduces its representation.

Based on our habitat assessment, only two analysis units (6 percent) are currently in high enough condition to support robust, interconnected populations. Even this, however, may be an overestimate of long-term resiliency, as these two analysis units are at the extreme northern portion of the species' range in New Mexico and are physically disconnected from other dune fields and each other. Additionally, although minimally disturbed, these two units contain the least amount of shinnery oak duneland habitat; thus, the populations within these units are small, isolated, and vulnerable to stochastic and catastrophic events.

Another large component of the species' range (47 percent) is currently in moderate condition, meaning it contains sufficient amounts of minimally disturbed habitat to support populations of the dunes sagebrush lizard at this time. However, within these areas, interconnectedness is reduced, increasing the potential for local extirpations. Where the habitat is in moderate condition, dunes sagebrush lizard populations are not secure, as the

populations are already highly fragmented and are expected to continue to be impacted by human activity. Even if there were no further expansion of the oil and gas or sand mining industry, the existing footprint of these operations will continue to negatively affect the dunes sagebrush lizard into the future. For example, the existing road network will continue to restrict movement and facilitate direct mortality of dunes sagebrush lizards from traffic, and industrial development will continue to have edge effects on surrounding habitat and weaken the structure of the sand dune formations. The pervasiveness of industrial development makes dunes sagebrush lizards vulnerable to other threats that were not explicitly quantified in our assessment, such as extreme drought, groundwater extraction, oil spills, and mesquite encroachment. Because shinnery-oak duneland habitat cannot currently be restored (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34), and limited existing infrastructure will likely be removed from this landscape, there is little possibility for conditions in these moderate condition units to improve (USFWS 2024, pp. 105–107). Therefore, we conclude that habitat in these units will continue to deteriorate due to fragmentation, which will continue to isolate dunes sagebrush lizard populations and result in a progressive decline in population abundance.

Although it still occupies much of its range, many populations are small, isolated, and vulnerable to extirpation, which will gradually erode redundancy and increase the risks posed by catastrophic events, such as drought. Adaptive capacity (*i.e.*, representation) has also been reduced as well. An entire genetically distinct lineage covering an ecologically separate portion of the range (Southern Mescalero) is functionally extinct. A second lineage occupying a geographically disjunct portion of the range (Monahans) is on a similar trajectory. Loss of ecological and genetic representation across the range will reduce adaptive capacity and the ability of the species to respond to environmental change.

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that the risk factors acting on the dunes sagebrush lizard and its habitat, either singly or in combination, are of sufficient imminence, intensity, and magnitude to indicate that the species is in danger of extinction throughout all of its range. Due to past and current stressors, the species has experienced reductions in

resiliency across its range, making it vulnerable to stochastic events. We do not find that the dunes sagebrush lizard meets the definition of a threatened species because the reductions in resiliency, redundancy, and representation to this point have elevated the risk of the extinction of the species. Thus, after assessing the best available information, we determine that dunes sagebrush lizard is in danger of extinction throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so within the foreseeable future throughout all or a significant portion of its range. We have determined that the dunes sagebrush lizard is in danger of extinction throughout all of its range and accordingly did not undertake an analysis of any significant portions of its range. Because the dunes sagebrush lizard warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020), which vacated the provision of the Final Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species" (79 FR 37578, July 1, 2014) providing that if the Service determines that a species is threatened throughout all of its range, the Service will not analyze whether the species is endangered in a significant portion of its range.

Determination of Status

Our review of the best available scientific and commercial information indicates that the dunes sagebrush lizard meets the Act's definition of an endangered species. Therefore, we are listing the dunes sagebrush lizard as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act

encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies, including the Service, and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened ("downlisting") or removal from protected status ("delisting"), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (<https://www.fws.gov/program/endangered-species>), or from our New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners.

Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

When this rule is effective (see **DATES**, above), funding for dunes sagebrush lizard recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of New Mexico and Texas will be eligible for Federal funds to implement management actions that promote the protection or recovery of the dunes sagebrush lizard. Information on our grant programs that are available to aid species recovery can be found at: <https://www.fws.gov/service/financial-assistance>.

Please let us know if you are interested in participating in recovery efforts for the dunes sagebrush lizard. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7 of the Act is titled, "Interagency Cooperation" and mandates all Federal action agencies to use their existing authorities to further the conservation purposes of the Act and to ensure that their actions are not likely to jeopardize the continued existence of listed species or adversely modify critical habitat. Regulations implementing section 7 are codified at 50 CFR part 402.

Section 7(a)(2) states that each Federal action agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Each Federal agency shall review its action at the earliest possible time to determine whether it may affect listed species or critical habitat. If a determination is made that the action may affect listed species or critical habitat, formal consultation is required (50 CFR 402.14(a)), unless the Service concurs in writing that the action is not likely to adversely affect listed species or critical habitat. At the end of a formal

consultation, the Service issues a biological opinion, containing its determination of whether the Federal action is likely to result in jeopardy or adverse modification.

Examples of discretionary actions for the dunes sagebrush lizard that may be subject to consultation procedures under section 7 are land management or other landscape-altering activities on Federal lands or mineral rights administered by the BLM as well as actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation. Federal agencies should coordinate with the local Service Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions on section 7 consultation and conference requirements. To facilitate this process, we will ensure that maps and the data used to generate them in the SSA report will be made available through requests to the New Mexico Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**). We will also publish up-to-date range maps on our website (<https://www.fws.gov/species/dunes-sagebrush-lizard-sceloporus-arenicolus>) to facilitate the project planning process.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit or to cause to be committed any of the following: (1) import endangered wildlife into, or export endangered wildlife from, the United States; (2) take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) endangered wildlife within the United States or on the high seas; (3) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any endangered wildlife that has been taken illegally; (4) deliver, receive, carry, transport, or ship in

interstate or foreign commerce, in the course of commercial activity, any endangered wildlife; or (5) sell or offer for sale in interstate or foreign commerce any endangered wildlife. Certain exceptions to these prohibitions apply to employees or agents of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits for endangered wildlife are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued: for scientific purposes, for enhancing the propagation or survival of the species, or for take incidental to otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is the policy of the Service, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the extent known at the time a species is listed, specific activities that will not be considered likely to result in violation of section 9 of the Act. To the extent possible, activities that will be considered likely to result in violation will also be identified in as specific a manner as possible. The intent of this policy is to increase public awareness of the effect of a listing on proposed and ongoing activities within the range of the species.

At this time, we are unable to identify specific activities that will not be considered likely to result in a violation of section 9 of the Act beyond what is already clear from the Act's descriptions of prohibitions or already excepted through our regulations at 50 CFR 17.21 (e.g., any person may take endangered wildlife in defense of his own life or the lives of others). Also, as discussed above, certain activities that are prohibited under section 9 may be permitted under section 10 of the Act.

To the extent currently known, the following is a list of examples of activities that will be considered likely to result in violation of section 9 of the Act in addition to what is already clear from the descriptions of the prohibitions found at 50 CFR 17.21:

(1) Destruction, alteration, or removal of shinnery oak duneland and shrubland vegetation.

(2) Degradation, removal, or fragmentation of shinnery oak duneland and shrubland formations and ecosystems.

(3) Disruption of water tables in dunes sagebrush lizard habitat.

(4) Introduction of nonnative species that compete with or prey upon the dunes sagebrush lizard.

(5) Unauthorized release of biological control agents that attack any life stage of the dunes sagebrush lizard or that degrade or alter its habitat.

(6) Herbicide or pesticide applications in shinnery oak duneland and shrubland vegetation and ecosystems.

This list is intended to be illustrative and not exhaustive; additional activities that will be considered likely to result in violation of section 9 of the Act may be identified during coordination with the local field office, and in some instances (e.g., with new or site-specific information), the Service may conclude that one or more activities identified here will not be considered likely to result in violation of section 9. Questions regarding whether specific activities would constitute violation of section 9 of the Act should be directed to the New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

II. Critical Habitat

Section 4(a)(3) of the Act and implementing regulations (50 CFR 424.12) require that we designate critical habitat at the time a species is determined to be an endangered or threatened species, to the maximum extent prudent and determinable. In our July 3, 2023, proposed listing rule (88 FR 42661), we determined that designation of critical habitat was prudent, but not determinable because specific information needed to analyze the impacts of designation was lacking. We are still in the process of assessing the information needed to analyze the impacts of critical habitat. We plan to publish a proposed rule to designate critical habitat for the dunes sagebrush lizard in the near future. The Act allows the Service an additional year to publish a critical habitat designation that is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

Required Determinations

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility

to communicate meaningfully with federally recognized Tribes on a government-to-government basis. In accordance with Secretaries' Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. No designated Tribal lands occur within the range of the dunes sagebrush lizard, and we received no comments from Tribes on the July 3, 2023, proposed listing rule, but several Tribes may have interests in this area and could be affected by the rule. We contacted the Mescalero Apache, Pueblo of Tesuque, Ysleta del Sur Pueblo, Kiowa Tribe of Oklahoma, Apache Tribe of Oklahoma, and Comanche Nation of Oklahoma regarding the SSA process by mail and invited them to provide information and comments to inform the SSA.

References Cited

A complete list of references cited in this rulemaking is available on the internet at <https://www.regulations.gov> and upon request from the New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this rule are the staff members of the U.S. Fish and Wildlife Service's Species Assessment Team and the New Mexico Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. Amend § 17.11, in paragraph (h), by adding an entry for “Lizard, dunes sagebrush” to the List of Endangered and Threatened Wildlife in alphabetical

order under REPTILES to read as follows:

§ 17.11 Endangered and threatened wildlife.

(h) * * *

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Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
REPTILES				
*	*	*	*	*
Lizard, dunes sagebrush.	<i>Sceloporus arenicolus</i> .	Wherever found ..	E	89 FR [INSERT Federal Register PAGE WHERE THE DOCUMENT BEGINS], 5/20/2024.
*	*	*	*	*

Martha Williams,
 Director, U.S. Fish and Wildlife Service.
 [FR Doc. 2024-11025 Filed 5-17-24; 8:45 am]
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