



Dunes Sagebrush Lizard Considerations and West Texas Frac Sand Operations

FREQUENTLY ASKED QUESTIONS

The Dunes Sagebrush Lizard (DSL) has been the topic of interest and discussion as industry participants have developed frac sand facilities in the Permian Basin. The DSL is not an endangered species nor a threatened species. From this document, you will learn:

- Hi-Crush does NOT have DSL or habitat on the land it will mine.
- Any potential future listing will NOT impact Hi-Crush business or mining operations due to the absence of DSL habitat or activity on its land.
- The majority of DSL habitat is on federal land in New Mexico that is managed by federal agencies to conserve the species.

Hi-Crush has prepared the following information to offer further insight into key issues related to the DSL and measures taken by Hi-Crush to ensure operations at our Kermit, Texas, facility pose no threat to the species.

1. What is the Dunes Sagebrush Lizard?

The DSL is a small, light brown lizard found in shinnery oak dune habitat, located across approximately 600,000 acres in southeastern New Mexico and west Texas. Most of the DSL range and available habitat occur in New Mexico. The DSL is a habitat specialist, and the connection between the DSL and the shinnery oak dune habitat system is very specific. The range of the species is closely linked to distribution of the shinnery oak dunes and the quality and quantity of available shinnery oak dune habitat.

2. What is the history and status of the DSL possibly being listed as an endangered or threatened species?

The United States Fish and Wildlife Service's (FWS) consideration of the status of the DSL dates back to 1982 when it first included the DSL among those species that possibly could be a candidate for listing, but for which "sufficient data on biological vulnerability and threats were not available." Following a variety of classifications from 1982 to 2001, the FWS received a petition to list the DSL in June of 2002. In December 2004, the FWS determined that a listing was warranted, but action was precluded by higher priorities. Eventually, the FWS proposed the listing of the DSL as endangered in December 2010. However, in June 2012, the FWS withdrew the proposed rule to list the DSL as endangered citing "the threats to the species as identified in the proposed rule no longer are as significant as believed at the time of the proposed rule." The existence of voluntary conservation plans for the DSL in New Mexico and Texas contributed to the FWS decision to not list the species in 2012.

On June 1, 2018, the FWS received a new petition filed by the Center for Biological Diversity and the Defenders of Wildlife (petitioners) to list the DSL as a threatened or endangered species. The FWS is in the process of reviewing the petition and will determine whether there is "substantial scientific or commercial information" that listing the DSL as threatened or endangered may be warranted.

3. What happens next?

As evidenced by the history of the FWS consideration of the DSL status, the process for listing any species as endangered or threatened is lengthy, and involves many steps. If the FWS finds there is substantial information in the petition that may warrant a listing, the FWS has 12 months to prepare a status assessment for the species and make one of three determinations: listing is not warranted, listing is warranted or listing is warranted but further action is precluded by higher priorities. If the FWS determines that listing is warranted, the agency publishes a proposed rule to list the species and solicits public comment and peer review of the proposed rule over a period of 12 months. The FWS can also act on its own to publish a proposed listing rule, thereby skipping the initial 12 months of petition review. The FWS then publishes a final rule announcing its decision either to list or not list the species, with its action subject to judicial review. If the final rule stands, then the listing becomes effective in 30 days from the announcement. Therefore, the normal listing process is lengthy, with timelines of a year or more before the listing becomes effective.

It is important to note that neither the listing process nor the possible eventual listing results in a shut down or delay of commercial activity.

4. How has the DSL habitat been defined by the FWS and the scientists that research the DSL?

As noted in the June 19, 2012 Federal Register Notice announcing the withdrawal of the proposed rule to list the DSL as endangered, the FWS wrote, "The dunes sagebrush lizard is only found in *Quercus havardii* (shinnery oak) dune habitat in southeastern New Mexico and West Texas. The shinnery oak community is not spreading and its boundaries have not changed since early surveys, suggesting that new habitat is not being created." The FWS goes on to state, "The connection between dunes sagebrush lizards and the shinnery dune system is very specific; the range of the species is closely linked to the distribution of shinnery oak dunes (Fitzgerald et al. 1997, p. 4) and dunes sagebrush lizards are rarely found at sites lacking shinnery oak dune habitat (Fitzgerald et al. 1997, p. 2), though they have occasionally been found in the shinnery oak flats adjacent to dunes." Because the DSL is a habitat specialist, the absence of shinnery oak dunes or shinnery oak flats renders an area unsuitable for regular use by the DSL. *This is precisely the situation at the Hi-Crush property in Kermit.*

5. What are the TCP and the CCAA?

The Texas Conservation Plan (TCP) is a voluntary conservation plan developed in conjunction with the Texas Comptroller's Office (CPA) and stakeholders, including Federal, State, and private partners representing interests in the natural resource, oil and gas, ranching, and agricultural industries. The TCP was developed to assist stakeholders whose activity could potentially be injurious to the DSL or its habitat.

The TCP supported the approval of a Candidate Conservation Agreements with Assurances (CCAA), which is a conservation agreement between the FWS, CPA and participating stakeholders. CCAAs are used by the FWS to "provide incentives for non-federal property owners to engage in voluntary conservation activities that provide a net conservation benefit to the species. More specifically, a CCAA provides participating property owners with a permit containing assurances that if they engage in certain activities for species included in the agreement, they will not be required to implement additional conservation measures beyond those in the CCAA." If the DSL were to eventually be listed, "Additional land water or resource use limitations will not be imposed on them, unless they consent to such changes."

The TCP focused on the avoidance of activities within lizard habitat that would degrade habitat, potential reclamation of lizard habitat to reduce fragmentation, and removal of mesquite that is encroaching into shinnery oak dunes. If avoidance of lizard habitat cannot be accomplished, the participants may adopt conservation measures that minimize habitat impacts, and as a last resort, mitigate for the loss of lizard habitat. The TCP became effective December 17, 2012. Sand mining was not expressly identified as a covered activity in the existing CCAA.

On August 3, 2018, the Texas Comptroller's office submitted an application for a new Candidate Conservation Agreement with Assurances (CCAA) for the Dunes Sagebrush Lizard that would replace the existing CCAA (the Proposed 2018 CCAA). The proposed CCAA and the effect of the CPA's action on the existing CCAA are currently under review by FWS.

6. How have the TCP and the Proposed 2018 CCAA determined DSL habitat?

The TCP adopted a map of "DSL Habitat" developed by Dr. Toby Hibbitts of Texas A&M University. The Hibbitts map identifies broad areas of shinnery dunes habitat and classifies these areas with a relative assessment of likelihood of occupancy by the DSL—low, intermediate and high suitability. However, the Hibbitts map was quickly developed as a coarse, landscape-scale interpretation of those portions of the DSL Texas range where dune complexes occur and the relative likelihood of finding occupied DSL habitat somewhere within those areas. The Hibbitts map was drawn from aerial imagery, considering (when available) notes about habitat contained in documented DSL occurrence records from the past 20 years. In fact, the TCP itself notes that the "Hibbitts map...needs additional survey and map refinement," and "on-site surveys are needed to further the science and understanding/mapping of habitat." The TCP established a transparent process for refinement of the Hibbitts map using the FWS' adaptive management policy and a decision-making process informed by science, policy and steering committees established under the plan.

However, the Hibbitts map used in the TCP was not refined in accordance with the TCP and did not offer an assessment of DSL habitat quality or habitat suitability at a site-specific scale and only provided a landscape-level estimate of the likelihood for one or more DSL to occur somewhere within often very large areas of broadly defined dune systems.

Rather than refine the existing Hibbitts map, the CPA contracted with Texas State University to develop a new habitat suitability model and survey protocols to establish a baseline for the DSL. The model was intended to address "the limitations of historical and current survey data and robust habitat imagery." The Proposed 2018 CCAA used this model to make an initial assessment of what constitutes low, intermediate and high suitability habitat of the DSL.

7. What category of habitat is Hi-Crush's Kermit property as identified by the TCP or the Proposed 2018 CCAA?

The Hi-Crush Kermit facility is located on 1,226 acres of land in Winkler County. Most of this acreage, with the notable exception of the operating Hi-Crush Kermit plant, occurs within a Hibbitts map polygon delineating a 26-square-mile dune system classified as having a "very high probability of occupancy" by the DSL on the basis of DSL observations from shinnery oak dunes that occur nearly one mile away from our Kermit property. These observations were found on apparently suitable DSL habitat that is separated from the Hi-Crush Kermit facility by paved roads. Roads are considered to be barriers to DSL movement.

The Hi-Crush property in Kermit is included areas declared to be "high suitability" DSL habitat in the Proposed 2018 CCAA submitted to the FWS. The new mapping was created using a combination of detailed land cover classification mapping and assignment of the mapped cover classes to categories of DSL "habitat suitability." Although these categories of DSL habitat appear to be consistent with the literature on DSL habitat associations and disassociations, the results of the mapping continue to include areas of active sand sheets lacking shinnery oak and blowouts (such as the Hi-Crush Kermit property). The literature consistently indicates DSL are absent in active areas that lack shinnery oak and blowouts (Sena 1985; Degenhardt et al. 1996; Fitzgerald et al. 1997). While the process of classifying the habitat into land cover types may have been improved in consistency, the categorization of the land cover types into classes of suitable habitat for the DSL remains imprecise and inconsistent with DSL habitat as reported in the published scientific literature. The Proposed 2018 CCAA mapping being reviewed by FWS continues to misclassify some elements of the landscape—particularly that of unvegetated sand dunes.

8. Are the habitat designations used by the CPA in both the TCP and the CCAA flawed?

In a word, yes. Neither the Hibbitts map used in the TCP nor the new model used in the Proposed 2018 CCAA accurately characterize the actual habitat conditions on Hi-Crush's Kermit property. While DSL are known to occur elsewhere within both the Hibbitts map polygon and the boundaries of the high suitability habitat in the CCAA's model that included the Hi-Crush Kermit property, we can state definitively that the diligence we have conducted on our site establishes that the areas we are mining have no DSL habitat, nor any DSLs. The vast majority of our property consists of unvegetated dunes. The small amount that remains has some grass and mesquite, but no shinnery oak. None of our property has any of the essential elements of suitable DSL habitat as identified by the FWS and the scientific experts on the DSL—namely, the presence of sand dunes anchored by shinnery oak that surround large, steep, un-vegetated blowouts. Furthermore, the site is a former dune buggy park that has a more than 60-year-long history of recreational use and associated disturbance by dune buggy riders, campers, and picnickers. Aerial photos taken before its use as a dune buggy park show that it was not suitable habitat prior to its use as a park.

We have conducted comprehensive due diligence on environmental matters, including endangered species assessments over our entire holdings in Kermit. As a part of this process, we engaged renowned experts on the subject of the DSL. These professionally certified and PhD-level wildlife biologists conducted extensive on-site habitat assessments and presence surveys, concluding that no DSL habitat exists in the areas where we plan to excavate sand and documenting no evidence of DSL presence or activity.

9. Did Hi-Crush apply for a Certificate of Inclusion (CI) in the TCP like other sand companies?

Some sand companies elected to participate in the TCP even though sand mining was not identified as a covered activity in that plan. These companies committed to mitigate their impact on the DSL by contributing substantial sums to mitigation efforts and/or setting aside large tracts of actual DSL habitat to potentially offset a taking of the species. For those with habitat or activity that could impact the DSL, joining the plan could be viewed as an understandable allocation of their resources.

Hi-Crush considered the benefits and costs associated with a CI through the TCP. However, since our property definitively did not include the essential elements of DSL habitat or have the presence of DSLs, and since the plan was limited to those covered activities identified in the TCP, we believed our involvement with the TCP Science Committee formed under the auspices of the Comptroller's Office was a far better use of our financial resources.

10. Will Hi-Crush participate in the Proposed 2018 CCAA?

The Proposed 2018 CCAA is under technical review by the FWS and has not been approved. As submitted, the proposed CCAA does not allow sand mine companies to operate in areas designated as intermediate or high suitability habitat for the DSL. In a recent public statement, the CPA correctly recognized the importance of allowing participants the opportunity to conduct site-specific surveys and assessments to challenge their habitat designation by stating, "An important protection for land owners and industry is that any participant can challenge the habitat designation of its property as long as it follows a prescribed survey protocol. This protocol allows for relatively quick surveys of the features that define DSL habitat, rather than the years-long procedures required to capture and count individuals." Hi-Crush wholeheartedly agrees that this is an important feature for any CCAA to ensure activities do not negatively affect the DSL or its habitat and is essential to balance the needs of the DSL and land owners. However, a number of processes and protocols in this proposed CCAA are unclear to us. We will consider whether to join the CCAA if it is approved and these become better defined.

11. Will Hi-Crush change its mining practices to minimize impact to the DSL?

It is not necessary for Hi-Crush to alter its mining practices due to minimal impact overall, and no impact on the DSL or its habitat.

12. What impact would there be to Hi-Crush operations at the Kermit facility if FWS lists the DSL as an endangered species?

A potential future DSL listing should have no effect on operations at the Kermit facility. The diligence efforts by Hi-Crush provide documentation of the actual conditions at the Kermit facility, demonstrating both the lack of suitable DSL habitat and presence of lizards.

If the DSL becomes listed, the Endangered Species Act would prohibit unauthorized “take” of the species, which could include instances of significant habitat modification or degradation where it actually kills or injures DSL by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Neither the Hibbitts map nor the proposed CCAA mapping is a delineation of actual DSL habitat at the site specific scale and it would not be used by FWS to establish if significant habitat modification rising to the level of take had occurred. Instead, such evaluations would be made on a case-by-case basis in light of the actual conditions at a site.

Whether the DSL is listed or not, Hi-Crush continues to take prudent and responsible steps toward protecting the DSL. This includes good operating practices and working with the TCP and members of the scientific community charged with protecting the DSL. While we will continue to pursue this strategy of engagement, the absence of any DSL activity on Hi-Crush’s land should not impact any operations in the event of DSL listing.