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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R2–ES–2018–0029; FF09E22000 FXES11130900000 201]

RIN 1018–BD46

Endangered and Threatened Wildlife and Plants; Reclassification of the American Burying Beetle From Endangered to Threatened with a Section 4(d) Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), reclassify (downlist) the American burying beetle (*Nicrophorus americanus*) from endangered to threatened on the Federal List of Endangered and Threatened Wildlife. This determination is based on a thorough review of the best available scientific and commercial information, which indicates that the threats to this species have been reduced to the point that it is not currently in danger of extinction throughout all or a significant portion of its range, but that it is likely to become so within the foreseeable future. We also finalize a rule under the authority of section 4(d) of the Act that provides measures that are necessary and advisable to provide for the conservation of the American burying beetle.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: This final rule and supporting documents are available on the internet at *http://www.regulations.gov* under Docket No. FWS–R2–ES–2018–0029. Comments and

materials we received, as well as supporting documentation we used in preparing this rule, are available for public inspection at *http://www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Jonna Polk, Field Supervisor, U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, 9014 East 21st St., Tulsa, OK 74129; telephone 918–382–4500. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act a species may warrant reclassification from endangered to threatened if it no longer meets the definition of endangered (in danger of extinction). The American burying beetle is listed as endangered, and we are finalizing a reclassification (downlisting) of the American burying beetle as threatened because we have determined it is not currently in danger of extinction. Downlisting a species as a threatened species can only be made by issuing a rulemaking.

What this document does. This rule reclassifies the American burying beetle from endangered to threatened (i.e., "downlists" the species), with a rule issued under section 4(d) of the Act, based on the species' current status.

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 may reclassify a species if the best available commercial and scientific data indicate the species no longer meets the applicable definition in the Act.

We have determined that the American burying beetle is no longer in danger of extinction and, therefore, does not meet the definition of an endangered species, but is still affected by current and ongoing threats to the extent that the species meets the definition of a threatened species under the Act. Increasing temperatures due to changing climate are projected to impact American burying beetle populations within the foreseeable future. Likewise, we project future impacts to American burying beetle populations due to land use change associated with urbanization and agricultural activities.

We are promulgating a section 4(d) rule. We are issuing a section 4(d) rule to provide measures necessary and advisable to provide for the conservation of the American burying beetle. The 4(d) rule prohibits all intentional take of the American burying beetle and specifically tailor the incidental take prohibitions and exceptions under section 9(a)(1) of the Act as a means to provide protective mechanisms to State and Federal partners, as well as private landowners, so that they may continue with certain activities that are not anticipated to cause direct injury or mortality to American burying beetles and that will facilitate the conservation and recovery of the species.

Previous Federal Actions

Please refer to the proposed rule to reclassify American burying beetle from endangered to threatened (84 FR 19013; May 3, 2019) for a detailed description of

previous Federal actions concerning this species.

Summary of Changes from the Proposed Rule

We have made two changes from the proposed rule in this final rule: One of the changes affects the rule language, and one affects only the preamble.

(1) Under the proposed 4(d) rule provisions, we defined "conservation lands" where incidental take would continue to be prohibited within the Southern Plains populations. The proposed 4(d) rule included The Nature Conservancy Tall Grass Prairie Preserve as "conservation lands" where incidental take would be prohibited. In this final rule, we have removed The Nature Conservancy Tall Grass Prairie Preserve from this definition of conservation lands and, therefore, removed the prohibition on incidental take in this area, because The Nature Conservancy has developed a Memorandum of Understanding to document their commitment to provide ongoing management, research, and monitoring at that site that makes the prohibitions in the proposed rule unnecessary.

(2) In *Center for Biological Diversity* v. *Everson*, 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity or CBD*)), the court vacated part of the 2014 Significant Portion of its Range Policy. Following the court's holding in *CBD*, we have now revised the significant portion of the range analysis in this final rule. We evaluated the status of the species in three potentially significant portions of the species' range and found that none meet the definition of endangered. This updated analysis did not result in any changes to the proposed rule but provides support for the determination.

Supporting Documents

A species status assessment (SSA) team prepared an SSA report for the American burying beetle. 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 of listing actions under the Act, we sought peer review of the SSA report. The Service sent the SSA report to 12 independent peer reviewers and received 8 responses. The purpose of peer review is to ensure that our listing determinations and 4(d) rules are based on scientifically sound data, assumptions, and analyses. The peer reviewers have expertise in the biology, habitat, and threats to the species. The draft SSA report was also sent to species experts and all Tribes and States within the current range for a partner review. We received review from six States and two species experts.

I. Final Listing Determination

Background

The American burying beetle (*Nicrophorus americanus*) is the largest silphid (carrion beetle) in North America, reaching 1.0 to 1.8 inches (25 to 35 centimeters) in length (Anderson 1982, p. 362; Backlund and Marrone 1997, p. 53). During the daytime, American burying beetles are believed to bury themselves under vegetation litter or into soil (Jurzenski 2012, p. 76). At night, American burying beetles are active from late spring through early fall, occupy a variety of habitats and bury themselves in the soil to hibernate for the duration of the winter. American burying beetles emerge from their winter inactive period when ambient nighttime air temperatures consistently exceed 59

degrees Fahrenheit (°F) (15 degrees Celsius (°C)) (Kozol et al. 1988, p. 11; Kozol 1990b, p. 4; Bedick et al. 1999, p. 179; Service 2008, p. 13). Reproduction occurs in the spring to early summer after this emergence. New adult beetles or offspring (called tenerals), usually emerge in summer, over-winter (hibernate) as adults, and comprise the breeding population the following summer (Kozol et al. 1988, p. 2; Amaral et al. 2005, pp. 30, 35).

The American burying beetle is native to at least 35 States in the United States, covering most of temperate eastern North America, and the southern borders of three eastern Canadian provinces. The species is believed to be extirpated from all but nine States in the United States and is likely extirpated from Canada. However, the current range is much larger than originally thought when the species was listed in 1989. Based on the last 15 years of surveys, the American burying beetle occurs in portions of Arkansas, Kansas, Oklahoma, Nebraska, South Dakota, and Texas; on Block Island off the coast of Rhode Island; and in reintroduced populations on Nantucket Island off the coast of Massachusetts and in southwest Missouri, where a nonessential experimental population (NEP) was established in 2012 under section 10(j) of the Act (77 FR 16712; March 22, 2012). Reintroduction efforts are also under way in Ohio, and survival of reintroduced American burying beetles into the next year (successful overwintering) was documented in 2019. American burying beetles have not been documented in Texas since 2008.

Please refer to the May 3, 2019, proposed rule to reclassify American burying beetle from endangered to threatened (84 FR 19013) and the SSA report for a full summary of species information. Both are available at *http://www.regulations.gov* under Docket No. FWS–R2–ES–2018–0029.

Recovery Criteria

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Recovery plans must, to the maximum extent practicable, include "objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions [of section 4 of the Act], that the species be removed from the list."

Recovery plans provide a roadmap for us and our partners on methods of enhancing conservation and minimizing threats to listed species, as well as measurable criteria against which to evaluate progress towards recovery and assess the species' likely future condition. However, they are not regulatory documents and do not substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of a species, or to delist a species is ultimately based on an analysis of the best scientific and commercial data available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from the recovery plan.

There are many paths to accomplishing recovery of a species, and recovery may be achieved without all of the criteria in a recovery plan being fully met. For example, one or more criteria may be exceeded while other criteria may not yet be accomplished. In that instance, we may determine that the threats are minimized sufficiently and that the species is robust enough that it no longer meets the definition of an endangered species or a threatened species. In other cases, we may discover new recovery opportunities after having finalized the recovery plan. Parties seeking to conserve the species may use these

opportunities instead of methods identified in the recovery plan. Likewise, we may learn new information about the species after we finalize the recovery plan. The new information may change the extent to which existing criteria are appropriate for identifying recovery of the species. The recovery of a species is a dynamic process requiring adaptive management that may, or may not, follow all of the guidance provided in a recovery plan.

The American burying beetle recovery plan was approved by the Service on September 27, 1991 (Service 1991). Delisting criteria were not established in the recovery plan. However, for reclassification from endangered to threatened, the recovery plan established a criterion of at least three self-sustaining populations of at least 500 individuals in each of four broad geographical areas of the species' historical range: the Northeast, the Southeast, the Midwest, and the Great Lakes States. The threshold of 500 individuals was developed based on limited empirical data from Block Island (Service 1991, p. 8) and principles from the conservation biology literature (Franklin 1980; Soule 1980; Salwasser et al. 1982) that suggested the effective population number of 500 was the minimum threshold size for a biological population to maintain long-term adaptability.

We now understand that a population estimate of 500 adults is probably an inadequate metric for a self-sustaining population of this species because minimum viable population for most species would be considerably larger than 500 individuals. Minimum viable population thresholds vary by species, and additional empirical data and analysis for American burying beetles indicate that a larger threshold may be more appropriate for this species (Reed et al. 2003; Amaral et al. 2005; p. 36; Brook et al.

2006; Flather et al. 2011; Wolf et al. 2015). However, new population targets for the species have not been developed and would be different for each population due to differences in habitat and stressors acting on populations. Likewise, conservation of populations in the four broad geographical areas used in the recovery plan may not appropriately address future threats given our current understanding of the species' range and risks to populations (see sections 2.5.4 and 5.4 in the SSA Report; Service 2019). For example, the authors of the recovery plan were not aware of future climate-related risks and current projections indicating that southern portions of the historical range would not be suitable for future recovery (see section 5.4 in the SSA Report; Service 2019). Thus, the recovery plan information is considered to be out of date (Service 2008), and the SSA Report (Service 2019) provides an updated, revised analysis of current and future risks based on our current understanding of the species' needs.

Regulatory and Analytical Framework

Regulatory Framework

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 is an "endangered species" or a "threatened species." 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 consider these same five factors in reclassifying a species from endangered to threatened (50 C.F.R. 424.11(c)-(e)).

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, as well as those that affect individuals through alteration of their habitat or required resources. 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 term foreseeable future extends only so far into the future as the Services can reasonably determine that both the future threats and the species' responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. "Reliable" does not mean "certain"; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history characteristics. 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.

Our proposed rule described "foreseeable future" as the extent to which we can reasonably rely on predictions about the future in making determinations about the future conservation status of the species. The Service since codified its understanding of foreseeable future in 50 CFR 424.11(d) (84 FR 45020). In those regulations, we explain the term "foreseeable future" extends only so far into the future as the Service can reasonably determine that both the future threats and the species' responses to those threats are likely. The Service 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 Service need not identify the foreseeable future in terms of a specific period of time. These regulations did not significantly modify the Service's interpretation; rather they codified a framework that sets forth how the Service will determine what constitutes the foreseeable future based on our long-standing practice. Accordingly, though regulations do not apply to the final rule for the American burying beetle because it was proposed prior to their effective date, they do not change the Service's assessment of foreseeable future for the American burying beetle as contained in our proposed rule and in this final rule.

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 a

decision by the Service on whether the species should be downlisted to threatened under the Act. It does, however, 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. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at *http://www.regulations.gov* under Docket No. FWS–R2–ES–2018–0029.

To assess American burying beetle viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events); and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. 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 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.

Summary of Biological Status and Threats

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

Summary of Species Needs

Adults and larvae depend on dead animals (carrion), e.g., cotton rats, pheasants, prairie dogs, ground squirrels, etc., for food and moisture. Adults also require adequate soil moisture, appropriate soil temperatures, and appropriate soil particle size to allow them to bury themselves and/or a carcass (see chapter 2 of the SSA Report; Service 2019). Adequate soil moisture levels appear to be critical for American burying beetles, and they show a strong preference for moist, sandy loam soil with organic matter (Hoback 2008, unpublished), but a specific threshold for soil moisture is unknown. When the nighttime ambient air temperature is consistently below 59 °F (15 °C), American burying beetles bury into the soil and become inactive (Service 1991, p. 11; Scott and Traniello 1989, pp. 34–35; Kozol 1995, p. 11, Bedick et al. 2006, p. 28).

For reproduction, American burying beetles need appropriately sized carrion, access to mates, and suitable soils. The optimum weight of carcasses is 3.5 to 7.0 ounces (80 to 200 g) (Kozol 1989, pp. 12–13, 25, 36–39, figures 1 and 2; Kozol 1990a, pp. 7–8).

Once an appropriate carcass has been found for reproduction, American burying beetles may compete amongst themselves or with other species for control of the carcass until usually only a single dominant male and female burying beetle remain (Springett 1967, p. 56; Wilson and Fudge 1984, entire; Scott and Traniello 1989, p. 34). Once the pair wins the battle for the rights to the carcass, the successful couple buries the carrion, copulates, and constructs an underground cavity called a brood chamber around the carcass, although either sex is capable of burying a carcass alone (Kozol et al. 1988, p. 170).

Once underground, both parents strip the carcass of fur or feathers, roll the carcass into a ball and treat it with secretions that form a brood chamber and retard growth of mold and bacteria. The female American burying beetle lays eggs in the soil adjacent to the carcass (Pukowski 1933, p. 555; Milne and Milne 1976, p. 84; Scott and Traniello 1990, p. 274) where the eggs incubate for about 6 days before hatching into larvae that require parental care. Higher ambient temperatures increase egg development rates and reduce incubation times (Damos and Savopoulou-Soultani 2012). Females reproducing on smaller carcasses produce fewer eggs than females reproducing on larger carcasses (Billman et al. 2014a, entire; 2014b, entire). American burying beetles will also cull their brood through cannibalism to increase size and survival of larvae in response to a less than adequately sized carcass (Billman et al. 2014a, entire; 2014b, entire).

Summary of current condition of the species

For the purposes of this analysis we organized the current range of the American burying beetle into analysis areas that follow broad geographic and ecological patterns: Northern Plains analysis areas, Southern Plains analysis areas, and the New England Analysis Area (see Figure 1). This is the scale of "populations" referred to in the analysis

of risk factors potentially affecting the species (chapters 4 and 5 in the SSA Report; Service 2019).

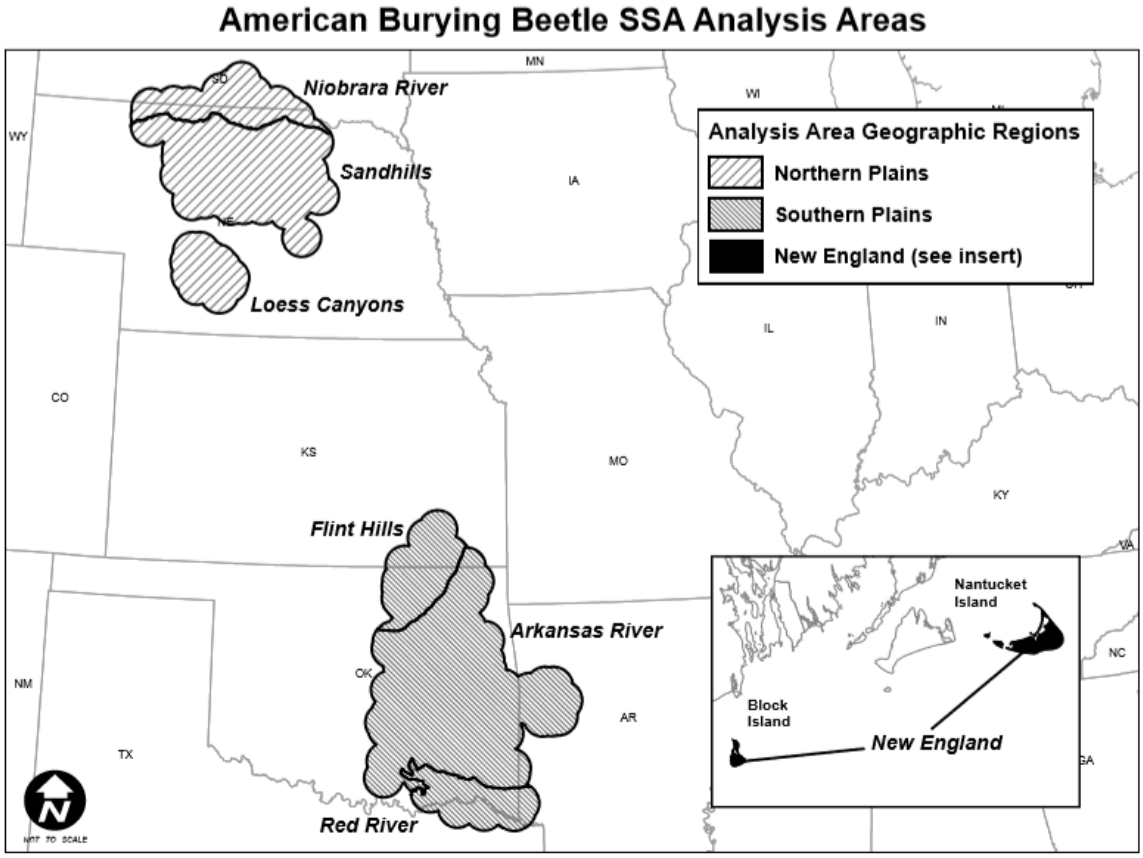


Figure 1. The Southern Plains analysis areas include the Red River, Arkansas River, and Flint Hills analysis areas in Texas, Oklahoma, Kansas, and Arkansas. The Northern Plains analysis areas include the Loess Canyons, Sand Hills, and Niobrara River analysis areas in Nebraska and South Dakota. The New England Analysis Area includes Block Island off the coast of Rhode Island and a reintroduced population on Nantucket Island off the coast of Massachusetts.

Because the American burying beetle completes its life cycle in one year, each year's population levels are largely dependent on the reproductive success of the previous year and reproductive conditions in the current year. Fluctuations are thought to be a function of the abundance of the carrion resources on which the species depends. Therefore, population numbers may be cyclic (due to weather, disease, etc.), with high

abundance in one year, followed by a decline in numbers the succeeding year. Because survey information can fluctuate over time and survey effort is not equal for all analysis areas, the SSA Report (Service 2019) uses a combination of habitat and population factors to evaluate the current condition of populations. For each analysis area, a current condition category is assigned based on relative abundance, population distribution, known population trends, availability of suitable habitat, acres of protected areas, and the level of management in protected areas (see section 4.7.1 in the SSA Report; Service 2019). The current condition categories are qualitative estimates of the current status of the species.

Habitat Factors

Large quantities of potentially suitable habitat are available in the Southern Plains and the Northern Plains analysis areas, though the New England Analysis Area is much smaller (See Table 1). Most analysis areas contain large areas of managed protected lands as well (Table 1). The New England Analysis Area has a relatively small amount of protected lands due to the limited area of these islands, but a relatively high percentage of conservation lands (Block, 41% and Nantucket, 33%).

Table 1. Acres of suitable habitat and protected lands within each analysis area.

Analysis Area	Suitable habitat (acres)	Managed protected lands (acres)[a]	Multi-purpose protected lands (acres)[b]	Total acres in each Analysis Area
Red River	2,678,406	123,779	23,997	3,251,894
Arkansas River	14,470,603	1,486,002	933,608	17,753,431
Flint Hills	2,758,610	133,196	52,114	3,706,908
Loess Canyons	1,686,948	15,342	3,843	2,758,610
Sandhills	8,633,685	93,983	24,633	10,819,170
Niobrara	2,961,469	58,918	33,582	4,108,903
Nantucket[c]	23,311	11,934	NA[c]	36,321
Block Island[c]	2,554	2,507	NA[c]	6,111

[a]Managed lands incorporate active management to maintain or improve wildlife habitat and are assumed to protect or improve American burying beetle habitat.

[b]Multi-purpose protected lands are assumed to include some management for wildlife that would protect or improve American burying beetle habitat.

[c]Note that Nantucket and Block Island together form the New England Analysis Area.

[d]Protected lands on Nantucket and Block Island are mostly private and protected by easements. The active management is primarily monitoring and provisioning of carcasses.

Population Factors

Southern Plains Analysis Areas

Between 1993 and 1996, the southeastern portion of the Red River Analysis Area supported localized populations with relatively high catch rates of American burying beetles (Creighton et al. 2009, p. 40), but catch rates in these areas have declined since the early 2000s. No positive surveys have been documented in the Arkansas or Texas portions of the Red River Analysis Area since 2008, and only eight positive surveys are known in the analysis area (all in Oklahoma) since 2008. Within the Red River Analysis Area, the Hugo Wildlife Management Area in Oklahoma is the only protected area currently known to support American burying beetles, with five captured in 2016. Populations in Texas may be extirpated as the last documented record of the species occurred in 2008.

Both the Arkansas River Analysis Area and the Flint Hills Analysis Area have large areas of suitable habitat, several large protected areas, and a relatively wide distribution of American burying beetles within the analysis areas.

Northern Plains Analysis Areas

The Loess Canyons Analysis Area, the Sandhills Analysis Area, and the Niobrara River Analysis Area all have large areas of native habitat and relatively wide distribution

of American burying beetles within the analysis areas. In the Loess Canyons Analysis Area, expansion of eastern redcedar (*Juniperus virginiana*) due to a lack of fire or mechanical control has reduced the habitat quality in much of this analysis area, this population is sensitive to droughts, and the analysis area is relatively small and isolated from other populations.

New England Analysis Area

This area is small relative to other analysis areas, but the level of protection and active management are significantly greater than the other analysis areas. On Block Island, the American burying beetle population is relatively stable with population estimates ranging from 200 to 1,000. This population has been monitored annually since 1991. Carrion provisioning has been conducted on Block Island since 1993. On Nantucket Island, the reintroduced population does not appear to be self-sustaining and requires human assistance for long-term maintenance (Mckenna-Foster et al. 2016, entire). The current resiliency of the analysis area is considered moderate due to relatively good distribution, and fair ratios of positive to negative surveys, although the populations on both islands are highly dependent on active management.

Summary of current overall viability

Resiliency ranged from moderate to high in all analysis areas, with the exception of the Red River Analysis Area where resiliency is considered low. Overall, representation is considered moderate. The current genetic diversity appears to be relatively high, but the ecological diversity has been reduced with the loss of about 90 percent of the historical range. The current known range includes populations from northern and southern areas and eastern and western areas of the historical American

burying beetle range, although representation from eastern areas is limited to the New England island populations and the genetics represented from the Block Island population. Multiple populations within the analysis areas provide redundancy that reduces the risk of any catastrophic events.

Threats

The American Burying Beetle Recovery Plan (Service 1991) and the 5-year status review of the species (Service 2008) identify the following factors as threats or potential threats to American burying beetles: direct habitat loss and alteration, increase in competition for carrion resources, decrease in abundance of prey, loss of genetic diversity in isolated populations, disease/pathogens, dichloro-diphenyl-trichloroethane (commonly known as DDT*)*, habitat fragmentation due to agricultural and grazing practices that lead to changes in vertebrate composition or density, and invasive species. DDT and some other threats identified in the recovery plan and 5-year status review are either no longer a threat or pose less of a threat to the species.

Overutilization (Factor B) for any purpose was not identified as a threat to the species at the time of listing in 1989, and it is not considered a threat to the species' continued existence today. While disease and predation (Factor C) may kill or injure individual American burying beetles, they are not known to result in population-level impacts. Further information regarding disease and predation can be found in the SSA Report (Service 2019).

Populations in the New England and Northern Plains Analysis areas are expected to experience future threats from land use change, and all populations are expected to experience future threats from a changing climate over varying time periods. Existing

regulatory mechanisms (Factor D), such as regulations for species protections implemented by the States, and implementation of the Sikes Act (16 U.S.C. 670a–670f, as amended) by the Department of Defense (DoD) through Integrated Natural Resources Management Plans (INRMPs), vary by region and specific location, but generally do not fully address the numerous threats that the American burying beetle faces across its range, particularly those future threats such as land use change and climate change. However, incorporation of INRMPs on the DoD installations currently provide management and conservation benefit to American burying beetles occurring in those areas.

The American burying beetle declined over much of its historical range while eight species in the same genus are still relatively common rangewide (Sikes and Raithel 2002, p. 104). Anecdotal evidence indicates that the reduction of appropriate carrion resources is a primary mechanism of population decline for the American burying beetle. This hypothesis fits the temporal and geographical pattern of the disappearance of American burying beetles from 90 percent of their historical range, and may explain why American burying beetles declined while related species that do not rely on the same carrion resources did not similarly decline (Sikes and Raithel 2002, p. 104). The availability of appropriately sized carrion may explain current distributions of the American burying beetle and the presence or absence of American burying beetles in most of the existing analysis areas. For example, the American burying beetle population on Nantucket Island was established with provisioned carcasses, but is projected to be extirpated without continued provisioning of appropriately sized carcasses (Mckenna-Foster et al. 2016, entire). American burying beetles need carcasses of 80 to 200 grams,

and areas that can support the species must have potential carrion sources within this size range. The abundance of potential carrion species and competition for the carcasses can affect availability for American burying beetles.

Risks such as conversion to cropland and wind energy development are greater in portions of the Northern Plains analysis areas, while risks associated with grazing, silviculture, and oil and gas development are more common in the Southern Plains analysis areas. All remaining populations have some risks associated with areas of urban or suburban development, particularly in the New England Analysis Area, but most current American burying beetle populations are in rural areas and have potential risks associated with habitat loss due to agricultural land uses. All habitat alterations also have potential to affect carrion populations, competing scavenger populations, and carrion availability. Risks associated with the effects of changing climate, including increasing temperatures, are now the most significant threat for most analysis areas.

Two scenarios in the SSA Report (Service 2019) explore potential future land use changes to help characterize the likely potential for impacts to suitable habitat for the American burying beetle. The two land use scenarios in the SSA Report (Service 2019) were evaluated independently and then later evaluated in combination with two separate climate change scenarios.

The large areas of known and potential habitat in the Southern Plains buffer the effects of most land use changes. Urban development and conversion to agricultural lands are not considered a threat to the species in the Southern Plains analysis areas because the projected loss of habitat is unlikely to affect the viability of the species in these areas (Service 2019). The projected combined permanent loss of suitable habitat from all

sources for the Southern Plains analysis areas is 1.2% or 246,293 acres from the existing 19,995,088 acres (Service 2019). The combined impacts of urban expansion and agriculture (primarily conversion to cropland) are expected to affect 5–15% of the suitable habitat in the Northern Plains, and redcedar expansion in the Loess Canyon Analysis Area is expected to result in up to an additional 30% habitat loss (Service 2019).

The projections in our SSA Report (Service 2019) indicate that future representation and redundancy are both reduced with potential losses of habitat in New England, Loess Canyons, and the reintroduction site in Missouri. The potential loss of the Loess Canyons population is due to land use changes, including redcedar expansion, and the New England populations and Missouri reintroduction could be lost if active management and habitat protection are not continued. The combined effects of land use and future changes in climate are likely to impact the resiliency of most populations and the overall viability of the species.

Recent development and potential expansion of wind energy projects could also add to impacts from other land use changes. Potential land use impacts related to an expanding wind industry in the Northern Plains were not fully evaluated in the SSA Report (Service 2019) due to limited information, so additional analysis is recommended to improve the reliability of land use projections. The construction of wind turbines, roads, and powerlines has direct permanent habitat impacts and fragments the remaining habitat. The operation of wind turbines also has potential for direct take through American burying beetle collisions with the blades. However, future land use effects related to wind power were not factored into land use scenarios because we did not have

estimates of future development or total areas that may be affected by wind projects, and no studies have evaluated the effects of wind projects on American burying beetles.

The most significant threat to the American burying beetle is changes in climate. This threat affects the southern populations more than those in northern locations due to the southern population areas already experiencing temperatures near the species critical thermal tolerances. Therefore, changes in climate within the foreseeable future is an existential risk only to those populations in the southern portion of the species range. Here we present a summary of climate-related risks; additional information is available in the SSA Report (Service 2019). The SSA Report's chapter 3 summarizes general climate risks, chapter 4 includes current risks, and chapter 5 covers future risks (Service 2019).

Most considerations of climate change in Endangered Species Act classification decisions hinge upon whether climate change will manifest in changing habitat conditions and how the species is likely to respond to these changes in the future. Therefore, a key consideration for classification decisions where climate change is a potential stressor is how we interpret "foreseeable future" in the definition of a threatened species under the Act.

The Intergovernmental Panel on Climate Change (IPCC) adopted four possible Representative Concentration Pathways (RCP) scenarios (2.6, 4.5, 6, and 8.5) to capture the possible ranges of climate change within the next century (Hartmann et al. 2013; Moss et al. 2008). In our analysis of potential climate change impacts to the American burying beetle, we used two scenarios, RCP 4.5 and 8.5, over different blocks of time through the end of this century (years 2010–2039, 2040–2069, and 2070–2099 time periods). For the purpose of this document, we define those time periods as: 'early

century time period' (2010–2039), 'mid-century time period' (2040–2069), and 'late century time period' (2070–2099).

We use projections from two RCPs (4.5 and 8.5) to account for uncertainty regarding future atmospheric greenhouse gas concentrations. RCP 4.5 is at the low end of the intermediate range of conditions projected while RCP 8.5 is the high end of IPCC projections of atmospheric conditions. By using both a very high and low emissions scenarios in our projections, we bracketed the likely possibilities for climate change in the future. For ease of reference, we refer to these as "emissions scenarios," although they are not based solely on emissions of greenhouse gases.

Our approach of using the two RCPs is consistent with the current widespread scientific practice of considering projections based on RCP 4.5 and RCP 8.5 so as to consider a range of projected conditions, rather than relying on a single scenario. The U.S. Global Change Research Program used these two RCPs as the core scenarios for the Fourth National Climate Assessment (Hayhoe et al. 2017), and they also are used as the basis for projections generated via the U.S. Geological Survey's National Climate Change Viewer. Although it is theoretically possible to achieve the RCP 2.6 pathway and outcome, we did not use it as it is not feasible or likely; numerous scientific papers show that key assumptions underlying it already have not been met (including a very rapid reduction in greenhouse gas emissions) and other future activities it relies upon are highly speculative. RCP 4.5 and 8.5 scenarios are more feasible and widely used for future climate assessments. Further, we did not use RCP 6 because the specific datasets used in our analyses are only available for RCP 4.5 and 8.5.

The life-history characteristics of American burying beetles indicate limited ability to tolerate warmer temperatures. Adult American burying beetles use secretions to slow decomposition of carcasses they bury for reproduction (see *Summary of Species Requirements*, above, for more information on the role of carcasses in reproduction). The carcasses are buried and must support both adults and larvae for at least 2 to 3 weeks, but high temperatures reduce the effectiveness of the secretions and accelerate decomposition (Jacques et al. 2009, p. 871). While the American burying beetle has life-history requirements similar to other carrion beetles, it is the largest *Nicrophorus* in North America and requires a larger carcass to reach its maximum reproductive potential (i.e., to raise a maximum number of offspring) than the other burying beetles (Service 1991, p. 2; Kozol et al. 1988, p. 37; Trumbo 1992, pp. 294–295). American burying beetles also have a longer time period for egg and larval development than other *Nicrophorus* carrion beetles, so the carcass must last longer (at least 12 to 14 days) to provide food and moisture for adults and support development of their larvae to the pupa stage. Temperature-related increases in decomposition and development of fly larvae would limit or prohibit reproductive success for American burying beetles if carcasses are in a suitable condition for shorter periods of time or do not last long enough to support development of their larvae.

The distribution of American burying beetles and other burying beetles in the Nicrophorus genus also indicates a limited ability to tolerate warmer temperatures. *Nicrophorus* abundance and diversity are higher in cooler climates. There are 15 *Nicrophorus* species in the United States and Canada, but only 2 are endemic to Central and South America, and they occur at higher elevations with cooler temperatures.

Reasons for burying beetles' lack of success in warmer climates include increased competition with flies and ants (Peck and Anderson 1985 p. 248, Jiron and Cartin 1981 entire, Trumbo 1990 p. 6-7), as well as increased rates of carcass decomposition (Jacques et al. 2009. p. 871). Carcass decomposition is dominated by dipteran species (true flies), and the diversity of dipteran species using carcasses increases in warmer climates. Based on species distributions and existing climate conditions, few *Nicrophorus* species appear to be capable of maintaining populations in areas with long-term average summer mean-maximum temperatures at or exceeding a 95 °F threshold (*N. carolinus,* and possibly *N. pustulatus* and *N. marginatus*), and there are no *Nicrophorus* species in areas with average summer mean-maximum temperatures exceeding 100 °F.

Under both RCP 4.5 and 8.5 emissions scenarios, all American burying beetle populations in the Southern Plains Analysis Areas would be projected to have summer mean-maximum temperatures exceeding 95 °F within the mid-century time period. Surveys for American burying beetles in locations that have experienced a mean-maximum temperature near or above 95 °F during summer have shown declining capture rates the following year. Existing survey information from Fort Chaffee (Arkansas River Analysis Area) from 1992 through 2016 supports our conclusion that mean-maximum temperatures above 95 °F would adversely affect American burying beetle populations. During the study, catch rates of American burying beetles declined from the previous year every time mean-maximum temperatures exceeded 95 °F, which happened a total of six times throughout the study period. Based on this information, we anticipate continued population declines and potential extirpation if mean-maximum temperatures exceeding

95 °F became the average during summer months and more extreme temperatures occur more frequently.

Southern populations of American burying beetles that experience summer mean-maximum temperatures near 95 °F are declining. Since 2008, only seven American burying beetles have been detected within the Oklahoma portion of the southernmost analysis area, and no American burying beetles have been documented in the Texas or Arkansas portions. We have no evidence to suggest that habitat conditions that might otherwise explain the observed declines within these areas have significantly changed. American burying beetles were last detected in Texas in 2008 and populations have declined or are extirpated in large protected areas like Camp Maxey, Texas, with no apparent changes in land use. It appears that temperatures near this area are at, or past, a threshold that would support American burying beetles. This conclusion may be further supported by the fact that the species does not exist south of the Red River area in Texas and Louisiana, where habitat, soil conditions, and carrion availability are likely to be similar. Thus, we conclude that the southern edge of the species' range is driven by the 95 °F temperature threshold.

Temperature has always limited the American burying beetle's range to some degree. Populations at the northern edge of the range are limited by cool nighttime temperatures and shorter growing seasons, whereas populations at the southern edge of the range are likely limited by high temperatures. The western edge of the species' range has been limited by reduced precipitation and soil moisture. Although temperature and other effects of climate change are expected to affect American burying beetles in both the northern and the southern parts of the range, we expect that the populations in

southern areas will be affected sooner and to a greater extent based on projected temperatures. Under both the RCP 4.5 and 8.5 emissions scenarios, a majority of the Southern Plains analysis areas are expected to be near or exceed summer mean-maximum threshold temperatures (95 °F) by 2039, with potential to extirpate American burying beetles from most or all Southern Plains populations. Within the mid-century time period, all Southern Plains analysis areas are expected to exceed threshold temperatures under both the RCP 4.5 and 8.5 emissions scenarios, likely resulting in extirpation of the American burying beetle from these areas. American burying beetles near the southern and western edge of the range in Kansas, Oklahoma, and Texas may already be at or near their limits for temperature- and moisture-related tolerances and have a limited ability to adapt to rapidly changing climate conditions (see comments on limits related to life history in chapter 5 of the SSA Report; Service 2019).

No American burying beetle populations, including known historical populations, are located in areas that experience a long-term summer mean-maximum air temperature above 95 °F. The Red River Analysis Area represents the southernmost and warmest portion of the American burying beetle's current range, with summer mean-maximum air temperatures of approximately 93 to 94 °F.

Increased air temperatures, changes in precipitation, increased evaporative losses, and prolonged droughts may stress or kill individual American burying beetles and reduce reproductive success or reduce the time periods with suitable conditions for reproduction. High air temperatures have been documented to kill or sterilize American burying beetles at captive colonies when air conditioning systems have failed, resulting in colony temperatures at 85 to 90 °F for about 2 weeks (Merz 2016, pers. comm.). Survey

protocols require traps to be checked in the morning because American burying beetle mortalities occur when they are confined in traps during warm days. Additional indirect effects of increased temperatures and reduced precipitation or soil moisture may be related to competition. Congeners with higher temperature or lower moisture tolerances, like *N. carolinus*, may be more competitive and reduce or eliminate American burying beetles in southern populations. Species like *N. carolinus* can compete for appropriate carcasses and reproduce under warmer and drier conditions than American burying beetles (Abbott and Abbott 2013, p. 2). At Camp Maxey, American burying beetle and *N. orbicollis* numbers declined when *N. carolinus* numbers increased rapidly (Abbott and Abbott 2013, p. 2).

Increasing temperatures resulting from changes in the climate could reduce the reproductive success of American burying beetles by reducing the portion of the active season with suitable temperatures for reproduction. Recent temperature studies with *N. orbicollis* indicate even small increases in temperature can affect reproduction (Quinby et al. 2020, entire). This type of research is currently being conducted with American burying beetles as well, but those results are not yet available. *N. orbicollis* has a similar historical range to the American burying beetle, is the most closely related congener, and basic physiological characteristics, such as thermal tolerances are highly conserved within lineages; therefore, we expect the American burying beetle study is likely to yield similar results. For *N. orbicollis*, the percent of successful broods declined at temperatures greater than 20 °C (68 °F) and declined rapidly at any temperatures greater than 25 °C (77 °F). An increase of only 2 to 3 degrees (from 25 to 27–28 °C, or approximately 77 to 80 °F) stopped most beetles from attempting to prepare a carcass for

reproduction, and those that did were not successful in producing any larvae or tenerals. The warmer temperatures precluded eggs from hatching or larvae from developing beyond a very early stage. The study also demonstrated effects of temperatures on seasonal timeframes that would support reproduction. While more southern latitudes have a longer active season and would logically have more time to reproduce, the temperature restrictions reduce the potential for reproduction in Oklahoma. *N. orbicollis* in the northern portion of their range (Wisconsin) have a longer period of suitable climate conditions for reproduction and could reproduce more often than *N. orbicollis* in the southern portion of their range (Oklahoma) due to these temperature restrictions. Projected climate changes could limit reproduction in the future to an even greater extent.

American burying beetles are a nocturnal species; thus, nighttime temperatures are likely to influence the behavior and range of this species as well. Nights above 75 °F were observed only in the Southern Plains analysis areas (Red River, Arkansas River, and Flint Hills analysis areas) with the exception of 7 nights over a 35-year period in Colome, South Dakota. The effects of the increase in nights above 75 °F and potential impacts to reproductive success may be occurring in the Red River Analysis Area, where declines in positive American burying beetle surveys have been documented since the early 2000s. A recent study evaluating reproductive strategies in *N. orbicollis* across a temperature gradient (54 °F, 59 °F, 68 °F, 77 °F, and 81 °F) found that temperatures above 68 °F adversely affected reproductive success in *N. orbicollis* (Quinby et al. 2020, p. 8) and may have a similar effect on American burying beetles. There was no reproductive success in *N. orbicollis* at 81°F (Quinby et al. 2020, p. 5). We do not have data specifically related to reproductive success in the Red River Analysis Area, but the

American burying beetle population declines coincide with the increase in nighttime temperatures above 75 °F.

American burying beetles are active only at night, resulting in a very narrow window of time for suitable carcasses to be available for American burying beetles to find, bury, and prepare for reproduction. Higher temperatures cause carrion to decompose more rapidly, and fly larvae to develop faster and quickly consume small carcasses. At high temperatures, exposed carcasses can be heavily infested with fly larvae within 2 days, and carcasses may be suitable and available for only 1 or 2 nights. Thus, we conclude that increased air temperatures can affect reproductive success by reducing the availability of suitable carrion due to competition with flies and ants.

Risks associated with the effects of changing climate, including increasing temperatures, are a significant threat for some analysis areas in the foreseeable future. The information in the SSA Report (see chapter 5; Service 2019) indicates that projected increases in air and soil temperatures, as a result of climate change, are a significant risk to future viability of the species. Within the mid-century time period, American burying beetles in all Southern Plains analysis areas would likely be extirpated and would represent a loss of approximately 59 percent of the current range of the species. The summer mean-maximum threshold (95 °F), where we determine American burying beetle numbers will decline and not be able to persist into the future, is predicted to be exceeded in nearly all portions of the Southern Plains analysis areas under either the moderate or high emissions levels of climate change within the mid-century time period. Northern Plains analysis areas are largely unaffected by moderate emissions levels of climate change within the mid-century time period (see chapter 5 of the SSA Report; Service

2019), but under the RCP 8.5 emissions scenario, temperatures approach 93 to 95 °F in most of the Northern Plains analysis areas by the end of the mid-century time period. Under the RCP 8.5 emissions scenario, Southern Plains American burying beetle populations would be projected to have summer mean-maximum temperatures up to 98 to 100 °F within the mid-century time period. We conclude that the American burying beetle is at risk of extirpation within the Southern Plains analysis areas under the two projected climate conditions we analyzed (RCP 4.5 and 8.5) within the mid-century time period. The species would likely continue to be represented by Northern Plains and New England populations, but at least three populations in the Southern Plains and 59 percent of the existing range of the species are projected to be lost within the mid-century time period.

The effects of a changing climate, such as increasing temperatures, changes in precipitation, increased evaporative losses, and prolonged droughts, stress and sometimes kill individual American burying beetles and, therefore, are likely to reduce reproductive success. Overall, we consider these factors threats to American burying beetle populations, but the impacts are currently limited to the southernmost parts of the range. However, in large portions of the Northern Plains analysis areas temperatures are projected to approach the thermal tolerance limits of the American burying beetle under the high emission scenario of RCP 8.5 by the end of the mid-century time period and future projections within the mid-century time frame indicate that American burying beetles have a high risk of extirpation throughout the Southern Plains analysis areas due to these effects of climate change. Under the RCP 4.5 scenario, the Southern Plains

Analysis Areas has an increased risk of extirpation by the end of the mid-century time period, leaving only the Northern Plains and New England populations.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the 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.

Summary of Comments and Recommendations

In the proposed rule published on May 3, 2019 (84 FR 19013), we requested that all interested parties submit written comments on the proposal by July 2, 2019. 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 USA Today. We received a request for a public hearing. We held a public hearing on September 24, 2019, in Tulsa, Oklahoma, and reopened the public comment period from September 9, 2019, to October 9, 2019 (84 FR 47231). All substantive information provided during comment periods has either been incorporated directly into this final determination or addressed below.

Peer Reviewer Comments

As discussed in **Supporting Documents** above, we received comments from 8 peer reviewers. We also solicited reviews of the draft SSA report from all States and Tribes within the American burying beetle's current range and species experts during a partner review. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the information contained in the SSA report. The peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications, and suggestions to improve the final SSA report. Peer reviewer comments are addressed in the following summary and were incorporated into the final SSA report as appropriate. The changes consisted of clarifications and corrections to the SSA report, including typographical edits, revising descriptions of our analysis, and expanding some risk information related to the potential effects of the invasive redcedar and wind energy expansion. The reviewers' comments resulted in minor changes in the resiliency assessments for some analysis areas, but did not substantially change the SSA report's information on current and future status of American burying beetle populations.

The comments on the SSA report and proposed rule did not change our determination that the American burying beetle meets the definition of a threatened species under the Act.

Public Comments

We received comments from 75 respondents. These included comments primarily from individuals, nongovernmental organizations, and industries, but also included comments from five U.S. Senators, two States, and one Tribe. We reviewed all comments

provided and addressed the substantive comments. Many comments were not substantive or relevant to the downlisting decision, but all comments are available at *http://www.regulations.gov* in Docket No. FWS–R2–ES–2018–0029. Substantive comments are grouped together in related categories below.

(1) Comment: Several commenters, including the Nebraska Game and Parks Commission, indicated that American burying beetle populations have not met the downlisting goals in the recovery plan and suggested that delisting criteria is needed.

Our Response: Downlisting criteria are important, but not legally required for reclassification (50 CFR 424.11(c)). The American burying beetle recovery plan was approved by the Service on September 27, 1991; since then, new information about the status and conservation of the species has become available. For reclassification from endangered to threatened, the recovery plan established a criterion of at least 3 self-sustaining populations of at least 500 individuals in each of 4 broad geographical areas of the species' historical range: the Northeast, the Southeast, the Midwest, and the Great Lakes States. The current total size of populations exceed that criterion; however, the populations are not within the geographical areas described in the recovery plan, making them more vulnerable to local or regional impacts than if they were spread through each of the broad geographical areas. Several large populations occur in the western portions of the range, and two smaller populations that require active management have been maintained in New England. Some very large populations that likely support several thousand adults are considered more resilient than populations of only 500 adults and can be considered equivalent to 2 or more smaller populations. Current populations exist in northern, southern, eastern, and western portions of the historical range, but with very

limited representation in the East. Each of the 6 analysis areas within western populations has more than 1 million acres of suitable habitat, and at least 4 analysis areas support relatively large populations. Although considerably smaller, the New England Analysis Area supports 1 population with estimates of approximately 500 or more American burying beetles and another smaller population with active management.

The recovery plan is an exceptional source of information but is out of date and contained only reclassification criteria rather than reclassification and delisting criteria (see **Review of the Recovery Plan**, above, for more information on the role of reclassification criteria in our determination). New information will be used to inform the criteria needed to be met for full recovery of the species. Recovery is a dynamic process requiring adaptive management that may or may not fully follow the guidance provided in an earlier recovery plan. The SSA Report does not include recovery criteria, but will inform the establishment of such criteria as it provides an updated, revised analysis of current and future status of the species and risks based on our current understanding of the species' needs. Information in the SSA Report indicates that maintaining or reestablishing populations in southern portions of the historical range is not feasible for the future due to the effects of projected increases in temperatures due to climate changes. The Service plans to use the information from the SSA Report and any additional information to revise the recovery plan to include delisting criteria.

(2) Comment: Several commenters, including the Nebraska Game and Parks Commission, suggest that downlisting is inconsistent with the information in the SSA and proposed rule because we project a declining status and risk of extinction in the future. Several commenters pointed out that it does not make sense to downlist the American

burying beetle if it may need to be reclassified as endangered in the future if projected future risks are accurate.

Our Response: We believe that most of the comments asserting that the proposed reclassification is not supported by the SSA are related to misunderstanding the definitions of threatened and endangered in the Act. The definition of endangered is "any species which is in danger of extinction throughout all or a significant portion of its range," while the definition of threatened is "likely to become an endangered species within the foreseeable future." The definitions of threatened and endangered both include being endangered or at risk of extinction, but they are based on different timeframes. The definition of endangered applies to a species' current status, and a threatened determination means that the species is likely to become endangered in the future. The SSA concludes that there are currently at least six relatively resilient populations with distribution in several relatively large areas within the range. While we recognize the large loss of the historical range, the current range is much larger than originally thought when the species was listed and there are several large populations with relatively good genetic diversity and relatively low current risks. We believe the current risk of extinction is low for the American burying beetle and that the best available information indicates the species no longer meets the definition of an endangered species (*i.e.*, it is not currently in danger of extinction), but the future risk to the species indicates that it meets the definition of a threatened species.

The SSA projects future risks that include changes in climate that may extirpate southern populations within a 20-30-year period under either the RCP 4.5 or RCP 8.5 scenario and may affect Northern Plains populations within 50 years under the RCP 8.5

scenario. Therefore, the species is likely to be endangered within the foreseeable future (2069, the end of the second 30-year climate analysis period). While the status of the American burying beetle is currently relatively stable, we have determined that it is likely to become endangered within the foreseeable future, based on the analysis of how climate change will impact its future condition in the SSA report. Thus, we conclude that the SSA is consistent with this final determination and supports our determination that the American burying beetle meets the definition of a threatened species.

By definition, a threatened species determination implies a potential need to reclassify the species as endangered if our projections about its status in the foreseeable future are accurate. However, ongoing and future conservation and recovery actions may help establish populations in areas that are safe from climate-related risks, potentially precluding the need to reclassify the species in the future. If such efforts are not sufficient, then uplisting the species to endangered would be considered at that time.

(3) Comment: A few commenters suggest that reintroduced populations have not been documented to be self-sustaining and should not have been used in the downlisting decision. They further suggest that additional genetics information is needed for maintaining genetic diversity and reintroduction efforts.

Our Response: We agree that all current reintroduction efforts need more time and monitoring to determine if they can be self-sustaining. We also want to clarify that reintroduced populations are included in the description of where the species currently occurs, but are not considered self-sustaining and were not used to justify the reclassification. Reintroduction efforts have potential to produce self-sustaining populations and are necessary for the ultimate recovery of the species. We hope we can

learn from ongoing efforts to reestablish additional populations within the historical range.

We also agree that additional genetics information for all existing populations would be helpful for assessing the resiliency and representation of populations and important for maintaining genetic diversity. Additional genetics information would be important for any reintroduction efforts. For the purposes of the proposed rule and SSA Report, we used the best available information and believe that information supports the reclassification and the 4(d) rule. With the exception of the New England populations, the existing populations in the Northern Plains and Southern Plains are relatively large and appear to support good genetic diversity. The Northern Plains and Southern Plains populations are currently separated from each other, but, within each area, the populations are in close proximity and may have some genetic exchange between those populations. The existing genetic information does not indicate any significant genetic differences between the Northern Plains and Southern Plains populations, but they are geographically separated and continued isolation can create genetic limitations for recovery. We strongly encourage additional genetic analysis to help support future recovery and reintroduction efforts.

(4) Comment: A few commenters suggested that defining incidental take as resulting from soil disturbance may not be appropriate and we need to provide more explanation about why we take such an approach.

Our Response: Soil disturbance has been used to evaluate the potential for take of American burying beetles in occupied areas for many years given that they spend a substantial portion of their lifespan underground. Because American burying beetles and

brood chambers have been documented within 2 inches of the soil surface and adults may seek shelter during the day in varying depths and types of soil during the active season, any soil disturbance is likely to affect the species during the active season. Soil disturbance can crush or injure buried adult beetles and expose them to daytime heat and potential predators. Soil disturbance can collapse or expose brood chambers and kill larvae and pupa. American burying beetles are typically buried deeper during the winter months, but depths vary according to location and temperatures. Soil disturbance during the winter months can kill adults by exposing them to freezing temperatures and predation.

The Service usually defines incidental take in terms of the number of occupied acres disturbed and determines the risk of incidental take based on the type and timing of the disturbance for proposed projects. We consider incidental take of American burying beetles to occur as a result of soil disturbance in the form of harm, harassment, and/or mortality. The number of American burying beetles that will be taken is difficult to estimate for most projects because density estimates are not available for most areas. For specific projects, the risks of take can be determined or adjusted if current density estimates are available. The risk of incidental take is associated with disturbance of soils in suitable habitat with confirmed or potential presence of American burying beetles. American burying beetles use a variety of habitat types; we have defined habitats we consider to be unfavorable in the proposed and final rule. American burying beetle presence or absence can be determined through surveys using established scientific protocols during the active season.

Take of American burying beetles is difficult to quantify because: (1) individuals of the species are small in size, making them difficult to locate, which makes encountering dead or injured individuals unlikely; (2) American burying beetle losses may be masked by temporal fluctuations in numbers; (3) American burying beetles spend a substantial portion of their lifespan underground; and (4) the species is primarily active at night. Because we cannot often estimate the precise number of individual American burying beetles that will be incidentally taken, we use soil disturbance as a proxy to quantify take levels and define when take would be considered to be exceeded.

(5) Comment: Several commenters suggest that climate change is not certain enough to occur to be assumed as a primary risk for the American burying beetle. Several commenters also suggested that all four representative concentration pathways (RCPs, potential emissions scenarios) should be used. The commenters asked that the Service provide the public information on how these models perform at predicting temperature increase in contrast with historical data.

Our Response: The best available science indicates that we can expect increasing temperatures within the range of the American burying beetle within the foreseeable future. Likewise, the best available science indicates that increasing temperatures are likely to have significant negative effects to individual beetles and overall populations within the foreseeable future, particularly within the Southern Plains Analysis Area.

We used RCP 4.5 and 8.5 in the analysis e for the work presented in the SSA report. We consulted with multiple climate experts for our analysis of potential climate effects. Based on the recommendation of climate scientists at the South Central Climate Adaptation Science Center (a research consortium of Federal, State, and Tribal entities),

climate change projections downscaled by scientists at the University of Idaho were selected. The climate change assessment in the American Burying Beetle SSA used the average of 20 global climate models for two of the four emission scenarios (RCP 4.5 and RCP 8.5). Consultations with climate scientists at several Federal and academic institutions confirmed that the selected approach was optimal. The MACA–METDATAv2 downscaling of Global Climate Models (GCMs) was chosen for the American Burying Beetle SSA on the recommendation of the South Central Climate Adaptation Science Center. The downscaling of GCMs using the METDATA method increased the precision of climate projections by 28 to 120 times, depending on the original GCM. While the chosen downscaling dataset provided a robust (20 GCMs) and consistent (same models available in all datasets) pool of downscaled projections available in an online format with data access optimized for terrestrial analyses, only two (RCP 4.5 and RCP 8.5) of the four (RCPs 2.6, 4.5, 6.0, and 8.5) representative concentration pathways (RCPs, potential emissions scenarios) were available. All four RCPs are available through an archive hosted by the University of California and Lawrence Livermore National Lab. Downscaled projections using the Bias Corrected Spatial Disaggregation (BSCD) method are available for all four RCPs and up to 37 GCMs. However, downscaled datasets are not available for all models in all RCPs (only 18 of 37 are available across all 4 RCPs). Additionally, the BSCD data access web portal is optimized for aquatic analyses, not terrestrial, and there is no option available to average datasets across GCMs. Different downscaling methods were employed by the research groups (METDATA vs BCSD), and the source GCMs varied.

The MACA–METDATAv2 downscaling is a valid methodology and constitutes the best available science regarding climate change projections for this context. Each GCM uses a different set of assumptions in order to project future temperatures. These assumptions contribute to the variation seen across the modeled output from the various GCMs within each RCP scenario. Recent literature and consultations with climate scientists at the South Central Climate Adaptation Science Center indicate that the RCP 2.6 is not achievable even if the most ambitious current international agreements (e.g., the Paris Climate Accords) are successful. Furthermore, all four RCPs will consistently exceed the 95 °F mean maximum summer (June, July, and August) temperature threshold established in the American burying beetle SSA by 2040 in the Southern Plains analysis areas. The four RCPs do not diverge from the RCP 4.5 projections until about 2055 (RCP 2.6) and 2080 (RCP 6.0), which are, respectively, near the end and beyond the foreseeable future established by the American burying beetle recommendation team (2040–2069, or mid-century timeframe as described above under *Threats*). A comparison of all four RCP scenarios with historical data shows all four are nearly identical and only predict minor changes through 2055. The historical data was within the variability projected for all four scenarios. In summary, the American burying beetle SSA used the average of 20 global climate models for 2 of the 4 emission scenarios (RCP 4.5 and RCP 8.5) based on the best available science, and this analysis will be updated as new information becomes available.

(6) Comment: Four commenters opined that the Southern Plains populations are at higher risk due to climate changes and need more protection than other populations.

Our Response: In our revised significant portion of the range analysis (presented below), we considered that the Southern Plains populations are at higher risk from climate-related changes; however, we concluded that the Southern Plains populations are not currently at risk of extinction. Populations at the southern and western edges of the species' range in Kansas, Oklahoma, and Texas are vulnerable to changes in temperature and precipitation (and related soil moisture) in the future. Relative to other populations, Southern Plains populations are currently at a lower risk from any land use changes. Land use changes could have local impacts but are unlikely to affect populations in the Southern Plains. The combination of large areas of suitable habitat, relatively large areas of protected habitat, and relatively low levels of projected changes resulted in low risks to habitat and populations in the Southern Plains with the exception of climate-related risks. Large areas of the Southern Plains analysis areas are rural with most of the land used as pasture or hay production for decades. The land use is not that likely to change much, and human population levels are projected to remain constant or fall in many counties. Only small portions of the Southern Plains analysis areas are in or near urban areas that are projected to expand.

Continued or expanded protection of habitat is not likely to change the status of existing American burying beetle populations. The 4(d) rule exemptions for the Southern Plains analysis areas are based on this information, and no new information was provided during the peer review or public comment periods to change the projections provided in the SSA Report. Continued or expanded habitat protections would do little to avoid or minimize the primary risks that are related to projected increasing temperatures and other climate-related changes. Reintroduction of southern American burying beetles to cooler

portions of the range is the only likely option for maintaining the genetic diversity represented by the Southern Plains populations. Within the Southern Plains analysis areas, the conservation areas will support American burying beetles for as long as possible and provide sources of American burying beetles for reintroductions and areas for recovery-related research.

Along these lines, one of the above commenters elaborated that the conservation areas in the 4(d) rule for the Southern Plains were vulnerable to extirpation and had highly variable numbers of American burying beetles. American burying beetle population numbers vary, but we determine that the large sizes of the conservation areas buffer the effects of seasonal or annual variations. All conservation areas are greater than 30,000 acres in size, and most are surrounded by additional suitable habitat.

(7) Comment: A few commenters expressed an opinion that conservation areas were not needed and that the conservation banks in Oklahoma could be used to support reintroductions.

Our Response: We will use conservation banks to assist recovery actions, and these banks are protected through perpetual easements and endowment funds to support management activities. However, the conservation banks (all less than 10,000 acres) are relatively small compared to the conservation areas described in the final rule, and our ability to remove American burying beetles from these areas without impacting the local populations is more limited.

(8) Comment: Six commenters, including the Nebraska Game and Parks Commission, suggested that the 4(d) exemptions should be consistent across the range. Some commenters wanted proposed exemptions for the Northern Plains populations to

apply to the entire range, while others wanted the more extensive exemptions proposed for the Southern Plains to apply.

Our Response: The risks for American burying beetle populations are different for each region of the country. The area, density, and distribution of populations are also different in each location, and risks that may be minor for one population could be substantial and affect the resiliency of other populations. For example, urban expansion may be a minor risk for larger populations in Oklahoma but is a substantial risk for the small Block Island population in Rhode Island. The proposed 4(d) rule includes protection of the species from take related to soil disturbance activities on Block Island because suitable habitat is limited (only about 2,000 acres), and protecting habitat is necessary for the conservation of this important population.

In finalizing protections and exemptions in the 4(d) rule, we considered appropriate risks for each region or population. Exemptions for all land uses are being finalized for the Southern Plains populations (except in conservation areas) because projected habitat losses due to changes in land uses are less than 2% and there are large areas of protected habitat. The primary threats to southern populations are related to projected temperature increases. Exceptions are limited to grazing and wildlife management in the Northern Plains populations because potential habitat losses due to changes like conversions of grassland to cropland and invasion of redcedar are higher than the projected habitat loses in the Southern Plains. The Northern Plains populations may be the only large and resilient populations remaining within 20–30 years, and habitat impacts should be closely evaluated. Some potential impacts like the expansion of wind energy projects and related fragmentation impacts to habitat and carrion availability were

not addressed in the SSA Report due to a lack of available information. These potential impacts to Northern Plains populations need to be evaluated, and necessary protections can be applied through section 7 consultations and section 10 permits. Exceptions for grazing and wildlife management practices, as defined under Provisions of the 4(d) Rule, are proposed exceptions for the northern populations because lands under this management have supported resilient American burying beetle populations. We conclude that applying protections based upon the tailored conservation needs within each analysis area provides the protection that is necessary and advisable to conserve the American burying beetle as a whole. The American burying beetle SSA report provides detailed information on the status of the species in each region.

(9) Comment: Several commenters suggested that the proposed 4(d) rule is catering to the oil and gas industry.

Our Response: The 4(d) rule is based on assessments of current and future land use effects on American burying beetle populations. The exceptions provided in the 4(d) rule are not specific to the oil and gas industry or any other industry. The approach taken in the 4(d) rule was based on our analysis that indicated that less than 2 percent of suitable habitat in the Southern Plains analysis area is vulnerable to the effects of all impacts combined (including oil and gas activities). Thus, prohibiting these impacts is not necessary for the conservation of the American burying beetle in this area. The rule is supported by the best available scientific and commercial information, our analysis of threats to the species, and measures necessary and advisable for the conservation of the species.

(10) Comment: A few commenters suggested the proposed rule should have included more information on threats or risks related to carrion sources.

Our Response: Appropriately sized carrion are key to supporting American burying beetle populations. However, the known information for carrion sources used by American burying beetles is limited, and available information on the status of potential carrion species is also very limited. General information on possible effects of land use changes on carrion sources is provided in the SSA report, but the best available information does not allow us to draw conclusions on the threats posed by the availability of carrion resources.

(11) Comment: One commenter stated that surveys indicated the Northern Plains populations declined by 90% in 2019 and are at risk because the number of tenerals was low and they are an annual species.

Our Response: We have reviewed the American burying beetle capture rates for surveys in 2019. This information is not reflected in the SSA Report because it was developed before the 2019 survey information was available. We have discussed this issue with Dr. Wyatt Hoback and others familiar with the Northern Plains populations and believe the reductions in capture rates was due to the record level of flooding that occurred in that area in 2019. This event is an example of circumstances that factor into our evaluation of the resiliency of populations.

Population abundance can vary substantially with annual species; thus, the SSA Report looked at catch rates over a 15-year time period to provide a better assessment for the abundance and resiliency of populations. Previous droughts have also caused declines in annual catch rates, and severe weather can affect annual reproduction and catch rates.

The decline in catch rates in the 2019 Northern Plains surveys is more extreme than most, but the flooding event was also the largest on record and extended over much of the active season. We believe that the Northern Plains populations will rebound from these flooding events, because this is a temporary or short-term effect and the large area of contiguous habitat and good distribution of American burying beetles within the Sandhills and Niobrara analysis areas should allow the populations to recover in subsequent years.

The habitat in the Northern Plains analysis areas has historically supported some of the highest densities of American burying beetles within its current range, and this habitat is expected to recover from the flooding. We expect these areas to support good numbers of American burying beetles in the near future but may be affected by climate risks within the foreseeable future. Because these populations may represent the only large and resilient populations by 2040, we have limited exceptions under the 4(d) rule to grazing and wildlife management within the Northern Plains analysis areas. We will reassess this information with the survey information in upcoming years and note that the Act requires a status review every 5 years.

Determination of American Burying Beetle 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 "endangered species" or "threatened species." 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 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

After evaluating threats to the species and assessing the cumulative effect of the threats under the section 4(a)(1) factors, we find that the risk of extinction of the American burying beetle has been ameliorated since the species was listed. The current range is much larger than originally thought when the species was listed and there are several large populations with relatively good genetic diversity and relatively low current risks. However, the future threat of increased temperature puts the species at risk of extinction in the foreseeable future.

The large areas of known and potential habitat in the Southern Plains buffer the effects of most land use changes. The Arkansas River and Flint Hills analysis areas are adjacent to each other and combined provide over 17 million acres of potential habitat. These analysis areas support large populations with moderate to high resiliency (see chapter 4 of the SSA report). The Red River Analysis Area has over 2 million acres of suitable habitat but has a very limited population with low resiliency.

The Northern Plains populations are also relatively large with a combined area of over 11 million acres of suitable habitat in the Niobrara and Sandhills analysis areas that currently support populations with moderate to high resiliency. A smaller area of suitable

habitat (1,686,948 acres) supports a smaller population with low to moderate resiliency in the Loess Canyons analysis area.

The New England analysis area currently supports two populations on separate islands. The Block Island population is relatively small with only about 2,000 acres of suitable habitat, but it supports a population with moderate resiliency with continued active management. Nantucket Island is a reintroduced population on a larger island, but resiliency is low and active management with carcass supplementation is required to maintain this population.

In summary, the current status includes at least five populations with moderate to high resiliency and several of these populations are relatively large. We find that the species is not currently in danger of extinction as it faces relatively low near-term risk of extinction. Thus, after assessing the best available information, we conclude that the American burying beetle is not currently in danger of extinction throughout all of its range. Therefore, we proceeded with determining whether the American burying beetle is likely to become endangered within the foreseeable future throughout all of its range.

Within the mid-century time period (i.e., 2040–2069), American burying beetles in all Southern Plains analysis areas would likely be extirpated as a result of increasing temperatures due to climate change. The projected combined permanent loss of suitable habitat from all land use sources for the Southern Plains analysis areas is minimal compared to the total extent of suitable habitat. The impact of agriculture (primarily conversion to cropland) is expected to affect areas of suitable habitat (5–15 percent) in the Northern Plains (Wright and Wimberly 2013, p. 4134), and redcedar expansion in the Loess Canyon Analysis Area is expected to result in larger proportions (30 percent) of

habitat loss in the future (Walker and Hoback 2007, pages 297-298). This loss of the Southern Plains populations (approximately 59 percent of the existing range of the species) and additional losses of habitat in the Northern Plains would severely impact representation of the species and would limit our ability to recover the species. The combined effects of land use and future climate changes are likely to impact the resiliency of most populations and the overall viability of the species. Thus, after assessing the best available information, we conclude that the American burying beetle is likely to become in danger of extinction in the foreseeable future 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 in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity* v. *Everson*, 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity or CBD*), vacated the aspect of the 2014 Significant Portion of its Range Policy that provided that the Services do not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we evaluated whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the "significance" question or the "status" question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect

to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *CBD*, we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (i.e., endangered). In undertaking this analysis for the American burying beetle, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered.

Based on the SSA Report (Service 2019), there are three potential portions of the range that could be significant for American burying beetle: the Northern Plains analysis areas, the Southern Plains analysis areas, and the New England Analysis Area. These three areas correspond to the areas of representation for the species. Representation describes the ability of a species to adapt to changing environmental conditions. Representation can be measured through the breadth of genetic diversity within and among populations and the ecological diversity (also called environmental variation or diversity) of populations across the species' range. The more representation or diversity the species has, the higher its potential of adapting to changes (natural or human caused) in its environment. Geographic distribution of occupied and potentially suitable habitat and genetic information were used to describe representation for the American burying beetle. The areas of representation were developed primarily based on geographic separation, the ecological variation represented across these three areas, and some genetic variation in the New England Analysis Area when compared with the other two areas.

For the purposes of the SSA analysis, we further assessed three smaller areas each in the Northern Plains and Southern Plains representation areas. However, we determined that these smaller areas were not, by themselves, separate areas of representation for the species. Evidence indicates that the smaller analysis areas within each larger area are connected genetically and demographically, such that they behave as metapopulations. In some cases, there are differences in risk factors related to land uses, and human population concentrations that facilitated the SSA analysis, particularly with respect to those risk factors. These smaller areas were simply used as a framework for conducting the SSA analysis. As explained below, they are not sufficiently distinct to be considered areas of representation for the species.

The three individual analysis areas within the Northern Plains (Loess Canyons, Sandhills, and Niobrara analysis areas) are in close geographical proximity to one another, and existing information suggests that they share similar genetic characteristics. One example of ecological variation that unites these three analysis areas is that the timing and number of breeding attempts per season remains the same across all three Northern Plains analysis areas, but differs from the Southern Plains analysis areas (Service 2019, p. 98). Combined, the Northern Plains analysis areas represent about 40 percent of the known species range.

The three analysis areas within the Southern Plains (Red River, Arkansas River, and Flint Hills) were combined for similar reasons. The three southern analysis areas are adjacent, and may be one population, meaning that individuals in one of the smaller areas could potentially breed with individuals in the other southern analysis areas, but it is very unlikely they would have access to mates in either of the other areas of representation

(i.e., Northern Plains or New England). Existing information suggests that individuals within the Southern Plains analysis areas also share similar genetic characteristics. Combined, the Southern Plains analysis areas represent about 59 percent of the known species range, and individuals in this representative area may have genetic adaptations to warmer climates. For example, individuals in the Southern Plains analysis areas are known to become active earlier in the season than individuals in the Northern Plains analysis areas. Likewise, individuals in the Southern Plains analysis areas may potentially breed twice in one season and the young-of-year may breed in the same season they are born, unlike individuals in other parts of the range (Service 2019, p. 98).

The New England Analysis Area is relatively small with a total of only 42,431 acres on two islands but represents the only remaining population within the eastern portion of the historical range. Recent evidence suggests that the New England population may represent a genetically distinct population as compared to the Northern Plains and Southern Plains analysis areas. Although the New England Analysis Area is distinct from the other areas, they appear to share some genotypes. However, geographic isolation between the two areas will likely continue to differentiate them further, making them more distinct over time. The New England Analysis Area is the only portion of the species' range that is not threatened by projected climate changes.

The first question of the significant portion of the range analysis we address is the status or risk of extinction (i.e., identifying portions where the species may currently be in danger of extinction) for each portion of the range. We considered whether the current condition of the species in any portion of the range (i.e., the Northern Plains analysis areas, the Southern Plains analysis areas, and the New England Analysis Area) along

with any threats acting in those areas cause that portion of the range to be in danger of extinction. We examined the following threats: urban and suburban development, land use change, decreased carrion availability, competition with other scavengers, wind energy development, silviculture, oil and gas development, and increasing temperatures due to changing climate, as well as their cumulative effects for each of the three portions of the range.

In the Northern Plains representation area, although threats evaluated include urban and suburban development, most current American burying beetle populations are in rural areas and have potential risks associated with habitat loss due to agricultural land uses, and these threats are the ones that we consider the most important drivers of the species' status in this representation area. All habitat alterations also have potential to affect carrion populations, competing scavenger populations, and carrion availability. Risks such as conversion to cropland, cedar expansion, and wind energy development also affect portions of the Northern Plains analysis areas. However, the large areas of known and potential habitat buffer the effects of most of these land use changes, and these threats are not known to currently cause population-level impacts to American burying beetles in the Northern Plains representation area. Likewise, given the large size of this representative area and the relatively small proportion of anticipated impacts from such activities, population-level impacts from these land use threats do not put the species at risk of extinction now and are not anticipated within the foreseeable future.

Our analysis of the available information on changes in climate indicates that, although the change in climate is occurring now, the impacts from climate change that are likely to put the species at risk of extinction will occur in the future. The combination

of land use and climate-related risks do have potential to endanger Northern Plains populations within the foreseeable future. Under the RCP 4.5 emissions scenario, temperatures approach 93 to 95 °F in small areas of the Northern Plains analysis areas by the end of the mid-century time period, however, under the RCP 8.5 emissions scenario, temperatures approach 93 to 95 °F in most of the Northern Plains analysis areas by the end of the mid-century time period. Thus, after assessing the best available information, we conclude that the American burying beetle is not currently in danger of extinction within the Northern Plains representative area but is likely to become endangered in the foreseeable future.

Many of the same threats apply to the Southern Plains representation area as well: urban and suburban development, land use change, decreased carrion availability, and competition with other scavengers. In the Southern Plains area most current American burying beetle populations are in rural areas and have potential risks associated with habitat loss due to agricultural land uses. Risks associated with grazing, silviculture, and oil and gas development also affect portions of the Southern Plains analysis areas. The large areas of known and potential habitat buffer the effects of most land use changes, and these threats are not known to currently cause population-level impacts to American burying beetles. Likewise, given the large size of these analysis areas and the relatively small proportion of anticipated impacts from such activities, population-level impacts from these land use threats are not anticipated within the foreseeable future. The Southern Plains analysis areas are currently experiencing the effects of climate change. However, the magnitude of the changes up to the present time are low enough that the species is not in danger of extinction. The bulk of the impact from climate change to these analysis

areas occur in the future according to our analysis. Within the foreseeable future, i.e., the mid-century time period (2040–2069), all Southern Plains analysis areas are expected to exceed threshold temperatures under both the RCP 4.5 and 8.5 emissions scenarios, likely resulting in extirpation of the American burying beetle from these areas. Thus, after assessing the best available information, we conclude that the American burying beetle is not currently in danger of extinction within the Southern Plains representative area but is likely to become endangered in the foreseeable future.

In the New England Analysis Area, threats from urban or suburban development affect populations in this area. However, ongoing active management in the New England Analysis Area, including ongoing provisioning of carcasses for the species, has minimized the impacts of these threats and has resulted in relatively stable populations within the New England Analysis Area. The large proportions of protected habitat in the New England Analysis Area and significant ongoing active management mitigate population-level impacts from current threats in this analysis area and the species is not in danger of extinction in this analysis area now. This ongoing management is expected to continue into the foreseeable future.

In the New England Analysis Area, the climate is colder than the other analysis areas and temperature increases have not approached any possible thresholds, and temperatures are not expected to exceed those thresholds within the foreseeable future. Future risks to the New England Analysis Area are related to limited population sizes and limited habitat. The population estimates on Block Island fluctuate between 200 and 1,000 individuals, and they are genetically isolated from any other populations. Continued management of the New England population helps maintain resiliency, but

limited population size and genetic diversity are risks to future populations and additional habitat loss could reduce that population size. In some cases, where American burying beetles occur on lands with conservation easements or deed restrictions or owned by conservation organizations, existing regulatory mechanisms appear to be adequate. However, given the varied missions of these landowners, the level of protection varies and may change over time. Populations in the New England Analysis areas are expected to experience future threats from land use change because habitat is already very limited. Only about 2,000 acres of suitable habitat are available on Block Island, and much of the protection for this habitat is based on easements with time limits and not specifically related to the American burying beetle. Existing regulatory mechanisms do not adequately address those future threats to the American burying beetle in New England. Thus, after assessing the best available information, we conclude that the American burying beetle is not currently in danger of extinction within the New England Analysis Area but is likely to become endangered in the foreseeable future.

For each portion of the range, we found that the threats to the species, along with conservation measures that ameliorate these threats, do not cause a current danger of extinction for the species in any portion. For this reason, we find that the American burying beetle is not in danger of extinction throughout a significant portion of its range.

Determination of Status

Our review of the best scientific and commercial data available indicates that the American burying beetle meets the definition of a threatened species. Therefore, we are reclassifying the American burying beetle as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

II. Final Rule Issued Under Section 4(d) of the Act

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the "Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation" of species listed as threatened. The U.S. Supreme Court has noted that statutory language like "necessary and advisable" demonstrates a large degree of deference to the agency (see *Webster* v. *Doe*, 486 U.S. 592 (1988)). Conservation is defined in the Act to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the Act] are no longer necessary." Additionally, the second sentence of section 4(d) of the Act states that the Secretary "may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants." Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary's discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife, or include a limited taking prohibition (see *Alsea Valley Alliance* v. *Lautenbacher*, 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council* v. *National Marine Fisheries*

Service, 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (*see State of Louisiana* v. *Verity*, 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, "once an animal is on the threatened list, the Secretary has an almost infinite number of options available to him with regard to the permitted activities for those species. He may, for example, permit taking, but not importation of such species, or he may choose to forbid both taking and importation but allow the transportation of such species" (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising its authority under section 4(d), the Service has developed a rule that is designed to address the American burying beetle's specific threats and conservation needs. Although the statute does not require the Service to make a "necessary and advisable" finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the American burying beetle. As discussed under **Summary of Biological Status and Threats**, the Service has concluded that the American burying beetle is likely to become in danger of extinction within the foreseeable future primarily due to the combined effects of land use change and the future impacts of climate change, which will make much of the current range uninhabitable by the species. The provisions of this 4(d) rule will promote conservation of the American burying beetle by encouraging management of the landscape in ways that meet both land management considerations and the conservation needs of the American burying beetle. The provisions of this rule are one of

many tools that the Service will use to promote the conservation of the American burying beetle.

Provisions of the 4(d) Rule

The 4(d) rule prohibits all intentional take of the American burying beetle. The 4(d) rule prohibits incidental take of the species only where the Service has specifically tailored the prohibition of incidental take in each of the three geographic areas that the American burying beetle occupies. In the New England and Northern Plains analysis areas, incidental take is prohibited only in suitable habitat when the take is the result of soil disturbance. Suitable habitat is defined, consistent with the SSA Report (Service 2019), as areas where suitable soils contain the appropriate abiotic elements (e.g., soil temperature, soil moisture, particle size, etc.) that are favorable for excavation and formation of brood chambers and where appropriate carrion for reproduction is available. This suitable habitat accounts for breeding, feeding, overwintering, and dispersal needs. Areas that are regularly tilled, vegetation maintained at less than 8 inches through regular mowing, wetland areas with standing water or saturated soils, or urban areas with paved surfaces are examples of lands considered unfavorable for use by American burying beetles. Soil disturbance means movement or alteration of soil associated with modifying the existing land use. Soil disturbance includes actions such as grading, filling, soil excavating or topsoil stripping. Soil disturbance also includes non-physical alterations such as chemical treatment, including ground or soil sterilizers, and pesticides that would make the habitat unsuitable. However, typical agricultural levels of applications like liming or fertilizer should not affect American burying beetles, and we do not intend to regulate such practices.

Because incidental take stemming from normal livestock ranching and grazing activities is not expected to have an appreciable negative impact on the species, and retaining land uses associated with ranching or grazing (rather than converting the land to row crops) provides potential habitat for the species, we are not prohibiting any incidental take associated with ranching and grazing. Ranching and grazing means activities involved in grazing livestock (e.g., cattle, bison, horse, sheep, goats or other grazing animals) such as: gathering of livestock; construction and maintenance of fences associated with livestock grazing; installation and maintenance of corrals, loading chutes, and other livestock working facilities; development and maintenance of livestock watering facilities; placement of supplements such as salt blocks for grazing livestock; and, when associated with livestock grazing, the control of noxious weeds, haying, mowing, and prescribed burning. Ranching and grazing does not include any form of tillage, conversion of grassland to cropland, or management of cropland.

In the Southern Plains analysis areas, incidental take is prohibited only on certain conservation lands, as defined below under **Regulation Promulgation**. However, within these conservation lands, activities conducted in compliance with Service-approved conservation plans that result in take of the species are not prohibited. For example, on conservation lands in the Southern Plains analysis areas managed by the Department of Defense, certain activities that result in incidental take are not prohibited if those activities are in compliance with a Service-approved integrated natural resources management plan.

In addition to intentional take and some forms of incidental take, the 4(d) rule also prohibits activities related to possession and other acts with unlawfully taken American

burying beetles, import and export of the species, activities related to shipping or delivering the species in interstate or foreign commerce, and the sale or offering to sell of the species. These activities are generally prohibited for endangered wildlife. We have determined that it is appropriate to extend the Act's protections to these activities as well for the American burying beetle.

This 4(d) rule tailors the Act's protections to allow activities that have only minor or temporary effects and are unlikely to affect the resiliency of American burying beetle populations or viability of the species. The risks for American burying beetle populations are different for each region of the country, and risks that may be minor for one population could affect the resiliency of others. For example, urban expansion is a minor risk for larger populations in Oklahoma, but is a substantial risk for the small Block Island population in Rhode Island. The 4(d) rule includes protection of habitat related to soil disturbance activities on Block Island because suitable habitat is limited (only about 2,000 acres) and protecting habitat is necessary for the conservation of this population.

Although threats vary in type and degree across the American burying beetle's range, those related to land use activities and climate change continue to impact the species. Habitat loss or alteration related to land use activities is ongoing in all American burying beetle populations, but the impacts of these habitat losses is minor for most analysis areas with the exception of the Loess Canyons and New England populations. Impacts from changing climate are ongoing as well, and populations in the Southern Plains analysis areas are projected to be extirpated within 20 to 30 years, as described above (Service 2019).

Provisions of the 4(d) Rule in the New England Analysis Area

Within the New England Analysis Area, we prohibit incidental take only if it occurs in suitable habitat and is the result of soil disturbance, as defined below under **Regulation Promulgation**, which includes converting suitable habitat from an existing land use to a different land use. The species persistence in the New England Analysis Area is dependent upon active management occurring on two small coastal islands. A large percentage of land mass in the New England Analysis Area is protected in some form, and American burying beetles occur on many lands with conservation easements or deed restrictions or owned by conservation organizations; municipal, State, and Federal agencies; and private land trusts. However, existing land protections are not comprehensive for the American burying beetle. Given the varied missions of these landowners, the level of protection varies and may change over time. Although some minimal level of take may occur incidental to ranching and grazing, the effects of such land uses serve to maintain suitable habitat for the species. Urban and suburban expansion and development activities can lead to soil disturbance that may lead to incidental take of the species. Habitat conversion further limits the habitat available to American burying beetles in the New England Analysis Area.

The population in the New England Analysis Area is proportionally more sensitive and vulnerable to impacts than the other analysis areas, because it is limited to two small coastal islands, and the species' persistence on one or both of the islands is likely dependent on management, particularly captive breeding, reintroduction, and the provisioning of carrion. Thus, urban and suburban expansion represent substantial risks to the future viability of the species in this area. Limiting the prohibition to suitable

habitat is sufficient as any beetles occupying unsuitable habitat would be very few in number and possibly either lost to the population or not of value to the population.

In addition, activities by State or Federal government agencies related to wildlife management that result in incidental take of American burying beetles is not prohibited in the New England Analysis Area.

Provisions of the 4(d) Rule in the Northern Plains Analysis Areas

Within the Northern Plains analysis areas, we prohibit incidental take only if it occurs in suitable habitat and is the result of soil disturbance, which includes converting habitat from an existing land use to a different land use, as defined below under **Regulation Promulgation**. The combined impacts of urban expansion and agriculture (primarily conversion to cropland) are expected to affect 5–15 % of the suitable habitat in the Northern Plains (Service 2019). Potential impacts related to wind energy expansion are likely (additional information provided in the SSA Report and proposed rule), but additional information is needed to fully evaluate the potential effects to habitat and carrion availability. Only low percentages of the Northern Plains analysis areas are protected, with only one large protected area that supports significant numbers of American burying beetles. Thus, we find that land use changes like urban expansion and agricultural land conversion to cropland (combined with other risks such as cedar expansion as discussed in the proposed rule) represent risks to the future viability of the species in this area.

However, incidental take that is the result of normal grazing and livestock activities is not prohibited. In addition, activities by State or Federal government agencies related to wildlife management that result in incidental take of American burying beetles

is not prohibited. Grasslands in the Northern Plains support relatively high-density populations of American burying beetles that have high resiliency. Ranching, grazing, and wildlife management activities in this area are generally compatible with conservation of this species, as these land uses help maintain native grassland habitats (see chapters 4 and 5 in the SSA Report; Service 2019) important for American burying beetle conservation. Based on the analysis of climate change impacts in the SSA Report (Service 2019), we believe it is possible that the Northern Plains may support the only remaining self-sustaining populations with moderate or high resiliency by the mid-century time period. Therefore, protecting existing habitat in the Northern Plains is important for the future viability of the species. Although there may be some minimal level of take incidental to ranching, grazing, and wildlife management activities, the effects of such land uses serve to maintain suitable habitat for the species and prevent more extensive soil disturbance than would occur with other land use changes such as farming or urban development.

Provisions of the 4(d) Rule in the Southern Plains Analysis Areas

Within the Southern Plains analysis areas on defined conservation lands, see below under **Regulation Promulgation**, incidental take is exempted if it occurs in compliance with a Service-approved management plan, such as an integrated natural resources management plan (INRMP), that includes conservation measures for the American burying beetle. Outside of defined conservation lands, incidental take is not prohibited because the Southern Plains Analysis Area currently has low risks to the species associated with land development. The combined permanent loss of habitat projected due to urban and agricultural expansion is less than 2 percent (Service 2019).

Currently, conservation lands provide relatively large protected areas of habitat with good populations; these lands would potentially serve as sources of American burying beetles for relocation and reintroduction efforts in areas that are projected to have future climate conditions that would be expected to sustain the species. We define "conservation lands" as lands included within the existing boundaries of Fort Chaffee in Arkansas (approximately 64,000 acres) and McAlester Army Ammunition Plant (approximately 45,000 acres) and Camp Gruber/Cherokee Wildlife Management Area (approximately 64,000 acres), both in Oklahoma. These areas have defined boundaries and management that is compatible with recovery for the American burying beetle; however, that management is not intentionally being conducted for American burying beetles, and monitoring and management would likely cease at some sites without the incidental take protections in place specific to the species. Active management and monitoring in these conservation lands is considered important to help support recovery by serving as source populations for relocation and reintroduction efforts of American burying beetle populations, for as long as they sustain beetle populations.

Land use changes such as urban development and conversion to agricultural lands that cause habitat loss and fragmentation are a minor risk in Southern Plains analysis areas. These activities are not considered a threat to the species in this area because the combined permanent loss of habitat projected due to urban and agricultural expansion is less than 2 percent of these large analysis areas and is unlikely to affect the viability of the species in these areas (Service 2019). Large areas of suitable habitat, combined with low levels of projected land use change, and relatively large areas of protected habitat

indicate that impacts to habitat are not likely to affect the viability of the species in these areas.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: scientific purposes, to enhance propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

The Service recognizes the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Service in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Service shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, will be able to conduct activities designed to conserve American burying beetles that may result in otherwise prohibited take for wildlife without additional authorization.

Nothing in this 4(d) rule changes in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the American burying beetle. However, interagency cooperation will be further streamlined through programmatic consultations for the species between Federal agencies and the Service. A programmatic consultation has been developed (see *https://www.fws.gov/southwest/es/oklahoma/default.htm*) to allow Federal agencies to consult using the 4(d) rule in a streamlined manner for all Federal actions that can comply with the 4(d) rule.

Required Determinations

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), need not be prepared in connection with regulations pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244).

References Cited

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

Authors

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

List of Subjects in 50 CFR Part 17

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

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(h) by revising the entry for "Beetle, American burying" under "INSECTS" in the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife

* * * * *

(h) * * *

Common name	Scientific name	Where Listed	Status	Listing Citations and Applicable Rules
* * * * * * *				
INSECTS				
* * * * * * *				
Beetle, American burying	*Nicrophorus americanus*	Wherever found, except where listed as	T	54 FR 29652, 7/13/1989; 85 FR [INSERT *FEDERAL REGISTER* PAGE

		an experimental population		WHERE THE DOCUMENT BEGINS], [INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]; 50 CFR 17.47(d).[4d]
Beetle, American burying	*Nicrophorus americanus*	In southwestern Missouri, the counties of Cedar, St. Clair, Bates, and Vernon	XN	77 FR 16712, 3/22/2012; 50 CFR 17.85(c).[10j]
* * * * * * *				

3. Amend § 17.47 by adding paragraph (d) to read as follows:

§ 17.47 Special rules—insects.

* * * * *

(d) American burying beetle (*Nicrophorus americanus*).

(1) *Prohibitions*. The following prohibitions apply to the American burying beetle:

(i) Take of the American burying beetle, except that take that is incidental to otherwise lawful activity (incidental take) is prohibited only when the take occurs on suitable American burying beetle habitat:

(A) In the New England and Northern Plains Analysis Areas where the incidental take results from soil disturbance; or

(B) In the Southern Plains Analysis Areas where the incidental take occurs on defined conservation lands, except where incidental take is in compliance with a Service-approved conservation plan.

(ii) Possession and other acts with unlawfully taken American burying beetles.

(A) It is unlawful to possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any American burying beetle that was taken in violation of paragraph (d)(1)(i) of this section or State law.

(B) Notwithstanding paragraph (d)(1)(ii)(A) of this section, Federal and State law enforcement officers may possess, deliver, carry, transport, or ship any American burying beetle taken in violation of the Act as necessary in performing their official duties.

(iii) Import and export of the American burying beetle.

(iv) Interstate or foreign commerce. It is unlawful to deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever, and in the course of a commercial activity, the American burying beetle.

(v) Sale or offer for sale. It is unlawful to sell or to offer for sale in interstate or foreign commerce any American burying beetle.

(2) *Exceptions from prohibitions*.

(i) Any employee or agent of the Service or of a State conservation agency that is operating a conservation program pursuant to the terms of a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, may, when acting in the course of his or her official duties, take American burying beetles, provided that, for State conservation agencies, the American burying beetle is covered by an approved cooperative agreement to carry out conservation programs.

(ii) Federal or State government agencies may incidentally take American burying beetles when conducting wildlife management activities in the Northern Plains Analysis Areas.

(iii) Incidental take of American burying beetles resulting from ranching and grazing activities is allowed.

(3) *Definitions*. For the purposes of this paragraph (d), we define the following terms:

(i) *Conservation lands* means lands included within the existing boundaries:

(A) In Arkansas, of Fort Chaffee (approximately 64,000 acres); and

(B) In Oklahoma, of McAlester Army Ammunition Plant (approximately 45,000 acres) and Camp Gruber/Cherokee Wildlife Management Area (approximately 64,000 acres).

(ii) *New England Analysis Area* means Block Island in Rhode Island and Nantucket Island in Massachusetts.

(iii) *Northern Plains Analysis Areas* means portions of Nebraska and South Dakota, as presented in the map at paragraph (d)(4) of this section, to initially include an 18.6-mile buffer around each capture location to determine the outside boundaries of the analysis area. For specific information regarding whether a parcel of land is inside the Northern Plains Analysis Areas, contact your local Service ecological services field office. Field office contact information may be obtained from the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

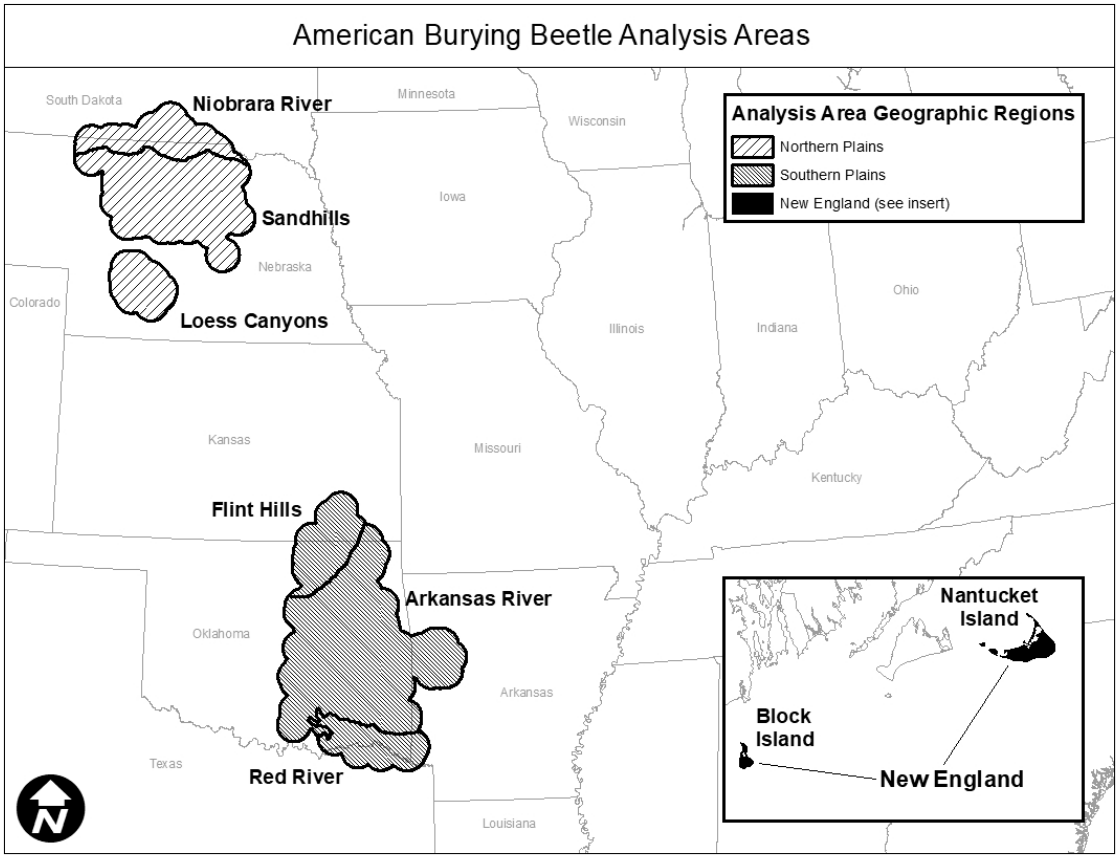
(iv) *Ranching and grazing* means activities involved in grazing livestock (e.g., cattle, bison, horse, sheep, goats, or other grazing animals) such as: gathering of livestock; construction and maintenance of fences associated with livestock grazing; installation and maintenance of corrals, loading chutes, and other livestock working facilities; development and maintenance of livestock watering facilities; placement of

supplements such as salt blocks for grazing livestock; and, when associated with livestock grazing, the control of noxious weeds, haying, mowing, and prescribed burning. Ranching and grazing does not include any form of farming, conversion of grassland to cropland, or management of cropland.

(v) *Soil disturbance* means movement or alteration of soil. Soil disturbance includes actions such as grading, filling, soil excavating, or topsoil stripping. Soil disturbance also includes non-physical alterations such as chemical treatment.

(vi) *Southern Plains Analysis Areas* means portions of Arkansas, Kansas, Oklahoma, and Texas, as presented in the map at paragraph (d)(4) of this section, to initially include an 18.6-mile buffer around each capture location to determine the outside boundaries of the analysis area. For specific information regarding whether a parcel of land is inside the Southern Plains Analysis Areas, contact your local Service ecological services field office. Field office contact information may be obtained from the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(4) *Map of American Burying Beetle Analysis Areas*.



Dated: _____.

_____

Aurelia Skipwith,

Director, U.S. Fish and Wildlife Service.