DRAFT ENVIRONMENTAL ASSESSMENT
PROPOSED DESIGNATION OF CRITICAL HABITAT
FOR CORAL PINK SAND DUNES TIGER BEETLE (*Cicindela albissima*)
IN UTAH

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Introduction

The U.S. Fish and Wildlife Service (Service) is proposing to designate critical habitat for Coral Pink Sand Dunes (CPSD) tiger beetle (*Cicindela albissima*) in Utah, as required by section 4 of the Endangered Species Act of 1973, as amended (ESA). We proposed to list the CPSD tiger beetle as threatened and to designate critical habitat for the species on October 2, 2012 (77 FR 60208). In total, we proposed approximately 921 hectares (ha) (2,276 acres (ac)) in Kane County, Utah, for designation as critical habitat in our proposed rule. We announced a Notice of Availability in the Federal Register on May 6, 2013 that requests public review of 2012 CPSD tiger beetle survey information and how it should be considered for the final designation of critical habitat.

Critical habitat designation is required by the ESA for listed species. This Draft Environmental Assessment presents the purpose of and need for the critical habitat designation, the proposed action and alternatives, and an evaluation of the direct, indirect, and cumulative effects of the alternatives pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA) as implemented by the Council on Environmental regulations (40 CFR 1500, et seq.) and according to the U.S. Department of Interior NEPA procedures. We will use this Draft Economic Analysis to help decide whether critical habitat will be designated as proposed, if the proposed action requires refinement, or if further analysis is needed through preparation of an Environmental Impact Statement (EIS).

1.0 Purpose for the Proposed Action

The purpose of the proposed action is to designate critical habitat for CPSD tiger beetle in Utah by utilizing provisions of the ESA. The purpose of the ESA is to conserve the ecosystem upon which threatened and endangered species depend. Critical habitat designation identifies areas that contain the physical and biological features essential to the conservation of this species and that may require special management or protection. The designation of critical habitat also describes the physical and biological features essential to the conservation of the species which are identified as the Primary Constituent Elements (PCEs).

2.0 Need for the Action

The need for this action is to comply with section 4 of the ESA, which requires that critical habitat be designated for endangered and threatened species unless such designation is not prudent. A proposed listing rule (77 FR 60208) published on October 2, 2012, proposed the CPSD tiger beetle as threatened throughout its range and proposed designated critical habitat at the same time.

When the range of a species includes States within the Tenth Circuit, pursuant to the Tenth Circuit ruling in Catron County Board of Commissioners v. U.S. Fish and Wildlife Service, 75 F .3d 1429 (10th Cir. 1996), we will complete an analysis pursuant to NEPA on critical

habitat designations. The range of this species is entirely within the State of Utah, which is within the Tenth Circuit.

Critical habitat is one of several provisions of the ESA that aid in protecting the habitat of a listed species until populations have recovered and threats have been minimized so that the species can be removed from the list of threatened and endangered species. Critical habitat designation is intended to assist in achieving long-term protection and recovery of this species and the ecosystem upon which it depends. Section 7(a)(2) of the ESA (50 CFR §402.13) requires consultation for Federal actions that may affect critical habitat to avoid destruction or adverse modification of this habitat. Further explanation of critical habitat and its implementation is provided below.

Below we describe the threats and a description of the life history and habitat parameters for CPSD tiger beetle. For a further analysis of the threats to this species please see our final listing rule (77 FR 60208). For further descriptions of how we used life history and habitat characteristics to determine the essential physical and biological features for the CPSD tiger beetle, please see our proposed critical habitat designation (77 FR 60208).

2.1 Background

2.1.1 Taxonomy and Species Description

The CPSD tiger beetle is a member of the family Cicindelidae and genus *Cicindela*. There are 109 species of tiger beetles in the genus *Cicindela* in the United States and Canada (Pearson *et al.* 2006, p. 4). The CPSD tiger beetle occurs only at the CPSD geologic feature in southern Utah and is separated from its closest related subspecies, *C. theatina*, by over 600 kilometers (km) (378 miles (mi)) (Rumpp 1961, p. 182). It shares the typical characteristics of other members of the maritima group (a group of closely related species of sand dune tiger beetles) and is most similar in morphology to other subspecies of *Cicindela limbata* (no common name). The CPSD tiger beetle was originally described as *C. limbata albissima* (Rumpp 1961, p. 181). However, more recent genetic analysis revealed that the CPSD tiger beetle is different from all other members in the maritima group; consequently, we now consider it a distinct species, CPSD tiger beetle (Morgan *et al.* 2000, p. 1111). This is the accepted taxonomic classification (Pearson *et al.* 2006, p. 77).

CPSD tiger beetle adults are 11 to 15 millimeters (0.4 to 0.6 inches (in)) in size and have striking coloration. The large wing cases (known as elytra) are predominantly white except for a thin reddish band that runs down the length of the center. Much of the body and legs are covered in white hairs. The upper thorax (middle region) has a metallic sheen, and the eyes are particularly large (Pearson *et al.* 2006, p. 77).

2.1.2 Habitat

Tiger beetle species occur in many different habitats, including riparian habitats, beaches, dunes, woodlands, grasslands, and other open areas (Pearson *et al.* 2006, p. 177). Most tiger beetle species are habitat-specific and consequently are useful as indicators of habitat quality (Knisley and Hill 1992, p. 140). The CPSD tiger beetle, like its close relatives from the Great Sand Dunes of Colorado (*Cicindela theatina*) and the St. Anthony Dunes of Idaho (*C. arenicola*), is restricted to sand dune habitat.

The species' current range extends along the CPSD geologic feature. The CPSD is a geologic feature named for the deep pink color of its sand dunes (Ford *et al*. 2010, p. 380). The CPSD are located 5 km (3.1 mi) north of the Utah–Arizona state line and 43 km (27 mi) west of Kanab, Utah (see Figure 1 below in Population Distribution). The CPSD are about 13 km (8 mi) long, averaging 1.1 km (0.7 mi) in width, and 1,416 ha (3,500 ac) in surface area.

The CPSD consist of a series of high, mostly barren, dry dune ridges separated by lower, moister, and more vegetated interdunal swales (low places between sand dune crests) (Romey and Knisley 2002, p. 170). Wind action, primarily blowing from south to north, created and continues to shape the CPSD, utilizing sand from nearby eroding Navajo sandstone (Doelling *et al*. 1989, p. 3). Wind velocity decreases as it moves across the sand dunes (from south to north), resulting in a dynamic and less vegetated south CPSD area that transitions to a less dynamic, more heavily vegetated, higher elevation northern CPSD area (Ford *et al*. 2010, pp. 387–392).

The CPSD are in a semiarid climatic zone (Ford *et al.* 2010, p. 381). The nearest weather station, in Kanab, has a mean annual temperature of 12.4 °Celsius (°C) (54.4 °Fahrenheit (°F)) and mean annual precipitation of 33.8 centimeters (cm) (13.3 in) (Ford *et al.* 2010, p. 381). The northern 607 ha (1,500 ac) of CPSD is Federal land managed by the Bureau of Land Management (BLM). The southern 809 ha (2,000 ac) of the CPSD is within Utah's CPSD State Park.

Adult CPSD tiger beetles use most of the dune habitat from the swales to the upper dune slopes. Larval CPSD tiger beetles are more restricted to vegetated swale areas (Knisley and Hill 2001, p. 386), where the vegetation supports the larval prey base of flies, ants, and other prey (Conservation Team 2009, p. 14). Larval CPSD tiger beetle habitat is typically dominated by the leguminous plants *Sophora stenophylla* (silvery sophora) and *Psoralidium lanceolatum* (dune scurfpea), and several grasses, including *Sporobolus cryptandrus* (sand dropseed) and *Achnatherum hymenoides* (Indian ricegrass). Larvae also are closely associated with a federally threatened plant species, *Asclepius welshii* (Welsh's milkvetch) (Knisley and Hill 2001, p. 385) for which the entire CPSD area is designated critical habitat (52 FR 41435, October 28, 1987).

Rainfall and associated soil moisture is a critical factor for CPSD tiger beetles (Knisley and Juliano 1988, entire) and is likely the most important natural environmental factor affecting population dynamics of the species. Rainfall and the associated increase in soil moisture have a positive effect on CPSD tiger beetle oviposition (egg depositing) and survivorship (Knisley and

Hill 2001, p. 391). The areas in the dune field with the highest level of soil moisture and where soil moisture is closer to the surface contain the highest densities of CPSD tiger beetle larvae (Knisley and Gowan 2011, p. 22), indicating that both proximity to moisture and overall soil moisture are important to the CPSD tiger beetle's life cycle. Experimental supplemental watering has resulted in significantly more adults and larvae, more oviposition events, increased larval survival, and faster larval development compared to unwatered control plots (Knisley and Gowan 2011, pp. 18–22).

2.1.3 Population Distribution

The CPSD tiger beetle (*Cincindela albissima*) occurs sporadically throughout the CPSD geologic feature, but only consistently exists in two populations— central and northern—which are separated by 4.8 km (3 mi) (Figure 1) (Knisley 2012, pers. comm.; Knisley and Gowan 2013, entire). The two populations occupy a total area approximately 202 ha (500 ac) in size (Morgan *et al*. 2000, p. 1109).

The central population is the largest, and is self-sustaining, but at relatively moderate numbers (sees Population Size and Dynamics, below). The northern population is not considered self-sustaining and comprises only a small number of adults and larvae (Knisley 2001, p. 9). The northern population likely persists because of adults dispersing from the central population (Knisley and Gowan 2011, p. 9).

Low densities of adult CPSD tiger beetles also occur in the dune area between the central and northern populations (Figure 1; Hill and Knisley 1993, p. 9; Knisley 2012, pers. comm.), and suitable swale habitat likely exists in this area. This area has not been extensively surveyed in the past 20 years, and observations of the species in this area are from opportunistic and inconsistent surveys. Because the northern population likely is dependent upon adults dispersing from the central population (Knisley and Gowan 2011, p. 9), the 4.8-km (3-mi) long area of dune between the two populations is likely an important dispersal corridor for the species (see Adult Dispersal below).

An interagency CCA established Conservation Areas A and B to protect the CPSD tiger beetles from off-road vehicle (ORV) use in 1997 (Conservation Committee 1997, entire). These Conservation Areas generally overlap the central and northern populations of CPSD tiger beetles (see Figure 1). However, from its inception until 2012, Conservation Area A only partially protected the central population, with beetles occupying several unprotected swales outside of Area A. During this period, the boundaries of Conservation Area A protected approximately half (48% to 55%) of occupied swales, depending on the year. In early 2013, this protected area was renegotiated and Conservation Area A now protects a majority (~88%) of occupied swales for the central population (Conservation Committee 2013, entire). Limited information for the northern population indicates that during most years, occupied swales for this population occur in areas located entirely within Conservation Area B. As of 2012, Conservation Area A was 84 ha (207 ac) in size but has increased to 108 ha (266 ac) as described in the 2013 Conservation

Agreement Amendment (Conservation Committee 2013, entire). Conservation Area B is 150 ha (370 ac) in size (Knisley and Gowan 2011, pp. 7, 9).

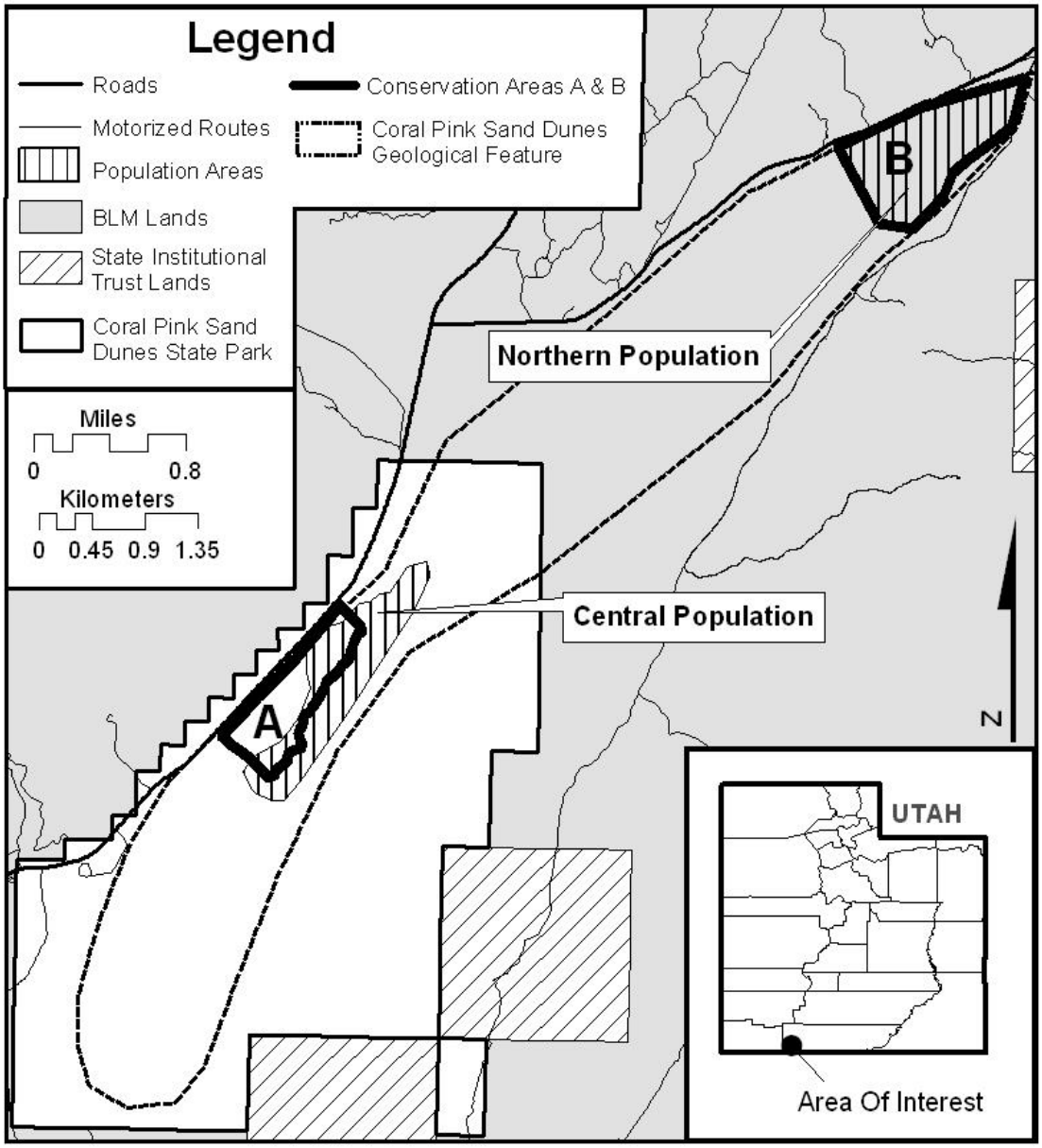

Figure 1. Coral Pink Sand Dunes tiger beetle populations and Conservation Areas.

We do not have comprehensive analysis or occupancy modeling that predicts the habitat preferences of the CPSD tiger beetle. However, a preliminary habitat assessment indicated that the beetle exists where there is abundant prey and larvae, large swale areas capable of supporting the appropriate vegetation, swale sediment characteristics appropriate for vegetation and larval burrows, dune migration characteristics that permit vegetation to develop and persist within dune

swales, proper sediment supply, and a proper wind regime (Fenster *et al*. 2012, pp. 2-4). The presence of CPSD tiger beetles in the northern and eastern portions of Conservation Area A, to the east and outside of Conservation Area A (despite the lack of protection from ORV traffic), and in limited swales in Conservation Area B, indicate that many or all of these habitat conditions occur in these areas.

The same preliminary habitat assessment indicated that CPSD tiger beetles do not exist where there is a lack of prey, small swale areas incapable of supporting the appropriate vegetation, swale sediment characteristics not conducive for vegetation nor suitable for larval burrows, dune migration characteristics that do not permit vegetation to develop and persist within dune swales, low sediment supply, and wind velocities that are too high or too low to maintain proper dune form and vegetation densities (Fenster *et al*. 2012, pp. 4-5). These types of conditions are generally present in the south-central and southeastern portions of Conservation Area A and in the area in the southern most portion of the CPSD formation.

2.1.4 Life History

Similar to other tiger beetles, the CPSD tiger beetle goes through several developmental stages. These include an egg, three larval stages (known as "instars," with each instar separated by molting), pupa, and adult (Knisley and Shultz 1997, p. 13). First instar larvae appear in late spring after hatching from eggs that were oviposited in sand the previous late summer or fall (Hill and Knisley 1997, p. 2). The first instar larvae dig small vertical burrows from the sand surface down 6 to 9 cm (2.4 to 3.5 in.) into the sand substrate (Conservation Committee 2009, p. 14). After several weeks of feeding at the surface, the first instar larva plugs its burrow opening, sheds its skin (molts), and becomes a larger second instar larva (Conservation Committee 1997, p. 2). The second instar stage lasts several months (again emerging from its burrow and feeding at the surface for a brief period) before developing into a third instar, with most reaching this stage by mid- to late summer (Conservation Committee 1997, p. 2). Larvae continue as second or third instars into fall, and then hibernate in burrows during the winter (Conservation Committee 1997, p. 3). The third instar stage can take 9 months to over a year to reach full development (Conservation Committee 1997, p. 3). After the third instar is fully developed, the CPSD tiger beetle plugs its burrow opening and transforms into a pupa (Pearson and Vogler 2001, p. 34). During the pupal period (stage between third instar and adult emergence), the beetle undergoes a metamorphosis where many of the adult physical structures develop (i.e., wings and flight muscles) (Pearson and Vogler 2001, p. 34). Adults emerge soon after this metamorphosis. The CPSD tiger beetle completes its entire life cycle from egg to adult reproduction to death within 2 or 3 years (Hill and Knisley 1997, p. 3).

2.1.5 Adult Behavior and Ecology

Adults are active on sunny days along the dunes and swale edges. The majority of recently metamorphosed adult CPSD tiger beetles emerge from their burrows in late March to early April, reach peak abundance by May, begin declining in June, and die by August (Knisley and Hill 2001, p. 387). A small proportion of a second adult cohort emerges in early September and

remains active into October before digging overwintering burrows (Knisley and Hill 2001, pp. 387–388).

Adult tiger beetles are active predators, attacking and eating prey with their large and powerful mandibles (mouthparts). They can run or fly rapidly over the sand surface to capture or scavenge for prey arthropods. Adults feed primarily on ants, flies, and other small arthropods (Knisley and Hill 1993, p. 13).

CPSD tiger beetle behavior and distribution, like other tiger beetles, is largely determined by their thermoregulation needs. Adult tiger beetles dedicate up to 56 percent of their daily activity towards behavior that controls their internal body temperature (Pearson and Vogler 2001, p. 135). These behaviors include basking (positioning the body to maximize exposure to solar radiation); seeking out wet, cool substrate or shade; and burrowing (Pearson and Vogler 2001, p. 136). Tiger beetles with low body temperatures are sluggish; tiger beetles require a high body temperature for maximal predatory activity (Pearson and Vogler 2001, p. 131). Thus, the numbers of adult CPSD tiger beetles observed on rainy or cool, cloudy days are very low (Knisley and Hill 2001, p. 388). Tiger beetles maintain body temperatures near their lethal limits of 47 to 49 °C (116 to 120 °F) (Pearson and Vogler 2001, p. 131), so heat refuge is important (Shutlz and Hadley 1987, p. 363). During peak spring and fall activity, when it is sunny, adult CPSD tiger beetles are usually active early (9 a.m. – 2 p.m.) and again in late afternoon (4 p.m. – 7 p.m.) (Knisley and Hill 1993, pp. 13–14). They dig and reside in burrows to avoid unfavorable weather conditions such as hot mid-afternoons or cool or rainy daytime conditions (Knisley and Hill 1993, p. 14). Shade provided by vegetative cover is important for CPSD tiger beetle thermoregulation during warm periods (Knisley 2012, pers. comm.).

2.1.6 Adult Dispersal

Dispersal is the movement of individuals from one habitat area to another. The ability to disperse is often important to tiger beetle species because many species inhabit areas such as sand dunes or riverbanks that are prone to disturbance and physical change (Pearson and Vogler 2001, pp. 130-142). We do not have information on the dispersal habits of the CPSD tiger beetle, so we evaluated information for surrogate species that occupy unstable habitats similar to those of the CPSD geologic formation. The Maricopa tiger beetle, *Cicindela oregona maricopa*, is an example of a species that persists in an unstable environment because of dispersal. The Maricopa tiger beetle inhabits moist sandy habitat on the banks of small streams and creeks (Pearson and Vogler 2001, p. 141). Flash flooding periodically scours away this sandy habitat and most of the existing population (Pearson and Vogler 2001, p. 141). These floods redistribute the scoured sand elsewhere, and surviving adult tiger beetles quickly disperse and colonize the newly available habitat (Pearson and Vogler 2001, p. 141). Similarly for the CPSD tiger beetle, the CPSD geologic formation is continually changing as winds redistribute the sands, both creating and destroying swale habitat and dispersal habitat within and between Conservation Areas A and B.

Often, tiger beetle populations depend upon dispersal among separated populations for the survival of individual populations and the species (Knisley *et al.* 2005, p. 557). The extirpation

of at least one population of the Northeastern Beach tiger beetle, *Cicindela dorsalis dorsalis*, (federally listed as a threatened species) is partially attributed to the lack of nearby populations and associated dispersal habitats (Knisley *et al.* 2005, p. 557). Similarly, in CPSD the northern population of the CPSD tiger beetle likely persists because of dispersal from the central population, across the CPSD (Knisley and Gowan 2011, p. 9). In like fashion, the resilience of the central population would be greatly increased if the northern population became self-sustaining and could contribute to the central population by dispersing across the CPSD.

2.1.7 Larval Behavior and Ecology

Larval CPSD tiger beetles are ambush predators that wait at their burrow mouth to capture small arthropod prey when it passes nearby. The daily period of activity is highly variable and influenced by temperature, moisture levels, and season (Knisley and Hill 2001, p. 388; Knisley and Gowan 2008, p. 20). Larvae can be active much of the day during cool or cloudy spring and fall days, except during high wind periods (Conservation Committee 2009, p. 14). Maximal activity occurs in early mornings before the soil becomes dry and warm from the sun and again in late afternoon and evening after the soil has cooled (Conservation Committee 2009, p. 14).

Adult females determine the larval microhabitat by their selection of an oviposition site (Knisley and Gowan 2011, p. 6). Recently hatched larvae construct burrows in the sand at the site of oviposition and subsequently pass through three larval stages before pupating and then emerging to the adult form (Conservation Committee 2009, p. 14). Most larvae occur within the swale bottoms and up the lower slopes of the dunes, particularly where the soil or subsoil is moist most of the time (Hill and Knisley 1996, p. 11; Knisley and Gowan 2011, p. 22). The swale vegetation supports the larval prey base of ants, flies, and other prey (Conservation Committee 2009, p. 14). Larvae most often remain in the same burrow throughout their development and only rarely move outside of their burrow to dig a new burrow in a more favorable location (Knisley and Hill 1996, p. 11).

2.1.8 Population Size and Dynamics

Substantial year-to-year population variation is typical of many desert arthropods that are greatly affected by climatic factors such as rainfall (Knisley and Hill 2001, p. 391). Adult abundance in any year is a result of many interacting factors that affect recruitment of the cohort oviposited 2 or 3 years previous (because of a 2- or 3-year life cycle), and also the survivorship of the developmental stages of that year's cohort (Knisley 2001, p. 10).

The central and northern populations were monitored for the last 20 and 14 years (respectively) to yield a yearly adult CPSD tiger beetle population size estimate (monitoring did not take place outside of these populations) (Figure 2). The adult population size estimate is based solely on data collected from the central population from 1992 to 1997, and after 1997 the adult population size estimate is based on both populations. Population numbers fluctuated greatly over this time, ranging from a low of 558 in 2005 to a high of 2,944 in 2002 (Figure 2). The total adult population size estimate in 2011 was 1,116 (Knisley and Gowan 2011, p. 7). Population monitoring results indicate a low, yet stable to increasing population size since 2003 that

contrasts with highly variable population estimates in previous periods (Knisley and Gowan 2011, pp. 7–8; Figure 2); however, the overall trend since 1992 suggests that the population is in decline.

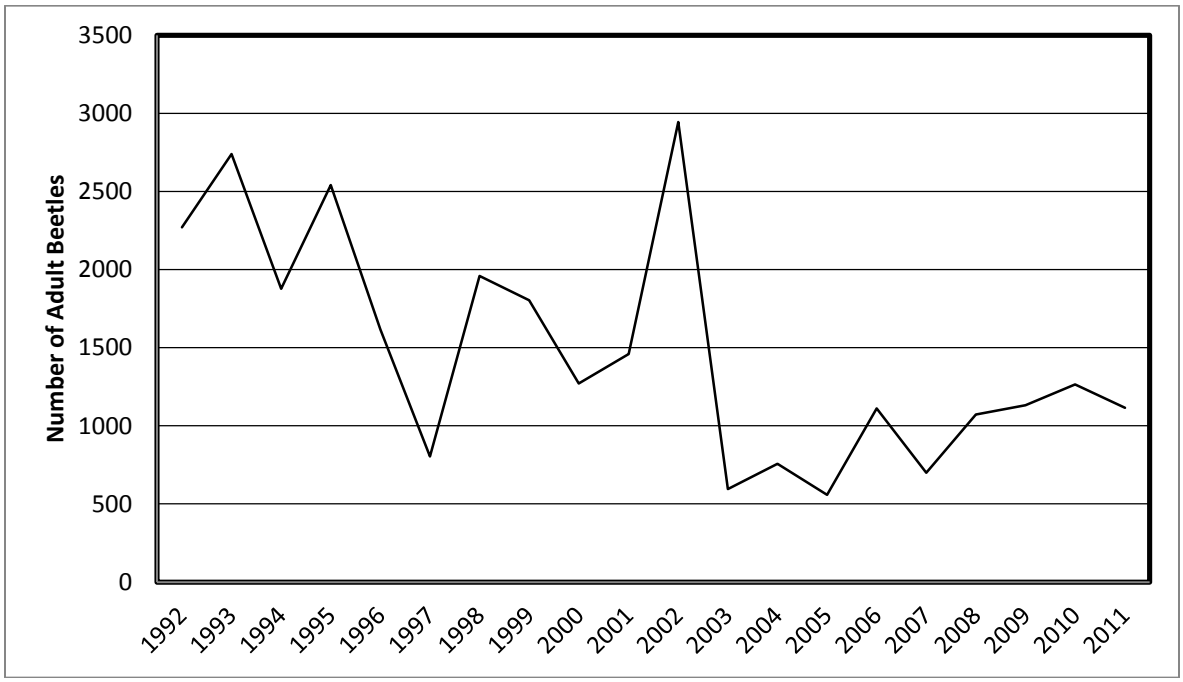

Figure 2. Adult CPSD tiger beetle population size estimate at Coral Pink Sand Dunes from 1992 to 2011 (modified from Knisley and Gowan 2011, p. 8).

2.1.9 Threats

The CPSD tiger beetle is highly restricted in its range, threats occur throughout its range, and are not restricted to any particular significant portion of that range. Accordingly, our assessment and determination applies to the species throughout its entire range.

The CPSD tiger beetle has one of the smallest geographical ranges of any known insect (Romey and Knisley 2002, p. 170). It is restricted to the CPSD geologic feature and occupies only 202 ha (500 ac) (Morgan *et al.* 2000, p. 1109). Within CPSD, the CPSD tiger beetle occurs sporadically throughout the dunes, but only consistently exists in two populations that are separated by 4.8 km (3 mi). The northern population is not self-sustaining (Knisley 2001, p. 9) and likely persists because of periodic dispersal from the central population. Extremely low numbers and a highly restricted geographic range make CPSD tiger beetle particularly susceptible to becoming in danger of extinction due to existing and foreseeable threats.

Current threats to the species include the use of ORVs, inadequacy of existing regulatory mechanisms, and small population effects, in combination with other stressors. The use of ORVs substantially reduces habitat qualities essential to the CPSD tiger beetle's life cycle (e.g.,

soil moisture and prey availability) (Knisley and Hill 2001, p. 389; Knisley and Gowan 2008, pp. 10–11). Reduction in habitat quality reduces reproductive success and the tiger beetle population growth rate (e.g., Klok and de Roos 1998, pp. 205–206). The use of ORVs, small population effects, climate change and drought, and the cumulative impacts of ORV use and climate change and drought will also threaten the species in the foreseeable future. These ongoing threats have resulted in an overall declining population trend for adult CPSD tiger beetles since 1992, but a stable or slightly increasing trend since 2003.

We acknowledge the very important protections of Conservation Areas A and B from ORV use (see Population Distribution; Figure 1, above). The northern portion of CPSD (including Conservation Area A) is Federal land managed by the BLM and the southern portion of the CPSD (including Conservation Area B) is located within the CPSD State Park. The use of ORVs is not allowed within Conservation Areas A and B, providing some protection for CPSD tiger beetles. Utah's Administrative Code (R 651-633) prohibits motorized vehicle use in designated nonmotorized sand dune areas of CPSD State Park (Conservation Area A) and the BLM Resource Management Plan (RMP) protects Conservation Area B. However, despite these conservation efforts, 52 percent of occupied swale habitat, which occurs outside of the Conservation Areas, remains unprotected (Figure 1, Knisley and Gowan 2009, p. 8). The degradation of habitat (both occupied and potential) by ORV use in the unprotected areas reduces the ability of the population to expand or disperse in areas outside of the Conservation Areas and thereby reduces the population's carrying capacity. In addition, tiger beetles that disperse outside of the two Conservation Areas can be injured or killed by ORVs.

The Clean Air Act gives the Environmental Protection Agency (EPA) authority to limit GHGs linked to climate change; however, our analysis concludes that current regulation of these gases is not adequate to reduce the current rate of global climate change. Utah is predicted to have increased temperatures and more frequent heavy precipitation events, separated by longer dry spells, as a result of climate change (GBRAC 2008, p. 15). Utah soils are expected to dry more rapidly as a result of increased temperatures (GBRAC 2008, p. 20). Drought duration and intensity in CPSD will likely increase in the future, magnifying the soil moisture reductions expected from temperature increases alone. Precipitation and soil moisture levels currently limit the CPSD tiger beetle population in the CPSD (Knisley and Gowan 2006, p. 7), and reductions in soil moisture associated with climate change and drought will further reduce the CPSD tiger beetle population size. Based on this analysis, we find environmental changes resulting from climate change and drought will become threats to the CPSD tiger beetle in the future.

The restricted range of the species does not constitute a threat in itself. However, the species' small population size makes the species more vulnerable to extinction due to demographic stochasticity, environmental stochasticity, and random catastrophe, when combined with the specific threats of ORV use, drought, and climate change. Therefore, we consider its small population size to be a threat to the species when combined with other stressors and threats.

Threats can work in concert with one another to cumulatively create conditions that will impact CPSD tiger beetle beyond the scope of each individual threat. Climate change, drought, and

ORV use all act upon CPSD tiger beetle through a similar mechanism: the drying of soils. As we discussed, soil moisture is a critical factor for desert tiger beetles (Knisley and Juliano 1988, entire) and water and soil moisture are both currently limiting CPSD tiger beetle (Knisley and Gowan 2006, p. 7). Reduced precipitation, increased evaporation, soil compaction, and soil exposure act cumulatively on CPSD tiger beetle and its habitat. For these reasons, we find ORV use, environmental changes resulting from climate change, and drought are threats to the species both independently (presently in the case of ORV use) and cumulatively. The best scientific and commercial information available indicates that other natural or manmade factors affecting its continued existence are a threat the CPSD tiger beetle now and are likely to continue to be so in the future.

2.2 Endangered Species Act

2.2.1 Critical Habitat

Critical habitat is defined in section 3(5)(A) of the ESA as – (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and
(ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The term "conservation" as defined in section 3(3) of the ESA, means "to use and the use of all methods and procedures which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary" (i.e., the species is recovered and removed from the list of threatened and endangered species).

Section 4(b)(2) of the ESA requires that we base critical habitat designation on the best scientific and commercial data available, taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation if we determine that the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species. Within the geographic area occupied by the species, we will designate only areas currently known to be "essential to the conservation of the species." Critical habitat should already have the features and habitat characteristics that are necessary to sustain the species. We will not speculate about what areas might be found to be essential if better information were available, or what areas may become essential over time. If information available at the time of designation does not show that an area provides essential support for a species at any phase of its life cycle, then the area should not be included in the critical habitat designation. Within the geographic area occupied by the species, we will not designate areas that do not now have the physical and biological features that provide essential life cycle needs for the species.

Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize designation of critical habitat may not include all habitat eventually determined as necessary to recover the species. For these reasons, areas outside the critical

habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) and the regulatory protections afforded by the section 7(a)(2) jeopardy standard and section 9 protections, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally-funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to planning efforts calls for a different outcome.

In accordance with section 3(5)(A)(i) of the ESA and regulations at 50 CFR 424.12 in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider physical and biological features that are essential to the conservation of the species, and that may require special management considerations or protection. These include, but are not limited to (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing (or development) of offspring; and (5) habitats protected from disturbance or that are representative of the historic geographical and ecological distributions of a species.

2.2.2 Section 7 Consultation

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary, to insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In fulfilling these requirements, each agency is to use the best scientific and commercial data available. This section of the ESA sets out the consultation process, which is further implemented by regulation (50 CFR 402).

Each Federal agency is to review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If the action may affect a listed species or critical habitat, consultation with the Service is required.

Informal consultation is an optional process that includes all discussions and correspondence between the Service and a Federal agency or designated non-Federal representative, designed to assist the Federal agency in determining whether formal consultation or a conference is required. If during consultation it is determined by the Federal agency, with the written concurrence of the Service, that the action is not likely to adversely affect listed species or critical habitat, the consultation process is terminated, and no further action is necessary. During informal consultation, the Service may suggest modifications to the action that the Federal agency and any applicant could implement to avoid the likelihood of adverse effects to listed species or critical habitat.

If the proposed action is likely to adversely affect a listed species or designated critical habitat, formal consultation with the Service is required. Formal consultation is a process between the Service and a Federal agency or applicant that (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion.

With the request to initiate formal consultation, the Federal agency is to include (1) a description of the proposed action; (2) a description of the area that may be affected; (3) a description of any listed species or critical habitat that may be affected; (4) a description of the manner in which the listed species or critical habitat may be affected and an analysis of cumulative effects; (5) relevant reports including any environmental impact statement, environmental assessment, or biological assessment; and (6) any other relevant and available information.

Formal consultation concludes 90 days after its initiation. Within 45 days after concluding formal consultation, the Service is to deliver a biological opinion to the Federal agency and any applicant. The biological opinion will include the Service's opinion on whether the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. If the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the biological opinion will include a reasonable and prudent alternative, if any exist. A reasonable and prudent alternative is a recommended alternative action that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, that is economically and technologically feasible, and that would avoid the likelihood of jeopardizing the continued existence of the listed species or the destruction or adverse modification of designated critical habitat.

For animal species, in those cases where the Service concludes that an action (or the implementation of any reasonable and prudent alternatives) and the resultant incidental take of listed species will not violate section 7(a)(2), the Service will provide with the biological opinion a statement concerning incidental take that--(1) specifies the impact of the take on the species; (2) specifies the reasonable and prudent measures to minimize the impact; (3) sets forth terms and conditions that must be complied with by the Federal agency or any applicant to implement the reasonable and prudent measures; and (4) specifies procedures to handle any individuals actually taken. Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the actions and may involve only minor changes. Any "taking" covered in the incidental take statement and in compliance with the terms and conditions of the statement is not a prohibited taking under the ESA and no other authorization or permit under the ESA is required.

2.2.3 Technical Assistance

Although it is not defined in the regulations, technical assistance includes those parts of the informal consultation that provide information to agencies, applicants, and/or consultants, but

specifically stops short of concurrence on "may effect" determinations. The term is used to differentiate "informal" consultation (where a concurrence with an agency, applicant, or consultant on "may effect" is provided) and the provision of information. This differentiation is primarily made for record-keeping purposes.

A telephoned or written inquiry about the presence or absence of listed and/or proposed species in a project area usually initiates informal consultation and frequently generates technical assistance. Service biologists may respond in different ways:

a) If species are not likely to be present, the consultation requirement is met and the Service may advise the agency, applicant or consultant.

b) If historical records or habitat similarities suggest the species may be in the area, then some survey work may be recommended to make a more precise determination.

c) If the species is definitely in the project area, but the Service determines it will not be adversely affected, the Service may notify the agency of that finding.

Technical assistance from the Service may take a variety of forms. It can include information on candidate species as well as names of contacts having information on State listed species. The Service may provide correspondence to State agencies or other Service offices to alert them to a project.

As a part of technical assistance, the Service may recommend:

a) That the action agency conduct additional studies on the species' distribution in the area affected by the action, or

b) That the action agency monitors impacts of the action on aspects of the species' life cycle. Monitoring may be recommended when incidental take is not anticipated, but might possibly occur, thus triggering the need for project changes or formal consultation.

2.2.4 Section 9 Prohibitions

Section 9 of the ESA prohibits removing and reducing to possession, or the malicious damage or destruction of endangered species, including to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct

2.2.5 Section 10 Permits

Under section 10(a)(1)(A) of the ESA, permits can be issued for any actions prohibited under section 9. These permits may be granted to enhance the survival of the affected species. Section 10(a)(1)(B) and section 7 incidental take permits can be issued for this species, and corresponding section 7 consultation is still done for permit issuance.

3.0 Description of Alternatives

This section describes the proposal for critical habitat for the CPSD tiger beetle. Alternatives are different ways of meeting the purpose and need for critical habitat designation as described in chapter one of this Draft Environmental Assessment, which can be summarized as to provide protection of habitat that is essential to the conservation of listed species. In addition, we considered two potential alternatives without thoroughly examining the impacts of their implementation.

3.1 Alternatives Considered But Not Fully Evaluated

3.1.1 Designation of Critical Habitat Including Entire CPSD Formation

We considered designating critical habitat that included the entire CPSD formation. However, the species is not known to occur in the southern most portion of the dune area because dune conditions are not suitable for CPSD tiger beetle habitat.

3.1.2 Development of Conservation Agreements

The development of conservation agreements with state and federal agencies and private landowners to gain similar protection to that afforded by designation of critical habitat can preclude the need to designate critical habitat. A conservation agreement for CPSD tiger beetle was initially formalized in 1997 (Conservation Committee 1997, entire), and revised in 2009 (Conservation Committee 2009, entire). The Conservation Agreement for the CPSD tiger beetle is a partnership for the development and implementation of conservation measures to protect the tiger beetle and its habitat and the purpose of the partnership is to ensure the long-term persistence of the species within its historical range and provide a framework for future conservation efforts. The Utah Department of Natural Resources, Division of Parks and Recreation, Bureau of Land Management (BLM), U.S. Fish and Wildlife Service, and Kane County, Utah, are signatories to these agreements and comprise the Conservation Committee. Conservation actions resulting from these conservation agreements were evaluated for the proposed rule and proposed critical habitat designation published in Federal Register October 2, 2012 (77 FR 60208).

On March 21, 2013, signatories to the 2009 Conservation Agreement signed an amendment (Amendment to the 2009 Conservation Agreement and Strategy for the Coral Pink Sand Dunes Tiger Beetle (*Cicindela albissima*)) (Conservation Committee 2013, entire) to this document that outlines several new conservation actions that will be enacted to address the threats that were identified in the October 2, 2012, proposed rule (77 FR 60208). The Amendment evaluates the most recent tiger beetle survey information (Knisley and Gowan 2013, entire) and concludes that modifications to the boundaries of the conservation areas are needed to ensure continued protection of the tiger beetle from ongoing threats. As part of the final rule making process, the commitments contained in the 2013 Conservation Agreement Amendment will be evaluated with

the Service's Policy of Evaluation of Conservation Efforts When Making Listing Decisions (PECE Policy) (68 FR 15112) to determine their potential effectiveness at offsetting threats indentified in the proposed rule. Because conservation commitments identified in the 2013 Amendment are currently being implemented and still need to be evaluated for their effectiveness and commented on by the public, a "Conservation Agreement Alternative" was considered but not fully evaluated as a viable alternative for the purposes of this document. However, the PECE analysis of the 2013 Conservation Agreement Amendment will be conducted in early 2013, it will be available for public review, and these results will be included in any final listing determination for the CPSD tiger beetle.

3.2 Alternative A. No Action Alternative

Pursuant to NEPA and its implementing regulations (40 CFR 1502.14), we are required to consider the No Action Alternative. Alternative A, the No Action Alternative, would maintain the status quo - that is, we would not designate critical habitat for the CPSD tiger beetle. While no critical habitat would be present under this alternative, the protection provided to the CPSD tiger beetle by being listed as 'threatened' under the ESA would still apply. As such, the protections afforded to the CPSD tiger beetle when classified as 'threatened' under the ESA are considered the baseline against which we evaluate the action alternative described below. In the Draft Economic Analysis, the costs listed as baseline would be associated with this alternative.

3.3 Alternative B. Designation of Critical Habitat (Proposed Action)

Alternative B, our Proposed Action, would designate critical habitat as described in the proposed rule and published in the Federal Register on October 2, 2012 (77 FR 60208). We propose to designate approximately 921 ha (2,276 ac) across one unit as critical habitat for CPSD tiger beetle. The proposed critical habitat is located in Kane County, Utah.

Alternative B, the Proposed Action, includes the designation of critical habitat in areas believed to contain the physical and biological features upon which the CPSD tiger beetle depends. The Service refers to these essential habitat features as "primary constituent elements." The PCEs for this species includes those habitat components essential for the biological needs of growing, reproducing, dispersing, and exchanging genetic material. Physical and biological features required for the CPSD tiger beetle include swale habitat, soil moisture, an abundant and diverse prey base, and 23 to 57 percent vegetation cover. Please see the proposed critical habitat rule for a further description of how we developed these PCEs (77 FR 60208).

PCEs for CPSD tiger beetle include dynamic sand dunes and swales within the Coral Pink Sand Dunes geologic feature that have:

- Elevations from 1,710 to 2,090 m;
- Appropriate levels of moisture and compaction to allow for burrowing (greater than 3 percent); and
- Vegetative cover of 23–57 percent that allows for ovipositing, adult thermoregulation, and abundant prey.

A complete discussion of the criteria used for defining critical habitat can be found in the October 2, 2012, proposal to designate critical habitat for the CPSD tiger beetle (77 FR 60208).

3.4 Summary of Actions by Alternative

In Table 1 we provide a comparison between Alternative A (No Action) and Alternative B (the Proposed Action).

Table 1. Proposed Critical Habitat for CPSD tiger beetle.

Critical Habitat Unit	No Action	Action Alternative (Proposed)
1.	0 ha (0 ac)	921 ha (2, 276 ac)
Total	0 ha (0 ac)	921 ha (2,276 ac)

The geographic area for Alternative B, the Proposed Action, includes 921 ha (2,276 ac) for CPSD tiger beetle. The proposed critical habitat is located in Kane County, Utah on Federal and State lands.

4.0 Description of the Affected Environment

4.1 Physical Environment

Please see "Habitat" portion contained in the Background section (2.1) above.

4.2 Fish, Wildlife, and Plants

Table 2 below summarizes the candidate, threatened, and endangered species that may occur in Kanab County, Utah. We have assessed whether these species occur in the CPSD tiger beetle's proposed critical habitat unit (Alternative B) in the comment column. The only federally listed species that occurs in, or is adjacent to the area that we propose to designate as critical habitat for CPSD tiger beetle is the Welsh's milkweed (*Asclepias welshii*), listed as threatened under the ESA.

Migratory birds, small mammals, big game species, amphibians, and reptiles also use habitat within the Proposed Action. Mammals found at the CPSD include the ring-tailed cat, mule deer, black-tailed jack rabbit, coyote, fox, mountain lion, bobcat and the cottontail. Reptiles found at CPSD include the plateau striped whiptail, California king snake, Utah milk snake, Utah Mountain king snake, and the Sonoran lyre snake. Some of the birds that can be found at CPSD include the bald eagle, peregrine falcon, golden eagle and mourning dove. In addition various species of bats, salamanders, and toads exist at the CPSD.

Table 2. Candidate, threatened, and endangered species in Kane County Utah.

Common Name	Scientific Name	Taxonomic Group	Status	Critical Habitat Comments
Humpback chub	*Gila cypha*	Fish	endangered	Species occurs in rivers of the Colorado River system, thus does not occur in or near the proposed critical habitat unit.
Bonytail chub	*Gila elegans*	Fish	endangered	Species occurs in rivers of the Colorado River system, thus does not occur in or near the proposed critical habitat unit.
Colorado pikeminnow	*Ptychocheilus lucius*	Fish	endangered	Species occurs in rivers of the Colorado River system, thus does not occur in or near the proposed critical habitat unit.
Razorback sucker	*Xyrauchen texanus*	Fish	endangered	Species occurs in rivers of the Colorado River system, thus does not occur in or near the proposed critical habitat unit.
California condor	*Gymnogyps californianus*	Bird	experimental population, non-essential	Species in know to occur in Kane County and may overlap with proposed critical habitat unit, however there are no known occurrences of condors using CPSD or the proposed critical habitat unit. There is no nesting habitat at CPSD.
Mexican Spotted owl	*Strix occidentalis lucida*	Bird	threatened	Occurs in canyon habitats in Utah. There are no known

Common Name	Scientific Name	Taxonomic Group	Status	Critical Habitat Comments
				populations or nesting sites nearby, and there are no nearby critical habitat units for the owl.
Southwestern Willow flycatcher	*Empidonax traillii extimus*	Bird	endangered	The species is a riparian obligate, thus does not occur in or near CPSD or the proposed critical habitat unit.
Greater sage-grouse	*Centrocerus urophasianus*	Bird	candidate	Current distribution maps do not overlap CPSD or the proposed critical habitat unit.
Western Yellow-Billed Cuckoo	*Coccyzus americanus occidentalis*	Bird	candidate	Needs large blocks of riparian woodlands for breeding; thus no know occurrences within CPSD or the proposed critical habitat unit.
Utah prairie dog	*Cynomys parvidens*	Mammal	threatened	No known occupied sites within CPSD or the proposed critical habitat unit.
Jones Cycladenia	*Cycladenia humilis var. jonesii*	Plant	threatened	No known occupied sites within CPSD or the proposed critical habitat unit.
Kodachrome bladderpod	*Lesquerella tumulosa*	Plant	endangered	No known occupied sites within CPSD or the proposed critical habitat unit.
Las Vegas buckwheat	*Eriogonum corymbosum var. nilesii*	Plant	Candidate	No known occupied sites within CPSD or the proposed critical habitat unit.
Siler pincushion cactus	*Pediocactus sileri*	Plant	threatened	No known occupied sites within CPSD or the proposed critical

Common Name	Scientific Name	Taxonomic Group	Status	Critical Habitat Comments
				habitat unit.
Welsh's milkweed	*Asclepias welshii*	Plant	threatened	Welsh's milkweed is known to occur across the much of the CPSD geologic feature, and thus overlaps our proposed critical habitat designation for CPSD tiger beetle.
Kanab ambersnail	*Oxyloma haydeni kanabensis*	Snail	endangered	Occurs in wetland and riparian habitats, thus does not occur in or near CPSD or the proposed critical habitat unit.

4.3 Human Environment

A wide diversity of human activities and land uses occur throughout or adjacent to the area identified for designation as critical habitat in Utah under Alternative B. Uses include 1) transportation, 2) grazing, 3) recreation, and 4) some residential and commercial development (associated with the Coral Pink Sand Dunes State Park infrastructure). State and Federal lands are included in the Proposed Action area.

Please see "Threats" under section 2.1 above for more information on the human environment and uses.

4.4 Tribal Lands

There are no tribal lands located within the geographic range of the CPSD tiger beetle.

5.0 Environmental Consequences

This section reviews the expected environmental consequences of designating critical habitat for the CPSD tiger beetle under Alternative B, the Proposed Action to designate critical habitat, and the No Action Alternative. Evaluating the impacts of designating critical habitat is done here by comparing a scenario where we would not designate critical habitat versus our proposed critical habitat designation. Measured differences between the existing baseline and the scenario in which critical habitat is designated, as proposed may include, but are not limited to, changes in: land use, environmental quality, property values, or time and effort expended on consultations

and other activities by Federal landowners, Federal action agencies, and with a Federal nexus, State and local governments and private third parties. These incremental changes may be either positive or negative.

Regardless of which alternative is chosen, or whether a Federal action affects critical habitat; in accordance with section 7(a)(2) of the ESA, Federal agencies are required to review actions they authorize, fund, or carry out to determine the effects of proposed actions on federally-listed species. If the Federal agency determines that its action may adversely affect a listed species, it must enter into formal consultation with the Service. This consultation results in a biological opinion issued by the Service as to whether the proposed action is likely to jeopardize the continued existence of the species, which is prohibited under the ESA.

A similar process is required when critical habitat is designated. While reviewing their actions to determine the effect on the listed species, Federal agencies also review their action for the effects on critical habitat and enter into section 7 consultations with us on actions they determine may affect critical habitat. If the proposed action is determined to be likely to adversely affect critical habitat, the consultation would result in a biological opinion as to whether the proposed action is likely to destroy or adversely modify designated critical habitat, which also is prohibited under the ESA. Under the Alternative B, critical habitat would be designated; therefore, instances where the Federal action agency would be required to address both the jeopardy standard and the destruction or adverse modification of critical habitat standard in section 7 consultations would occur.

Activities that would jeopardize the continued existence of a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the listed species (50 CFR 402.02). Activities that would destroy or adversely modify critical habitat will most often also result in jeopardy to the species.

It is difficult to differentiate between consultations that result from the listing of this species (i.e., jeopardy to the species) and consultations that result from the presence of critical habitat (i.e., destruction or adverse modification of critical habitat). The Draft Economic Analysis (RTI International 2013) quantifies the potential economic impacts associated with future section 7 consultations in or near proposed critical habitats and is incorporated into this environmental assessment. The following discussion will disclose the potential cost attributable to critical habitat designation, when available, from the Draft Economic Analysis.

Individuals, organizations, States, local governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding (for example, 404 permits from the U.S. Army Corps of Engineers, dam licensing or relicensing by the Federal Energy Regulatory Commission, or funding of activities by the Natural Resource Conservation Service).

Potential environmental consequences that may result from implementation of the No Action and Proposed Action are discussed below. All impacts are expected to be indirect, as critical habitat designation does not in itself directly result in any alteration of the environment.

As required by NEPA, this document is in part intended to disclose the programmatic goals and objectives of the ESA. These objectives include protection of natural communities and ecosystems, minimization of fragmentation and promotion of the natural patterns and connectivity of wildlife habitats, promotion of native species and avoidance of the of non-native species introduction, protection of rare and ecologically important species and unique or sensitive environments, maintenance of naturally occurring ecosystem processes and genetic and structural diversity, and restoration of ecosystems, communities and recovery of species.

5.1 Physical Environment

None of the alternatives will directly impact the physical environment since this an administrative action only.

5.2 Fish, Wildlife, and Plants

Alternative A - Under the No Action Alternative, there would be no designation of critical habitat under the ESA and no change to land management designations in the CPSD area. Under this alternative, federally supported actions that may affect the CPSD tiger beetle would require Section 7 consultations under the jeopardy standards in all areas occupied by the species. Analysis under the adverse modification standard would not be required because no critical habitat would be designated. As they relate to CPSD tiger beetle, such consultations would likely include but not be limted to:

U.S. Bureau of Land Management—fire suppression, fuel reduction treatments, livestock grazing and management, mining permits, and renewable energy development, as individual projects and as part of resource management plans; and

U.S. Fish and Wild Service—for issuance of ESA section 10 permits for enhancement of survival, Habitat Conservation Plans, and Safe Harbor Agreements; for Partners for Fish and Wildlife programs benefiting the CPSD tiger beetle.

Consequently, this alternative would have no impact on fish, wildlife, and plants, including candidate, proposed, or listed species, beyond those conservation measures resulting from the listing of the CPSD tiger beetle (77 FR 60208) and associated requirements of section 7 of the ESA.

Alternative B - Under the Proposed Action, the BLM Kanab Field Office may need to reinitiate Section 7 consultation with the Service on their 2008 RMP as a result of listing the CPSD tiger beetle and designating critical habitat.

In general, designation of critical habitat could potentially have three effects on new Section 7 consultations: 1) increasing the number of consultations, 2) changing the outcome of

consultations, or 3) increasing the complexity of consultations. In the case of CPSD tiger beetle critical habitat, only the latter (increasing the complexity of consultations) is likely to occur. The number of consultations would not increase because federally supported actions would already require Section 7 consultation under the jeopardy standard because the sole critical habitat unit is occupied by the species. The outcomes of Section 7 consultations are unlikely to be materially different whether or not critical habitat is designated because actions that would detrimentally affect PCEs would also impact reproduction, growth, and survival of CPSD tiger beetle. In other words, conservation efforts requested by the Service through section 7 consultations to avoid potential destruction or adverse modification of critical habitat are unlikely to be different from those recommended to avoid jeopardy of the species. The complexity of Section 7 consultations would be greater because the analysis would also have to consider adverse modification to critical habitat. The effects of this additional administrative burden would be insignificant.

Designating critical habitat does not, by itself, lead to the recovery of a listed species. The designation does not establish a reserve, create a management plan, establish numerical population goals, prescribe specific management practices (inside or outside of critical habitat), or directly affect areas not designated as critical habitat. Specific management recommendations for areas designated as critical habitat are most appropriately addressed in recovery and management plans, and through section 7 consultation. However, benefits to the CPSD tiger beetle that may accrue from the designation of critical habitat, under Alternative B, would relate to the requirement under section 7 of the ESA that Federal agencies review their actions to assess their effects on critical habitat. Another potential benefit is that critical habitat designation may help to focus Federal, State, and private conservation and management efforts by identifying the areas of most importance to a species. Critical habitat also allows for long-term project planning for species conservation.

Other potential benefits of critical habitat designation to the species include educational benefits (increasing the knowledge that a species exists or is in an area), improvements to air or water quality as a result of species' protections, and conservation of native habitats. Some of these benefits can be attributed to the listing of the CPSD tiger beetle and some would be attributable to the critical habitat designation. The Draft Economic Analysis does not attempt to quantify the economic benefits associated with the proposed critical habitat designation but does recognize there is an economic value for these services (RTI International 2013). These benefits are especially true for those unoccupied areas where protections for the species, through occupied habitat protections, would not apply.

Maintenance or restoration of natural landscape patterns is of particular importance in those areas where proposed critical habitat may overlay with Welsh's milkweed occurrences. Management of a critical habitat unit solely for CPSD tiger beetle will not deleteriously affect Welsh's milkweed, and could lead to a net benefit to the species because of the preservation of intact habitat.

Fish, wildlife, and plants may indirectly benefit as a result of ecosystem protections provided through conservation of the CPSD tiger beetle and the associated requirements of section 7 of the

ESA. As a result of critical habitat designation, Federal agencies may be able to prioritize conservation programs that benefit the CPSD tiger beetle, as well as other fish, wildlife, and plant species. Critical habitat designation also may assist States in prioritizing their conservation and land-management programs.

5.3 Human Environment

As discussed above, individuals, organizations, States, local governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or authorization, or involve Federal funding. There are no State or local laws in Utah that apply to critical habitat for insects.

For the 2008 RMP, the BLM (the only Federal agency managing occupied CPSD tiger beetle habitat) considered the effects of their actions to the CPSD tiger beetle and consulted informally with the Service. A similar consultation process is required for critical habitat and we do not expect the critical habitat designation to cause large increases in the number or complexity of consultations. However, we realize that some past or ongoing BLM actions may not have been consulted on under section 7 for the CPSD tiger beetle. Thus, in the future the BLM may identify the need to do so in areas designated as critical habitat, resulting in a small increase in consultations.

A perception may exist within some segments of the public that any designation of critical habitat will severely limit property rights; however, critical habitat designation has no effect on private actions on private land that do not involve Federal approval or action. We recognize that there are private actions on private or state lands that involve a Federal nexus, and agencies will be required to consult with us for these actions under section 7 of the ESA.

Differentiating between consultations that result from the listing of the CPSD tiger beetle and consultations that result from the presence of critical habitat is difficult. However, the following discussion will address how much of the cost associated with all future section 7 consultation in or near the proposed critical habitat unit is likely attributable to critical habitat designation, as provided in the Draft Economic Analysis (RTI International 2013). The Draft Economic Analysis discusses the costs associated with all proposed critical habitat, and these costs are included in Table 3 and Table 4 (RTI International 2013).

Table 3. Summary of Conservation Activity Related Co-Extensive Impacts to Economic Activities over the Next 20 Years (including a 7% Discount Rate).

	Economic Activities					
	Reinitiation of BLM RMP	**ORV-Related Consumer Surplus Losses**	**State Park Incidental Take Permit**	**Other Management Activities**	**Conservation Activities**	**Total Co-extensive**
Undiscounted	$29,655	$275,698	$2,263	$73,000	$950,000	$1,330,616
Net Present Vaule[a] @ 7%	$25,400	$156,260	$2,263[a]	$41,375	$538,441	$763,738
Average Annual Discounted Cost	$1,270	$7,813	$2,263[a]	$2,069	$26,922	$40,337

[a] Undiscounted because the action is expected to take place in 2013.

Table 4. Projected Co-extensive Costs of Consultations by Economic Activity from 2013-2033

	Consultations		Cost (Undiscounted)		
Activity	**Informal[a]**	**Formal**	**Baseline[b]**	**Incremental[c]**	**Co-extensive[c]**
BLM RMP	0	2	$22,768	$6,887	$29,655
ORV use and management	0	0	0	0	0
Road and trail management	0	0	0	0	0
Road Maintenance and Construction Activities	0	0	0	0	0
Livestock Grazing Permits	8	0	$30,737	0	$30,737
Special Recreation Permits	10	0	$38,421	0	$38,421
Interior Fencing	1	0	$3,842	0	$3,842
Total	19	2	$95,768	$6,887	$102,676

[a]Values rounded. Assumes an average of consultation time ranges provided.
[b]Includes both direct and indirect baseline costs with the exception of conservation activity costs.
[c]Co-extensive impacts include the baseline impacts, which are a result of the listing, and incremental impacts, which are solely attributable to the designation of critical habitat.

Potential effects to the human environment from designating critical habitat were analyzed by activity type and include conservation activity related costs over the next 20 years (Table 3), and the direct additional costs for consultations with designated critical habitat (Table 4) (RTI International 2013).

In general, effects to the human environment are likely to be minor as the average annual discounted cost for all conservation activities is $26,922, and the additional average annual undiscounted cost for consultations (including baseline costs) is $5,134 ($102,676/20 years) (RTI International 2013). The following sections provide additional information on activities affecting the Human Environment including Energy Development, Transportation Projects, Agriculture and Grazing, Recreation, Residential and Commercial Development, Archeological and Cultural Resources, and Environmental Justice.

5.3.1 Energy Development

Neither Alternative would impact energy development activities, as no energy development activities occur in or surrounding the CPSD formation. Energy supply, distribution, and use are not expected to be impacted by the proposed listing or designation of critical habitat and no energy related impacts are anticipated (RTI International 2013).

5.3.2 Transportation Projects

Neither Alternative would impact transportation projects because no transportation corridors occur within the CPSD formation or are planned for this area.

5.3.3 Agriculture and Grazing

Alternative A - Under the No Action Alternative, there would be no designation of critical habitat under the ESA and no change to land management designations in the CPSD area. Under this alternative, federally supported actions that may affect the CPSD tiger beetle would require Section 7 consultations under the jeopardy standards in all areas occupied by the species. Analysis under the adverse modification standard would not be required because no critical habitat would be designated. As they relate to CPSD tiger beetle, such consultations would likely include but not be limted to:

U.S. Bureau of Land Management—fire suppression, fuel reduction treatments, livestock grazing and management, mining permits, and renewable energy development, as individual projects and as part of resource management plans; and

U.S. Fish and Wild Service—for issuance of ESA section 10 permits for enhancement of survival, Habitat Conservation Plans, and Safe Harbor Agreements; for Partners for Fish and Wildlife programs benefiting the CPSD tiger beetle.

Consequently, this alternative would have no impact on fish, wildlife, and plants, including candidate, proposed, or listed species, beyond those conservation measures resulting from the

listing of the CPSD tiger beetle (77 FR 60208) and associated requirements of section 7 of the ESA.

Alternative B - Under the Proposed Action, the BLM Kanab Field Office may need to reinitiate Section 7 consultation with the Service on their 2008 RMP as a result of listing the CPSD tiger beetle and designating critical habitat.

In general, designation of critical habitat could potentially have three effects on new Section 7 consultations: 1) increasing the number of consultations, 2) changing the outcome of consultations, or 3) increasing the complexity of consultations. In the case of CPSD tiger beetle critical habitat, only the latter (increasing the complexity of consultations) is likely to occur. The number of consultations would not increase because federally supported actions would already require Section 7 consultation under the jeopardy standard because the sole critical habitat unit is occupied by the species. The outcomes of Section 7 consultations are unlikely to be materially different whether or not critical habitat is designated because actions that would detrimentally affect PCEs would also impact reproduction, growth, and survival of CPSD tiger beetle. In other words, conservation efforts requested by the Service through section 7 consultations to avoid potential destruction or adverse modification of critical habitat are unlikely to be different from those recommended to avoid jeopardy of the species. The complexity of Section 7 consultations would be greater because the analysis would also have to consider adverse modification to critical habitat. The effects of this additional administrative burden would be insignificant.

Grazing occurs on Federal lands in the CPSD area and is generally permitted by the BLM across the species' range. We have no information to suggest that grazing is negatively impacting CPSD tiger beetle at any significant level (77 FR 60208). Impacts to grazing activities from the proposed critical habitat are related to cost of section 7 consultation for grazing on BLM lands and administrative costs associated with evaluating effects in critical habitat. The total co-extensive costs from the proposed designation of critical habitat associated with these activities is predicted be $30,737 over the next 20 years (RTI International 2013).

5.3.4 Recreation

Alternative A - Under the No Action Alternative, there would be no designation of critical habitat under the ESA and no change to land management designations in CPSD area. Under this alternative, federally supported actions that may affect the CPSD tiger beetle would require Section 7 consultations under the jeopardy standards in all areas occupied by the species. Analysis under the adverse modification standard would not be required because no critical habitat would be designated. As they relate to CPSD tiger beetle, such consultations would likely include but not be limted to:

U.S. Bureau of Land Management—fire suppression, fuel reduction treatments, livestock grazing and management, mining permits, and renewable energy development, as individual projects and as part of resource management plans; and

U.S. Fish and Wild Service—for issuance of ESA section 10 permits for enhancement of survival, Habitat Conservation Plans, and Safe Harbor Agreements; for Partners for Fish and Wildlife programs benefiting the CPSD tiger beetle.

Consequently, this alternative would have no impact on fish, wildlife, and plants, including candidate, proposed, or listed species, beyond those conservation measures resulting from the listing of the CPSD tiger beetle (77 FR 60208) and associated requirements of section 7 of the ESA.

Alternative B - Under the Proposed Action, the BLM Kanab Field Office may need to reinitiate Section 7 consultation with the Service on their 2008 RMP as a result of listing the CPSD tiger beetle and designating critical habitat.

In general, designation of critical habitat could potentially have three effects on new Section 7 consultations: 1) increasing the number of consultations, 2) changing the outcome of consultations, or 3) increasing the complexity of consultations. In the case of CPSD tiger beetle critical habitat, only the latter (increasing the complexity of consultations) is likely to occur. The number of consultations would not increase because federally supported actions would already require Section 7 consultation under the jeopardy standard because the sole critical habitat unit is occupied by the species. The outcomes of Section 7 consultations are unlikely to be materially different whether or not critical habitat is designated because actions that would detrimentally affect PCEs would also impact reproduction, growth, and survival of CPSD tiger beetle. In other words, conservation efforts requested by the Service through section 7 consultations to avoid potential destruction or adverse modification of critical habitat are unlikely to be different from those recommended to avoid jeopardy of the species. The complexity of Section 7 consultations would be greater because the analysis would also have to consider adverse modification to critical habitat. The effects of this additional administrative burden would be insignificant.

For the Proposed Action, recreation activities will be affected minimally by the proposed critical habitat designation through costs related to travel management planning, and consultation costs related to fencing and signing activities. Because ORV recreation occurs in CPSD tiger beetle habitat and can have a negative effect on larvae, adults, vegetated habitat that CPSD tiger beetle prey species depend upon, additional areas of the species' habitat will likely be protected if critical habitat is designated. This increase in protected habitat has not yet been determined but may be similar to what was detailed in the 2013 Amendment to the CPSD tiger beetle Conservation Agreement (Conservation Committee 2013, entire). Impacts to recreation activities from the proposed critical habitat are related to ORV-Related Consumer Surplus Losses, which is the loss of being able to use the CPSD feature for recreational ORV riding. The total co-extensive costs (which includes baseline and new costs) from the proposed designation of critical habitat associated with these losses is predicted be $275,698 over the next 20 years (RTI International 2013).

5.3.5 Residential and Commercial Development

Neither Alternative would impact residential and commercial development, because this type of development occurs outside of the CPSD formation, and outside our proposed critical habitat designation.

5.5 Archeological and Cultural Resources

Alternative A - Under the No Action Alternative, there would be no designation of critical habitat under the ESA and no change to land management designations in CPSD area. Under this alternative, federally supported actions that may affect the CPSD tiger beetle would require Section 7 consultations under the jeopardy standards in all areas occupied by the species. Analysis under the adverse modification standard would not be required because no critical habitat would be designated. As they relate to CPSD tiger beetle, such consultations would likely include but not be limted to:

U.S. Bureau of Land Management—fire suppression, fuel reduction treatments, livestock grazing and management, mining permits, and renewable energy development, as individual projects and as part of resource management plans; and

U.S. Fish & Wild Service—for issuance of ESA section 10 permits for enhancement of survival, Habitat Conservation Plans, and Safe Harbor Agreements; for Partners for Fish and Wildlife programs benefiting the CPSD tiger beetle.

Consequently, this alternative would have no impact on fish, wildlife, and plants, including candidate, proposed, or listed species, beyond those conservation measures resulting from the listing of the CPSD tiger beetle (77 FR 60208) and associated requirements of section 7 of the ESA.

Alternative B - Under the Proposed Action, the BLM Kanab Field Office may need to reinitiate Section 7 consultation with the Service on their 2008 RMP as a result of listing the CPSD tiger beetle and designating critical habitat.

In general, designation of critical habitat could potentially have three effects on new Section 7 consultations: 1) increasing the number of consultations, 2) changing the outcome of consultations, or 3) increasing the complexity of consultations. In the case of CPSD tiger beetle critical habitat, only the latter (increasing the complexity of consultations) is likely to occur. The number of consultations would not increase because federally supported actions would already require Section 7 consultation under the jeopardy standard because the sole critical habitat unit is occupied by the species. The outcomes of Section 7 consultations are unlikely to be materially different whether or not critical habitat is designated because actions that would detrimentally affect PCEs would also impact reproduction, growth, and survival of CPSD tiger beetle. In other words, conservation efforts requested by the Service through section 7 consultations to avoid potential destruction or adverse modification of critical habitat are unlikely to be different from those recommended to avoid jeopardy of the species. The complexity of Section 7 consultations

would be greater because the analysis would also have to consider adverse modification to critical habitat. The effects of this additional administrative burden would be insignificant.

The Proposed Action would have similar effects on archeological and cultural sites as compared to Alternative A. Designation of the proposed critical habitat is expected to have no direct impacts on these resources. As a result of designation, increased protection of some sites and resources within critical habitat may occur if a Federal action is proposed.

5.6 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (1994), directs Federal agencies to incorporate environmental justice in their decision making process. Federal agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations. There are no identified adverse or beneficial effects unique to minority or low-income populations in areas included in alternative A or alternative B.

5.7 Cumulative Impacts

Designation of critical habitat for the CPSD tiger beetle will add minimal incremental impacts when added to other past, present, and reasonably foreseeable future actions.

We expect the cumulative impacts to be relatively small because the number of consultations would not increase because federally supported actions would already require Section 7 consultation for the species under the jeopardy standard, regardless of whether or not we designate critical habitat. The outcomes of Section 7 consultations are unlikely to be materially different whether or not critical habitat is designated because actions that would detrimentally affect PCEs would also impact reproduction, growth, and survival of CPSD tiger beetle. Thus, adding these actions to other future actions would be a minimal change. In addition to CPSD tiger beetle, Welsh's milkweed occurs in the general vicinity of the proposed critical habitat (see Table 1). We expect this species will benefit from a proposed critical habitat designation by increased protection of its native habitat. Therefore, the impacts to this species are not additive.

As discussed previously, Federal agencies are required to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of the listed species, or destroy or adversely modify designated critical habitat in accordance with section 7(a)(2) of the ESA. For activities that may result in "destruction or adverse modification" of critical habitat, we currently assess these effects based under guidance provided in 2004 (Service 2004). This guidance has us assess cumulative effects based on effects of future, non-Federal actions that are reasonably certain to occur in terms of the primary constituent elements or habitat qualities essential to the conservation of the species (Service 2004). Activities that jeopardize a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the listed species (50 CFR

402.02). According to these definitions, activities that destroy or adversely modify critical habitat would generally jeopardize the species. Therefore, designation of critical habitat has rarely resulted in greater protection than that afforded under section 7 by the listing of a species, except in the unoccupied critical habitat units. Section 7 consultations apply only to actions with Federal involvement (i.e., activities authorized, funded, or conducted by Federal agencies), and do not impact activities strictly under State or private authority. In practice, the designation of critical habitat for the CPSD tiger beetle will likely provide little additional benefits to the species in presently occupied areas because there are functioning program activities already alerting Federal agencies and the public of endangered species concerns.

Section 4(b)(2) of the ESA requires us to designate critical habitat on the basis of the best scientific and commercial information available and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as part of critical habitat. We cannot exclude such areas from critical habitat if such exclusion would result in the extinction of the species concerned. We are currently conducting an analysis of the economic and other relevant impacts of Alternative B, the Proposed Action. The Draft Economic Analysis is available for public review and comment, and we have announced its availability in the Federal Register. We will consider the results of that analysis, and modifications based on public comments received, in preparing the final Environmental Assessment of proposed critical habitat designation.

We have included a summary of the environmental consequence by alternative (Table 5). Economic benefits are not quantified in the Draft Economic Analysis and so are not included in the key findings below.

Table 5. Summary of Environmental Consequences by Alternative (Costs Attributable to Proposed Critical Habitat (RTI International 2013)).

Impacts	Alternative A: No Action	Alternative B: Proposed Action
Fish, Wildlife, and Plants, including CPSD tiger beetle	No change to existing situation.	May be beneficial impacts beyond those associated with the listing of CPSD at threatened. Designation of critical habitat can help focus conservation activities for listed species.
Energy Development	No change to existing situation.	No change to existing situation.
Transportation Projects	No change to existing situation.	No change to existing situation.
Agriculture and Grazing	No change to existing situation.	The total co-extensive costs from the proposed designation of critical habitat associated with these activities is predicted be $30,737 over the next 20 years

Recreation	No change to existing situation.	The total co-extensive costs from the proposed designation of critical habitat associated with these losses is predicted be $275,698 over the next 20 years.
Residential and Commercial Development	No change to existing situation.	No baseline or incremental costs because development would not occur within the CPSD formation.
Archaeological and Cultural	No change to existing situation.	Additional protection may occur at some sites located within the critical habitat designation.
Environmental Justice	No change to existing situation.	No impacts.
Cumulative Impacts	No change to existing situation.	Minimal change.

6.0 Council on Environmental Quality Analysis of Significance

Under CEQ 40 CFR Part 1508.27, the determination of "significantly" requires consideration of both context and intensity.

6.1 Context

Impacts of the action, although long-term, will not be national, only regional and mostly local in context; and any that occur are expected to be small.

6.2 Intensity

Intensity is defined by CEQ as referring to the severity of impact. The following 10 points identified by CEQ were considered in evaluating intensity:

1. We foresee minimal additional negative impacts beyond what we already consider through section 7 consultation since the species designation as a candidate species. There may be perceived negative impacts but we are carrying out a public outreach program, which should address and minimize most of those misconceptions. There may be some beneficial impacts to the environment.

2. This designation will not have a discernible impact on human safety.

3. Although several areas designated as critical habitat are in proximity to parklands, rangeland, wetlands, and ecologically critical areas, it is unlikely that adverse impacts will occur to these areas.

4. There is a perception by some segments of the public that critical habitat designation will severely limit property rights; however, critical habitat designation has no effect on private actions on private land that do not involve Federal approval or action.

5. The Service has designated critical habitat for other species in the recent past and we are familiar with the associated effects. Therefore, we anticipate minimal effects to the human environment and we are certain this action does not involve any unique or unknown risks.

6. This designation of critical habitat is not expected to set any precedents for future actions with significant effects or represent a decision in principle about a future consideration because critical habitat has been designated before for other species, as required by law.

7. This designation of critical habitat will be additive (cumulative) to critical habitat that has been, and will be, designated for other species. However, it is the Service's conclusion that the adverse impacts of any and all critical habitat designations are small, and, therefore, insignificant due to the existing impacts, both beneficial and adverse, already resulting from the listing of the species involved.

8. This designation will have minimal adverse effects to National Register of Historic Places or other cultural sites.

9. Most impacts from this designation of critical habitat will be beneficial to endangered and threatened species, particularly the CPSD tiger beetle. Designation of critical habitat can help focus conservation activities for listed species by identifying areas essential to conserve the species. Designation of critical habitat also alerts the public, as well as land-managing agencies, to the importance of these areas.

10. This designation of critical habitat will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment.

7.0 Contacts and Coordination with Others

This proposed designation of critical habitat has been coordinated with the State of Utah, Federal agencies, Kane County, and other interested parties through letters, emails, telephone calls, and our web site. U.S. Bureau of Land Management contacts include the Utah State Office and the Kanab Field Office. Additional contacts include personnel from the Department of Natural Resources, Recovery Programs Office and county commissioners from Kane County.

7.1 List of Agencies, Organizations, and Persons to Whom Copies of This Environmental Assessment Were Sent or Contacted

The following is a list of individuals, organizations, and public agencies contacted concerning development of this Environmental Assessment and the proposed rule to designate critical

habitat for the CPSD tiger beetle. Each of these also will be notified of the publication of the final rule:

Federal Agencies

Department of the Interior
- Bureau of Land Management
  - Kanab Field Office
  - Utah State Office
- U.S. Fish and Wildlife Service
  - Region 6 Office, Denver, Colorado

State Agencies
- Utah Department of Natural Resources
  - Recovery Programs Office

Utah County Commissioners
- Kane County

8.0 List of Contributors

The principal authors on this document are staff of the Utah Field Office, U.S. Fish and Wildlife Service, and staff from the Mountain-Prairie Regional Office, U.S. Fish and Wildlife Service.

9.0 Literature Cited

A complete list of all references we cited in the proposed rule and in this document is available by contacting Larry Crist, Field Supervisor, U.S. Fish and Wildlife Service, Utah Field Office, Ecological Services Field Office, 2369 West Orton Circle, Suite 50, West Valley City, Utah 84119; telephone 801–975–3330; or facsimile 801–975–3331.

10.0 Maps

Units and maps correspond to proposed critical habitat units as depicted in the Federal Register October 2, 2012 (77 FR 60208).

10.1 Map of Alternative B: Proposed Action

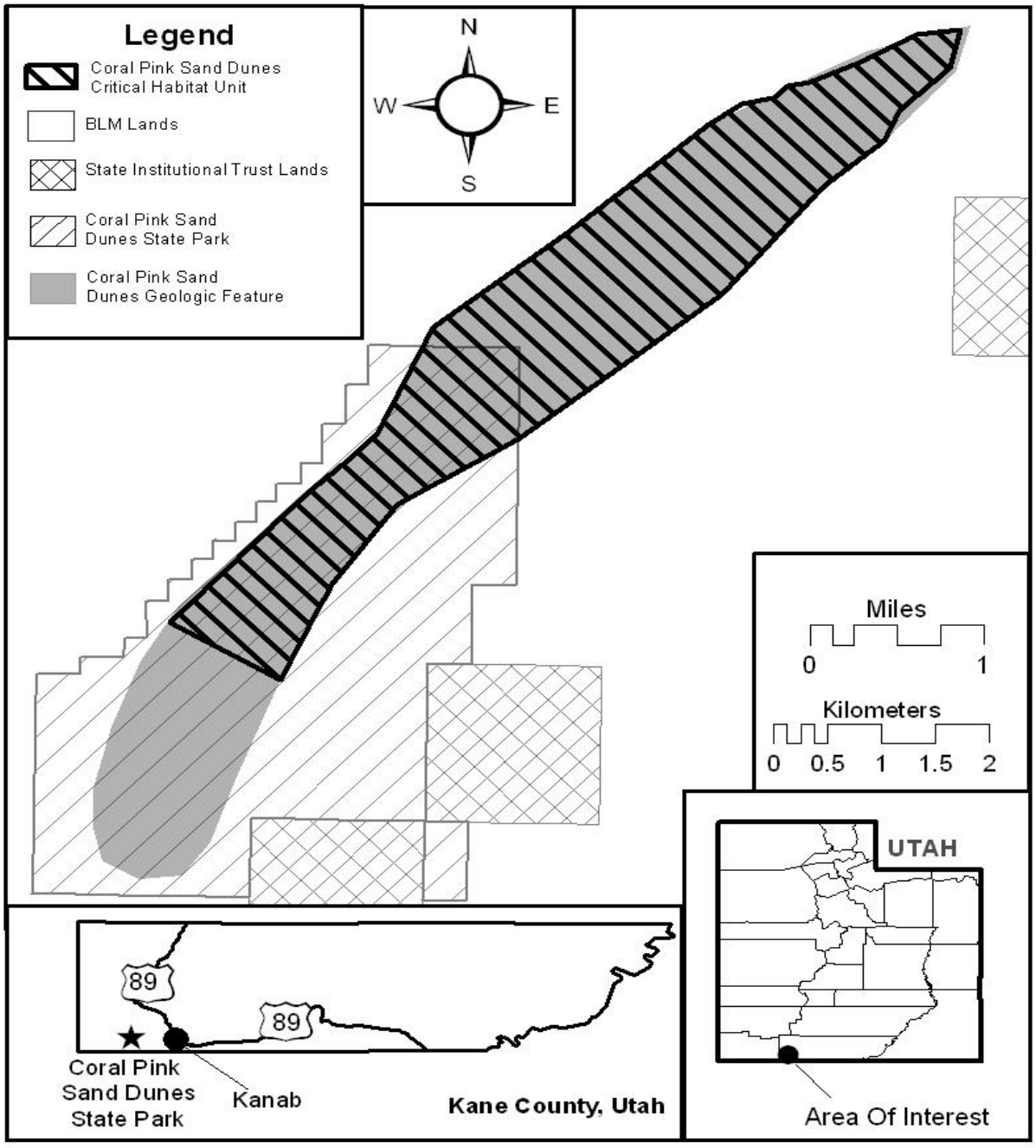

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Figure 3. Proposed critical habitat for Coral Pink Sand Dunes tiger beetle (Cincindela albissima).

10.2 Map of Alternative A: No Action

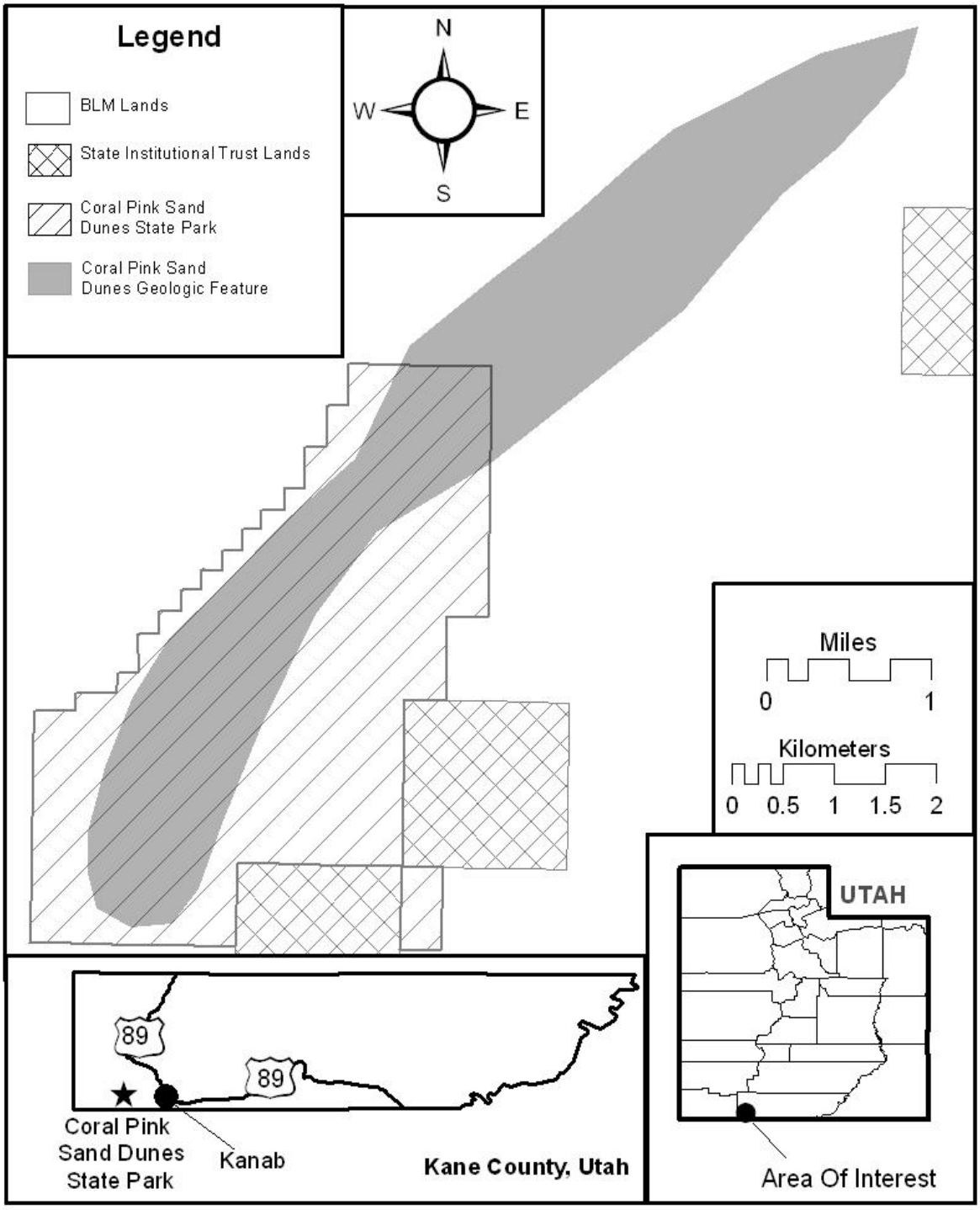

Figure 4. Coral Pink Sand Dunes tiger beetle (Cincindela albissima) areas without a proposed critical habitat designation.