<AGENCY TYPE='S'>DEPARTMENT OF THE INTERIOR
<SUBAGY>Fish and Wildlife Service
<CFR>50 CFR Part 17
<DEPDOC>[FWS–R6–ES–2012–0053: 4500030113]
<RIN>RIN 1018–AY11
<SUBJECT>Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Coral Pink Sand Dunes Tiger Beetle and Designation of Critical Habitat

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service) propose to list the Coral Pink Sand Dunes tiger beetle, *Cicindela albissima*, as a threatened species under the Endangered Species Act of 1973, as amended (Act); and propose to designate critical habitat for the species. In total, approximately 921 hectares (2,276 acres) are being proposed for designation as critical habitat. The proposed critical habitat is located in Kane County, Utah.

**DATES:** We will accept comments received or postmarked on or before December 3, 2012. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** section, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E> by NOVEMBER 16, 2012.

**ADDRESSES:** You may submit comments by one of the following methods:

(1) *Electronically*: Go to the Federal eRulemaking Portal: http://www.regulations.gov. Search for Docket No. FWS–R6–ES–2012–0053.

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R6–ES–2012–0053; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all comments on http://www.regulations.gov. This generally means that we will post any personal information you provide us (see the **Information Requested** section below for more information).

The coordinates or plot points or both from which the maps of the specific areas proposed as critical habitat are generated are included in the administrative record for this rulemaking and are available at http://www.fws.gov/utahfieldoffice/, at www.regulations.gov in Docket No. FWS–R6–ES–2012–0053, and at the Utah Field Office (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>). Any additional tools or supporting information that we may develop for this rulemaking will also be available at the Fish and Wildlife Service website and Field Office set out above, and may also be included in the preamble and/or at www.regulations.gov.

**FOR FURTHER INFORMATION CONTACT:** 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. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

**SUPPLEMENTARY INFORMATION:**

This document consists of: (1) a proposed rule to list the Coral Pink Sand Dunes (CPSD) tiger beetle as threatened; and (2) a proposed critical habitat designation for the CPSD tiger beetle.

<HD1>**Executive Summary**

**Why we need to publish a rule.** Under the Act, if a species is determined to be an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposed rule in the Federal Register and make a determination on our proposal within one year. Critical habitat shall be designated, to the maximum extent prudent and determinable, for any species determined to be an endangered or threatened species under the Act. Listing a species as an endangered or threatened species and designations and revisions of critical habitat can only be completed in a rule making process.

<HD1>**What This Rule Will Do**

- We are proposing to list the CPSD tiger beetle as a threatened species.
- We also are proposing to designate 921 hectares (2,276 acres) of the Coral Pink Sand Dunes (CPSD) Geologic Feature in Kane County as critical habitat.

**The basis for our action.** Under the Act, we can determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence.

We propose to list the CPSD tiger beetle as a threatened species because of the following threats:

- Habitat loss and degradation caused by off-road vehicle use.
- Small population effects, such as vulnerability to random chance events.
- Other natural or manmade factors, including climate change and drought.
- Cumulative interaction of individual factors such as off-road vehicle use, climate change, and drought.

We have also determined that existing regulatory mechanisms are not adequately addressing the threats to the species.

Under the Act, any species that is determined to be a threatened or endangered species shall, to the maximum extent prudent and determinable, have habitat designated that is considered to be critical habitat. Section 4 (b)(2) of the Endangered Species Act states that the Secretary shall designate critical habitat on the basis of the best available

scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat.

We propose to designate a 921-hectare (2,276-acre) area as critical habitat for the CPSD tiger beetle. The critical habitat area we propose in this rule constitutes our current best assessment of the specific areas that meet the definition of critical habitat for the CPSD tiger beetle.

**We are preparing an economic analysis of the proposed designation of critical habitat.** In order to consider economic impacts, we are preparing an analysis of the potential economic impacts of the proposed critical habitat designations. We will use the information from the draft economic analysis to inform the development of the final designation of critical habitat for this species.

**We are preparing an environmental assessment of the proposed designation of critical habitat.** Based on a relevant court decision in the Tenth Circuit, we shall evaluate the potential environmental impacts of a designation of critical habitat for any species whose range overlaps the geographic area governed by the Federal Tenth Circuit Court under the National Environmental Policy Act (NEPA). We will use the results of the draft environmental assessment to inform the development of our final designation of critical habitat.

**We will seek peer review.** We are seeking the expert opinions of appropriate and independent specialists regarding this proposed rule to ensure that our decisions are based on scientifically sound data, assumptions, and analysis. We have invited these peer reviewers to comment during the proposed rule's public comment period. We will consider all comments and information received during the comment period in our preparation of the final determinations. Accordingly, the final decisions may differ from this proposal.

<HD1>**Information Requested**

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat or both.

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq*.), which are:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

(e) Other natural or manmade factors affecting its continued existence.

(3) Biological, commercial, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

(5) The reasons why we should or should not designate specific areas as "critical habitat" under section 4 of the Act (16 U.S.C. 1531 *et seq.*) including whether the degree of threats would be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(6) Specific information on our proposed critical habitat designation:

(a) The amount and distribution of CPSD tiger beetle habitat;

(b) What may constitute "physical or biological features essential to the conservation of the species," within the geographical range currently occupied by the species;

(c) Where these features are currently found;

(d) Whether any of these features may require special management considerations or protection;

(e) What areas, that were occupied at the time of listing (or are currently occupied) and that contain features essential to the conservation of the species, should be included in the designation and why;

(f) What areas not occupied at the time of listing are essential for the conservation of the species and why.

(7) Land use designations and current or planned activities in the areas occupied by the species or proposed to be designated as critical habitat, and possible impacts of these activities on this species and proposed critical habitat.

(8) Information on the projected and reasonably likely impacts of climate change on the CPSD tiger beetle and proposed critical habitat.

(9) Any foreseeable economic, national security, or other relevant impacts that may result from designating any area that may be included in the final designation. We are particularly interested in any impacts on small entities, and the benefits of including or excluding areas from the proposed designation that are subject to these impacts.

(10) Whether our approach to designating critical habitat could be improved or modified in any way to provide for greater public participation and understanding, or to assist us in accommodating public concerns and comments.

(11) The likelihood of adverse social reactions to the designation of critical habitat and how the consequences of such reactions, if likely to occur, would relate to the conservation and regulatory benefits of the proposed critical habitat designation.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the <E T='02'>**ADDRESSES**</E> section.

If you submit information via http://www.regulations.gov, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on http://www.regulations.gov. Please include sufficient information with your comments to allow us to verify any scientific or commercial information you include.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on

http://www.regulations.gov, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Utah Field Office (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>).

<HD1>**Previous Federal Actions**

In 1984, we published our Invertebrate Notice of Review classifying the CPSD tiger beetle as a Category 2 species (49 FR 21664, May 22, 1984). Category 2 status included those taxa for which information in the Service's possession indicated that a proposed rule was possibly appropriate, but for which sufficient data on biological vulnerability and threats were not available to support a proposed listing rule. In 1994, the Southern Utah Wilderness Alliance petitioned us to list the CPSD tiger beetle as an endangered species and to designate critical habitat. In our 90-day petition finding (59 FR 47293, September 15, 1994), we indicated the petition presented substantial information in support of listing, and later that year we changed the CPSD tiger beetle's status from Category 2 to Category 1 (59 FR 58982, November 15, 1994). Category 1 status included those taxa for which the Service had sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened species. On December 5, 1996 (61 FR 64481), we published our decision to discontinue candidate categories and to restrict candidate status to those taxa for which we have sufficient information to support issuance of a proposed rule. As a result, the CPSD tiger beetle remained a candidate species (62 FR 49398, September 19, 1997).

In 1997, the Service, Bureau of Land Management (BLM), Utah Department of Natural Resources (UDNR), and Kane County signed a Candidate Conservation

Agreement (CCA) and formed a conservation committee with the dual goals of protecting CPSD tiger beetle habitat and balancing the needs of this rare species with off-road vehicle (ORV) use in the area (Conservation Committee 1997, pp. 4–5). These agencies renewed the CCA in 2009 (Conservation Committee 2009, entire). Coordination under the CCA resulted in the establishment of two Conservation Areas that protect the CPSD tiger beetle from ORV use—Conservation Areas A and B (see *Habitat* and *Factor A* for more information on the Conservation Areas).

In our 2010 Candidate Notice of Review, we identified the CPSD tiger beetle as a species for which listing as an endangered or threatened species was warranted (with a listing priority number of 2) but precluded by our work on higher priority listing actions (75 FR 69222, November 10, 2010). In the 2011 Candidate Notice of Review, we announced that we were not updating our assessment for this species, because we received funding to develop this proposed listing rule (76 FR 66370, October 26, 2011).

<HD1>**Background**

<HD2>*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). It 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).

<HD2>*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 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 areas 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).

<HD2>*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.). 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 low numbers (see *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).

[GPO Begin Photograph]

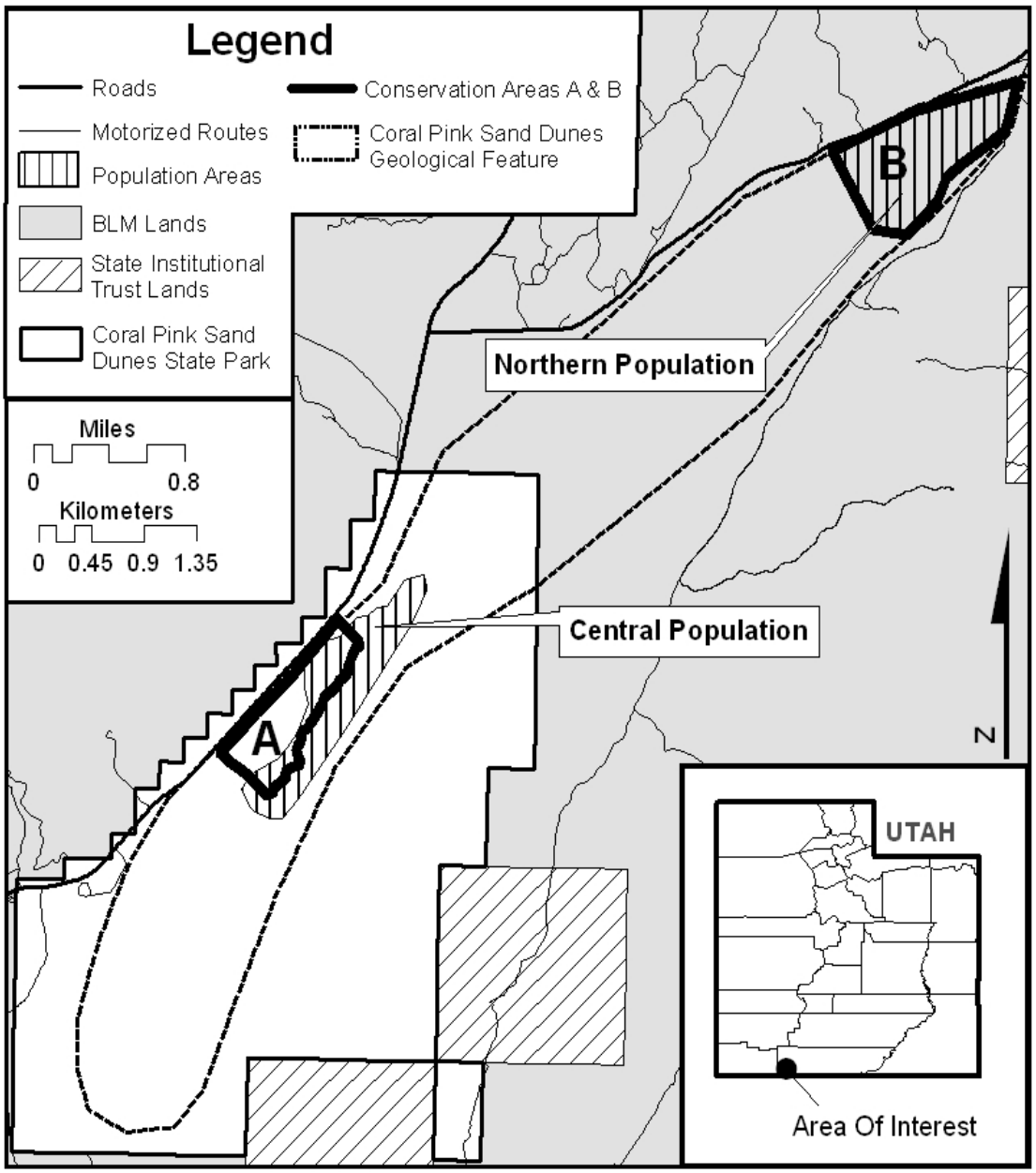



**FIGURE 1. Coral Pink Sand Dunes tiger beetle populations and Conservation Areas.**

[GPO End Photograph]

As previously mentioned (see **Previous Federal Actions**), an interagency CCA established Conservation Areas A and B to protect the CPSD tiger beetles from ORV use (see *Factor A, The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range* for more information). These Conservation Areas generally overlap the central and northern populations of CPSD tiger beetles (see Figure 1). However, the central population does not occupy the entirety of Conservation Area A,and also extends outside of it. We do not have occupied swale information for the northern population, so for purposes of this rule, we will assume that the northern population, during most years, occupies some swale habitat in an area that overlaps Conservation Area B entirely. Conservation Area A is 84 ha (207 ac) in size, and Conservation Area B is 150 ha (370 ac) in size (Knisley and Gowan 2011, pp. 7, 9).

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. See the *Factor A* section, and other subsections in *Background* for more information on CPSD tiger beetle preferred habitat characteristics.

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). The general absence of CPSD tiger beetles in the south-central and southeastern portions of Conservation Area A and the general area south of Conservation Area A, indicate that many of these habitat conditions occur in these areas. See the *Factor A* section, and other subsections in *Background* for more information on CPSD tiger beetle preferred habitat characteristics.

<HD2>*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).

<HD2>*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.).

<HD2>*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) (see *Factor E (Sand Dune Movement)* below). 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 (see *Factor E Sand Dune Movement* below).

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.

<HD2>*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).

<HD2>*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.

[GPO Begin Photograph]

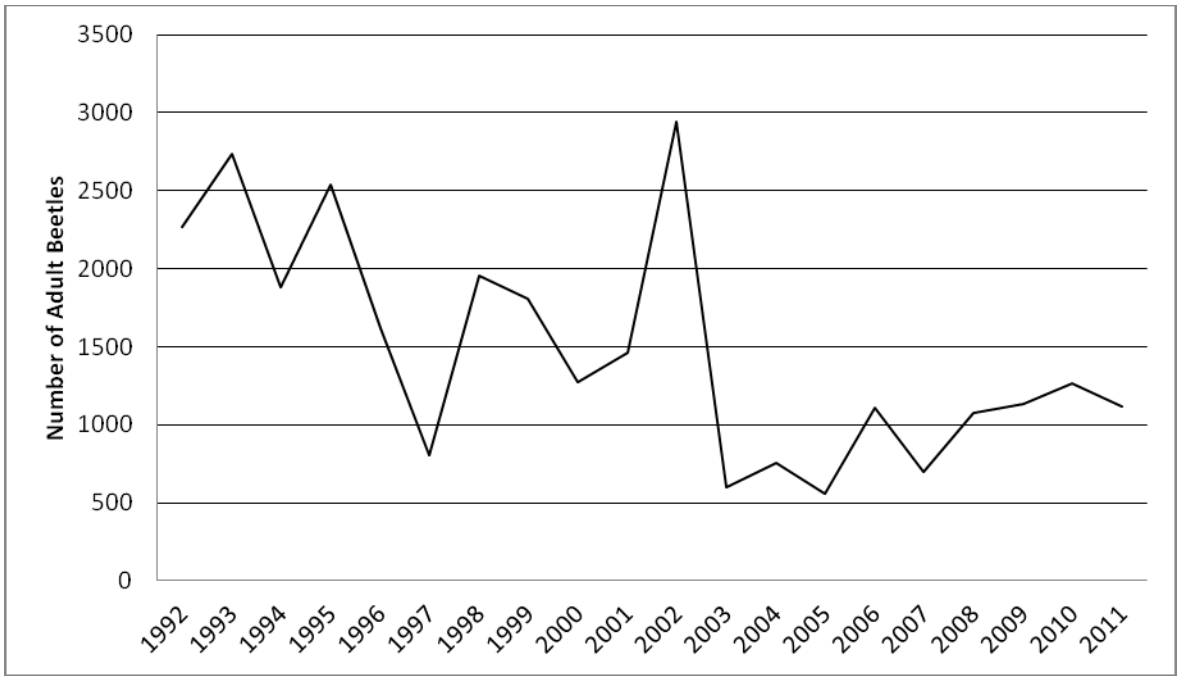



**Figure 2. Adult CPSD tiger beetle population size estimate at Coral Pink Sand Dunes from 1992 to 2011 (modified from Knisley and Gowan 2011, p. 8).**
[GPO End Photograph]

<HD2>*Population Viability Analysis*

Population viability analysis (PVA) is a way to predict the population dynamics of a species under various management alternatives (Brook *et al.* 2000, p. 385). PVAs generate future predictions for a given species based upon past and present population, environmental data, and selected management alternatives. Two PVAs are available for the CPSD tiger beetle using the same methods, one from 1998 using adult population counts from 1992 through 1998, and the other from 2008 using adult counts from 1999 through 2008 (Knisley and Gowan 2009, pp. 17–18).

Both PVAs only consider adult beetles from the Conservation Area A population because Conservation Area B population numbers are extremely low and the population is not considered self-sustaining (Knisley 2001, p. 9). The PVA authors caution that the CPSD tiger beetle PVA should only be used in a comparative way, to evaluate the effectiveness of different management options (Knisley 2012, pers. comm.). They add that the PVA predictions may not be quantitatively reliable for predicting the absolute extinction probability of the species (Knisley 2012, pers. comm.). For these reasons, we do not base our status determination for this rulemaking on the PVA and instead use the PVA to evaluate existing threats and potential conservation measures.

The PVA models do not directly account for current or future threats and are entirely based on four demographic variables:

1. Starting population size;
2. Population growth rate (increase in population size year-to-year);
3. Stochasticity (variation in yearly population growth rate); and
4. Carrying capacity (number of beetles that the habitat can sustain).

The results of the two PVAs were generally similar in that growth rate and stochasticity tend to control extinction probability. The most recent PVA indicated a 32 percent chance of extinction and an 87 percent chance that the species would decline to 50 individuals within the next 100 years (Knisley and Gowan 2009, p. 17). The first PVA was based on only 7 years of data and predicted extremely variable extinction probabilities (2 percent to 96 percent in 100 years); however, the data were based on very rough estimates of population growth rates (Knisley and Gowan 1999, pp. 5–6). Increases or decreases in carrying capacity would have only a modest effect on the risk of

extinction, whereas decreasing stochasticity or increasing population growth rate would greatly reduce the chance of extinction (Knisley and Gowan 2009, p. 18). The authors of the PVA study recommended two management actions to reduce the extinction probability. Their first recommendation was to expand both Conservation Areas to include several important swales that are believed to have suitable habitat, but are being impacted by heavy ORV use, thus preventing successful colonization and recruitment of CPSD tiger beetles (Knisley and Gowan 2009, p. 23). Expanding the size of both Conservation Areas would likely increase the population growth rate because the protections would improve overall habitat quality and lead to greater reproductive success (*e.g.*, Klok and de Roos 1998, pp. 205–206). Their second suggestion was to translocate beetles and establish a self-sustaining population in Conservation Area B (Knisley and Gowan 2009, p. 23), although this would likely require improvements (*e.g.*, vegetation removal or watering during key development stages) to the existing habitat (Knisley 2012, pers. comm.). The establishment of a self-sustaining population in Conservation Area B, or elsewhere in the CPSD, would change the dynamics of the PVA model by introducing the possibility that a second self-sustaining population could "rescue" or recolonize the central population (and vice versa) in the event that one of them were extirpated.

<HD1>**Summary of Factors Affecting the Species**

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we

may list a species based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

<HD2>*Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

Loss of habitat is the leading cause of species extinction (Pimm and Raven 2000, p. 843). Insects are highly vulnerable to extinction through habitat loss (McKinney 1997, pp. 501–507). ORV use significantly impacts the CPSD tiger beetle's habitat, range, and the beetle itself by directly killing beetles, damaging vegetation that supports prey items, directly killing prey items, and reducing soil moisture.

Nationwide, ORV use has drastically reduced or extirpated several tiger beetle populations. For example, ORV use and pedestrian traffic extirpated the Northeastern Beach tiger beetle, *Cicindela dorsalis dorsalis*, in several localities (Knisley 2011, p. 45). Similarly, within several years of the Assateague Island National Seashore (Maryland, USA) opening for ORV use, the White Beach tiger beetle, *C. d. media*, was extirpated from all but those areas where ORVs were restricted (Knisley and Hill 1992, pp. 138–139). Additionally, ORV use is responsible for eliminating tiger beetle populations in coastal southern California (Hairy-necked tiger beetle, *C. hirticollis gravida*), Oregon and

Washington (Siuslaw hairy-necked tiger beetle, *C. h. siuslawensis*), and Idaho (St. Anthony Dune tiger beetle, *C. arenicola*) (Knisley 2011, p. 45).

As previously described (see **Previous Federal Actions**, *Population Distribution*, and Figure 1), in 1997, the Service, BLM, Utah State Parks and Recreation, and Kane County developed and signed a CCA and formed a conservation committee to protect the CPSD tiger beetle within an ORV-use area (Conservation Committee 1997). The CCA established Conservation Areas A and B (see Figure 1 in *Population Distribution* above) to protect CPSD tiger beetle habitat from ORV use: Conservation Area A—84 ha (207 ac) are closed to ORV use within the CPSD State Park; and Conservation Area B—150 ha (370 ac) are closed to ORV use on BLM land.

Because we do not have survey information to determine the extent of occupied swale habitat in the northern population (see *Population Distribution*) and because the entirety of the northern population occurs within Conservation Area B (protected from ORV use), the below analysis is specific to the central population and Conservation Area A. Conservation Area A protects 48 percent of the swale habitat occupied by the CPSD tiger beetle in the central population, as well as 73 to 88 percent of CPSD tiger beetle adults and the vast majority of larvae from ORV activities. ORV use still occurs in 52 percent of occupied CPSD tiger beetle swale habitat in the central population (Figure 3, adapted from Knisley and Gowan 2009, p. 8).

Available information shows the effects of ORV use on current population numbers. For example, swales adjacent to but outside of Conservation Area A are similar in all apparent environmental conditions to swales within Conservation Area A with the exception of ORV impacts. However, CPSD tiger beetle abundance in ORV-impacted

occupied swales is consistently lower than adjacent protected occupied swales, potentially because of ORV impacts (Figure 3).

[GPO Begin Photograph]

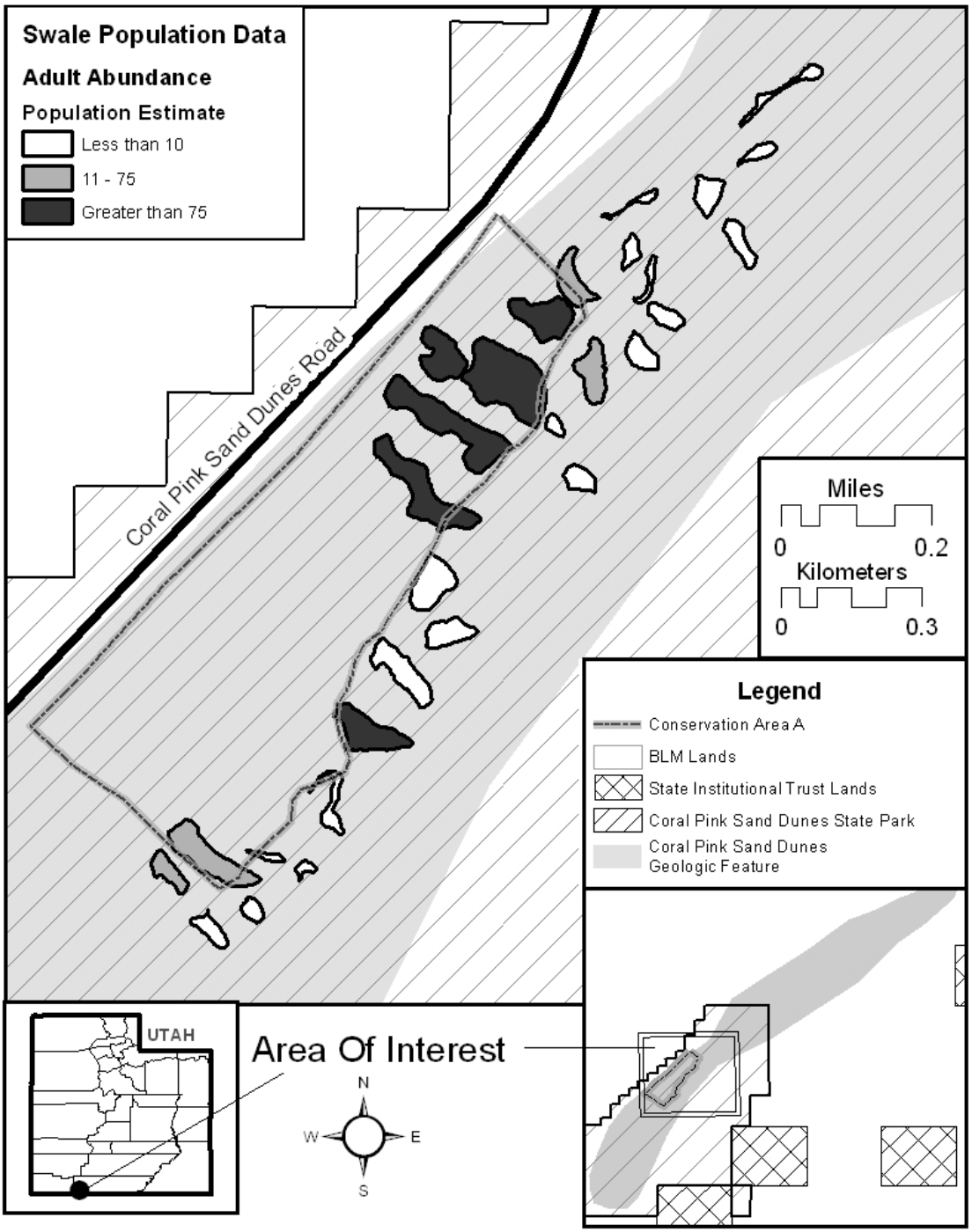


**FIGURE 3. Adult abundance in 2006 for occupied swales within and outside Conservation Area A.**
[GPO End Photograph]

For example, one swale with ORV use had population counts of 60 or more CPSD tiger beetles in most years (Knisley and Gowan 2011, p. 11). Utah State Park staff, at the recommendation of the conservation committee, protected this swale from ORV use in 2010 (Knisley and Gowan 2011, p. 11). The year following removal of ORV use, the tiger beetle density on this swale more than doubled to 150 beetles, which also is the highest number recorded for the swale (Knisley and Gowan 2011, p. 11). This action provides an example of how the conservation committee has used adaptive management to benefit the CPSD tiger beetle and demonstrates a rapid population response to removed ORV disturbance.

ORVs run over and thereby kill and injure CPSD tiger beetles (Knisley and Hill 1993, p. 14; Knisley and Gowan 2008, p. 23). The likelihood of being injured or killed increases if adult CPSD tiger beetle are run over on wet or compact substrates (*e.g.*, moist swales) as compared to soft sands (*e.g.*, dune faces) (Knisley and Hill 2001, p. 390). The likelihood of being hit by ORVs also increases based on the level of ORV use. For example, the numbers of adult CPSD tiger beetles found injured or killed by ORVs increases substantially during periods of heavy use, such as during the Memorial Day holiday (Table 1; Knisley and Hill 2001, p. 390). We have no information quantifying the direct injury or mortality that ORVs cause to eggs or larval CPSD tiger beetle because these stages are underground and not easily monitored.

**TABLE 1. A comparison of the number of adult Coral Pink Sand Dunes tiger beetles found injured or killed (by off-road vehicles) before and after a high ORV use holiday weekend (Memorial Day) from 1993 to 1998 (no survey conducted in 1995) (Knisley and Hill 2001, p. 390).**

| YEAR | BEFORE MEMORIAL DAY WEEKEND | | AFTER MEMORIAL DAY WEEKEND | |
|---|---|---|---|---|
| | Total Number Observed | Number Observed Killed or Injured | Total Number Observed | Number Observed Killed or Injured |
| 1993 | No data | No data | 179 | 14 |
| 1994 | 363 | 0 | 125 | 6 |
| 1996 | 231 | 2 | 287 | 41 |
| 1997 | 256 | 2 | 64 | 6 |
| 1998 | 168 | 1 | 278 | 8 |

We do not have specific data regarding the level of impact ORVs have on CPSD tiger beetles in the unprotected area between Conservation Areas A and B. It is likely that many of the beetles run over by ORVs in the dispersal corridor will be injured or killed. Thus, the ability of adults to disperse between the central population and the northern population is likely negatively impacted by ORVs. The result of these ORV impacts is that the habitat between the central and northern populations does not provide a sufficient dispersal corridor for beetles to the northern population. Current levels of dispersal are likely not adequate for the northern population to be self-sustaining (see *Population Viability Analysis*). Thus, BLM protection of only Conservation Area B, and the absence of protection in the dispersal corridor, results in the continued threat of ORV use to the CPSD tiger beetle.

Food limitation has a significant impact on tiger beetle growth, survival, and fecundity, especially for desert species. Adult CPSD tiger beetles are, in some years, extremely food limited and exhibit reduced fecundity (Knisley and Gowan 2008, p. 19). Food limitation is at least partly caused by ORV use. ORVs reduce CPSD tiger beetle

prey density and prey species diversity in CPSD (Knisley and Gowan 2006, p. 19). Ants, a primary prey item, occur in much lower densities in areas frequented by ORVs than in areas with no ORV traffic (Knisley and Gowan 2008, p. 23). In addition, low ORV use areas in CPSD have a higher diversity of prey species and higher numbers of prey items than high ORV use areas (Knisley and Hill 2001, p. 389).

Prey availability significantly affects the number of larvae produced by adult tiger beetles (Pearson and Knisley 1995, p.165) and the survival of larval tiger beetles (Knisley and Juliano 1988, p. 1990). Low prey densities can result in prolonged development and decreased survivorship in larval tiger beetles and reduced size in adults, which lowers fecundity in females (Pearson and Knisley 1985, p. 165; Knisley and Juliano 1988, p. 1990). Also, low prey densities require larval and adult tiger beetles to spend more time searching for food. For larval tiger beetles, this means more time near burrow entrances searching for prey, resulting in increased susceptibility to parasitism and predators (Pearson and Knisley 1985, p. 166). Similarly, adults that spend more time out of their burrows searching for food have an increased susceptibility to predation.

ORV use degrades larval habitat by reducing soil moisture. ORV use can reduce soil moisture by churning up soils and exposing the moisture that is locked between soil particles (beneath the surface) to greater evaporative pressure (Shultz 1988, p. 28; Knisley and Gowan 2008, p. 10). It also reduces soil moisture by increasing soil compaction (Adams *et al.* 1982, p. 167). Compaction reduces water infiltration and reduces moisture retention in soils (Belnap 1995, p. 39).

As we discussed earlier (see *Habitat*), soil moisture is essential to the CPSD tiger beetle's life history. Extreme drying or desiccation kills tiger beetles (Knisley and

Juliano 1998, p. 1990). In a dry environment, such as the CPSD geologic feature, organisms are constantly struggling to acquire and maintain enough water to survive. Water is limiting to tiger beetles in CPSD, and this is evidenced by the fact that experimental water supplementation increased larval CPSD tiger beetle survival by 10 percent (Knisley and Gowan 2008 p. 20). CPSD areas protected from ORV use have significantly higher soil moistures and higher numbers of CPSD tiger beetles than adjacent ORV use areas (Knisley and Gowan 2008, pp. 10–11).

Overall, ORV use reduces available habitat and the CPSD tiger beetle population size. This results in a population that is at risk of endangerment in the face of minor stochastic events and minor environmental perturbations (see *Factor E. Small Population Effects*).

<HD3>Summary of Factor A

ORV use is a threat to the CPSD tiger beetle through direct mortality and injury, and by reducing prey base and soil moisture. ORV use 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). We acknowledge the very important protections of Conservation Areas A and B from ORV use. However, despite these conservation efforts, 52 percent of occupied swale habitat, which occurs outside of the Conservation Areas, is currently unprotected (Figure 3, Knisley and Gowan 2009, p. 8) and the degradation of habitat (both occupied and potential) by ORV use 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. As the PVA demonstrates (see *Population Viability Analysis* above), reductions in growth rate and carrying capacity (albeit a moderate effect on PVA compared to growth rate) increase the probability of extinction for this species. Based on current ORV use and CPSD tiger beetle population levels, there is a 32 percent probability that the species will go extinct in the next 100 years, and the PVA does not consider future threats (see *Population Viability Analysis* above). As we will discuss in Factor E, environmental effects from climate change and drought conditions will likely exacerbate reductions in soil moisture associated with ORV use, thus increasing the extinction risk even further. The best scientific and commercial information available indicates that the destruction, modification, or curtailment of the CPSD tiger beetle's habitat or range due to ORV use is a threat to the species now and in the future.

<HD2>*Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Tiger beetles are one of the most sought-after groups of insects by amateur collectors because of the unique metallic colors and patterns present in the various species and subspecies, as well as their fascinating habits (Pearson *et al.* 2006, pp. 3–5). Interest in the genus *Cicindela* is reflected in the scientific journal entitled ''Cicindela,'' which is published quarterly (since 1969) and is exclusively devoted to the genus. In certain circumstances, collection of these insects can add valuable information regarding biogeography, taxonomy, and life history of the species. However, some collection is

purely recreational and adds little to no value to the scientific understanding or conservation of tiger beetles.

Collection of adult CPSD tiger beetles, before they mate and lay their eggs, may result in reduced population size of subsequent generations. The magnitude of recreational collection cannot be accurately determined for the CPSD tiger beetle, but it is likely that some number of adults were taken in the past. However, CPSD State Park and BLM personnel now enforce restrictions on recreational collecting of CPSD tiger beetles, and consequently, collection levels are low (Conservation Committee 2009, p. 17). Although scientific collection is not restricted by any formal permitting process, only one researcher has collected CPSD tiger beetles in approximately the last 14 years. Over this time period, approximately 70 adults were collected (Knisley 2012, pers. comm.). The adults were collected in late May after they had mated and oviposited eggs (Knisley 2012, pers. comm.).

<HD3>Summary of Factor B

CPSD tiger beetles are not overutilized for commercial, recreational, scientific, or educational purposes. A limited number of CPSD tiger beetles are likely collected from wild populations for recreational purposes; however, CPSD State Park and BLM personnel enforce restrictions on recreational collecting. Collection of CPSD tiger beetles for scientific investigation purposes occurs on occasion, but the level of collection is very small. The best scientific and commercial information available indicates that overutilization for commercial, recreational, scientific, or educational purposes is not a threat to the CPSD tiger beetle now nor will be in the future.

<HD2>*Factor C. Disease or Predation*

We know of no diseases that are a threat to the CPSD tiger beetle. Natural mortality through predation and parasitism accounts for some individual loss of adult and larval CPSD tiger beetles (Knisley and Hill 1994, p. 16). Known predators of adult tiger beetles include birds, shrews (Soricidae), raccoons (*Procyon lotor*), lizards (Lacertilia), toads (Bufonidae), ants (Formicidae), robber flies (Asilidae), and dragonflies (Anisoptera) (Knisley and Shultz 1997, pp. 57–59). Despite a documented level of natural predation of CPSD tiger beetles, effects to the species are low and not likely to limit the CPSD tiger beetle population (Conservation Committee 2009, p. 17).

Known tiger beetle parasites include ant-like wasps of the family Typhiidae, especially the genera Mathoca, Karlissa, and Pterombrus, and flies of the genus Anthrax (Knisley and Shultz 1997, pp. 53–57). Parasites predominantly target larval tiger beetles (Pearson and Vogler 2001, pp. 170–171). There are two known natural parasites of larval CPSD tiger beetles. Bee flies (Bombyliidae) are known to flick their eggs into beetle burrows (Knisley and Hill 1995, p. 14). When these eggs hatch, the larval parasite feeds on beetle bodily fluids, often resulting in death of the tiger beetle larvae. Wasps of the genus Methoca also can parasitize CPSD tiger beetle larvae (Knisley and Hill 1995, p. 14). These wasps deposit their larvae in the burrows of larval tiger beetles. The wasp larvae then consume the tiger beetle larvae. Despite documented parasitism to larval CPSD tiger beetle, effects to the species are low and not likely to limit the CPSD tiger beetle population (Conservation Committee 1997, p. 7).

<HD3>Summary of Factor C

We have found no information that indicates that disease is a threat to the CPSD tiger beetle. There is some information documenting mortality of CPSD tiger beetles by natural predators and parasites; however, not to a level that significantly affects the species. Thus, we have no information that disease, parasites, or predation is a threat to the species now or is likely to become so in the future.

<HD2>*Factor D. The Inadequacy of Existing Regulatory Mechanisms*

The Act requires us to examine the inadequacy of existing regulatory mechanisms with respect to extant threats that place CPSD tiger beetle in danger of becoming either an endangered or threatened species. Regulatory mechanisms affecting the species fall into three general categories: (1) Land management; (2) State mechanisms; and (3) Federal mechanisms.

<HD2>*Land Management*

The CPSD geologic feature is approximately 1,416 ha (3,500 ac). The southern 809 ha (2,000 ac) of the CPSD is within the CPSD State Park and is categorized as public land with a recreational emphasis (Conservation Committee 2009, p. 17). The State Park's mission, as described in the most recent general management plan (Franklin *et al.* 2005, p. 3), is "to provide visitors […] recreation experiences while preserving and interpreting the park's natural, scenic, and recreation resources." The northern 607 ha (1,500 ac) is Federal land managed by the BLM's Kanab Field Office (BLM 2000, p. 14).

The northern area is partly within the Moquith Mountain Wilderness Study Area (WSA). Public education for both areas includes signage, brochures, and interpretive programs.

As stated previously (see *Factor A*), the UDNR (which oversees the Utah Division of State Parks and Recreation), the BLM, the Service, and Kane County developed and signed a CCA in 1997 (Conservation Committee 1997), and renewed the agreement in 2009 (Conservation Committee 2009, entire). The CCA recommends conservation objectives and actions designed to protect and conserve the CPSD tiger beetle. Although the CCA is not a regulatory mechanism in and of itself, the agencies have implemented specified conservation actions, including the protection of Conservation Areas A and B that are regulatory mechanisms. These mechanisms are Utah Administrative Code R651-633 and the BLM's Kanab RMP. The degree to which the CCA has ameliorated the threats is discussed below.

Protection for the tiger beetle in Conservation Area A is enforced according to the CPSD State Park's special closure (Conservation Committee 1997, p. 13) and Utah's Administrative Code (R 651-633). Conservation Area A protects some of the central population of CPSD tiger beetle. Of the 809-ha (2,000-ac) State Park, 84 ha (207 ac) (10 percent) are closed to ORV use to provide protection for CPSD tiger beetle habitat. Conservation Area A prohibits the use of ORVs in 48 percent of the species' known occupied swale habitat in the central population, thereby protecting 73 to 88 percent of CPSD tiger beetle adults and the vast majority of larvae (Figure 3, adapted from Knisley and Gowan 2009, p. 8).

Conservation Area B provides protection to all of the northern population's habitat as we have defined its boundary (see Figure 1), realizing that we do not have good

survey information in this area. In this area, 150 ha (370 ac) is closed to ORV use to protect a small population of CPSD tiger beetle. Approximately 445 ha (1,100 ac) is available for ORV use outside of the Conservation Area B on BLM lands, but with the stipulation that ORVs stay on open dunes and maintain a 3-m (10-ft) buffer around vegetation. Enforcement is minimal and primarily relies on voluntary compliance (Conservation Committee 1997, p. 13). We have no record of enforcement effort or success of the closures at either Conservation Area A or B.

Despite the designation and management of the Conservation Areas, at least 52 percent of known occupied swale habitat in the central population adjacent to Conservation Area A is open to ORV use, and an unknown amount of habitat could be affected in the northern population (Knisley and Gowan 2009, p. 8). As previously described, unprotected but occupied swales have lower CPSD tiger beetle densities than nearby protected swales that are occupied (see Figure 3).

In addition to the lack of any protection for about 52 percent of occupied swale habitat that is outside of Conservation Area A, there is no protection from ORV use for the CPSD tiger beetle in the dispersal corridor between Conservation Areas A and B. As explained above (see *Adult Dispersal*), this area is important for dispersal of tiger beetles from Conservation Area A to Conservation Area B and likely is necessary to maintain the northern CPSD tiger beetle population in Conservation Area B.

We acknowledge the very important protections of Conservation Areas A and B from ORV use. However, outside of the two Conservation Areas, at least 52 percent of occupied swale habitat is currently unprotected and the degradation of habitat (both occupied and potential) by ORV use reduces the ability of the CPSD tiger beetle

population to expand in areas outside of protected Conservation Areas and reduces the population's carrying capacity. The dispersal habitat between Conservation Areas A and B is managed by the Utah Division of State Parks and Recreation and the BLM, and used largely for OHV recreation; no regulatory mechanisms protect the CPSD tiger beetle in this area.

At current levels of regulatory protection, CPSD tiger beetle habitat is small and isolated in the two Conservation Areas, and the population size is extremely small, making the species more susceptible to other threats such as climate change and drought, demographic and environmental stochasticity, and catastrophic events (see *Factor E. Climate Change and Drought* and *Small Population Effects*). As explained previously (see the *Background: Population Distribution*), the central population of CPSD tiger beetle only occupies a portion of Conservation Area A, and based on population and habitat sampling results to date, we believe it is not likely that the species will expand to other areas in Conservation Area A due to insufficient habitat conditions. Instead we believe that Conservation Area A should be expanded (using regulatory mechanisms) to protect occupied habitat that is already being used by the species but currently is at levels that are artificially low due to the effects of ORVs (see *Population Viability Analysis* and *Factor A*).

In addition, the population at Conservation Area B should be managed such that it becomes self-sustaining (see *Population Viability Analysis* and *Factor A*). However, at this point in time it is unclear from a regulatory perspective what will be necessary to achieve this. It is possible that by expanding Conservation Area A, the central population will increase such that it will be sufficient to provide adequate numbers of dispersers to

bolster the population at Conservation Area B, thus making it self-sustaining. There may need to be additional regulatory measures put in place to protect the dispersal corridor between Conservation Areas A and B to allow for a safe and sufficient level of CPSD tiger beetle dispersal between the two areas.

<HD2>*State Mechanisms*

Utah's Administrative Code (R 651-633) prohibits motorized vehicle use in designated nonmotorized sand dune areas of CPSD State Park. Conservation Area A is a designated nonmotorized sand dune area, and thus the State Code protects tiger beetle habitat in this area. CPSD State Park's dual purpose mission statement of providing recreational experiences while preserving natural resources (Franklin *et al.* 2005, p. 3) has assisted with the conservation of CPSD tiger beetle to some extent because the State Park has closed areas (Conservation Area A) to ORV use to protect CPSD tiger beetle. However, the State Park also promotes recreational use; in this case, extensive ORV use is still permitted across the majority of the State Park, which is ultimately detrimental to maintaining a self-sustaining population of CPSD tiger beetles in the central area in the future (see *Factor A* for an analysis of ORV impacts).

<HD2>*Federal Mechanisms*

As mentioned previously, Conservation Area B and the northern population are on BLM-administered land. The Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1701 *et seq.*) is the primary Federal law governing most land uses on BLM-administered lands. Section 102(a)(8) of FLPMA specifically recognizes

wildlife and fish resources as being among the uses for which these lands are to be managed. Regulations pursuant to FLPMA and the Mineral Leasing Act (30 U.S.C. 181 *et seq.*) that address wildlife habitat protection on BLM-administered land include 43 CFR 3162.3–1 and 43 CFR 3162.5–1; 43 CFR 4120 *et seq*.; and 43 CFR 4180 *et seq*.

The BLM manages the CPSD tiger beetle as a "sensitive species," and as stated above, BLM manages a 150-ha (370-ac) Conservation Area for the species. The management guidance afforded sensitive species under BLM Manual 6840—Special Status Species Management (BLM 2008, entire) states that "Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA" (BLM 2008, p. 05V). The BLM Manual 6840 further requires that Resource Management Plans (RMPs) should address sensitive species, and that implementation "should consider all site-specific methods and procedures needed to bring species and their habitats to the condition under which management under the Bureau sensitive species policies would no longer be necessary" (BLM 2008, p. 2A1). As a designated sensitive species under BLM Manual 6840, CPSD tiger beetle conservation must be addressed in the development and implementation of RMPs on BLM lands.

The RMPs are the basis for all actions and authorizations involving BLM-administered lands and resources. They establish allowable resource uses, resource condition goals and objectives to be attained, program constraints and general management practices needed to attain the goals and objectives, general implementation sequences, and intervals and standards for monitoring and evaluating the plan to

determine its effectiveness and the need for amendment or revision (43 CFR 1601 *et seq.*).

The RMPs provide a framework and programmatic guidance for activity plans, which are site-specific plans written to implement decisions made in an RMP. Activity plan decisions normally require additional planning and National Environmental Policy Act (NEPA) analysis (see below). If an RMP contains specific direction regarding sensitive species habitat, conservation, or management, it represents an enforceable regulatory mechanism to ensure that the species and its habitats are considered during permitting and other decision-making regarding BLM lands.

The 2008 Kanab RMP establishes guidance and objectives for the management of the northern portion of CPSD (BLM 2008, entire). In the RMP, the BLM commits to "implement conservation actions identified in the Conservation Agreement and Strategy for the Coral Pink Sand Dunes tiger beetle, including maintaining the established 370-acre conservation area" (BLM 2008, p. 32). In addition to maintaining Conservation Area B, the BLM has funded and continues to fund CPSD tiger beetle monitoring and research activities. While these BLM-implemented conservation actions (as outlined in the RMP) have benefitted the CPSD tiger beetle, remaining threats (such as climate change and drought, demographic and environmental stochasticity, and catastrophic events (see *Factor E. Climate Change and Drought* and *Small Population Effects*) and ORVs (see *Population Viability Analysis* and *Factor A*)) continue to negatively affect the species.

BLM manual 6840 establishes management policy and direction for BLM's involvement in the CCA and its membership on the Conservation Committee

(Conservation Committee 2009, p. 7). Conservation Area B was established on BLM lands as part of the CCA and was a result of adult and larval CPSD tiger beetle discovered in this area during a 1996 monitoring effort (Knisley and Hill 1997, p. 11; Conservation Committee 1997, entire). BLM land management practices are intended to avoid negative effects whenever possible, while also providing for multiple-use mandates; therefore, maintaining or enhancing CPSD tiger beetle habitat is considered in conjunction with other agency priorities.

The BLM protects the entirety of the northern CPSD tiger beetle population in Conservation Area B; however, this population is not self-sustaining (see *Population Distribution*). As we discuss previously, the northern population likely persists because of dispersal from the central population (see *Adult Dispersal*). However, current levels of dispersal are likely not adequate for the northern population to be self-sustaining (see *Population Viability Analysis*). The habitat between the central and northern populations (between Conservation Areas A and B) is managed by the BLM and Utah Division of State Parks and Recreation and is not protected from ORV use (see Figure 2). The ORV use in this unprotected zone results in habitat degradation and loss of beetles that are injured or killed by ORVs. The result of these ORV impacts is that the habitat between the central and northern populations does not provide a sufficient dispersal corridor for beetles to the northern population (see *Factor A* for effects of ORVs in CPSD tiger beetle habitat). Thus, BLM protection of only Conservation Area B, and the absence of protection in the dispersal corridor, results in the continued threat of ORV use to the CPSD tiger beetle (see Factor A).

On December 15, 2009, the Environmental Protection Agency (EPA) published in the **Federal Register** (74 FR 66496) a rule titled, "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act." In this rule, the EPA Administrator found that the current and projected concentrations of the six long-lived and directly emitted greenhouse gases (GHGs)—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations; and that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (74 FR 66496). In effect, the EPA has concluded that the GHGs linked to climate change are pollutants, whose emissions can now be subject to the Clean Air Act (42 U.S.C. 7401 *et seq.*) (see 74 FR 66496). However, specific regulations to limit GHG emissions were only proposed in 2010 and, therefore, cannot be considered an existing regulatory mechanism. At present, we have no basis to conclude that implementation of the Clean Air Act in the future (40 years, based on global climate projections) will substantially reduce the current rate of global climate change through regulation of GHG emissions.

A Federal statute that may provide protection to CPSD tiger beetle and its habitat is the NEPA. As explained previously, Federal land management agencies, such as the BLM, have legislation that specifies how their lands are managed for sensitive species. The NEPA provides authority for the Service to assume a cooperating agency role for Federal projects undergoing evaluation for significant impacts to the human environment. This includes participating in updates to RMPs. As a cooperating agency, we have the

opportunity to provide recommendations to the action agency to avoid impacts or enhance conservation for CPSD tiger beetle and its habitat where it occurs on Federal land. For projects where we are not a cooperating agency, we often review proposed actions and provide recommendations to minimize and mitigate impacts to fish and wildlife resources. However, acceptance of our NEPA recommendations is not required and is at the discretion of the action agency.

<HD3>Summary of Factor D

State and federally managed lands in Conservation Areas A and B provide some protection to the CPSD tiger beetle. The northern portion of CPSD is Federal land managed by the BLM and the southern portion of the CPSD is within the CPSD State Park. These land management agencies provide protection to the CPSD tiger beetle through the establishment and regulation of the ORV restricted Conservation Areas A and B. 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 protects Conservation Area B. However, as discussed under *Factor A*, ORV use is the primary threat to the beetle, and this threat is not being addressed with any existing regulatory mechanisms in the area between Conservation Areas A and B (managed by BLM and Utah Division of State Parks and Recreation) and to the east of Conservation Area A (managed by CPSD State Park). As a result, the habitat quality is negatively affected, and tiger beetles that disperse outside of the two Conservation Areas can be injured or killed by ORVs.

The Clean Air Act gives the 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.

As evidenced by the discussion above, the species is not adequately protected by existing regulatory mechanisms.

<HD2>*Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence*

Natural and manmade factors affecting the CPSD tiger beetle include: (1) Sand dune movement; (2) Climate change and drought; (3) Small population effects; and (4) Cumulative effects of all threats that may impact the species.

<HD2>*Sand Dune Movement*

Movement of the swales due to sand dune movement naturally occurs in this system as wind action continues to shape the dunes. Major dune ridgelines moved close to 22 m (72 ft) (Knisley and Gowan 2005, p. 4) between 2001 and 2002, and most ridgelines moved over 45 m (150 ft) between 2002 and 2010 (Knisley and Gowan 2011, p. 25). Dune movement can result in a change in suitable habitat conditions (Knisley and Gowan 2008, pp. 21–22). For example, dune movement simultaneously buries and uncovers trees in CPSD (Gregory 1950, p. 188). Similarly, we know that dune movement is burying some previously occupied swale habitat (Knisley and Gowan 2008, pp. 21–22). It is likely that dune movement is uncovering potential habitat as well; however, comprehensive surveys to determine this have not been conducted (Knisley

2012, pers. comm.). Wind action created and continues to shape the current CPSD (Ford *et al.* 2010, p. 387), and we have no evidence to suggest that the rate of dune movement is increasing. Because CPSD tiger beetle presumably evolved in this environment, it is likely that the species is adapted to the continual movement of dunes. We have no evidence demonstrating that dune movement is a threat to the species now or is likely to become so in the future; however, additional study of dune movement is recommended.

<HD2>*Climate Change and Drought*

Our analyses under the Act include consideration of environmental changes resulting from ongoing and projected changes in climate. The terms "climate" and "climate change" are defined by the Intergovernmental Panel on Climate Change (IPCC). "Climate" refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (*e.g.*, temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Based on extensive analyses of global average surface air temperature, the most widely used measure of change, the IPCC concluded that warming of the global climate system over

the past several decades is "unequivocal" (IPCC 2007a, p. 2). In other words, the IPCC concluded that there is no question that the world's climate system is warming.

Examples of other changes include substantial increases in precipitation in some regions of the world and decreases in other regions (for these and additional examples, see IPCC 2007a, p. 30; Solomon *et al*. 2007, pp. 35–54, 82–85). Various environmental changes (*e.g.*, shifts in the ranges of plant and animal species, increasing ground instability in permafrost regions, conditions more favorable to the spread of invasive species and of some diseases, changes in amount and timing of water availability) are occurring in association with changes in climate (see IPCC 2007a, pp. 2–4, 30–33; and Global Climate Change Impacts in the United States 2009, pp. 27, 79–88).

Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate and is "very likely" (defined by the IPCC as 90 percent or higher probability) due to the observed increase in GHG concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from fossil fuel use (IPCC 2007a, pp. 5–6 and figures SPM.3 and SPM.4; Solomon *et al*. 2007, pp. 21–35). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2011, p. 4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (*e.g.*, Meehl *et al*. 2007, entire;

Ganguly *et al*. 2009, pp. 11555, 15558; Prinn *et al*. 2011, pp. 527, 529). All combinations of models and emissions scenarios yield very similar projections of average global warming until about 2030. Although projections of the magnitude and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, pp. 44–45; Meehl *et al*. 2007, pp. 760–764; Ganguly *et al*. 2009, pp. 15555–15558; Prinn *et al*. 2011, pp. 527, 529).

In addition to basing their projections on scientific analyses, the IPCC reports projections using a framework for treatment of uncertainties (*e.g.*, they define "very likely" to mean greater than 90 percent probability, and "likely" to mean greater than 66 percent probability; see Solomon *et al*. 2007, pp. 22–23). Some of the IPCC's key projections of global climate and its related effects include: (1) it is virtually certain there will be warmer and more frequent hot days and nights over most of the earth's land areas; (2) it is very likely there will be increased frequency of warm spells and heat waves over most land areas; (3) it is very likely that the frequency of heavy precipitation events, or the proportion of total rainfall from heavy falls, will increase over most areas; and (4) it is likely the area affected by droughts will increase, that intense tropical cyclone activity will increase, and that there will be increased incidence of extreme high sea level (IPCC 2007b, p. 8, Table SPM.2). More recently, the IPCC published additional information that provides further insight into observed changes since 1950, as well as projections of

extreme climate events at global and broad regional scales for the middle and end of this century (IPCC 2011, entire).

Various changes in climate may have direct or indirect effects on species. These may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables such as habitat fragmentation (for examples, see Franco *et al.* 2006; IPCC 2007, pp. 8–14, 18–19; Forister *et al*. 2010; Galbraith *et al*. 2010; Chen *et al*. 2011). In addition to considering individual species, scientists are evaluating possible climate change-related impacts to, and responses of, ecological systems, habitat conditions, and groups of species; these studies include acknowledgement of uncertainty (*e.g.*, Deutsch *et al*. 2008; Berg *et al*. 2009; Euskirchen *et al.* 2009; McKechnie and Wolf 2009; Sinervo *et al*. 2010; Beaumont *et al*. 2011; McKelvey *et al*. 2011; Rogers and Schindler 2011).

Many analyses involve elements that are common to climate change vulnerability assessments. In relation to climate change, vulnerability refers to the degree to which a species (or system) is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, magnitude, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a, p. 89; see also Glick *et al.* 2011, pp. 19–22). There is no single method for conducting such analyses that applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

As is the case with all stressors that we assess, even if we conclude that a species is currently affected or is likely to be affected in a negative way by one or more climate-related impacts, it does not necessarily follow that the species meets the definition of an "endangered species" or a "threatened species" under the Act. If a species is listed as an endangered or threatened species, knowledge regarding its vulnerability to, and known or anticipated impacts from, climate-associated changes in environmental conditions can be used to help devise appropriate strategies for its recovery.

The IPCC predicts that the resiliency of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (*e.g.*, flooding, drought, wildfire, and insects), and other global drivers (IPCC 2007, pp. 31–33). With medium confidence, IPCC predicts that approximately 20 to 30 percent of plant and animal species assessed by the IPCC so far are likely to be at an increased risk of extinction if increases in global average temperature exceed 1.5 to 2.5 ºC (3 to 5 ºF) (IPCC 2007, p. 48).

Regional projections indicate the Southwest, including southern Utah, may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007, p. 30). Drought probability is predicted to increase in the Southwest (Karl *et al.* 2009, pp. 129–134), with summers warming more than winters, and annual temperature increasing approximately 2.2 °C (4 °F) by 2050 (Ray *et al.* 2008, p. 29). Additionally, the number of days over 32 °C (90 °F) could double by the end of the century (Karl *et al.* 2009, p. 34). Projections also show declines in snowpack across the West, with the most dramatic declines at lower elevations (below 2,500 m (8,200 ft)) (Ray *et al.* 2008, p. 29). A 10 to 30 percent decrease in precipitation in mid-latitude western North America is

projected by the year 2050, based on an ensemble of 12 climate models (Milly *et al.* 2005, p. 1). Overall, future projections for the Southwest include increased temperatures; more intense and longer-lasting heat waves; and increased probability of drought exacerbated by higher temperatures, heavier downpours, increased flooding, and increased erosion (Karl *et al.* 2009, pp. 129–134).

Utah is projected to warm more than the average for the entire globe (Governor's Blue Ribbon Advisory Council on Climate Change (GBRAC) 2008, p. 14). The expected consequences of this warming are fewer frost days, longer growing seasons, and more heat waves (GBRAC 2008, p. 14). For Utah, the projected increase in annual mean temperature by year 2100 is about 4.5 °C (8 °F) (GBRAC 2008, p. 14). Because of increased temperature, Utah soils are expected to dry more rapidly (GBRAC 2008, p. 20); this is likely to result in reduced soil moisture levels in CPSD tiger beetle habitat.

Utah is projected to have more frequent heavy precipitation events, separated by longer dry spells as a result of climate change (GBRAC 2008, p. 15). Drought is a localized dry spell. Drought conditions are a threat to the CPSD tiger beetle, as rainfall indirectly controls population size and the changing dynamics of the species (Knisley and Gowan 2009, p. 8).

Previous drought-like conditions have resulted in drastic CPSD tiger beetle population declines. For example, low rainfall amounts from 2001 to 2003 resulted in reduced adult numbers in 2004 and 2005 (Knisley and Gowan 2008, p. 8). Conversely, high adult numbers in 1996 and 2002 followed several years of higher than average rainfall (Knisley and Gowan 2008, p. 8). These observed population responses to rainfall are most likely caused by reductions and increases in prey and soil moisture. Prey is

more abundant during wet years, and this reduces the effects of starvation, decreases development time, and increases fecundity (Knisley and Hill 2001, p. 391). Soil moisture seems to have the greatest effect on oviposition and larval survival. As stated in Factor A, water is limiting to tiger beetles in CPSD, and this is evidenced by the fact that in one experiment water supplementation increased larval CPSD tiger beetle survival by 10 percent (Knisley and Gowan 2006, p. 7).

In summary, the limited geographic range of CPSD tiger beetle to high-elevation sand dunes and swales within the CPSD geologic feature limits the ability of the species to adapt by shifting its range in response to changing climatic conditions. CPSD tiger beetle survival and reproduction, as described above, are highly dependent upon soil moisture, which in turn is dependent upon climatic conditions (precipitation and temperature). Climate change is predicted to increase temperatures and increase the likelihood and duration of drought conditions in Utah. Both of these effects will reduce soil moisture in CPSD and impact CPSD tiger beetle, and for this reason, we conclude that environmental changes resulting from climate change, including drought, will be a threat to this species in the future.

<HD2>*Small Population Effects*

Under this factor we consider the small population size of 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 and occupies only 202 ha (500 ac) (Morgan *et al.* 2000, p. 1109).

A species may be considered rare because of a limited geographical range, specialized habitat, or small population size (Primack 1998, p. 176). In the absence of information identifying threats to a species and linking those threats to the rarity of a species, we do not consider rarity alone to be a threat. A species that has always been rare, yet continues to survive, could be well equipped to continue to exist into the future. Many naturally rare species have persisted for long periods within small geographic areas, and many naturally rare species exhibit traits that allow them to persist despite their small population sizes. Consequently, the fact that a species is rare does not necessarily indicate that it may be in danger of extinction.

CPSD tiger beetle has a very limited occupied range and a very small population size (558 adults in 2005 to a high of 2,944 adults in 2002). It has several characteristics typical of species vulnerable to extinction including: (1) A very narrow geographic range; (2) only one known self-sustaining population; and (3) a small population size.

Extinction may be caused by demographic stochasticity due to chance realizations of individual probabilities of death and reproduction, particularly in small populations (Shaffer 1981, p. 131; Lande 1993, pp. 911–912). Environmental stochasticity can result in extinction through a series of small or moderate perturbations that affect birth and death rates within a population (Shaffer 1981, p. 131; Lande 1993, p. 912). Lastly, extinction can be caused by random catastrophes (Shaffer 1981, p. 131; Lande 1993, p. 912). CPSD tiger beetle is vulnerable to extinction due to: (1) Demographic stochasticity due to its small population size; (2) environmental stochasticity due to continued small perturbations caused by ongoing modification and curtailment of its

habitat and range from ORV use; and (3) the chance of random catastrophe such as an extended drought.

Small populations also can be vulnerable due to a lack of genetic diversity (Shaffer 1981, p. 132). We have no information regarding genetic diversity of CPSD tiger beetle. A minimum viable population (MVP) will vary depending on the species. An MVP of 1,000 may be adequate for species of normal genetic variability, and an MVP of 10,000 should permit long-term persistence and continued genetic diversity (Thomas 1990, p. 325). These estimates should be increased by at least 1 order of magnitude (to 10,000 and 100,000) for insects, because they usually have greater population variability (Thomas 1990, p. 326). Based upon available information, CPSD tiger beetle likely does not meet these minimum population criteria for maintaining genetic diversity because the estimated population size ranges from 558 to 2,944 individuals.

We do not believe that small population size on its own would be a threat to CPSD tiger beetle. However, the species' small population size makes it 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. Thus, we consider small population size a threat to the species, now and is likely to become so in the future, as is discussed in more detail below.

<HD2>*Cumulative Impacts*

Some of the threats discussed in Factors A through E can work in concert with one another to cumulatively create conditions that will impact CPSD tiger beetle beyond the scope of each individual threat. ORV use and the drought-related effects of climate

change can reduce soil moisture. Rainfall and associated soil moisture is a critical factor for desert tiger beetles (Knisley and Juliano 1988, entire) and is likely the most important natural factor affecting population dynamics of CPSD tiger beetle. Currently, water availability limits the tiger beetle population in the CPSD (Knisley and Gowan 2006, p. 7).

As explained in previous sections (see *Factor A*), reduced precipitation reduces soil moisture directly, and drought and effects of climate change result in increased temperatures which dry soils more quickly. ORV use can reduce soil moisture by churning up soils and exposing the moisture that is locked up between soil particles, and it can also compact soil, which reduces water infiltration and reduces moisture retention in soils. Cumulatively, reduced precipitation and increased evaporation (caused by the drought-related effects of climate change), and soil compaction and soil exposure (caused by ORV use) will further dry soils that are already moisture limited. This drying could result in a further shrinking of available CPSD tiger beetle habitat and thus decrease population size, because less habitat will be suitable for larval tiger beetles and because drying of habitat reduces prey abundance. For these reasons, we find that ORV use and drought-related effects of climate change are a threat to the species both independently (presently in the case of ORV use) and cumulatively in the future.

<HD3>Summary of Factor E

Wind action created and continues to shape the CPSD (Ford *et al.* 2010, p. 387). Sand dune movement naturally occurs in this system as wind action continues to shape the dunes. Dune movement can result in a change in suitable habitat conditions (Knisley

and Gowan 2008, pp. 21–22); however, it is likely that dune movement is uncovering potential habitat as well as covering previously occupied habitat (*e.g.*, Gregory 1950, p. 188). CPSD tiger beetle evolved in a dynamic dune-dominated system, and we have no evidence to suggest that the rate of dune movement is increasing or decreasing. Thus, we have no information indicating that dune movement is a threat to this species, now or is likely to become so in the future.

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 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 the analysis in Factor E, 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 ecatastrophe, 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.

<HD1>**Determination**

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to CPSD tiger beetle. The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so throughout all or a significant portion of its range. 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.

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, CPSD tiger beetle occur sporadically throughout the dunes, but only consistently exist 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 threats and threats in the foreseeable future.

ORV use and small population effects, in combination with other stressors, are threats to the species (see *Factors A, D, and E*). These factors pose immediate threats to the species because they are ongoing. ORV use, small population effects, climate change and drought, and the cumulative impacts of ORV use and climate change and drought will threaten the species in the foreseeable future (see *Factors A, D, and E*).

Despite ongoing threats, the adult CPSD tiger beetle population size has shown a stable or slightly increasing trend since 2003, but overall trend since 1992 suggests that the population is in decline.

Recreational ORV use has reduced the amount of habitat available to CPSD tiger beetle and in this way suppresses the species population size. However, as the past 9 years of population data suggest, it is unlikely that the threat of ORV use will cause

imminent extinction for the species. It is more likely that, absent the protections of the Act, ORV use will continue to suppress the CPSD tiger beetle population size, and future drought conditions associated with climate change would act cumulatively with ORV use upon an extremely small population, causing endangerment. Because endangerment in this case is "in the foreseeable future" and the species is currently (over about the last 5 years) experiencing a stable or increasing population trend , we do not consider CPSD tiger beetle to be presently on the brink of extinction, but likely to become so in the future (Capone 2012, entire).

Therefore, on the basis of the best available scientific and commercial information, we propose listing CPSD tiger beetle as a threatened species in accordance with sections 3(6) and 4(a)(1) of the Act. Because threats are distributed across the limited range of the species, we have determined that the CPSD tiger beetle is a threatened species throughout all of its range.

<HD1>**Available Conservation Measures**

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Listing results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprising species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (http://www.fws.gov/endangered), or from our Utah Field Office (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (*e.g.*, restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of Utah would be eligible for Federal funds to implement management actions that promote the protection and recovery of CPSD tiger beetle. Information on our grant programs that are available to aid species recovery can be found at: http://www.fws.gov/grants.

Although CPSD tiger beetle is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this

interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape altering activities on Federal lands administered by the BLM; construction and management of gas pipeline and power line rights-of-way by the Federal Energy Regulatory Commission; and construction and maintenance of roads or highways by the Federal Highway Administration.

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32 for threatened species. With regard to endangered wildlife, a permit must be issued for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the U.S. Fish and Wildlife Service, Utah Field

Office (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>). Requests for copies of the regulations concerning listed animals and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 134 Union Boulevard, Suite 650, Lakewood, CO 80228; Telephone 303-236-4256.

<HD1>**Proposed Critical Habitat Designation For The Coral Pink Sand Dunes Tiger Beetle**

<HD1>**Background**

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features:

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific

resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations

identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the Primary Constituent Elements (PCEs), such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, and soil type, that are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards under the Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to

designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. 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 (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

<HD2>*Physical or Biological Features*

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features essential to the conservation of the species and which 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, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the specific physical or biological features required for CPSD tiger beetle from studies of this species' habitat, ecology, and life history as described below. We have determined that CPSD tiger beetle requires the following physical or biological features:

<HD3>Space for Individual and Population Growth

**Dune System**—CPSD consists of a series of high, mostly barren, dry dune ridges separated by lower, moister, and more vegetated interdunal swales (Romey and Knisley 2002, p. 170). The CPSD tiger beetle requires interconnected dune and swale habitats for thermoregulation, foraging, reproduction, and larval development. Adult CPSD tiger beetles use most of the dune area from the swales (low place between sand dunes) to the upper dune slope for foraging and thermoregulation. Larval CPSD tiger beetles are more restricted to moist, vegetated swale areas (Knisley and Hill 2001, p. 386). Therefore, based on the information above we identify sand dunes and swales within the CPSD geologic feature as an essential physical or biological feature for this species.

**Climate**—The CPSD tiger beetle occurs only at the CPSD geologic feature in southern Utah. CPSD elevation ranges from a low of 1,710 m (5,620 ft) to a high of 2,090 m (6,850 ft) (Ford *et al.* 2010, p. 381). The nearest weather station, in Kanab, Utah, has a mean annual temperature of 12.4 °C (54.4 °F) andmean annual precipitation of 33.8 cm (13.3 inches) with winter-summer precipitation peaks and spring-autumn drought (Ford *et al.* 2010, p. 381). These climatic conditions are influenced, in part, by elevation. Rainfall and the associated increase in soil moisture have a positive effect on CPSD tiger beetle oviposition and survivorship (Knisley and Hill 2001, p. 391) and the areas in the dune field with the highest soil moisture contain the highest densities of larvae (Knisley and Gowan 2011, p. 22). Because the CPSD tiger beetle has evolved in these climatic conditions and because precipitation and moisture are important to survival, we identify suitable precipitation regimes, a dry spring and fall, and winter and summer precipitation as essential physical or biological features for this species.

Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

**Food**—CPSD tiger beetle are predatory insects. Adults are active, visual hunters that use their large mandibles to capture and eat small arthropods. Adults primarily forage on dune faces and swale edges (Hill and Knisley 1996, p. 9). Adults are food limited in some years, which results in reduced fecundity (Knisley and Gowan 2008, p. 19). Larvae are sedentary predators that live in permanent burrows in the ground and use large mandibles to capture small arthropods that pass near their burrow. CPSD tiger beetle feed primarily on ants, flies, and other small arthropods (Knisley and Hill 1993, p. 13).

In summary, CPSD tiger beetle is food limited in some years. Both adults and larvae use their large mandibles to capture arthropods. Their primary prey are ants, flies, and other small arthropods. Therefore, based on the information above, we identify an abundant and diverse arthropod prey base to be an essential physical or biological feature for this species.

<HD3>Cover or Shelter

**Adult Burrows**—Adult CPSD tiger beetle use cover or shelter to help maintain internal body temperatures (thermoregulation). During peak spring and fall activity, when it is sunny, adults are usually active early (9 a.m.–2 p.m.) and again in late afternoon (4 p.m.–7p.m.) (Knisley and Hill 1993, pp.13–14). They dig and reside in the sand in burrows to avoid unfavorable weather conditions such as hot mid-afternoons or daytime conditions that are cool or rainy (Knisley and Hill 1993, p. 14). Shade provided

by vegetative cover also is important for thermoregulation during warmer periods (Knisley 2012, pers. comm.). Therefore, based on the information above, we identify sand dunes and vegetation as an essential physical or biological feature for this species.

Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring

**Larval Beds**—Adult females determine the larval microhabitat by their selection of an oviposition site (Knisley and Gowan 2011, p. 6). Newly hatched larvae construct burrows in sand soils at the site of oviposition and subsequently pass through three larval stages (each stage is called an "instar") before pupating and then emerging to the adult form. Larvae 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).

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 (Knisley and Hill 1996, p. 11; Knisley and Gowan 2011, p. 22). Larvae primarily inhabit areas with 3 to 25 percent soil moisture (Romney and Knisley 2002, p. 172). Soil moisture is critical to larval CPSD tiger beetle survival. Drying or desiccation can kill tiger beetles (Knisley and Juliano 1998, p. 1990), and almost no larvae survive below 3 percent soil moisture (Romen and Knisley 2002, p. 172). Water tends to be so limiting in CPSD that water supplementation increases larval CPSD tiger beetle survival by 10 percent (Knisley and Gowan 2006, p. 7). We are not aware of an upper limit, in terms of soil moisture, where increases in soil moisture are detrimental to larval CPSD tiger beetle survival.

Larvae are most common in swales with a relatively high total percent vegetation cover (means of 23 to 57 percent) (Knisley and Hill 2001, p. 389). The swale vegetation supports the prey base of ants, flies, and other prey upon which larvae depend. Low or no vegetation results in a reduced prey base. Vegetative cover above 57 percent tends to stabilize sediments too much and may prevent adults from ovipositing (Knisley 2012, pers. comm.).

In summary, adult ovipositing determines the habitats used by larval CPSD tiger beetle. Soil moisture and prey availability are essential for larval growth and survival. Vegetation supports the prey base; however, too much vegetation cover can make habitat unsuitable for ovipositing. Therefore, based on the information above, we identify swale habitat, soil moisture, an abundant and diverse prey base, and 23 to 57 percent vegetation cover as the essential physical or biological features for this species.

<HD2>*Primary Constituent Elements for CPSD Tiger Beetle*

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of CPSD tiger beetle in areas occupied at the time of listing, focusing on the features' PCEs. We consider PCEs to be the elements of physical or biological features that are all needed to provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the PCEs specific to CPSD tiger beetle are: 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% that allows for ovipositing, adult thermoregulation, and abundant prey.

With this proposed designation of critical habitat, we intend to identify the physical or biological features essential to the conservation of the species, through the identification of PCEs sufficient to support the life-history processes of the species. All units and subunits proposed for designation as critical habitat are currently occupied by CPSD tiger beetle and contain the PCEs sufficient to support the life-history needs of the species.

<HD2>*Special Management Considerations or Protection*

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. A detailed discussion of threats to CPSD tiger beetle and its habitat can be found in the **Summary of Factors Affecting the Species** section**.**

The primary threats impacting the physical and biological features essential to the conservation of CPSD tiger beetle that may require special management considerations or protection within the proposed critical habitat include, but are not limited to, ORV use, drought, and climate change, and the cumulative effects of all of these threats.

The features essential to the conservation of this species (sand dunes, moist and vegetated swales, and prey species) may require special management considerations or protection to reduce threats. Extremely low numbers and a highly restricted geographic range make CPSD tiger beetle particularly susceptible to extinction in the foreseeable future. Special management considerations or protections are required within critical habitat areas to address threats. Management activities that could ameliorate threats include (but are not limited to): The establishment of a second self-sustaining population; regulations and/or agreements that balance conservation with ORV use in areas that would affect the species; the designation of additional protected areas with specific provisions and protections for the species; and the elimination or avoidance of activities that alter the soil moisture, vegetation community, or prey base in swale habitat. These management activities would protect the PCEs for the species by preventing the loss of habitat and individuals, protecting dune and swale habitat, and managing for appropriate levels and types of disturbance.

<HD2>*Criteria Used To Identify Critical Habitat*

As required by section 4(b)(1)(A) of the Act, we use the best scientific and commercial data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we consider whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—are necessary to ensure the conservation of the species. We are proposing to designate critical habitat concurrent with listing in areas within the geographical area

occupied by the species.

We are proposing to designate all currently occupied habitat as critical habitat—any degradation of existing occupied habitat would further increase CPSD tiger beetle's susceptibility to extinction. CPSD tiger beetle primarily occurs in two populations that are separated by 4.8 km (3 mi) of dunes. We include the 4.8-km (3-mi) dune segment that separates the two populations because dispersal is likely important for the long term-survival of the species (see *Habitat*, above), and this central dune segment is used by dispersing adults. Comprehensive surveys have not been conducted in this area for 20 years, and we have no information to confirm the present occurrence of larval CPSD tiger beetles and swale habitat.

We delineated the critical habitat unit boundaries for CPSD tiger beetle using the following steps:

(1) In determining what areas were occupied by CPSD tiger beetle, we used data collected by Dr. Barry Knisley (Hill and Knisley 1993 pp. 7–10; Knisley and Hill 1994 pp. 5–10; Knisley and Gowan 2005, pp. 7–8; Knisley and Gowan 2011 p. 29) to map the central and northern populations of CPSD tiger beetle using ArcMap 9.3.1.

(2) We delineated proposed critical habitat areas by creating polygons around each population. Because of the narrowness of the actual CPSD area (less than 1.6 km (1 mi)) and the shifting and movement of habitat within the CPSD system, we included the entire width of the CPSD area surrounding each population.

(3) We then included a dispersal corridor, the dune area between the central and northern populations. We delineated the dispersal corridor as the entirety of the dune area between the central and northern populations because the entirety of the dune area

could be used by dispersing adults.

When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features for CPSD tiger beetle. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We are proposing for designation of critical habitat lands that we have determined are occupied at the time of listing and contain sufficient elements of physical or biological features to support life-history processes essential for the conservation of the CPSD tiger beetle.

One unit is proposed for designation based on sufficient elements of physical or biological features being present to support CPSD tiger beetle life-history processes. This unit contains all of the identified elements of physical or biological features and supports multiple life-history processes.

<HD1>**Proposed Critical Habitat Designation**

We are proposing one unit as critical habitat for CPSD tiger beetle. The critical

habitat area we describe below constitutes our current best assessment of the area that meets the definition of critical habitat for CPSD tiger beetle. The unit will be occupied at the time of any listing and is currently occupied. The approximate area of the proposed critical habitat unit is shown in Table 2.

**TABLE 2. Proposed critical habitat unit for CPSD tiger beetle. [Area estimates reflect all land within critical habitat unit boundaries.]**

| Critical Habitat Unit | Land Management by Type | Size of Area |
|---|---|---|
| CPSD Unit | CPSD State Park (UDNR) | 310 ha (767 ac) |
| | BLM | 610 ha (1,508 ac) |
| Total | | 921 ha (2,276 ac) |

Note: Area sizes may not sum due to rounding.

We present brief descriptions of the unit, and reasons why it meets the definition of critical habitat for CPSD tiger beetle, below.

<HD2>*CPSD Unit*

The Unit consists of 921 ha (2,276 ac) of dune habitat and is located entirely within the CPSD geologic feature (see Proposed Regulation Promulgation, below). The southern 310 ha (767 acres) are located within CPSD State Park. The northern 610 ha (1,508 ac) are located on BLM land.

CPSD State Park is categorized as public land with a recreational emphasis. The State Park encompasses the southern 809 ha (2,000 ac) of the CPSD geologic feature. The habitat consists of a series of high, mostly barren, dry dune ridges separated by lower, moister, and more vegetated interdunal swales (Romey and Knisley 2002, p. 170). The proposed unit overlaps an existing 84 ha (207 ac) of State Park nonmotorized area (Conservation Area A). The remaining 227 ha (560 ac) of the State Park are open to

ORV use.

The BLM Kanab Resource Area manages the northern 610 ha (1,508 ac) of the CPSD geologic feature (BLM 2000, p. 14). The BLM portion of the proposed Unit is characterized by dunes and swales that contain dense pockets of vegetation. In general, dunes and swales in this unit are more stable and more highly vegetated than those in the State Park (Ford *et al.* 2010, pp. 387-392). The proposed unit overlaps an existing 150 ha (370 ac) of BLM nonmotorized area (Conservation Area B). The remaining 460 ha (1,138 ac) of BLM land are open to ORV use.

This unit currently has all the physical and biological features essential to the conservation of the species. This unit requires special management considerations or protections from the threats of ORV use, drought, and climate change. It is located within the appropriate elevation range, and it contains numerous moist and vegetated swales near dunes. Adult and larval CPSD tiger beetle have occurred throughout the proposed State Park owned portion of the Unit continuously for the past 20 years (Knisley and Gowan 2011, p. 8), and small numbers of adult and larval CPSD tiger beetles occupy the northern extent within the BLM Conservation Area B habitat (Knisley and Gowan 2011, p. 9). The central portion of the proposed unit between Conservation Areas A and B may contain suitable swale habitat and larval beetles; however, comprehensive surveys have not been conducted in the past 20 years, and we have no information to confirm the present occurrence of larval CPSD tiger beetles. However, the central portion of the proposed unit is used by dispersing adult beetles, and likely serves as a link between the two known populations.

<HD2>*Areas Outside Proposed Critical Habitat*

As stated previously, we recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species.

Only areas within the historical distribution of CPSD tiger beetle were considered for proposed critical habitat because areas outside of the historical distribution do not contain the requisite PCEs for the species. For this reason, we did not consider unoccupied areas outside of the CPSD geologic feature.

We did consider the 227 ha (560 ac) of sand dunes within CPSD State Park that exist south of our proposed critical habitat unit (see Figure 4 below). However, we have no information suggesting that this dune area was historical habitat, or is now suitable habitat for CPSD tiger beetle. Unlike the areas included within the proposed critical habitat unit, this southern area has no record of CPSD tiger beetle larval presence nor is there record of regular adult occurrence. As we described previously (see *Habitat*), wind action in the dunes primarily blows from south to north, and wind velocity decreases as it moves across the sand dunes (from south to north). This results in a dynamic and less vegetated south Dune area that transitions to a less dynamic and more heavily vegetated and higher northern Dune area (Ford *et al*. 2010, pp. 387–392). The dynamic southern area has less vegetation cover (Ford *et al.* 2010, pp. 387–392) and the high wind energy likely reduces soil moisture levels (*e.g.*, Lortie and Cushman 2007, pp. 478–479). We believe the lack of PCEs (vegetative cover and appropriate soil moisture) make the south

Dune area unsuitable as critical habitat (see *Factor A* for a discussion of the importance of soil moisture and vegetation).

<HD1>**Effects of Critical Habitat Designation**

<HD2>*Section 7 Consultation*

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of "destruction or adverse modification" (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al*., 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible

Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define "reasonable and prudent alternatives" (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action;

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction;

(3) Are economically and technologically feasible; and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

<HD2>*Application of the "Adverse Modification" Standard*

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may

destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for CPSD tiger beetle. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the CPSD tiger beetle. These activities include, but are not limited to:

(1) Actions that would reduce soil moisture or vegetative cover in swale habitats. Such activities could include, but are not limited to, continued or increased vehicular access or pedestrian traffic in or adjacent to occupied habitats. These activities could reduce soil moisture by churning up soils and exposing the moisture that is locked up between soil particles (beneath the surface) to greater evaporative pressure (Shultz 1988, p. 28) and by increasing soil compaction (Adams *et al.* 1982, p. 167). These activities also could reduce vegetative cover by trampling and subsequently injuring or killing plants.

Reduced soil moisture may lead to death of some CPSD tiger beetle larvae, as soil moisture is the most important factor determining larval tiger beetle survival (Knisley and Juliano 1988, entire). Reduced vegetative cover adversely impacts CPSD tiger beetle ovipositioning, adult thermoregulation, and prey base. Low prey densities can result in

prolonged development and decreased survivorship in larval tiger beetles and reduced size in adults, which lowers fecundity in females (Pearson and Knisley 1985, p. 165; Knisley and Juliano 1988, p. 1990).

(2) Actions that would significantly affect dune morphology or dynamics. Such activities could include road or campground construction within or adjacent to the dunes. CPSD is a dynamic system where wind action continues to shape the dunes and redistribute sediment. Any significant alteration to dune morphology or dynamics may alter the arrangement and amount of swale and dune habitat available to CPSD tiger beetle.

<HD1>**Exemptions**

<HD2>*Application of Section 4(a)(3) of the Act*

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide

for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

There are no Department of Defense lands within the proposed critical habitat designation. Thus, we are not proposing any exemptions based on section 4(a)(3)(B)(i).

<HD1>**Exclusions**

<HD2>*Application of Section 4(b)(2) of the Act*

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an

area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

Under section 4(b)(2) of the Act, we may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species.

<HD3>Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the economic impacts of the proposed critical habitat designation and related factors.

Upon completion, copies of the draft economic analysis will be available for downloading from the Internet at http://www.regulations.gov, or by contacting the Utah Fish and Wildlife Office directly (see <E T='02'>**FOR FURTHER INFORMATION**

**CONTACT**</E> section). During the development of a final designation, we will consider economic impacts, public comments, and other new information. Areas may be excluded from the final critical habitat designation under section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19.

<HD3>Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense where a national security impact might exist.

In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for CPSD tiger beetle are not owned or managed by the Department of Defense, and, therefore, we anticipate no impact on national security. Consequently, the Secretary does not propose to exercise his discretion to exclude any areas from the final designation based on impacts on national security.

<HD3>Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors, including whether the landowners have developed any HCPs or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any Tribal issues, and consider the government-to-government relationship of the United States with Tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this proposal, we have determined that there are currently no HCPs for CPSD tiger beetle, and the proposed designation does not include any Tribal lands or trust resources. We anticipate no impact on Tribal lands, partnerships, or HCPs from this proposed critical habitat designation. As we described previously, a CCA exists for CPSD tiger beetle (see *Factor A* and *D).* However, we determined in Factor A and D that this agreement is not adequately reducing threats to the species. Accordingly, the Secretary does not propose to exercise his discretion to exclude any areas from the final designation based on other relevant impacts.

<HD1>**Peer Review**

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our listing and critical habitat designation is based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during this public comment period on this proposed rule to list the species as threatened and the designation of critical habitat.

We will consider all comments and information received during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

<HD1>**Public Hearings**

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

<HD1>**Required Determinations**

<HD2>*Regulatory Planning and Review—Executive Orders 12866 and 13563*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best

available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

<HD2>*Regulatory Flexibility Act* (5 U.S.C. 601 *et seq.*)

Under the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq*.) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C 801 *et seq.*), whenever an agency must publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

At this time, we lack the available economic information necessary to provide an adequate factual basis for the required RFA finding. Therefore, we defer the RFA finding until completion of the draft economic analysis. This draft economic analysis will provide the required factual basis for the RFA finding. Upon completion of the draft economic analysis, we will announce availability of the draft economic analysis of the proposed designation in the **Federal Register** and reopen the public comment period for the proposed designation. We will include with this announcement, as appropriate, an

initial regulatory flexibility analysis or a certification that the rule will not have a significant economic impact on a substantial number of small entities accompanied by the factual basis for that determination.

Land use sectors that could be affected by this proposed rule include: BLM land managers, CPSD State Park land managers, and ORV users that may be or are utilizing the proposed critical habitat unit.

We have concluded that deferring the RFA finding until completion of the draft economic analysis is necessary to meet the purposes and requirements of the RFA. Deferring the RFA finding in this manner will ensure that we make a sufficiently informed determination based on adequate economic information and provide the necessary opportunity for public comment.

<HD2>*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect the designation of this proposed critical habitat to significantly affect energy supplies, distribution, or use as there is no energy supply or distribution infrastructure near the proposed critical habitat. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

<HD2>*Unfunded Mandates Reform Act* (2 U.S.C. 1501 *et seq.*)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq*.), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both "Federal intergovernmental mandates" and "Federal private sector mandates." These terms are defined in 2 U.S.C. 658(5)-(7). "Federal intergovernmental mandate" includes a regulation that "would impose an enforceable duty upon State, local, or tribal governments" with two exceptions. It excludes "a condition of Federal assistance." It also excludes "a duty arising from participation in a voluntary Federal program," unless the regulation "relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority," if the provision would "increase the stringency of conditions of assistance" or "place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding," and the State, local, or Tribal governments "lack authority" to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. "Federal private sector mandate" includes a regulation that "would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program."

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments because the lands being proposed for critical habitat designation are owned by the State of Utah, and the BLM. None of these government entities fit the definition of "small governmental jurisdiction." Therefore, a Small Government Agency Plan is not required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

<HD2>*Takings—Executive Order 12630*

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for CPSD tiger beetle in a takings

implications assessment. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this designation of critical habitat for CPSD tiger beetle does not pose significant takings implications for lands within or affected by the designation.

<HD2>*Federalism—Executive Order 13132*

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies in Utah. The designation of critical habitat in areas currently occupied by CPSD tiger beetle may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a

Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

<HD2>*Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. This proposed rule uses standard property descriptions and identifies the elements of physical or biological features essential to the conservation of the CPSD tiger beetle within the designated areas to assist the public in understanding the habitat needs of the species.

<HD2>*Paperwork Reduction Act of 1995* (44 U.S.C. 3501 *et seq.*)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq*.). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

<HD2>*National Environmental Policy Act* (42 U.S.C. 4321 *et seq.*)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the NEPA (42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).]

However, when the range of the species includes States within the Tenth Circuit, such as that of CPSD tiger beetle, under 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 undertake a NEPA analysis for critical habitat designation and notify the public of the availability of the draft environmental assessment for this proposal when it is finished.

<HD2>*Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206

of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes.

We determined that there are no Tribal lands that were occupied by CPSD tiger beetle at the time of listing that contain the features essential for conservation of the species, and no Tribal lands unoccupied by the CPSD tiger beetle that are essential for the conservation of the species. Therefore, we are not proposing to designate critical habitat for CPSD tiger beetle on Tribal lands.

<HD2>*Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers

of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

<HD1>**References Cited**

A complete list of references cited in this rulemaking is available on the Internet at http://www.regulations.gov and upon request from the Utah Field Office (see <E T='02'>**FOR FURTHER INFORMATION CONTACT**</E>).

<HD1>**Authors**

The primary authors of this package are the staff members of the Utah Field Office.

<LSTSUB><HED>**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.</LSTSUB>

<HD1>**Proposed Regulation Promulgation**

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

<PART><HED>**PART 17—[AMENDED]**

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

<AUTH><HED>Authority:<P> 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16

U.S.C. 4201–4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.11(h) by adding an entry for "Beetle, Coral Pink Sand Dunes tiger" in alphabetical order under "Insects" to the List of Endangered and Threatened Wildlife to read as follows:

**§ 17.11 Endangered and threatened wildlife.**

* * * * *

(h) * * *

| Species | | Historical range | Vertebrate population where endangered or threatened | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Common name | Scientific name | | | | | | |
| * * * * * * * | | | | | | | |
| INSECTS | | | | | | | |
| * * * * * * * | | | | | | | |
| Beetle, Coral Pink Sand Dunes tiger | *Cicindela albissima* | U.S.A. (UT) | NA | T | | 17.95(i) | NA |
| * * * * * * * | | | | | | | |

3. In § 17.95, amend paragraph (i) by adding an entry for "Coral Pink Sand Dunes Tiger Beetle (*Cicindela albissima*)," in the same alphabetical order that the species appears in the table at § 17.11(h), to read as follows:

**§ 17.95 Critical habitat—fish and wildlife.**

* * * * *

(i) *Insects.*

* * * * *

<HD1>**Coral Pink Sand Dunes Tiger Beetle (*Cicindela albissima*)**

(1) A single critical habitat unit is depicted for Kane County, Utah on the map below.

(2) Within this area, the primary constituent elements of the physical or biological features essential to the conservation of the Coral Pink Sand Dunes tiger beetle consist of:

(i) Dynamic sand dunes and swales within the Coral Pink Sand Dunes geologic feature that have:

(A) Elevations from 1,710 to 2,090 m;

(B) Appropriate levels of moisture and compaction to allow for burrowing (greater than 3 percent); and

(C) Vegetative cover of 23–57 percent that allows for ovipositing, adult thermoregulation, and abundant prey.

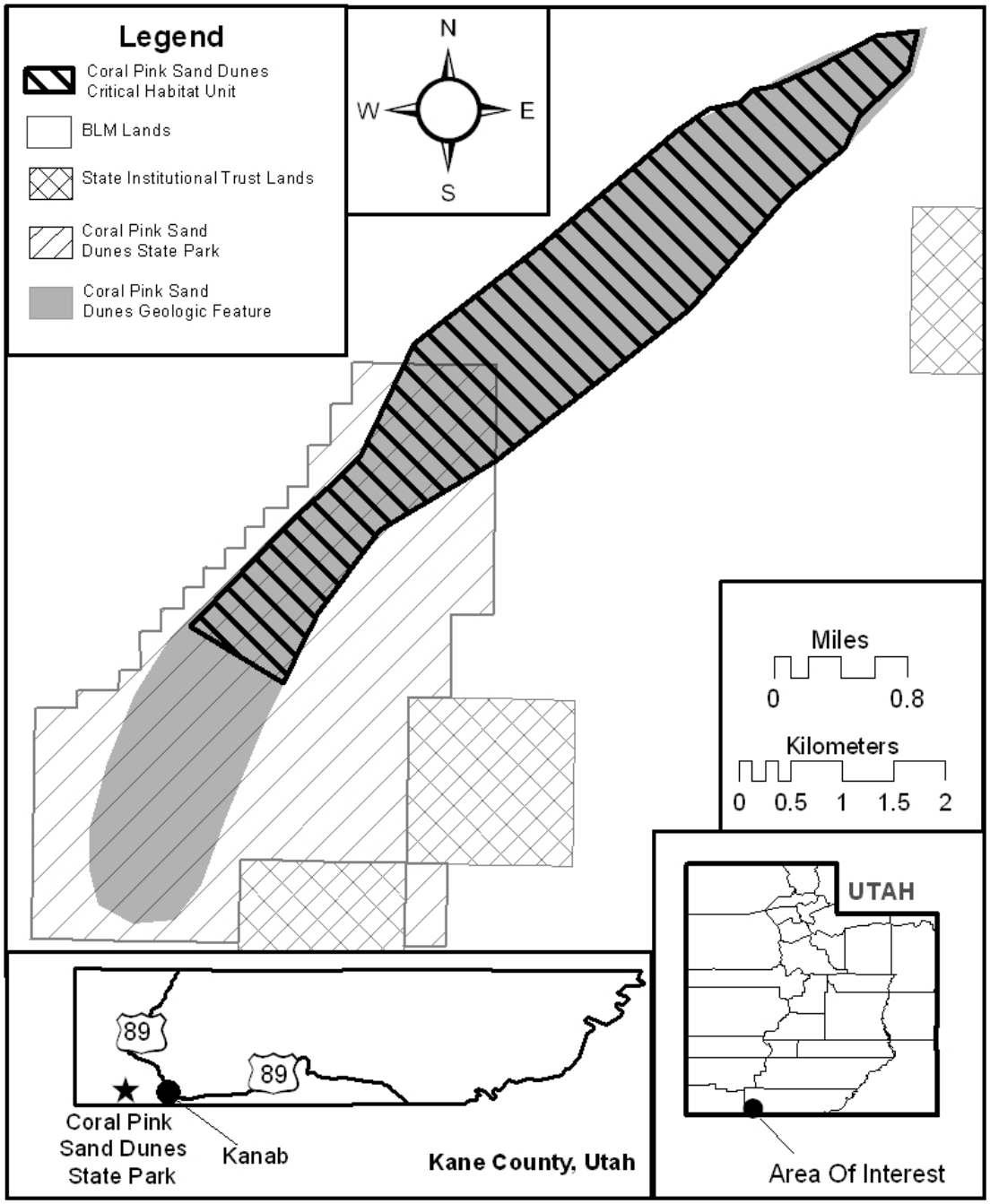
(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) Critical habitat map unit. Data layers defining the map unit were created on a

base of both satellite imagery (NAIP 2009) as well as USGS geospatial quadrangle maps and were mapped using NAD 83 Universal Transverse Mercator (UTM), zone 13N coordinates. Location information came from a wide array of sources. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which the map is based are available to the public at the Service's internet site, http://www.fws.gov/utahfieldoffice/, at http://www.regulations.gov in Docket No. FWS–R6–ES–2012–0053 and at the field office responsible for the designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Unit 1: Coral Pink Sand Dunes Tiger Beetle, Kane County, Utah. Note: Map of Unit 1 follows:

[GPO Begin Photograph]




[GPO End Photograph]

* * * * *

<SIG>
<DATED>Dated: September 14, 2012.
<TITLE>Acting Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.</SIG>

[FR Doc. 2012-23741 Filed 10/01/2012 at 8:45 am; Publication Date: 10/02/2012]