

September 2013

Final Economic Analysis of Critical Habitat Designation for the Coral Pink Sand Dunes Tiger Beetle

Final Report

Prepared for

U.S. Fish and Wildlife Service

Prepared by

Jennifer Richkus

Carol Mansfield

Ross Loomis

Mary Barber

RTI International

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EXECUTIVE SUMMARY

ES.1 Purpose of the Economic Analysis

The purpose of this analysis is to evaluate the potential economic impacts associated with the proposed critical habitat designation for the Coral Pink Sand Dunes (CPSD) tiger beetle. The analysis considers current and future impacts on economic efficiency as well as the distribution of economic impacts that may result from efforts to protect the CPSD tiger beetle and its habitat. In addition, the evaluation considers the benefits of the proposed action; distributional impacts on small businesses; whether the proposed listing or designation can be seen as an unfunded mandate on local government; and whether the action would significantly affect energy supply, distribution, and use.

In accordance with the 10th Circuit U.S. Court of Appeals ruling in *New Mexico Cattle Growers Association v. U. S. Fish and Wildlife Service (Service)*, this analysis considers the co-extensive cost impacts of the proposed critical habitat's protection. Co-extensive impacts include baseline impacts, which are a result of the proposed listing, and incremental impacts, which are solely attributable to the proposed designation of critical habitat.

ES.2 Description of Critical Habitat and Surrounding Economy

On October 2, 2012, the Service proposed to list the CPSD tiger beetle as a threatened species and to designate one critical habitat unit consisting of 2,276 acres under the Endangered Species Act (Act). The proposed critical habitat unit is occupied by the species and located entirely on State and federally managed lands. Figure ES-1 illustrates the location of the proposed critical habitat unit.

The proposed critical habitat is located 7 miles west of Kanab, a small town in Kane County, Utah (Figure ES-1). Nearly 90 percent of the county land is federally owned and 7 percent is privately owned. Kane County's economy is significantly tied to tourism, with nearly 30 percent of the total employment being tourism related. The population in the county was estimated to be 7,257 in 2011 and is expected to increase to almost 8,750 by 2020.

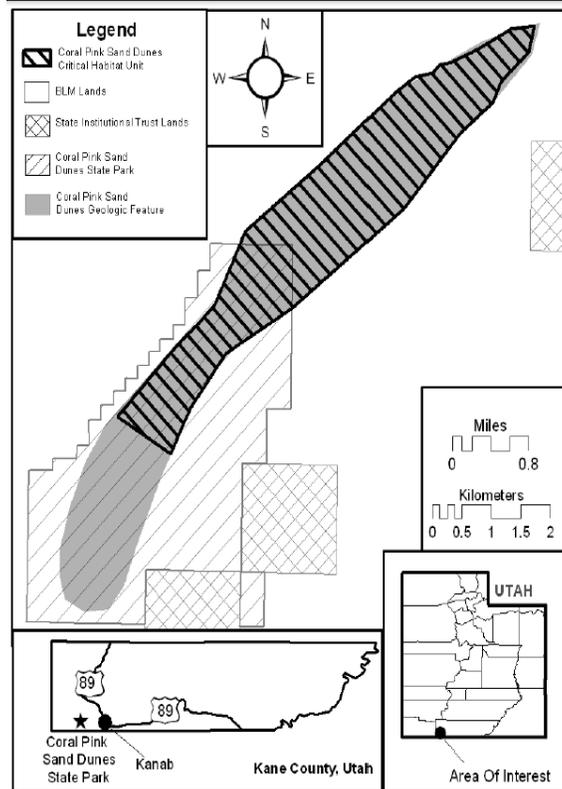


Figure ES-1. Proposed Coral Pink Sand Dunes Tiger Beetle Critical Habitat, Nearby Town and Local County

Source: Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Coral Pink Sand Dunes Tiger Beetle and Designation of Critical Habitat; Proposed Rule, 77 Federal Register 191 (2 October 2012), pp. 60208–60235.

ES.3 Key Findings

The proposed critical habitat designation for the CPSD tiger beetle is expected to result in minimal incremental costs because the habitat is occupied and the conservation measures anticipated as a result of the listing are intended provide protection for the species and its primary constituent elements. Furthermore, the baseline protections afforded by existing conservation activities partially address one of the primary threats to the species and the habitat: off-road vehicle (ORV) use. Table ES-1 summarizes the co-extensive economic impacts of the proposed listing and critical habitat designation.

We anticipate that co-extensive impacts to economic activities will be associated primarily with the administrative costs of the Act’s Section 7 consultations, development of

incidental take permits, and consumer surplus losses¹ from anticipated ORV restrictions in CPSD State Park. Using a discount rate of 7 percent to determine net present value, the cost of these impacts is estimated to be approximately \$248,215 over the next 20 years, at an annualized cost of \$12,411. Costs associated with conservation activities that are indirectly attributable to the proposed listing are projected to be \$538,441 over the next 20 years (Table ES-1). In addition, ORV visitors to Bureau of Land Management (BLM) land adjacent to the State Park would potentially also lose consumer surplus. These costs are unquantified because of a lack of reliable visitation data.

Table ES-1. Summary of Co-Extensive Economic Impacts with a 7 Percent Discount Rate, 2013–2032

	Economic Activities					Total Co-extensive
	BLM RMP Consultations	ORV-related Consumer Surplus Losses ^a	State Park Incidental Take Permit	Other Management Activities	Conservation Activities	
Economic Impact Type	Administrative Time, 521 hours	Reduced Consumer Surplus \$14,994/year	Administrative Time, 47.5 hours	Administrative Time, 1,283 hours	Research, Monitoring and Patrol	
Undiscounted	\$33,063	\$299,882	\$2,542	\$83,610	\$950,000	\$1,369,096
Net Present Value @ 7%	\$28,318 ^b	\$169,967	\$2,542 ^c	\$47,388	\$538,441	\$786,656
Average Annual Discounted Cost	\$1,416	\$8,498	\$127 ^c	\$2,369	\$26,922	\$39,333

Note: BLM = Bureau of Land Management; CPSD = Coral Pink Sand Dunes; ORV = off-road vehicle; RMP = Resource Management Plan.

^a Estimated consumer surplus losses from CPSD State Park. We could not quantify losses from adjacent BLM land.

^b The net present value of BLM RMP consultations includes the undiscounted cost of a consultation, expected to take place in 2013, and the discounted cost of an additional RMP consultation, anticipated to take place in 2018.

^c Undiscounted because the action is expected to take place in 2013.

Because the Service, State Park, and BLM are the only entities impacted by the administrative costs of the proposed listing and designation, the proposed action will not directly impact small businesses disproportionately, impose an unfunded mandate, or significantly affect the energy supply, distribution, and use. Small businesses that serve ORV users who come to the area could be indirectly affected if additional restrictions on ORV use are imposed and the

¹ Consumer surplus is the difference between the maximum amount of money that a good or service is worth to an individual (the maximum he or she would be willing to pay for it) and the cost of the good or service to the individual.

restrictions lead to a reduction in the number of visitors coming to the area. If fewer visitors come to the area, then the local economy will lose revenue, which will affect all businesses, including small businesses.

ES.4 Conservation Benefits

Although the primary goal of the proposed listing and critical habitat designation is the conservation benefit to the species, additional benefits may be realized through the action such as preserving the natural state of the environment and increased enjoyment by nonmotorized visitors. We anticipate that conservation benefits will result from the changes in where ORVs are allowed to drive within the proposed critical habitat Unit. ORV use within the dunes creates user conflicts between motorized and nonmotorized visitors, and generates noise and dust (BLM, 2008). An additional benefit of the proposed designation is the potential for benefits to other species co-occurring with the CPSD tiger beetle, including vegetation and CPSD tiger beetle prey species within the new areas where ORV access will be restricted.

ES.5 Sources of Uncertainty

Estimating the impact of a regulation on future outcomes is inherently uncertain. Project costs and associated costs of compliance are project dependent. Although we relied on expert opinion and publicly available sources to estimate these costs, they are not definitive. The timing of future projects affects the present value of the cost estimates because of the time value of money, but the precise timing is uncertain. The quantity and type of future consultations will be influenced by variables such as economic and biological fluctuations, which cannot be forecast precisely. We relied on proposed activities and expert opinion to develop these estimates.

SECTION 1 INTRODUCTION

1.1 Purpose of the Economic Analysis

Under Section 4(b)(2) of the Endangered Species Act of 1973, as amended (Act), the Secretary of the Interior must consider the economic impact of a critical habitat designation. The Secretary of the Interior may exclude any area from critical habitat if the benefits of exclusion outweigh the benefits of inclusion, as long as exclusion will not result in the extinction of the species. This economic analysis was developed to provide the U.S. Fish and Wildlife Service (Service) with information to support decision-making regarding the proposed critical habitat designation for the Coral Pink Sand Dunes (CPSD) tiger beetle (*Cicindela albissima*, hereafter referred to as CPSD tiger beetle or “species”). The analysis includes an evaluation of the economic efficiency impacts and benefits stemming from the proposed listing and designation. In addition, the evaluation considers distributional impacts on small businesses and whether the action would significantly affect energy supply, distribution, and use.

The analysis considers co-extensive impacts of both the proposed species listing and the proposed critical habitat designation, as directed by the 10th Circuit U.S. Court of Appeals. The analysis also informs compliance determinations, such as those for Executive Orders 12866, 12630, and 13211; and the Regulatory Flexibility Act, Unfunded Mandates Reform Act, and all related amendments. To support these determinations, we estimate the co-extensive cost impacts of the critical habitat’s protection. Co-extensive impacts include the baseline impacts, which occur directly or indirectly as a result of the proposed listing, and incremental impacts, which are solely attributable to the designation of critical habitat. The analysis considers current and future impacts on economic efficiency as well as the distribution of economic impacts that may result from efforts to protect the CPSD tiger beetle and its habitat.

1.2 Background

1.2.1 Species Information

The CPSD tiger beetle occurs within the CPSD geologic feature located in Kane County, Utah. The high elevation of the dunes (~1,820 meters) is essential for the species’ survival; the soil moisture required by the beetles is greater at higher altitudes because of increased precipitation. Adult beetles are likely to inhabit the dune slopes and edges of vegetated dune swales, where they prey on live and dead invertebrates that live in the vegetation. Larvae are more likely to be observed in the damper, more protected swales (FWS, 2008).

Because the dunes and dune swales shift periodically, the species' habitat changes frequently. The Service estimates that the CPSD tiger beetle patchily inhabits less than 20 percent of the 3,500-acre dune feature, within which there are only two populations (FWS, 2012). The central population is considered self-sustaining and occurs within CPSD State Park, managed by the State of Utah. The northern population, located on Bureau of Land Management (BLM) land, is not considered self-sustaining and most likely consists of CPSD tiger beetles that have dispersed from the central population. CPSD tiger beetles have also been observed in the 3-mile corridor between the northern and central populations near vegetated dune swales (FWS, 2008). This area serves as a dispersal corridor between the two populations. The geologic feature is assumed to be the historic extent of the species because of the lack of suitable habitat outside of CPSD (FWS, 2012).

Threats to the CPSD tiger beetle and its habitat include off-road vehicle (ORV) use, drought, and climate change. ORV use can directly affect the species through direct contact. ORV use, drought, and climate change can indirectly affect the species by damaging the vegetative cover and altering moisture content, vegetative cover, and vegetative species. Furthermore, the cumulative impact of these threats is a concern because of the small size of the populations, increasing the species' vulnerability to extinction.

1.2.2 Historical Conservation Measures

In 1994, the Service updated the CPSD tiger beetle's status from Category 2 to Category 1, indicating that enough evidence of the species' biological vulnerability was present to add it to the list of candidate species for endangered or threatened species status (59 FR 178: 47293-47294). Although the Service discontinued the use of categories in 1996, the CPSD tiger beetle has remained a candidate species since that time.

In 1997, two conservation areas were formed as part of a Candidate Conservation Agreement (CCA) between the Service, BLM, Utah Department of Natural Resources (DNR), and Kane County, Utah. The CCA aims to protect the CPSD tiger beetle and its habitat while allowing other activities, such as ORV use, to continue to take place within the CPSD geologic feature. As part of this agreement, BLM and CPSD State Park have committed to providing onsite education and enforcing ORV restrictions on the Conservation Areas (FWS, 2009). The CCA was renewed in 2009 and updated in 2013 to better capture the habitat and travel corridors of the CPSD tiger beetle (FWS, 2012).

Conservation Area A is centrally located and covers 266 acres. It corresponds with the approximate location of the central population; however, approximately 12% of the occupied

swales to the north, south and east of Conservation Area A are not contained within the conservation area (FWS, 2013). Conservation Area B is located in the northern portion of the CPSD geologic feature and covers 370 acres. In addition, 263 acres of habitat between Conservation Areas A and B is also protected under the 2013 CCA. Although the extent to which the CPSD tiger beetle occupies the northern portion of the geologic feature is not known, we assume that the northern population overlaps with Conservation Area B (77 FR 191: 60213). Figure 1-1 illustrates the conservation areas and the two known populations of the species.

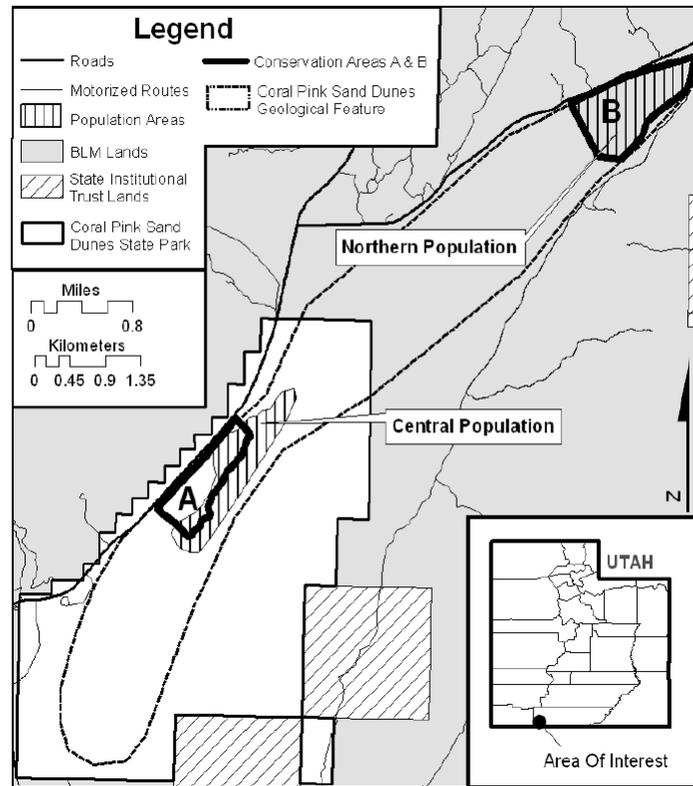


Figure 1-1. Coral Pink Sand Dunes Tiger Beetle Populations and Conservation Areas

Source: Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Coral Pink Sand Dunes Tiger Beetle and Designation of Critical Habitat; Proposed Rule, 77 Federal Register 191 (2 October 2012), pp. 60208–60235.

BLM manages the CPSD tiger beetle as a sensitive species, which affords the species additional consideration in the development and implementation of Resource Management Plans (RMPs) on BLM lands. As such, the 2008 Kanab Field Office RMP commits to implementing conservation measures listed in the CCA and to funding research and monitoring of the species.

Additionally, the Service developed a Spotlight Species Action Plan for the CPSD tiger beetle in 2009 with the goal of improving or maintaining the species. Actions implemented as a

result of the plan include research to improve the suitability of the habitat, potentially through watering and vegetation thinning, and development of a protocol for raising and translocating the species.

1.2.3 Proposed Threatened Listing and Critical Habitat Designation

On October 2, 2012, the Service proposed to list the CPSD tiger beetle as a threatened species and designate critical habitat for the species because of critically low numbers, threat of habitat loss and degradation, and the species' susceptibility to drought and other climate- and weather-related factors. The Service is proposing to designate one critical habitat unit (Unit) consisting of 2,276 acres, located entirely within the CPSD geological feature. The proposed Unit is occupied by the species and contains the primary constituent elements (PCEs) required for the species' survival. The proposed listing states that the PCEs specific to the CPSD tiger beetle are dynamic sand dunes and swales within the CPSD geologic feature that have

- elevations from 1,710 to 2,090m,
- appropriate levels of moisture and compaction to allow for burrowing (greater than 3 percent), and
- vegetative cover of 23–57 percent that allows for ovipositing adults (77 FR 191).

The northern 1,508 acres of the proposed Unit are on BLM-owned and managed lands. The southern portion of the Unit is located on land operated by the CPSD State Park. The proposed Unit encompasses the central and northern populations, Conservation Areas A and B, and additional intervening land, which is used and occupied by dispersing adult beetles. The purpose of designating the intervening land is to protect dispersing beetles from ORV impacts (77 FR 191: 60229). Figure 1-2 illustrates the location of the proposed Unit.

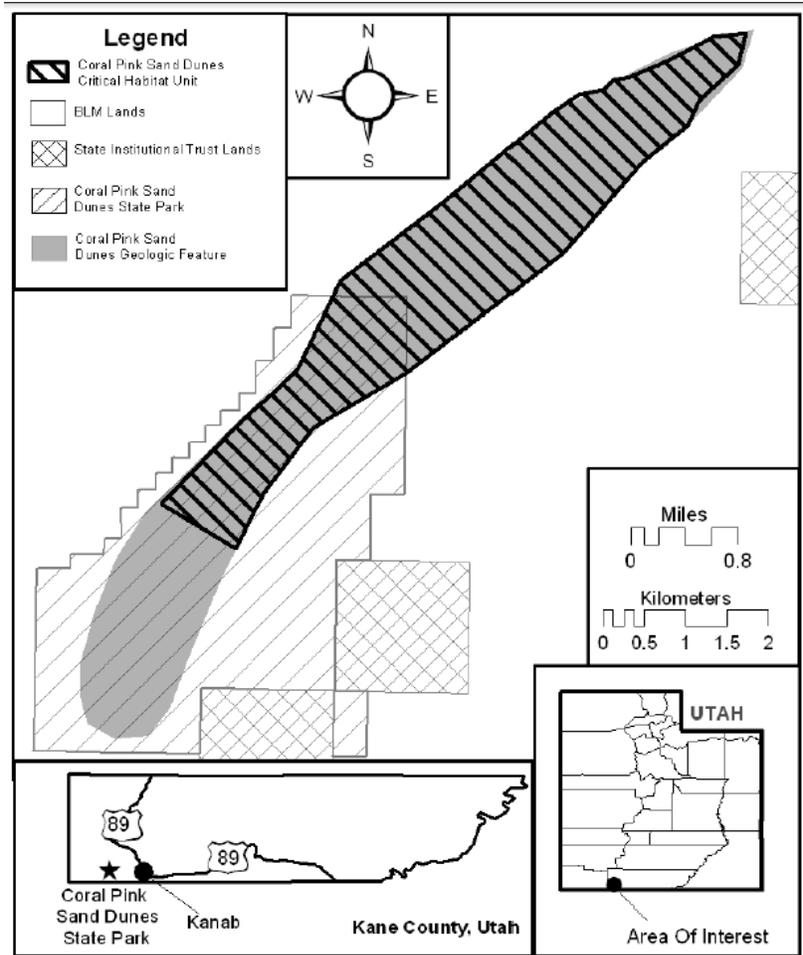


Figure 1-2. Proposed Critical Habitat for the Coral Pink Sand Dunes Tiger Beetle

Source: Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Coral Pink Sand Dunes Tiger Beetle and Designation of Critical Habitat; Proposed Rule, 77 Federal Register 191 (2 October 2012), pp. 60208–60235.

An additional 519 acres of the CPSD geological feature were considered by the Service for critical habitat designation but were not selected because there is no evidence of historical occupancy, and the area currently lacks the aforementioned PCEs.

The essential features in the proposed Unit may require special management considerations or protections to ensure the health of the species. To mitigate these threats, management activities that may be required include restricting ORV use from all or part of the Unit, preventing or minimizing any activities that adversely affect soil moisture within the Unit, and developing and implementing a plan to foster an additional self-sustaining population within the Unit.

1.3 Study Area

For the purposes of this analysis, the study area is defined as the proposed designated critical habitat and the surrounding county. The proposed critical habitat is located within Kane County, Utah, approximately 7 miles west of Kanab City (FWS, 2012). Nearly 90 percent of the county land is federally owned and approximately 7 percent is privately owned. The majority of the remaining land is entrusted to the Utah State Institutional and Trust Lands Administration. The proposed Unit comprises less than 0.1 percent of the county land area.

The economy of Kane County has traditionally relied on natural resource use; however, the current economy has transitioned to be more diverse. Nearly one-fifth of the residents are employed in education, health care, and social services. The second largest employment sector is recreation and entertainment services (16.5 percent), which is significantly above the State average. Table 1-1 provides an overview of the Kane County employment rates by sector. In 2011, the median household income in Kane County was \$45,439.

Table 1-1. Kane County Employment by Sector, 2007–2011

Sector	Number of Employees	Percentage
Agriculture, forestry, fishing and hunting, and mining	162	4.8
Construction	280	8.2
Manufacturing	178	5.2
Wholesale trade	23	0.7
Retail trade	252	7.4
Transportation and warehousing, and utilities	172	5.0
Information	67	2.0
Finance and insurance, and real estate and rental and leasing	233	6.8
Professional, scientific, and management, and administrative and waste management services	169	5.0
Educational services, and health care and social assistance	654	19.2
Arts, entertainment, and recreation, and accommodation and food services	562	16.5
Other services, except public administration	349	10.2
Public administration	306	9.0

Source: U.S. Census Bureau. 2007–2011 American Community Survey. Available at <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkml>.

Total spending and revenue for the county has increased over the past 10 years to nearly \$19.5 million and \$25.8 million, respectively (CGR, 2013). Kane County’s economy is significantly tied to tourism, which causes seasonal fluctuations in unemployment and recreational activities (Kane County, 2011). According to Kane County’s General Plan (2011), nearly 30 percent of total employment is tourism related. Additionally, this field is projected to increase to more than 50 percent by 2020. Other fields, such as manufacturing, are projected to remain relatively limited because of the high portion of federally owned and managed lands in the county. Similarly, the land used for residential areas is expected to remain stable despite increases in jobs and population (Kane County, 2011). Table 1-2 summarizes the current and future population estimates for Kane County.

Table 1-2. Kane County Population Estimates, 2010–2020

Year	Total Population	Change	
		Population	Percentage
2010	7,125	N/A	N/A
2011	7,257	132	1.9
2020	8,749	1,492	20.6

Note: N/A = not applicable.

Source: U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report. Last Revised: Thursday, 10-Jan-2013 15:20:02 EST; Kane County, 2011. Kane County General Plan.

**SECTION 2
METHODOLOGY**

2.1 Economic Impacts of the Endangered Species Act

The overall objective of the economic analysis is to determine the co-extensive costs and benefits to society from the proposed listing and critical habitat designation for the CPSD tiger beetle. As a result of the Tenth Circuit Court’s ruling in *New Mexico Cattle Growers Association vs. United States Fish and Wildlife Service*, the Service must consider a co-extensive cost evaluation for all proposed species listing and critical habitat designations within the jurisdiction of the 10th Circuit (248 F.3d 1277, 10th Cir. May 11, 2001). In other words, the economic analysis should evaluate and summarize both impacts related to the regulatory baseline and impacts that are unique to the critical habitat designation.

Baseline costs are all direct and indirect costs attributable to the conservation of the CPSD tiger beetle in the absence of designated critical habitat. Incremental costs are solely attributable to the designation of critical habitat, such as costs attributed to critical habitat-related consultations or compliance with critical habitat efforts. The framework for analyzing baseline and incremental costs is summarized in Table 2-1 and further described below.

Table 2-1. Summary Framework for the Costs to be Included in an Economic Analysis of Critical Habitat Designation

Category	Co-extensive Impacts	
	Baseline	Incremental
Costs		
Administrative	<u>Direct</u> : Costs of consultation with the Service to analyze impacts to listed species.	<u>Direct</u> : Additional costs of consultation with the Service to analyze impacts to critical habitat.
Project modifications	<u>Direct</u> : Costs of project modifications to avoid jeopardy.	<u>Direct</u> : Additional costs of project modifications to avoid adverse modification.
Additional impacts	<u>Direct</u> : Change in land values and use patterns or other costs directly resulting from the species listing. <u>Indirect</u> : Costs of additional compliance and conservation efforts providing species protection not required by the Act.	<u>Indirect</u> : Costs of additional compliance and conservation efforts not required by the Act and attributed to the critical habitat designation. Other costs borne by private or public entities such as time delays, regulatory uncertainty, or any perceived stigma resulting from the critical habitat designation.

Because the analysis is co-extensive, the baseline costs associated with the proposed species listing and the incremental costs of designating critical habitat will be presented as a combined value.

The proposed listing and critical habitat designation for the CPSD tiger beetle has the potential to impact economic efficiency as a result of the protections implemented for the conservation of the species. The impacts of the proposed listing and designation on economic efficiency are the welfare changes to producers and consumers and result from the inability to apply these resources to other societal activities. For example, time spent during consultations is considered an economic efficiency impact because it hinders the opportunity to spend the time on other projects. For the purposes of this analysis, we use the costs of administrative resource commitments and compliance associated with the protections afforded as a result of the Act as a proxy for these welfare losses to society resulting from consultations with the Service. In addition, we consider the economic efficiency impacts associated with the potential changes in recreation that may result from the proposed listing and designation.

Additionally, efforts to protect the species and the habitat may result in an uneven distribution of the economic impacts. Of particular importance are the distributional impacts to small entities. To small entities, the fixed costs of regulatory compliance can be onerous relative to their larger competitors and, thus, harm their competitive position in the market. Distributional impacts are assessed to account for any uneven impact that habitat conservation and conservation efforts have on specific localities, agencies, or businesses within the study area. The following subsections discuss the types of efficiency and distributional impacts which are evaluated as part of this economic analysis.

2.1.1 Direct Efficiency Impacts

Threatened and endangered species and their designated critical habitats are afforded a number of protections under the Act that require the commitment of resources for their administration and compliance that could serve other productive purposes within the economy. The protections and their associated costs represent the direct efficiency impacts of the Act and include the following:

- *Engagement in Consultations.* Section 7(a)(2) of the Act specifies that actions with a Federal nexus, defined as actions authorized, funded, or carried out by a Federal agency, must be carried out in such a way that the actions are “not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be

critical...” To determine whether the action will jeopardize the continued existence of the species (jeopardy) or adversely modify critical habitat (adverse modification), the responsible Federal agency or designated non-Federal representative (action agency) must consult with the Service through formal or informal consultation if its action could affect a federally listed species or its designated critical habitat. During consultation processes with the Service, the action agency may choose to modify its proposed action to lessen the potential effects to a listed species or its designated critical habitat or incorporate conservation measures to offset potential adverse effects.

- *Prevention of Take.* Section 9 of the Act prohibits take (and the import, export, and interstate or foreign trade) of federally listed animals. Take is defined in the Act as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” To prevent take of the CPSD tiger beetle, actions may require different management actions such as implementing best management practices (BMPs), restricting certain activities within the proposed critical habitat, and obtaining a permit from the Service under Section 10 of the Act if take occurs but is incidental to and does not reduce the likelihood of survival and recovery of the species.
- *Development of Incidental Take Permits and Habitat Conservation Plans (HCPs).* Section 10(a) of the Act requires that a conservation plan be developed if the potential for incidental take is present. The conservation plan may include BMPs and activity restrictions to ensure that take does not affect the conservation of the species.
- *Development of Recovery Plans.* Section 4(f) of the Act requires the development and implementation of recovery plans to promote the conservation of the species. The implementation of the plans may include management actions to conserve the species or habitat. Because these actions are directly related to the Act and embody changes in the way society might choose to spend time, money, and efforts, they are considered direct efficiency impacts.

Costs associated with direct efficiency impacts are estimated by working with the Service, BLM, and other relevant parties to determine the time and material requirements to implement the alternative management recommendations. Prevention of take and, if required, development of incidental take permits are generally addressed during formal Section 7 consultations; however, incidental take permits can also be required of non-Federal actions that result in take of listed species.

Actions in which Section 7 consultations are likely to be required include the implementation of the BLM Kanab Field Office RMP, ORV usage and management within the CPSD geologic feature, road and trail management within and adjacent to the proposed critical

habitat designation, and miscellaneous other activities such as grazing permits and competitive racing events.² Consultations are addressed in Section 2.3 and 3 of this economic analysis.

The Service has provided a memorandum to inform the analysis on how to address incremental effects (Appendix A). According to the memorandum, “No project proponents are likely to pursue HCPs under Section 10 after the designation of critical habitat. The internal Service Section 7 consultation on the issuance of the HCP/incidental take permit addresses the potential for adverse modification of critical habitat within the HCP area. Thus, the designation of critical habitat does not provide a trigger for a non-Federal entity to pursue an HCP.” With regard to recovery plans, the conservation committee that manages the CPSD tiger beetle CCA has recently updated the CCA to better manage and increase conservation of the species.

2.1.2 Indirect Efficiency Impacts

Indirect efficiency impacts are costs that are attributable to the proposed listing or designation of critical habitat but that are not implemented through the Act. These include the enforcement of existing Federal and local laws that afford protection to the species; conservation efforts taken independent of the recovery plan or recommendations from the Service; and time delays, regulatory uncertainty, and stigma resulting from proposed listing or designation of critical habitat.

The CPSD tiger beetle benefits from the conservation efforts and enforcement associated with the following Federal, State, and local laws:

- *Federal Land Policy and Management Act.* BLM-administered lands are required to be managed to protect wildlife, wildlife habitat, and other natural resources under the Federal Land Policy and Management Act of 1976. BLM’s objectives include conserving or recovering “[Endangered Species Act] [ESA]-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species.”
- *BLM Kanab Field Office Resource Management Plan.* The 2008 Kanab RMP establishes guidance and objectives for managing the northern portion of the CPSD geologic feature. In the RMP, 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.”

² Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

- *1997 Candidate Conservation Agreement.* The CCA is committed to protecting the CPSD tiger beetle habitat and balancing the needs of this rare species with ORV use in the area through the establishment of Conservation Areas A and B.
- *CPSD State Park.* Utah's Administrative Code (R 651-633) prohibits motorized vehicle use in designated nonmotorized sand dune areas of CPSD State Park.

In this analysis, the indirect costs associated with these efforts are discussed qualitatively and quantified based on available data.

2.1.3 Distributional Impacts

Although estimating the value of resources directly and indirectly attributable to the Act allows one to estimate economic efficiency impacts, it does not provide information about how these impacts are distributed throughout society. One economic sector may be affected disproportionately to others. Distributional impacts can be estimated using either (1) an input-output model, such as IMPLAN, which uses fixed economic multipliers to estimate the economy-wide impact of revenue changes within certain industries and is appropriate for small changes in the economy; or (2) a computable general equilibrium model, which allows prices and quantities to shift in response to economic changes and is appropriate for estimating the impact of major changes in the economy. Although quantitatively estimating the regional distributional impact of the proposed listing and designation is beyond the scope of this analysis, we address the distributional impacts qualitatively.

2.1.4 Benefits

The primary benefit of conservation efforts associated with the proposed listing and designation is the continued viability of the species. However, these efforts preserve or protect ecosystems that can provide valuable services to the public. For example, restrictions on the areas where ORV use is allowed within the Unit will reduce the noise levels and dust experienced by hikers. The framework for analyzing benefits is described below (Table 2-2).

Benefits associated with the proposed listing and designation of critical habitat for the CPSD tiger beetle will be addressed qualitatively.

Table 2-2. Summary Framework for the Benefits to be Included in an Economic Analysis of Critical Habitat Designation

Category	Co-extensive	
	Baseline	Incremental
Benefits		
Species conservation and related beneficial impacts	<p><u>Direct</u>: Benefits of species conservation achievements directly attributable to the listing of the species.</p> <p><u>Indirect</u>: Benefits resulting from other species conservation activities.</p>	<p><u>Direct</u>: Benefits of species conservation achievements directly attributable to the critical habitat designation.</p> <p><u>Indirect</u>: Other benefits resulting from species conservation activities undertaken in response to the critical habitat designation.</p>

2.2 Incremental Analysis

Under Section 7 of the Act, any activity with a Federal nexus must assess and ensure that the species' designated critical habitat is not adversely modified. When impacts are identified that are not baseline (attributable to the species being listed), these impacts are considered solely attributable to the designation of critical habitat and incremental to the baseline. The incremental regulatory burden often generates associated costs, both directly and indirectly, and must be considered in the decision of whether to exclude an area from the critical habitat designation under Section 4(b)(2) of the Act. Direct incremental costs include the following:

- administrative costs associated with adverse modification analyses,
- costs of consultations and project modifications that would not be necessary without a critical habitat designation, and
- additional administrative costs associated with adverse modification findings for consultations that would already have taken place without a critical habitat designation.

Indirect incremental costs include the following:

- costs of conservation efforts attributable solely to the designation of critical habitat, such as costs incurred from State and local laws that are triggered to protect the critical habitat;
- costs incurred as a result of critical habitat-related delays, such as delayed project onset because of a lag in approvals or permitting; and
- costs associated with uncertainty or misperception of the regulatory burden imposed by critical habitat designation.

According to the Service's Incremental Effects Memorandum, designation of critical habitat for the CPSD tiger beetle is not likely to result in additional consultations because the proposed designated critical habitat unit is occupied. Therefore, actions that would affect critical habitat would also affect the species present in the occupied Unit of critical habitat. However, the designation of critical habitat would result in direct incremental administrative costs to address adverse modification analyses. All indirect conservation costs or benefits are considered part of the baseline because no critical habitat is designated outside the CPSD habitat range and because of the specific conservation measures put in place as a result of the listing of the CPSD tiger beetle. No additional project modifications are expected relative to the baseline. Cost associated with reinitiating consultations will also be considered part of the baseline.

Indirect costs associated with misperception of the regulatory burden imposed by critical habitat designation were not quantified because of lack of available data; however, a qualitative assessment was performed and is provided in the analysis. The incremental benefit of designation is the value of information to stakeholders of defining the area considered critical to the survival and recovery of the species.

2.3 Section 7 Consultations

For activities with a Federal nexus that may adversely affect the species or designated critical habitat, the agency funding, authorizing, approving, or undertaking the activity must consult with the Service, formally or informally. Because the CPSD tiger beetle has not been listed, no consultations associated with the CPSD tiger beetle have taken place. However, one conference opinion has occurred for the BLM Kanab RMP issuance that considered impacts to the CPSD tiger beetle as a candidate for listing. The Service found that the RMP was not likely to contribute to the listing of the CPSD tiger beetle because of the resource protection measures agreed upon (FWS, 2008).

Informal Consultations. If the action is not likely to adversely affect the species or its designated critical habitat, the agency may choose to initiate an informal consultation. Informal consultations involve coordination between the Service and the action agency, collection and assessment of relevant data to support that the action is not likely to impact the species or its habitat and, if needed, development of conservation measures which avert the likelihood of adverse impacts. If the Service determines that adverse impacts are possible, the consultation then progresses to a formal consultation.

Both the Service and the action agency incur costs associated with consultations. Costs to the Service of informal consultation include administrative costs of correspondence, determining

the appropriate conservation efforts to recommend, and preparing a response expressing concurrence that the action is not likely to adversely affect the listed species or its designated critical habitat. The action agency also incurs administrative costs of corresponding with the Service and collecting the information required by the Service, and, if applicable, modifying the action to reduce the likelihood of adverse effects and avoid a formal consultation. The indirect cost of these consultations is up to a month's delay in project implementation.

For informal consultations regarding the CPSD tiger beetle, the Service is estimated to spend approximately 40 hours to consult, review all relevant technical information, and develop a letter of concurrence for the finding of no adverse effects or not likely to adversely affect.³ The action agency is estimated to spend 25–30 hours in consultation with the Service, coordinating all required technical information and developing any required conservation measures (Table 2-3).⁴

For informal consultations following designation of critical habitat, no additional administrative time is expected because no efforts are expected to be solely associated with the proposed critical habitat designation. Because the proposed critical habitat is occupied, any impacts to the habitat would also adversely affect the species. Therefore, we anticipate that the efforts needed to determine the potential for adverse effects to the species will be concomitant with the efforts required to determine the potential for adverse modification (FWS, 2012).

Formal Consultations. Activities which are likely to impact the species or its habitat must undergo a formal consultation, which, at a minimum, involves coordination between the Service and the action agency, collection and assessment of relevant data, and the development of a Biological Opinion, including the jeopardy and adverse modification analyses. Formal consultations may also result in the development of reasonable and prudent measures to avoid take, and reasonable and prudent alternatives to avoid jeopardy and adverse modification, depending on the anticipated impact of the action.

A formal consultation requires that the Service produce a Biological Opinion, which includes (1) a determination if the action is likely to result in jeopardy or adverse modification and provides reasonable and prudent alternatives to the proposed action, and (2) an incidental take statement, which specifies the anticipated take and measures to reduce the anticipated take to the species. The action agency incurs the administrative costs of preparing the necessary

³ U.S. Fish and Wildlife Service, Utah Field Office. January 23, 2013. Personal communication with Jennifer Richkus, RTI International.

⁴ Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

project documentation and Biological Assessment for the Service, the costs of implementing the reasonable and prudent alternatives, and the costs to monitor measures designed to reduce the adverse effects to critical habitat. The indirect cost of a formal consultation is the time delay in project implementation, which can be up to 135 days, unless the Federal action agency and the Service mutually agree to extend the consultation period (FWS, 2013).

With regard to the CPSD tiger beetle, formal consultations in the absence of designated critical habitat are estimated to require 40 hours of Service time to develop a Biological Opinion and an additional 20 hours to develop the incidental take permit.⁵ Formal consultations between BLM and the Service require 120–160 hours of BLM administrative time, depending on the complexity of the activity and consultation. 25–30 hours are expected to be required from CPSD State Park in association with development of the incidental take permit.⁶

Formal consultations following designation of critical habitat are expected to require an additional 40–80 hours of Service time to conduct the adverse modification analysis and incorporate an adverse modification finding in the Biological Opinion.⁵ BLM expects to spend less than 1 hour of additional administrative time to consider impacts to the proposed critical habitat⁶ (Table 2-3).

Table 2-3. Co-extensive Administrative Labor Hours of Section 7 Consultations by Entity

Consultation Type	Co-extensive			
	Baseline		Incremental	
	Service ^a	Action Agency ^{b,c}	Service ^{a,d}	Action Agency ^d
Informal	40	25–30	0	0
Formal	60	120–160	40–80	1

^a U.S. Fish and Wildlife Service, Utah Field Office. January 23, 2013. Personal communication with Jennifer Richkus, RTI International.

^b Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

^c U.S. Fish and Wildlife Service (FWS), 2012. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Coral Pink Sand Dunes Tiger Beetle. September 17, 2012.

^d With the exception of the Adverse Modification Analysis, incremental labor hours are not anticipated for the CPSD tiger beetle because the proposed Unit is occupied. According to the Incremental Effects Memorandum, incremental costs are only likely to be administrative costs for the adverse modification analysis because the existence of the species is closely tied with the critical habitat.

⁵ U.S. Fish and Wildlife Service, Utah Field Office. January 23, 2013. Personal communication with Jennifer Richkus, RTI International.

⁶ Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

The costs of these labor hours are determined using the appropriate wage category by economic activity. Administrative efforts for all anticipated consultations regarding BLM land are expected to be performed by wildlife biologists at the Service and at BLM. Table 2-4 presents the hourly wage and cost of employment by entity.

Table 2-4. Hourly Wage and Cost of Employment by Entities With Administrative Costs in Section 7 Consultations

Sector—Occupation	Mean Hourly Wage	Total Benefits as Percentage of Wage	Overhead Rate as Percentage of Wage	Cost of Employment
Service—Wildlife Biologist	N/A	N/A	N/A	\$70.88 ^a
Non-Service Federal—Wildlife Biologist ^b	\$37.30	36.25%	16.35%	\$56.92
State—Wildlife Biologist ^b	\$25.09	46.15%	17.00%	\$40.90

N/A = not applicable.

^a Hourly cost of employment for the Service is based on the bioday rate for the Service’s Utah Field Office (U.S. Fish and Wildlife Service, Utah Field Office. April 4, 2013. Personal communication with Jennifer Richkus, RTI International).

^b Cost of employment was estimated by multiplying the mean hourly wage by the total benefits as a percentage of wage and overhead rate as a percentage of wage (BLS, 2012a,b; Rice, 2002).

It should be noted that the amount of administrative time required in a consultation, formal or informal, is project dependent. For example, if and when an action involves several activities (e.g., RMPs) with the potential to adversely impact the species or its habitat, the time and effort to address the action would likely be proportional to the number of activities being evaluated. Additionally, some activities may require more effort to fully understand and address the potential for impact.

2.4 Projecting and Discounting Future Costs and Benefits

This analysis projects the co-extensive baseline and incremental costs and benefits of the proposed listing and designation 20 years into the future, from 2013 to 2032. All projected monetary values in the report are discounted using a 7 percent discount rate unless otherwise specified.

At least one formal consultation will be required to reinstate the RMP following the proposed listing and critical habitat designation. ORV use and other recreation management are discussed within the RMP. Direct baseline costs associated with RMP formal consultations are projected based on the expected future actions according to the Service and BLM. Indirect

baseline costs associated with conservation activities are projected based on historic data and expected future actions. The direct incremental cost of the designation is the cost associated with the adverse modification analysis as part of a formal consultation.

The BLM Kanab Field Office also anticipates 15–19 informal consultations over the next 20 years,⁷ including the following:

- **Reissuance of Livestock Grazing Permits:** Permits are issued on a 10-year basis and three to four permits are estimated to overlap with the proposed Unit.
- **Installation of Interior Fencing:** No fencing activities are planned but we conservatively estimate one informal consultation.
- **Special Recreation Permits:** Special recreation permits are required for commercial, vending, organized group activities and events, and individual or group use in special areas. Approximately 8–10 informal consultations are estimated based on the stated potential for tour groups and knowledge of one prior competitive racing event.

We also considered the potential for consultations associated with road maintenance and construction surrounding the critical habitat. Because no road maintenance and construction projects likely to affect the species or the proposed critical habitat are planned or expected on the roads adjacent to the CPSD dunes, no formal or informal consultations are anticipated by the Kane County Transportation Department.⁸

Similar to formal consultations, direct and indirect baseline costs associated with informal consultations are projected by economic activity based on the expected future actions according to the Service and BLM. However, because no adverse modification findings are required for informal consultations and the proposed Unit is occupied, no incremental costs are anticipated to be associated with informal consultations.

2.5 Sources of Uncertainty

Estimating the impact of a regulation on future outcomes is inherently uncertain. Key sources of uncertainty for the projections include the following:

- timing of future consultations, conservation measures;
- assumptions and estimates made through expert elicitation;

⁷ Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

⁸ Kane County Transportation Department, January 21, 2013. Personal communication with Jennifer Richkus, RTI International.

- assumptions based on publicly available sources, proxies, and extrapolation; and
- annual distribution of costs.

The quantity and type of future consultations will be influenced by economic, demographic, political, and biological variables, which cannot be predicted with certainty. To minimize the amount of uncertainty, we relied on available data and expert knowledge to estimate proposed or recommended projects, future population growth, and number of consultations.

SECTION 3 ECONOMIC ACTIVITIES

According to the Incremental Effects Memorandum, the following activities may be affected by the proposed listing of the CPSD tiger beetle and the associated critical habitat designation:

- BLM Kanab Field Office RMP administration
- ORV use and management on Federal lands or with a Federal nexus
- Road and trail management on Federal lands or with a Federal nexus
- Road maintenance and construction activities on Federal lands or with a Federal nexus

ORV use and management on BLM lands and road and trail management activities will be handled as part of the BLM Kanab Field Office RMP. In discussions with the BLM Kanab Field Office,⁹ it was indicated that other management activities, such as special recreation permits, livestock grazing, and interior fencing, may also be affected. These have been included in the analysis. Kane County Transportation Department¹⁰ indicated that maintenance and construction projects on the roads adjacent to the CPSD dunes, if any (none are anticipated), would not be likely to affect the species or the proposed critical habitat.

We estimate that two formal consultations related to the reinitiation and decadal update of the BLM Kanab Field Office RMP will be required within the next 20 years. Additionally, we estimate 19 informal consultations related to BLM activities to take place over the next 20 years. The estimate for the informal consultations is considered conservative because it reflects the high range of the consultation occurrences provided by BLM. This also is consistent with the estimate provided by the Service of one consultation (including formal and informal) per year.⁹

Using the administrative labor hours presented in Table 2-3 and costs presented in Table 2-4, we estimated the baseline and incremental costs associated with consultations (Table 3-1). Where stakeholders provided ranges of administrative hours required, we took the midpoint value of the hours to arrive at the projected costs.

⁹ Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

¹⁰ Kane County Transportation Department, January 21, 2013. Personal communication with Jennifer Richkus, RTI International.

Table 3-1. Projected Co-extensive Costs of Consultations by Economic Activity, 2013–2032

Activity	Consultations, Number		Cost (Undiscounted), \$		Co- extensive
	Informal ^a	Formal	Baseline ^b	Incremental	
BLM RMP	0	2	24,443	8,619	33,063
ORV use and management	0	0	0	0	0
Road and trail management	0	0	0	0	0
Road maintenance and construction activities	0	0	0	0	0
Livestock Grazing Permits	8	0	35,204	0	35,204
Special Recreation Permits	10	0	44,005	0	44,005
Interior fencing	1	0	4,401	0	4,401
Total	19	2	108,053	8,619	116,672

Note: BLM = Bureau of Land Management; ORV = off-road vehicle; RMP = Resource Management Plan.

^a Values rounded. Assumes an average of consultation time ranges provided.

^b Includes both direct and indirect baseline costs with the exception of conservation activity costs, discussed in Section 4.

3.1 Bureau of Land Management Resource Management Plan Administration

The formal consultation for the 2008 Kanab Field Office RMP included a conference opinion regarding impacts to the CPSD tiger beetle. The Service found that the Kanab Field Office RMP was not likely to contribute to the proposed listing of the CPSD tiger beetle because of the resource protection measures agreed upon (FWS, 2008). Under the RMP, the portion of the proposed Unit on BLM land is managed as the Dunes Recreation Management Zone. BLM maintains and restricts ORV use within Conservation Area B and implements other conservation actions specified in the RMP and CCA.

BLM will need to reinitiate the formal Section 7 consultation associated with the RMP to include a jeopardy and adverse modification determination for the CPSD tiger beetle. Because RMPs are designed to encompass BLM’s vision and strategy for at least 10 years, we conservatively project that one additional formal consultation will be required during the next 20 years. Table 3-2 presents the nominal and discounted costs associated with these consultations, broken down by agency, baseline costs, and incremental costs. The costs were calculated using the administrative labor hours presented in Table 2-3 and costs presented in Table 2-4. Baseline and incremental costs include all indirect costs with the exception of the conservation activities provided under

Table 3-2. Projected Co-extensive Costs for Consultations Associated With the Bureau of Land Management Kanab Field Office Resource Management Plan, 2013–2032

Cost Type	Entity	Cost, \$		
		Nominal Cost	NPV @ 3%	NPV @ 7%
Baseline	Service	8,506	7,921	7,285
	Action Agency	15,938	14,843	13,650
Incremental	Service	8,506	7,921	7,285
	Action Agency	114	106	98
Co-extensive Costs		33,063	30,791	28,318

Note: NPV = net present value.

the CCA (Section 4). With the exception of ORV use and management (discussed in Section 3.2), no project modifications or delays are anticipated.

3.2 Off-Road Vehicle Use and Management

In 1997, the Service, BLM, Utah DNR, and Kane County signed the 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 ORV use in the area. These agencies renewed the CCA in 2009 and updated the CCA in 2013. This agreement restricts ORV use in the two conservation areas. These restrictions have been codified in Utah State Law for Conservation Area A and in the Kanab RMP for Conservation Area B.

Two areas that allow ORV use would be affected by the proposed listing and are included in the analysis as part of the direct baseline costs. The first area is the CPSD State Park. Figure 3-1 shows visitation from 1980 to 2003. Figure 3-2 provides more detail on visitation between 2006 and 2011, including both total visitation and the number of ORVs using the park that enter through the CPSD State Park entrance. Visitation has been steadily declining from a peak of 188,164 visitors in 1998 to 52,676 in 2011 (Figures 3-1 and 3-2). According to the General Management Plan for CPSD State Park (Utah Division of Parks and Recreation, 2005), the percentage of visitors using ORVs dropped from over 35 percent in the mid-1980s to only 4 percent in 1998. ORVs accounted for between 16 percent and 25 percent of visitors between 2006 and 2011 assuming one visitor per vehicle.

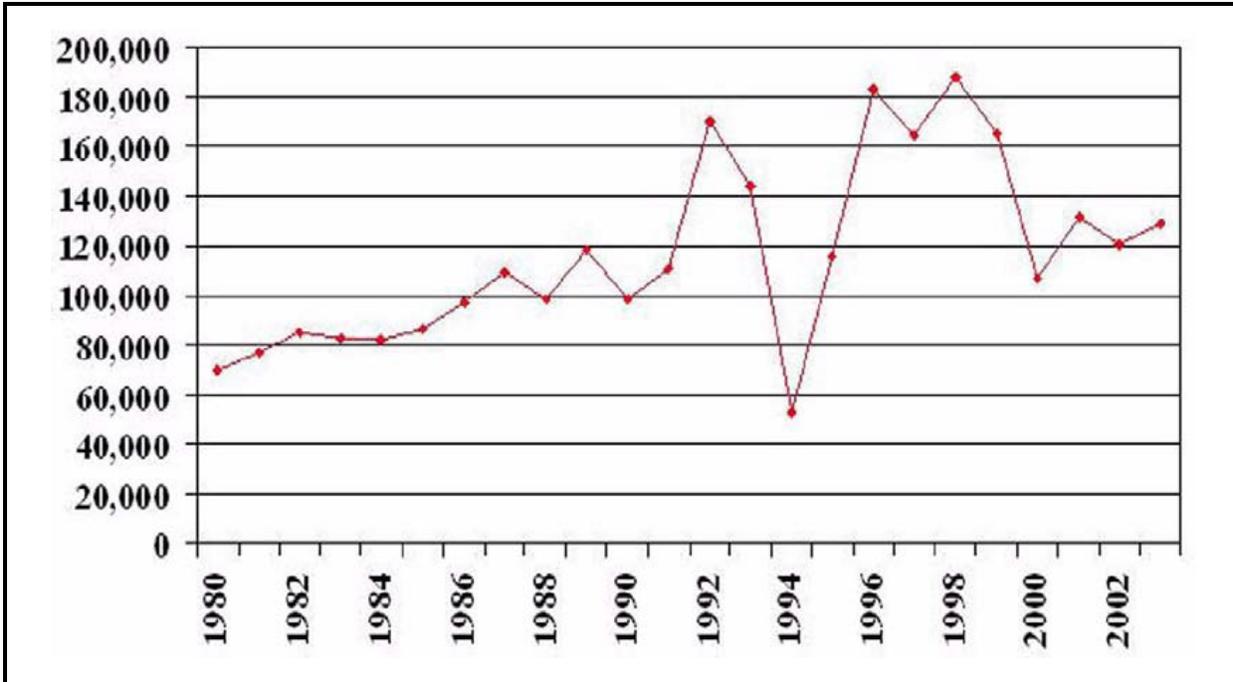


Figure 3-1. Coral Pink Sand Dunes State Park Visitation, 1980–2003

Source: Utah Division of Parks and Recreation. 2005. “Coral Pink Sand Dunes State Park General Management Plan.” <http://static.stateparks.utah.gov/plans/CoralPinkGMP.pdf>.

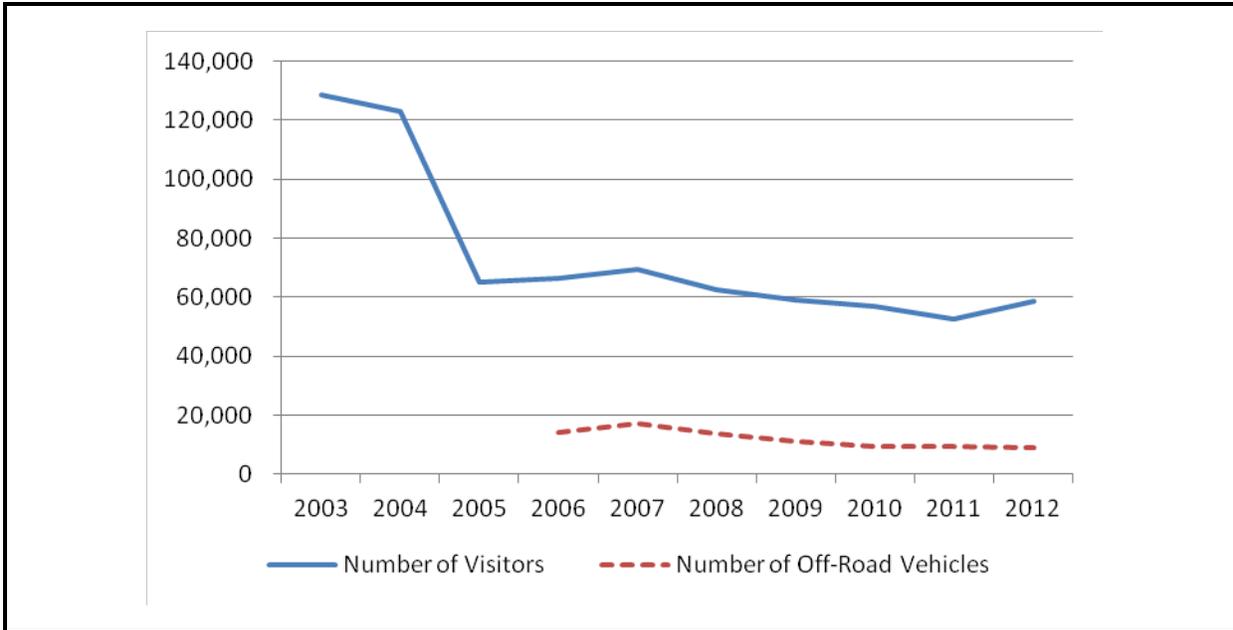


Figure 3-2. Coral Pink Sand Dunes State Park Total Visitation and Number of Vehicles, 2003–2012

Source: Utah Division of Parks and Recreation. 2012. “Utah State Park Visitation.” <http://stateparks.utah.gov/about/visitation>.

In addition, Conservation Area B is located on BLM land. There are two campgrounds on the BLM land that provide access to the sand dunes and the CPSD State Park. An area known as Dry Lake Bed provides camping and access to areas open to ORVs. The Ponderosa Grove Campground is located near Conservation Area B, where ORV use is prohibited, and is used mostly by non-ORV visitors. The BLM land also supports many day users who ride ORVs in the sand dunes. BLM estimates visitation by activity, including ORV use, using the Recreation Management Information System (RMIS). Figure 3-3 shows estimates of the number of visitors using ORVs in the total area managed by the Kanab Field Office, which covers a much larger area than the area surrounding the CPSD geological feature. Because of limitations with these data and difficulties determining how many of these visitors use the area near the CPSD State Park, the impacts on visitors to BLM land will be discussed qualitatively.¹¹

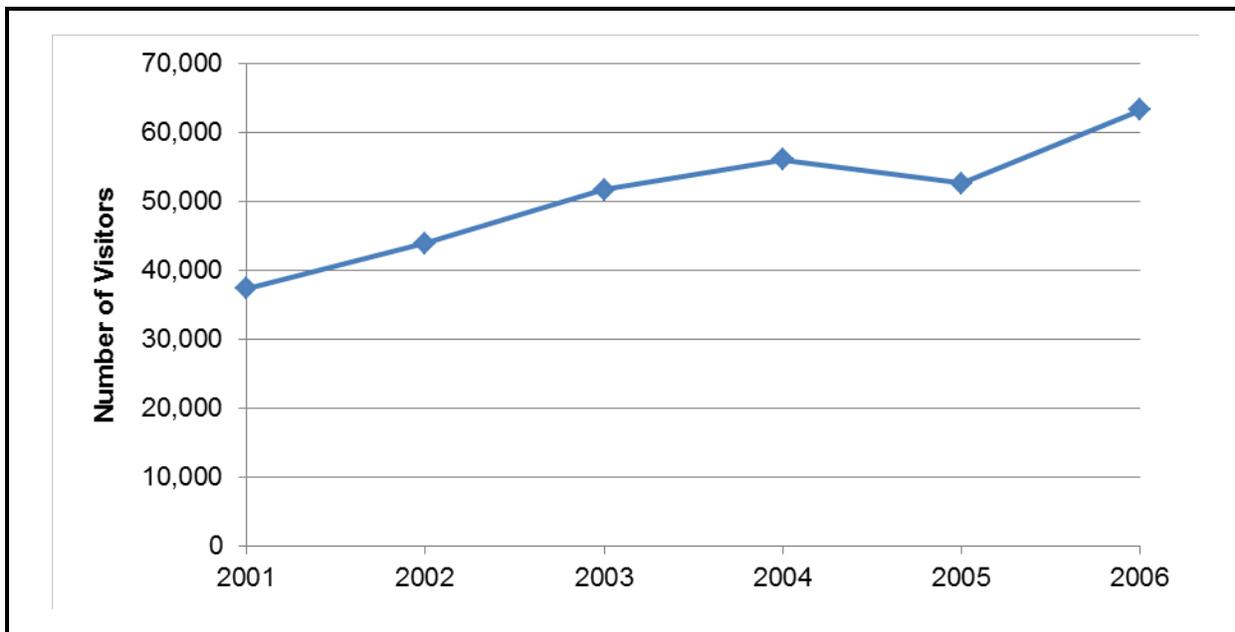


Figure 3-3. Kanab Field Office Off-Road Vehicle Recreation Visitation

Source: Bureau of Land Management (BLM), U.S. Department of the Interior. 2008. “The Kanab Field Office Proposed Resource Management Plan and Final Environmental Impact Statement.” BLM-UT-PL-08-002-1610. UT-110-2007-022. FES 08-24. http://www.blm.gov/ut/st/en/fo/kanab/planning/proposed_rmp_feis.html.

There is uncertainty regarding the impact of the proposed listing and critical habitat designation on ORV use in the area. The current conservation agreement provides a corridor for ORVs between the two conservation areas to reach open areas for ORV use. If one or both of the conservation areas are expanded, but the corridor for ORVs is maintained, stakeholder interviews

¹¹ The Environmental Impact Statement for the Kanab RMP (BLM, 2008) did not quantify the impacts on ORV users or the economic impacts of changes in visitation because of limitations with the RMIS data.

revealed no expected change in annual visitation. However, if the corridor is narrower and access to formerly open areas is limited, it may reduce the enjoyment ORV riders get from their trips, referred to as their consumer surplus.¹² Note that it is possible that with a narrower corridor there will be times when the dunes shift in a way that makes access difficult or impossible. If this happens, then there may be temporary reductions in visitation to the park; however, we do not know how likely this is, and the impact will likely vary from year to year. If the narrow corridor leads to reductions in visitation, then the impacts on visitors and businesses will be larger than described below.

Changes in the quantity and quality of ORV visits can be monetized by estimating the resulting changes in consumer surplus for ORV users. A number of studies have estimated the willingness-to-pay (WTP) for ORV visits using methods based on actual behavior, such as the travel cost method, or survey methods, such as the contingent valuation method (Table 3-3). These studies estimate that WTP for an ORV trip is between \$27 and \$333.

Table 3-3. Valuation Studies of Off-Road Vehicle Use

Study	Location	WTP per Person per Trip
Holmes and Englin (2005)	Brown Mountain and Upper Tellico, North Carolina	TCM: \$27.03 to \$333.33 per day trip
Loomis (2006)	BLM Land, Craig, Colorado	TCM: \$29 per trip
Silberman and Andereck (2006)	Arizona	CVM: \$54.48 to \$96.46 per trip
Englin, Holmes, and Niell (2006)	Badin Lake, Brown Mountain, Upper Tellico and Wayehutta, North Carolina	TCM: \$27.32 to \$101.01 per trip
Deisenroth, Loomis, and Bond (2009)	Larimer County, Colorado	TCM: Mean per trip: \$67.57 to \$91.40
Jakus et al. (2010)	Utah	Closure: TCM: \$52.12 to \$80.41 per trip Restriction: TCM: \$0.88 to \$1.14 per trip

Note: CVM = contingent valuation method; TCM = travel cost method; WTP = willingness to pay. Deisenroth et al. (2009) and Jakus et al. (2010) are the only studies focused on the costs of restricting access.

To estimate the potential loss in consumer surplus associated with a narrower corridor between the two conservation areas for riders who originate in the CPSD State Park, we use values from Jackus et al. (2010). The study is based on a survey of registered ORV owners in

¹² Consumer surplus is the difference between the maximum amount of money that a good or service is worth to an individual (the maximum he or she would be willing to pay for it) and the cost of the good or service to the individual.

Utah. Respondents were asked about where they took trips, how many, and the costs associated with the trips. The study uses the data on trips to estimate a random utility model that can be used to estimate marginal effects of closures and restrictions on ORV use in Utah counties. Based on the study, the authors estimate that on average reducing the area open for cross-country ORV use and restricting ORVs to trails results in a loss of consumer surplus between \$0.88 and \$1.14 per trip (in 2007 dollars). Note that the limitations measured in Jakus et al. (2010) refer to changes from allowing cross-country riding to restricting riding to trails and roads. This is somewhat different than moving from a wider corridor to a narrower corridor; however, the study provides the closest match to the situation and a reasonable estimate of the potential impacts.

Table 3-4 presents the monetized consumer surplus loss over the next 20 years for visitors to the CPSD State Park (in 2011 dollars). To calculate the loss of consumer surplus, we multiplied the higher estimate of consumer surplus loss (\$1.24 in 2011 dollars¹³) by the average annual number of ORVs in the CPSD State Park between 2006 and 2011 (12,092 ORVs) assuming one visitor per ORV and assuming that each trip is one day. As discussed above, visitors to the adjacent BLM land who use ORVs may also suffer a loss of consumer surplus similar to visitors to the CPSD State Park, however we are unable to estimate the number of visitors to BLM land.

Table 3-4. Loss in Consumer Surplus From Limitations on Off-Road Vehicle Use in Coral Pink Sand Dunes State Park Over 20 Years, Indirect Baseline Cost (2011 Dollars)

	Number of Visitors per Year	WTP per Visitor per Trip	Total Consumer Surplus Losses over 20 Years
Consumer Surplus Loss for ORVs	12,092	\$1.24	\$299,882

Note: ORV = off-road vehicle; WTP = willingness to pay.

It is also possible that the proposed listing and habitat designation would result in the loss of the ORV corridor between the two conservation areas. Based on conversations with staff at the CPSD State Park, if ORVs could not traverse the area between the conservation areas they might not visit the State Park. With no ORV visitation, the park might not be viable and it is unclear how the park would be managed. If CPSD State Park were closed and the land was closed to ORVs and other activities, the losses to visitors and local businesses would be greater

¹³ Inflated using the general Consumer Price Index.

than those in Table 3-4. Between 2006 and 2011, the park received an average of 60,859 visitors per year. According to the estimates in the Jakus et al. (2010) study, consumer surplus losses when areas are closed to ORVs range from \$52 to \$80, depending on the model used. For visitors who do not use ORVs, a study by Loomis (2005) collected estimates of the value of recreation activities by area of the country from a variety of studies. For the Intermountain region (which includes Utah), the mean value (per person per day, in 2004 dollars) for camping was estimated to be \$35, for general recreation \$48, and for hiking \$38 (the mean value for ORV driving was \$22).

In addition to the consumer surplus losses, if the State Park was closed and the land was not used for any other activities, local businesses would lose the revenue from all visitors to the park, both those who use ORVs and those who do not. Discussions with several local hotel owners indicated that the percentage of visitors to the hotels who visited CPSD State Park varied widely from a small percent to 70 percent.¹⁴ Jakus et al. (2008) report that ORV owners spent an average of \$355 to \$365 (in 2004 dollars) per trip on trips in Utah. In cost-benefit analysis, losses to businesses are measured by losses in producer surplus, which can be approximated by losses in profit. Nationally, the upper and lower quartile profit margins for relevant industries are amusement and recreation services (including ORV rentals and tours) (SIC¹⁵ 7999) 8.3 percent to -2.9 percent; lodging (SIC 7011) 7.7 percent to -9.3 percent; restaurants and bars (SIC 5812) 6.1 percent to -1.0 percent; grocery stores (SIC 5411) 2.6 percent to 0.4 percent; gas and oil (SIC 5541) 2.1 percent to 0.2 percent; and souvenir shops and other retail establishments (SIC 5947) 5.7 percent to 0.0 percent (Dun & Bradstreet, 2010). To the extent that visitors go to parks in other areas, the businesses in these areas would see an increase in revenue.

Another measure of the impact of the park on the local economy comes from regional economic impact models. Typically, analysis of regional economic impacts focuses on changes in spending by nonresident visitors to the area, because these visitors represent new money for the economy. In a letter submitted to the Service by the Utah Legislature's Natural Resource, Agricultural, and Environment Interim Policy Committee on November 16, 2012, in response to the proposed listing and critical habitat designation of the CPSD tiger beetle, the committee cited that the park's total economic impact to the county was between \$700,000 and \$800,000 in 2011.¹⁶ The total output for Kane County in 2008 based on figures in IMPLAN was almost

¹⁴ Kanab Business Owners. January 28-29, 2013. Personal communication with Jennifer Richkus, RTI International.

¹⁵ SIC = standard industrial classification. The SIC system classifies industries by their primary activity type using a unique code per activity type.

¹⁶ Both studies were conducted by the Utah State Parks. One study used IMPLAN to estimate the regional economic impacts from data on park expenditures, spending of State and regional money, and concession spending. The

\$346 million, so the economic impact of the park would approximately two tenths of 1 percent of the county’s total output.¹⁷ If the park closed as a result of the proposed listing and critical habitat designation¹⁸ and the land the park is on was not used by any other business that generated economic activity in the community, the county would incur a potential loss of economic output between \$700,000 and \$800,000 per year. However, the Service does not know how the land would be managed if the State Park was closed. If the land was still managed for recreation, then there might still be visitation to the area.

The proposed listing of the CPSD tiger beetle as threatened may result in further changes to ORV management in the CPSD State Park to prevent the take of a listed species, a direct baseline cost. The administrative time needed by the Service to complete an incidental take permit for CPSD State Park is estimated based on personal communication with the Service (Table 3-5). The administrative time needed for the State Park is assumed to be the average time needed for an informal consultation. We assume that the time is spent in the first year after the proposed listing and no future permits are needed.

Table 3-5. Administrative Cost of Future Permit for Incidental Take

	Hours	Cost of Employment	Total Undiscounted Cost
Service	20.0	\$70.88	\$1,418
CPSD State Park Staff	27.5	\$40.90	\$1,125

3.3 Road and Trail Management

According to BLM, there are no roads or trails that traverse the dunes.¹⁹ Furthermore, development of trails and roads within the dunes is not anticipated. Consequently, no consultations or conservation measures are projected regarding road and trail measures outside of the RMP.

other study used spending factors based on park visitor expenditures to calculate the impact on the local economy (Utah State Legislature, 2012).

¹⁷ Output is defined as the total value of production including both intermediate and final goods.

¹⁸ In personal communication with CPSD State Park, it was indicated that the park may close if ORV access is not permitted in the entire proposed Unit.

¹⁹ Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

3.4 Road Maintenance and Construction Activities

Road maintenance and construction activities on Federal land require a Section 7 consultation. For road maintenance and construction activities that receive Federal funding, the Kane County Transportation Department must consult with the Service as the Federal Highway Administration's delegate. No previous consultations have taken place for road maintenance and construction activities in and around the proposed critical habitat.

According to the Kane County Transportation Department,²⁰ no consultations or conservation measures are anticipated because no road maintenance and construction projects likely to affect the species or the proposed critical habitat are planned on the roads adjacent to the CPSD dunes.

3.5 Other Management Activities

As discussed in Section 2.4, Livestock Grazing Permits, Special Recreation Permits, and if needed, fencing installation on BLM lands may require consultations with the Service to consider impacts to the CPSD tiger beetle and proposed critical habitat. Although many of these activities will be handled as part of the RMP, BLM has estimated that an additional 15–19 informal consultations are likely to occur over the next 20 years for these activities.¹⁹ We estimated 19 informal consultations to be conservative and to remain consistent with the Service's estimate of approximately one consultation per year.²¹ Based on the Service's and BLM's predicted administrative hours to address activities that require informal consultations (Table 2-3) and the cost of these hours (Table 2-4), we estimate the total costs attributable to the proposed listing to be approximately \$47,388. No incremental costs are anticipated for the informal consultations because the unit is occupied and all consultation efforts are likely to be concomitant with determining the likelihood of adverse impacts to the species. Table 3-6 presents the baseline and incremental costs by Agency.

²⁰ Kane County Transportation Department, January 21, 2013. Personal communication with Jennifer Richkus, RTI International.

²¹ U.S. Fish and Wildlife Service, Utah Field Office. January 23, 2013. Personal communication with Jennifer Richkus, RTI International.

Table 3-6. Projected Baseline and Incremental Costs of Consultations for Livestock Grazing, Interior Fencing, and Special Resource Permits, 2013–2032

		Cost, \$		
		Nominal Cost	NPV @ 3%	NPV @ 7%
Baseline	Service	53,869	41,274	30,532
	Action Agency	29,741	22,787	16,856
Incremental	Service	0	0	0
	Action Agency	0	0	0
Co-extensive Costs		83,610	64,061	47,388

Note: NPV = net present value.

SECTION 4
CONSERVATION ACTIVITIES

In addition to the co-extensive impacts on economic activities, there are conservation costs related to the Spotlight Species Action Plan, Conservation Agreement, and Kanab RMP.

BLM has paid for half the salary of a CPSD Ranger (0.5 full-time equivalent) since 1997 to help the CPSD State Park protect Conservation Area A from threats to the CPSD tiger beetle, including enforcing ORV restrictions. Since 2008, BLM has spent approximately \$10,000 per year to employ a county sheriff in and around Conservation Area B to patrol the dunes. Additionally, BLM estimates that it has spent \$12,000–\$13,000 per year for long-term monitoring and trends analysis of the CPSD tiger beetle since 2002.²² The research was performed by Dr. C. B. Knisley and associates at Randolph-Macon University, VA (FWS, 2009).

The total cost of conservation activities for the next 20 years is anticipated to be \$538,441. Table 4-1 presents the projected costs of conservation activities.

Table 4-1. Total Projected Costs of Conservation Activities, 2013–2032

	Patrol on BLM Lands	CPSD Ranger (0.5 FTE)	Research and Monitoring	Total Conservation Activities
Annual Cost (undiscounted)	\$10,000	\$25,000	\$12,500	\$47,500
Total Nominal Cost	\$200,000	\$500,000	\$250,000	\$950,000
NPV @ 3%	\$153,238	\$383,095	\$191,547	\$727,880
NPV @ 7%	\$113,356	\$283,390	\$141,695	\$538,441

Note: BLM = Bureau of Land Management; CPSD = Coral Pink Sand Dunes; FTE = full-time equivalent; NPV = net present value.

²² Bureau of Land Management, Kanab Field Office, January 25, 2013. Personal communication with Jennifer Richkus, RTI International.

SECTION 5

BENEFITS OF CONSERVATION

Although the primary goal of the proposed listing and critical habitat designation is the conservation benefit to the species, additional benefits may be realized through the action such as increased enjoyment by nonmotorized visitors and the potential for benefits to other species co-occurring with the CPSD tiger beetle, including vegetation and CPSD tiger beetle prey species within the new areas where ORV access will be restricted. We anticipate that conservation benefits will result from the changes in where ORVs are allowed to drive within the proposed critical habitat Unit. ORV use within the dunes creates user conflicts between motorized and nonmotorized visitors, and generates noise and dust (BLM, 2008). In areas where ORVs are no longer allowed, nonmotorized users are expected to experience an increase in enjoyment. Although it can only be considered anecdotal, several visitors who submitted a review of their experience at CPSD State Park on TripAdvisor reported feeling unsafe because of the presence of ORVs (TripAdvisor, 2013). Visitors also reported a diminished experience because of the noise associated with the ORVs.

An additional benefit of the proposed designation is the potential for benefits to other species co-occurring with the CPSD tiger beetle, including vegetation and CPSD tiger beetle prey species within the new areas where ORV access will be restricted. Depending on the level of compaction and disturbance created by ORVs and whether the relative transience of the dunes allows for additional vegetation to stabilize, the absence of these impacts may increase vegetative growth, which may in turn increase the availability of prey for the CPSD tiger beetle.

SECTION 6

SMALL BUSINESS SCREENING ANALYSIS

The Regulatory Flexibility Act, as amended by the Small Business Regulatory Enforcement Fairness Act, requires that a regulatory flexibility screening analysis be conducted to estimate if a proposed regulation will have a significant impact on a substantial number of small entities (SISNOSE). If a SISNOSE is determined, then a full regulatory flexibility analysis must be conducted.

The first step in making this determination is to screen for affected small entities to determine whether there could be a SISNOSE. Small entities are defined based on the following:

- Small business: Defined by the Small Business Administration’s general size standard definitions for the industry category of the ultimate parent companies.
- Small government: Defined as any jurisdiction with a population of fewer than 50,000 (excluding states and Tribal organization).
- Small nonprofit: Defined as a 501(c)3 “independently owned and operated and is not dominant in its field” (5 U.S.C. section 601(4)).

A significant economic impact threshold is generally a 3 percent impact as measured by appropriate quantitative metrics, such as annualized cost of compliance as a percentage of sales, government revenue, or annual operating expenditures. In general, if more than 20 percent of the affected small entities experience a significant economic impact, then there is considered to be a SISNOSE, and a regulatory flexibility analysis must be prepared.

For there to be a SISNOSE associated with designating critical habitat, the incremental direct compliance costs must exceed the 3 percent threshold for more than 20 percent of the affected small entities. Because the Service, BLM, and CPSD State Park are the only entities with expected direct compliance costs and are not considered small entities, this rule will not result in a SISNOSE.

However, small entities, such as Kane County, ORV tour and rental businesses, and other local tourism-related businesses, may be indirectly affected as a result of the proposed listing and critical habitat designation. Because motorized visitors to the dunes may be further restricted in the dune area access than with the current boundaries, numbers of visitors using ORVs and spending on ORV rentals, overnight lodging, food, and other services may be reduced, impacting the ORV rental entities and any businesses the visitors might frequent as part of their overall trip. If these visitors go to other areas, then the businesses in those areas would see an increase in

revenue. Currently, it is unclear how the proposed listing and critical habitat designation will affect visitation to the area. The current assumption is that ORV use will continue with minor restrictions. If the restrictions on the areas where ORVs are allowed are minor, visitation to the area may not change. If the restrictions make it difficult for ORV riders to use the area, there may be decreases in visitation. If the decreases are large enough, it is possible the State Park would close. It is unclear how closure of the park would affect management of the area.

SECTION 7

ENERGY IMPACT ANALYSIS

Executive Order 13211²³ requires the Service to consider the impact of the proposed listing and critical habitat designation on the energy industry. As stated in the Executive Order, agencies must consider whether their actions will have “(i) any adverse effects on energy supply, distribution, or use (including a shortfall in supply, price increases, and increased use of foreign supplies) should the proposal be implemented, and (ii) reasonable alternatives to the action with adverse energy effects and the expected effects of such alternatives on energy supply, distribution, and use.”

Energy supply, distribution, and use are not expected to be impacted by the proposed listing or designation of critical habitat and no energy impacts are anticipated.

²³ Executive Order 13211 of May 18, 2001. “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use.”

SECTION 8 REFERENCES

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**APPENDIX A:
INCREMENTAL EFFECTS MEMORANDUM FOR THE ECONOMIC ANALYSIS FOR
THE PROPOSED RULE TO DESIGNATE CRITICAL HABITAT FOR THE CORAL
PINK SAND DUNES TIGER BEETLE**