

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Cicindela nevadica lincolniana*

COMMON NAME: Salt Creek Tiger Beetle

LEAD REGION: 6

INFORMATION CURRENT AS OF: February, 2003

STATUS/ACTION:

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

90-day positive - FR date: ____

12-month warranted but precluded - FR date: ____

Listing priority change

 Former LP: 3

 New LP: 3

Latest date species first became a Candidate: October 30, 2001

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of *Aspecies*.@

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Insect; *Cicindelidae*

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Endemic to Lancaster County, Nebraska.

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Endemic to Lancaster County, Nebraska.

LEAD REGION CONTACT: Chuck Davis, (303)236-7400, extension 235.

LEAD FIELD OFFICE CONTACT: John Cochnar, (308) 382-6468, extension 20.

BIOLOGICAL INFORMATION:

Habitat

The entire life cycle of the Salt Creek tiger beetle is linked to exposed mud flats of saline wetlands and mud banks of streams that drain these wetland complexes. The species is adapted to periods of high water and highly saline conditions. Adults are confined to the wetter muddy areas within a few yards of wetland and stream edges. Larval burrows occur within a few inches of the water=s edge. Larvae will plug their burrows and retreat inside during periods of high water, very hot weather, or very dry conditions. For the most part larvae remain active until cold weather, when they plug their burrows and hibernate. Both the adult and larvae of the tiger beetle are voracious predators. They will eat almost any other insect of similar or smaller size (Nebraska Game and Parks Commission 1999, Carter 1989).

Historic and Present Range

The historic and present range of the tiger beetle is endemic to Lancaster County, Nebraska, and is limited to the northern third of the county. The tiger beetle occupies an extremely limited habitat type, the eastern Nebraska saline wetlands and their associated streams. In 1990, the Nebraska Game and Parks Commission (Commission) (1999) found that over 90 percent of the original historic acreage (i.e., about 16,000 acres) of eastern Nebraska saline wetlands had been destroyed.

Historic and Current Populations

The earliest collections of the tiger beetle date back to 1900. Large numbers of specimens in the University of Nebraska State Museum collection indicate this species was once extremely abundant (Carter 1989). One area with an apparently large population was near old Salt Lake, presently known as Capitol Beach.

Spomer and Higley (1993) conducted a survey for the tiger beetle during 1991-1992. The tiger beetle was found at 8 of 14 locations surveyed. The 1991 survey observed 229 individuals, while in 1992 only 150 were found during peak adult density. The largest population occurred along a small stretch of Little Salt Creek in the vicinity of Arbor Lake State Wildlife Management Area. Since 1992, the highest total population numbers observed were 637 individuals counted in 1995. The number declined to 308 in 1998, and only 271 were found in 1999 (Spomer et al. 1999). The Capitol Beach area, once a haven for the tiger beetle, had a high population of 12 in 1991, only 4 in 1998, and none were found in 1999 (Spomer et al. 1999). In 2001, 519 beetles were found at 5 locations.

THREATS:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range.

The rapid loss of habitat appears to be the greatest threat to the tiger beetle. The tiger beetle occupies one of the most restricted and imperiled plant community types in Nebraska, the eastern Nebraska saline wetlands. The estimated original acreage of eastern saline wetlands in Nebraska was about 16,000 acres. A Commission (1999) inventory in 1990 found that 90 percent of these wetlands have been destroyed since European settlement of the region through commercial, residential, and agricultural development. Most remaining eastern Nebraska saline wetlands have undergone extensive degradation through drainage, diking, filling, farming, overgrazing, stream channelization, and head cutting of Salt Creek and its tributaries.

Commercial and residential development pressure on the wetlands and streams continue to increase as the City of Lincoln expands to the north and west. A 1992 streambank stabilization project on Little Salt Creek destroyed approximately one-half of the then remaining prime tiger beetle habitat. Since 1991 the beetle population has fluctuated from a low of 115 individuals in 1993 to a high of 637 in 1995. There has been a gradual population decline since 1993, and the 1999 surveys found 271 beetles (Spomer et al. 1999). The continued loss and degradation of this limited habitat will cause the number of tiger beetles to continue to decrease.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.

Members of the family *Cicindelidae* have long been popular with collectors because of their beautiful metallic colors and fascinating habits. Collecting is not believed to be a significant problem for the tiger beetle at this time, but there is potential for this to be a factor in the future. Rare insects often have great value for collectors and collection pressure can be great for these insects.

C. Disease or Predation.

At present, little is known about the effects of disease or predation on the tiger beetle. Due to the small population size and limited distribution of the tiger beetle, a disease outbreak could seriously jeopardize its continued existence.

D. The Inadequacy of Existing Regulatory Mechanisms.

On March 17, 2000, the tiger beetle was listed as endangered under the Nebraska Non-game and Endangered Species Conservation Act (Act). The Act provides protection for the tiger beetle on State and private lands through Section 37-807 involving conservation programs and State agency consultation. In addition, Section 37-806(9) would make it unlawful to take, possess, sell or transport the species, or export it from the State.

The only Federal regulatory program that affects the continued existence of the tiger beetle would be the U.S. Army Corps of Engineers permitting process under section 404 of the Clean Water Act, which regulates the placement of dredged and fill material in aquatic ecosystems (e.g., wetlands). To date, the 404 program has been ineffective in controlling road and urban development projects which have destroyed or further degraded the tiger beetle's habitat. The

2001 Supreme Court decision in Solid Waste Agency of Northern Cook County versus the U.S. Army Corps of Engineers has resulted in further restrictions on the Corps' ability to regulate dredge and fill activities in isolated wetlands. Indirect effects to eastern Nebraska saline wetlands from road and development projects include upland buffer fragmentation and loss, lawn treatment chemicals, run-off from roads, parking lots, and lawns, and flood water surges from storm events caused by increased impermeable surfaces. In addition, State laws and regulations do not protect against habitat loss, which is the main threat to the tiger beetle.

Listing the tiger beetle under the State Act has provided the beetle with protection under State laws and regulations because State agencies will be required to consult with the Commission if any State action or funding would adversely affect the tiger beetle or its habitat. Since road projects have had adverse impacts on the tiger beetle, listing under the State Act now requires the Nebraska Department of Roads to consult with the Commission prior to construction when proposed projects would affect the tiger beetle. However, because of the lack of Corps 404 jurisdiction in isolated wetlands, the Nebraska Department of Environmental Quality (NDEQ) will not have a nexus to implement review under the State section 401 water quality certification program. In 2001, a bill to provide NDEQ with a isolated wetland permit program. The bill was never passed.

E. Other Natural or Manmade Factors Affecting its Continued Existence.

The tiger beetle occurs in small, highly localized populations in only a few sites. This increases the possibility of loss of a major portion of the entire subspecies as the result of a manmade or natural catastrophic event. One potential catastrophic event is the spraying of insecticides in areas occupied by the tiger beetle. This could result in the loss of local populations or the entire subspecies by direct contact with the spray or through insecticide carried by runoff. Tiger beetles are predaceous, feeding on other insects, and may be impacted by insecticides indirectly. The use of insecticides may reduce the prey base needed to support viable populations of the tiger beetle. In addition, insects that have been sprayed with an insecticide may be consumed by the tiger beetle, resulting in the death of the tiger beetle.

The effects of pollution are unknown for the tiger beetle, however incidents of pollution impacts in other areas of the country have proven highly detrimental to insect populations.

LAND OWNERSHIP:

Based on tiger beetle surveys conducted during the period 1991-1999, about 88 percent of the population occurs on private land, and 12 percent on State land. State land ownership/management may be broken down as follows: Nebraska Game and Parks Commission - 6 percent; State school land - 5 percent; and highway right-of-way - 1 percent. However, in 2001, almost all of the tiger beetles (i.e., > 99 percent of the population) occurred on private land.

PRELISTING:

No Candidate Conservation activities have occurred to date. However, during

November-December 2001, the Mayor for the City of Lincoln, Nebraska, assembled a blue-ribbon committee to discuss ways to protect the tiger beetle and preclude listing. Recommendations from this committee included numerous research needs; a moratorium on development in or near the habitats of known tiger beetles until such time that research showed how close to tiger beetle habitat development could occur without impacting the tiger beetle (i.e., Mayor has indicated that he would not support development in saline wetlands, including a 500-foot buffer); and, the development of a local management plan. To date, the Service has not received any information from the City regarding the local management plan. Further, the City received a State grant (March 2002) to be used for research of saline wetlands (i.e., tiger beetle's habitat) and either land acquisitions or conservation easements.

We have met with Commission biologists and entomologist from the University of Nebraska-Lincoln regarding the protection and recovery of the tiger beetle and its habitat. We will continue to work with the State and local governments to protect and recover the tiger beetle, however, achieving these efforts may not preclude Federal listing of the species.

REFERENCES:

Carter, M.R. 1989. The biology and ecology of the tiger beetles (*Coleoptera:Cicindelidae*) of Nebraska. *Transcripts of Nebraska Academy of Science* 17:1-18.

Nebraska Game and Parks Commission. 1999. Recommendations for revisions to the state list of endangered and threatened species. 53 pp.

Spomer, S.M., and L.G. Higley. 1994. Population status and distribution of the Salt Creek tiger beetle, *Cicindela nevadica lincolniana* Casey (*Coleoptera: Cicindelidae*). *Journal of Kansas Entomological Society* 66(4):392-398.

Spomer, S.M., L.G. Higley, and W. Hoback. 1999. Salt creek tiger beetle, *Cicindela nevadica lincolniana* population estimates. Unpublished report.

LISTING PRIORITY

THREAT			
MAGNITUDE	IMMEDIACY	TAXONOMY	PRIORITY

High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3*
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

Imminence:

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Ralph O. Morgenweck
Regional Director, Fish and Wildlife Service

April 1, 2003
Date

Concur: _____
Director, Fish and Wildlife Service

Date

Do not concur: _____
Director, Fish and Wildlife Service

Date

Director's Remarks:

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