

**U.S. FISH AND WILDLIFE SERVICE**  
**5-YEAR STATUS REVIEW FOR THE**  
**SALT CREEK TIGER BEETLE**  
*(Cicindela nevadica lincolniana)*

**GENERAL INFORMATION**

**Subspecies:** Salt Creek tiger beetle (*Cicindela nevadica lincolniana*<sup>1</sup>)

**Date Listed:** November 7, 2005 (70 FR 58335; October 6, 2005)

**Classification:** Endangered

**Critical Habitat:** 1,110 acres of critical habitat for the subspecies in Lancaster and Saunders counties in Nebraska (79 FR 2601; May 6, 2014)

**Federal Register Notice of Initiation:** August 6, 2022 (87 FR 48037)

**Current Recovery Priority Number (RPN):** 6c, meaning it is a subspecies that faces a high level of threat including conflict with development activities and has a low potential for recovery.

**Methodology used to complete the review:**

In accordance with section 4(c)(2) of the Endangered Species Act of 1973 (16 U.S.C Section 1531 *et seq.*), as amended (Act), the purpose of a 5-year status review is to assess each threatened and endangered subspecies to determine whether its status has changed and it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants. Status reviews are to be completed in accordance with Sections 4(a) and 4(b) of the Act (16 U.S.C. Section 1533(c)). We solicited data for this 5-year status review for the Salt Creek tiger beetle (SCTB) from interested parties through an August 6, 2022, *Federal Register* notice announcing this review (87 FR 48037). We reviewed all information that we received and incorporated information relevant to our analysis in this 5-year status review. We received information relevant to our analyses from the following conservation partners: The City of Lincoln, Lower Platte South Natural Resources District, Nebraska Game and Parks Commission, Omaha's Henry Doorly Zoo and Aquarium, the University of Nebraska at Lincoln (UNL), and Mr. Stephen Spomer, retired from UNL's Department of Entomology.

**ASSESSMENT**

**Summary of information acquired since the last status review:**

The SCTB has one of the most restricted ranges of any insect in the United States. The subspecies occurs only on mudbanks along segments of the Little Salt Creek and on sparsely-to-non-vegetated mudflats and seeps containing salt deposits on riparian saline wetlands located in northern Lancaster County of Nebraska's Eastern Saline Wetlands. Since the last 5-year status

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<sup>1</sup> The Salt Creek tiger beetle was listed under the Act with the scientific name *Cicindela nevadica lincolniana*, however, the subspecies is now referred to as *Ellipsoptera nevadica lincolniana* per Bousquet 2012.

review for the subspecies, new information indicates that the size of the Little Salt Creek metapopulation is stable-to-decreasing, with only a single population at Frank Shoemaker Marsh increasing in size (Spomer *et al.* 2021). The size of the populations in this metapopulation fluctuate annually based on seasonal weather conditions, which dictate the quantity and salinity of saline soils that are available. The Little Salt Creek metapopulation reached an all-time low of 115 adult beetles in 1993 and a high of 777 adult beetles in 2002 (Spomer *et al.* 2020). Currently, the estimated size of this metapopulation is approximately 275 adults (Nebraska Natural Heritage Program, August 18, 2022, personal communication).

Populations of the larger Little Salt Creek metapopulation continue to be augmented with captive propagated adults. Since the last status review, two additional captive facilities are now rearing SCTB larvae. The success of our annual reintroduction efforts is difficult to measure (Spomer *et al.* 2021). This may be due to the small size of the current SCTB populations along Little Salt Creek, the lack of large contiguous blocks of suitable saline stream and wetland habitat, and the lack of connectivity between the populations. This lack of connectivity may also reduce the subspecies' genetic diversity and limit recolonization rates.

To support large-scale reintroduction efforts, the Nebraska Game and Parks Commission (Commission) finalized a reintroduction plan for SCTB on Commission properties (Commission 2018). This plan opened Commission-managed lands to beetle reintroductions and, also increased the amount of suitable habitat available for reintroduction. Additionally, the plan helped establish some connectivity between existing sites potentially allowing for future large-scale reintroductions to occur. Since the development of this plan, we have augmented wild populations of SCTBs at Little Salt Creek East Wildlife Management Area and Little Salt Creek Wildlife Management Area. In 2020, the Lower Platte South Natural Resources District allowed reintroductions to occur on their 150-acre saline wetland restoration project, the Marsh Wren Community Wetlands. This restoration project was completed in 2019 and led to significant improvements of saline wetland resources on the site (Lower Platte South Natural Resources District, August 25, 2022, personal communication).

To help reduce the potential loss and function of saline wetlands and streams associated with Little Salt Creek, Rock, Oak, and Haines Branch creeks and their floodplains, the Saline Wetland Conservation Partnership continues to purchase private land parcels voluntarily from willing sellers containing saline wetland /or stream habitat. Since the last status review, an estimated 314 acres of land containing saline wetland habitat have been voluntarily acquired (Nebraska Natural Heritage Program, August 19, 2022, personal communication). In addition to conserving the form and function of Nebraska's Eastern Saline Wetland ecosystem, this effort helped support the conservation of the SCTB by creating larger contiguous expanses of suitable saline stream and wetland habitats for the subspecies.

The management of lands acquired for saline stream and wetland habitat conservation containing populations of SCTBs also factors into the subspecies' recovery progress. The challenge our partners face in managing lands in Nebraska's Eastern Saline Wetland ecosystem is that they are managing to ultimately preserve this endangered ecosystem, not just the endangered SCTB (LaGrange *et al.* 2018). Specifically, our partners at the City of Lincoln, Lower Platte South Natural Resources District, and Commission are managing saline wetland and stream habitats with a goal to achieve no net loss of saline wetlands and their associated functions with a long-term gain in sustaining wetland functions through the restoration of hydrology, prescribed wetland management, and watershed protection (LaGrange *et al.* 2003, LaGrange *et al.* 2018). Additionally, grazing at SCTB-occupied sites has beneficially exposed saline mudflats with salt deposits for the subspecies (Spomer *et al.* 2021). However, grazing may be detrimental to SCTB when cattle cross and forage along saline wetlands and streams where larvae are present, cannot move out of the way, and, thus, may become trampled. Declines in the number of SCTBs at sites with grazing have been observed (Spomer *et al.* 2021), therefore, efforts are underway to study the effects of cattle on SCTBs, particularly their slow, fossorial larvae.

### **Conclusion:**

After reviewing the best available scientific information, we conclude that the SCTB remains correctly classified under the Act as an endangered subspecies. Conservation efforts implemented or completed since our last status review, metapopulations of the subspecies continue to demonstrate low resiliency, as measured by population size and trends, and success rates of reintroductions are difficult to determine given the already low population sizes and limited available suitable habitats. The subspecies also continues to demonstrate low representation and redundancy due to the limited connectivity between populations and the subspecies' narrow, restricted overall range. Additionally, our evaluation of the threats affecting the subspecies under the factors in 4(a)(1) of the Act indicates that the loss and fragmentation of habitats (Factor A) and other threats (Factor E) continue to affect the subspecies. Therefore, we determine that the SCTB is currently at risk of extinction throughout all of its range, so continues to meet the Act's definition of an endangered subspecies. Following this review, we recommend that no change in status under the Act is needed for the SCTB at this time.

**U.S. Fish and Wildlife Service**  
**5-Year Status Review for the Salt Creek Tiger Beetle**  
*(Cicindela nevadica lincolniana)*

**CURRENT CLASSIFICATION:** Endangered

**RECOMMENDATION RESULTING FROM THE 5-YEAR STATUS REVIEW:**

- Downlist to Threatened
- Uplist to Endangered
- Delist (Indicate reasons for delisting per 50 CFR 424.11):
  - Extinction
  - Recovery
  - Original data for classification in error
- No change is needed

**APPROPRIATE LISTING/RECLASSIFICATION PRIORITY NUMBER, IF APPLICABLE:** No change from 6c.

**RECOMMENDATIONS FOR FUTURE ACTIONS:**

- Continue metapopulation surveys to monitor SCTB abundance and distribution range-wide, especially following reintroductions.
- Continue to acquire property containing saline wetlands and streams voluntarily from willing sellers, and to improve and manage habitat on already acquired lands to create large, contiguous expanses of suitable habitat.
- Continue to conduct reintroductions in suitable habitats in and along the Little Salt Creek with a goal of establishing a self-sustaining population prior to expanding reintroductions to saline wetland habitats along Rock Creek (e.g. Jack Sinn Wildlife Management Area) or Oak Creek (e.g. Capitol Beach).
- Monitor the effectiveness and success of captive propagation and rearing protocols across all facilities to ensure consistency and to keep mortalities of adults and larvae at facilities below the 60 percent maximum mortality rate. Work to develop genetic profiles on captive propagated SCTBs to ensure reproductive fitness (Omaha's Henry Doorly Zoo and Aquarium, August 25, 2022, personal communication).
- Provide support to the Little Salt Creek Watershed Plan.
- Conduct research on the potential effects of grazing on a surrogate tiger beetle species.
- Conduct research on the appropriate frequency and intensity of grazing as a saline wetland management tool.

**FIELD OFFICE APPROVAL:**

Signature: \_\_\_\_\_

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U.S. Fish and Wildlife Service  
Mountain-Prairie Region 6, Ecological Services  
Nebraska Project Leader/Field Supervisor

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