

5-YEAR REVIEW
Carson wandering skipper (*Pseudocopaeodes eunus obscurus*)

GENERAL INFORMATION:

Species: Carson wandering skipper (*Pseudocopaeodes eunus obscurus*)

Date listed: Emergency listed November 29, 2001; listed August 7, 2002

FR citations: 66 FR 59537–59545 (emergency rule); 67 FR 51116–51129 (final rule)

Classification: Endangered

The Carson wandering skipper (CWS) was given short-term protection under the Endangered Species Act (ESA) on November 29, 2001, when the U.S. Fish and Wildlife Service (Service) published an emergency rule to list it as endangered (Service 2001a). A proposed rule to list the CWS was published in the Federal Register concurrently with the emergency listing (Service 2001b). On August 7, 2002, the Service published a final rule listing the CWS as an endangered species throughout its range (Service 2002). Critical habitat has not been designated for this subspecies. A recovery plan for the species was finalized in June 2007 (Service 2007), and a 5-year status review was completed in August 2012 (Service 2012).

Of the species *P. eunus*, only the CWS, *P. e. obscurus*, is listed under the ESA.

BACKGROUND:

1. Is there a recent status review for the species? (e.g., listing document, 5 Year Review, 12-month petition finding, reclassification rule).

No ___ (Then this form doesn't apply.)

Yes X **List that document and the date it was finalized here:**

U.S. Fish and Wildlife Service (Service). 2012. Carson Wandering Skipper (*Pseudocopaeodes eunus obscurus*) 5-year Status Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno, Nevada. August 27, 2012. 44 pp.

We recommended no change in status (Service 2012).

2. When was this current 5-year review initiated (**provide date and FR citation**)?

U.S. Fish and Wildlife Service (Service). 2022. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 40 Species in California, Nevada, and Oregon. Federal Register 87: 5832–5834.

3. Has all new information acquired since the last status review (as listed in 1. above) been evaluated?

Yes, and any new information is in the record/our files X

No ___ (Revisit this form after review of new information.)

Staff at the Service's Reno Fish and Wildlife Office (RFWO) conducted this 5-year review by evaluating all new information acquired since the last status review. We solicited data from interested parties through a Federal Register notice announcing this review on February 2, 2022 (Service 2022) and also contacted partners including local, state, and Federal agencies, tribes, and private individuals through mail or email requesting information relevant to this effort. No information was received from the public or partners. Additionally, we conducted a literature search and a review of information in our files, such as survey results and reports that the RFWO has developed.

4. Is there substantive new information since the last status review that is reasonably likely to indicate that a change in species status may be warranted, such as:
- New conservation agreements in place
 - Significant change in numbers, population, habitat, and/or distribution
 - Change in threats (existing or expected in the future)
 - Information that changes our understanding of the species' needs or how the species is influenced by threats.
 - New taxonomic information

Yes (Then this form doesn't apply.)

No **Provide a brief explanation here:**

Below we discuss new information on the species since the 2012 5-year review (Service 2012). We do not reiterate information that has not changed. Based on this new information, there is nothing to indicate that a change in status is warranted. Recovery criteria for downlisting includes development of effective management in perpetuity for the Lassen County, CA, population and one of the Nevada populations, in addition to adaptive management planning and demonstration of no downward trend for those populations (Service 2007). No information is available that demonstrates this type of management planning has been completed or implemented, and there is no clear population level information demonstrating lack of downward trend. As the criteria for downlisting has not been met, an evaluation of delisting criteria is not applicable.

Conservation agreements

In 2014, a Conservation Strategy for Honey Lake (Honey Lake Conservation Team 2014) was completed as a requirement of section 7 consultation for property conveyance of Honey Lake from the U.S. Department of the Army to California State Lands Commission (CSLC; Service 2003). The purpose of the Conservation Strategy was to provide CSLC with a resource stewardship framework composed of management objectives, conservation strategies, and monitoring actions with the primary goal of protecting the CWS and its habitat at Honey Lake to the extent feasible. A secondary goal of the Conservation Strategy was to enhance habitat conditions for the CWS as funding sources became available. We have no information demonstrating implementation of this strategy and assume that the lack of a clear lead for implementation has resulted in stagnation.

Population, habitat, distribution

Population

Tables 1, 2, and 3 present population numbers since 2009. The 2012 5-year review provided data for 1998 to 2011. However, additional data has been obtained for years 2009 onward. We did not include the Carson City or Spanish Springs Valley #2A nectar sites as they have been considered extirpated since before 2009 and are no longer monitored.

Most notably, the nectar sites at Spanish Springs Valley were determined to be extirpated by 2016. Spanish Springs Valley Site #2A was assumed extirpated in 2005 when all suitable habitat was destroyed due to residential and commercial development. A likely extension of the Spanish Springs Valley Site #2A population was found to the south on another private landowner's adjacent property in 2005 (Spanish Springs Valley #2B). However, due to habitat loss and modifications that have occurred in the surrounding area from residential and commercial development over the years, and the low numbers of CWSs observed during the entire flight period in 2005, the long-term persistence of this population had been in question since its discovery. Complete CWS surveys were conducted by the Service from 2011 to 2014 at Spanish Springs Valley #2B and no CWS individuals were observed during these years (Haworth 2011, 2012a, 2013a, 2014a). Subsequently in 2016, we concluded that this population was likely extirpated (Service 2016).

Table 1. Carson wandering skipper abundance for the Carson River Population during 2009 to 2021 surveys; prepared for 5-year review, 2022. Multiple counts (x/x/x) indicate numbers seen on different days during surveys (complete or incomplete).

+ represents total number for the season from one or more locations included within this named site

--- area not surveyed * incomplete surveys

Nectar Site Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Carson River	4* ^a	---	7/20/31 /2 ^b	1/2 ^c	---	---	1* ^d	1/20/1 ^e	9/23/2 ^f	4/16/5 ^g	14/14/2 /12 ^h	3/9/21/ 26/23/4 ⁱ	3/16/28 /10/2 ^j

^a (Sanford, pers. comm. 2009b)

^b (Sanford 2011)

^c (Sanford 2012)

^d (Haworth, pers. comm. 2015a)

^e (Haworth 2016a)

^f (Haworth 2017a)

^g (Enders 2018)

^h (Haworth 2019)

ⁱ (Enders 2020)

^j (Enders 2021)

Table 2. Carson wandering skipper abundance for the Washoe County Populations during 2009 to 2021 surveys; prepared for 5-year review, 2022. Multiple counts (x/x/x) indicate numbers seen on different days during surveys (complete or incomplete).

+ represents total number for the season from one or more locations included within this named site.

--- area not surveyed * incomplete surveys

Nectar Site Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
#1-Warm Springs Valley (BLM)	5 ^{*k} /10-20 combined for both BLM and Private ^l	4 ^{*m}	6/44/9/ 3 ⁿ	15/3 ^o	3/10 ^p	15/25/5 ^q	4/9/13/ 2 ^r	14/1 ^s	2/3/2/4 ^t	5/20/12/ 7 ^g	18/1 ^h	3/2 ⁱ	0 ^j
#1-Warm Springs Valley (Private) Formerly Marshal and N. ACEC	2 ^k	---	14/43/1 3/5 ⁿ	2/32/2 ^o	4/22/6/ 1 ^p	3/5 ^q	2/25/27 /7/3/1 ^r	12/2/1 ^s	9/22/8/ 4 ^t	8/20/14 ^g	16/1 ^h	11/2/5 ⁱ	1/1/3 ^j
#2B-Spanish Springs Valley	0 ^{*u}	0 ^{*v}	0 ^w	0 ^x	0 ^y	0 ^z	---	---	---	---	---	---	---
#3-Flanigan	0 ^{aa}	---	---	---	---	---	---	---	---	---	---	---	---

^k (Haworth 2009)

^l (Levy, pers. comm. 2009)

^m (Haworth and Ziegler 2010)

ⁿ (Haworth *et al.* 2011)

^o (Haworth 2012b)

^p (Haworth 2013b)

^q (Haworth 2014b)

^r (Haworth 2015b)

^s (Haworth 2016b)

^t (Haworth 2017b)

^u (Haworth *et al.* 2009)

^v (Haworth and Harter 2010)

^w (Haworth 2011)

^x (Haworth 2012a)

^y (Haworth 2013a)

^z (Haworth 2014a)

^{aa} (Sanford 2009a)

Table 3. Carson wandering skipper abundance for the Lassen County Population during 2009 to 2021 surveys; prepared for 5-year review, 2022. Multiple counts (x/x/x) indicate numbers seen on different days during surveys (complete or incomplete).

+ represents total number for the season from one or more locations included within this named site

--- area not surveyed * incomplete surveys

Nectar Site Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
#1-CDFG	54* ^{bb}	13 ^{cc}	15 ^{dd}	11 ^{+ee}	7 ^{ff}	---	---	---	---	0* ^g	---	0* ⁱ	0* ^j
#2-Private	---	---	---	---	---	---	---	---	---	1* ^g	---	1* ⁱ	0 ^j
#3-Wendel Area	---	---	---	---	---	---	---	---	---	---	---	---	---
#4-Mapes Road	---	---	---	---	---	---	---	---	---	---	---	---	---
#5-Cross Depot Access	---	---	0 ^{gg}	0 ^{hh}	---	---	---	---	0* ⁱⁱ	---	---	---	---
#6-North Shore	---	---	20 ^{+gg}	14 ^{+hh}	---	---	---	---	---	---	---	---	---
#7-East Shore	---	---	170 ^{+gg}	148 ^{+hh}	---	---	---	---	4* ^{jj}	10 ^{+g}	---	3* ⁺ⁱ	60 ^{+j}
#8-Northern Shore Island	---	---	11 ^{+gg}	4 ^{+hh}	---	---	---	---	---	0* ^g	---	---	---
#9-Western Shore Island	---	---	4 ^{+gg}	11 ^{+hh}	---	---	---	---	---	0* ^g	---	0* ⁱ	---
#10-Southern Shore Island	---	---	---	35 ^{+hh}	---	---	---	---	---	---	---	---	---

^{bb} (WP Natural Resource Consulting and Yssel Environmental Services 2010)
^{cc} (Schrag 2010)

^{dd} (Schrag 2011)
^{ee} (Schrag 2012)
^{ff} (Schrag 2013)

^{gg} (Yssel Environmental Services 2011)
^{hh} (Yssel Environmental Services 2012)

ⁱⁱ (Tetra Tech Inc 2018)
^{jj} (Haworth and Nelson 2017)

At this time, we consider Flanigan #1 to be a nectar site and not a population due to the lack of data. While one individual was found at this location in 2004 and surveys were then completed from 2006 to 2009, these were on a subset of the potential habitat in the area. Future surveys covering potential habitat in the larger East Alkali Flat area beyond the extents surveyed to date are needed to determine if there may be a nearby population and to understand from where the individual seen in 2004 may have come.

In summary, at this time we have three extant populations (Warm Springs Valley # 1 (Bureau of Land Management [BLM] and Private), Carson River, and Lassen County) and two extirpated populations (Carson City and Spanish Springs Valley).

We do not have an assessment of trend on the extant populations to understand what the variability in numbers over time means. We note that the 2020 and 2021 counts at Warm Springs Valley are the lowest counts observed for this population for years in which the full survey protocol was followed. The counts for Carson River seem comparable to past years. Incomplete surveys have been conducted at Honey Lake. Of the nectar sites that were hypothesized to be a source population in the Conservation Strategy for Honey Lake (Honey Lake Conservation Team 2014), only one was confirmed to have CWS in 2021. However, CWS across most of the nectar sites have not been reconfirmed since extensive surveys through 2012; it is unclear if this is due to lack of surveys or true absence.

Distribution

The general distribution of the CWS remains the same as determined in the 2012 5-year review. However, the loss of the Spanish Springs population further reduces the opportunity for connectivity between remaining populations.

Habitat

No information regarding a change in extent or quality of habitat at the three extant populations has been reported.

Change in threats

No new threats have been reported.

Information on species needs and threats

No new information has been reported that changes our understanding of the species' needs or how the species is influenced by threats.

Taxonomic information

No new taxonomic information has been reported.

Recovery actions implemented

Table 4 outlines recovery actions from the 2007 recovery plan for which progress has been initiated, but generally, is not yet complete. Recovery actions from the 2007 recovery plan that are not referenced below have yet to be implemented, though they remain relevant; no recovery actions have been fully implemented (Service 2007).

Table 4. Recovery actions for which progress has been initiated.

Recovery Actions	Progress
<p><i>1.6 Support control of <i>Lepidium latifolium</i> by Federal, state, local agencies, and other interested parties.</i></p> <p><i>1.15 Conduct Endangered Species Act section 7 consultation with various Federal agencies (e.g., Bureau of Land Management, Federal Highway Administration, Department of Defense, Department of Justice (Federal Bureau of Prisons), Army Corps of Engineers, Animal and Plant Health Inspection Service, and Natural Resource Conservation Service) or their designated agents as appropriate to protect Carson wandering skipper populations and enhance Carson wandering skipper habitat.</i></p>	<p>Through section 7 consultation we have supported <i>Lepidium latifolium</i> treatments at three locations, two at Lassen County and one at Warm Springs. While some treatments have been implemented, we do not yet understand effectiveness of these efforts (BLM 2020; Ducks Unlimited 2020; Service 2014, 2019, 2021).</p>
<p><i>1.14 Seek to acquire additional occupied or potential habitat from willing sellers, when possible, through fee acquisitions.</i></p>	<p>The RFWO is currently working with the Nevada Land Trust and BLM to assess such opportunities.</p>
<p><i>2.1 Develop and implement a program to survey for additional populations (a survey protocol for proposed projects has been developed).</i></p> <p><i>2.2 Develop and implement a monitoring program for known populations and habitat for trends and threats.</i></p> <p><i>2.3 Better understand ecological (including specific habitat needs) and life history requirements of the Carson wandering skipper.</i></p> <p><i>2.4 Determine population structure and dispersal distance of Carson wandering skippers in Honey Lake and Warm Springs Valleys and at the Douglas County site.</i></p>	<p>The RFWO and BLM have funded a PhD student at University of Nevada, Reno, to research these four recovery actions. Results will be published at the completion of their degree. In addition, specific to recovery action 2.2, RFWO has increased survey effort since 2012 to monitor the extant Nevada populations yearly and has also increased survey effort since 2018 at the Lassen County population (See Table 1).</p>

Conclusion:

After reviewing the best available scientific information, we conclude that CWS remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the ESA and analysis of the status of the species in our 2012 5-year review, in addition to the documented extirpation of the Spanish Springs population, supports that endangered remains an accurate reflection of the species' current status.

RECOMMENDATIONS FOR FUTURE ACTIONS (*optional, but may be helpful to identify information needs for next 5-year review*)

The top recovery actions recommended in the 2012 5-year review (Service 2012) remain a priority.

1. Map, control, and monitor *Lepidium latifolium* in CWS habitat (Recovery actions 1.5, 1.6, 1.7.);
2. Develop and implement a management plan for the Washoe County Site #1-Warm Spring Valley and the Carson River Site (portion of Recovery action 1.13.);
3. Develop and implement a monitoring program for known populations and habitats to track trends and threats (Recovery action 2.2.); and
4. Implement research to determine the complete ecological requirements and life history of the Carson wandering skipper (Recovery action 2.3.).

Field Supervisor, Reno Fish and Wildlife Office

Approve _____ Date _____

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