United States Department of the Interior

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 Financial Blvd., Suite 234
Reno, Nevada 89502
Ph: (775) 861-6300 ~ Fax: (775) 861-6301

May 1, 2009
File: Carson wandering skipper

Dear Surveyor:

The U.S. Fish and Wildlife Service (Service) is providing the enclosed interim guidance for determining habitat suitability and presence or absence of the Carson wandering skipper (*Pseudocopaeodes eunus obscurus*) during the 2009 survey season. The Service will evaluate the appropriateness of this guidance for accuracy, usefulness of data, and implementation. The enclosed guidance is provided on an interim basis and is subject to revision at any time. Successful implementation of the guidance will require ongoing contact with the Service before, during, and after site assessments and field surveys. Questions regarding this guidance may be addressed to State Supervisor, Nevada Fish and Wildlife Office at the above address or call (775) 861-6300, or addressed to Field Supervisor, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846 or call (916) 414-6600.

Sincerely,

Robert D. Williams
State Supervisor

Enclosure

TAKE PRIDE IN AMERICA

INTERIM SURVEY GUIDELINES

CARSON WANDERING SKIPPER

(*Pseudocopaeodes eunus obscurus* Austin and Emmel)

(Modified from Brussard [2002])

Introduction

The Carson wandering skipper (CWS) was emergency listed as endangered on November 29, 2001 (66 FR 59537). The subspecies was concurrently proposed for permanent protection under the Endangered Species Act of 1973, as amended (Act) on that date as well (66 FR 59550). A final rule was published in the *Federal Register* on August 7, 2002 (67 FR 51116). As a result of this action, the U.S. Fish and Wildlife Service (Service) has received requests from private and government entities for guidance in planning for the protection of CWS at sites where land use activities are proposed. These survey guidelines provide recommended guidance on survey methodology and reporting conditions. Ongoing contact and discussion with the Service, before, during, and after site assessments and field surveys are critical elements of this guidance. We will continue to work with local, State, and Federal biologists, scientific and academic institutions, and other interested parties to collect additional data on the distribution, ecology, and biology of the CWS. These survey guidelines replace the Service's previous guidance issued in 2008. The implementation of these guidelines should begin with the 2009 flight season and should be used in future years until further notice or revisions are issued by the Service. We will revise these survey guidelines as needed, using the best available data.

Species Background

The CWS is a subspecies in the monotypic genus of skipper butterfly *Pseudocopaeodes eunus*. It is a small (13 mm, forewing length from base to apex), brownish, orange butterfly with a black terminal line and veins. The CWS is currently known from only four populations, two in Washoe County, Nevada, one in Douglas County, Nevada, and one in Lassen County, California. This subspecies is locally distributed in grassland habitats on alkaline substrates in these two states. If alkaline-tolerant plant species are not available to serve as nectar sources for the adults, an area may be suitable if a freshwater source to support alkaline-intolerant nectar sources is located near salt grass, (*Distichlis spicata* (L.) Greene), which is the larval host plant. While any plant that is in flower during the CWS's flight period (generally June and July) is a potential nectar source, nectar sources known to be used by CWS include mustards (*Thelypodium crispum*, *Sisymbrium altissimum*) Brassicaceae; racemose golden-weed (*Pyrrocoma racemosus*) and thistles (*Cirsium arvense*, *C. vulgare*) Asteraceae; slender birds-foot trefoil (*Lotus tenuis*) Fabaceae; small-flowered cleomella (*Cleomella parviflora*) Capparaceae; heliotrope (*Heliotropium* sp.) Boraginaceae; and cinquefoil (*Potentilla* sp.) Rosaceae.

Larvae of the CWS are not known to develop under water, therefore, sites that flood on an annual basis and are inundated for extended periods of time are not likely to provide suitable habitat. Dry, upland areas with sparse salt grass and dominated with cheat grass (*Bromus tectorum*) are also not likely to provide suitable habitat. Collecting information about a site's

history, including disturbance and flooding may provide important information about the suitability of the site for supporting CWS.

Surveying Techniques (use attached forms)

Surveying for habitat:

• We require site assessments for all project sites within the recommended survey areas. Because knowledge of the distribution of CWS is likely to change as new locality information becomes available, surveyors should contact the appropriate field office of the Service to determine if a project site is within the range of the species in Lassen County, California and Washoe and Douglas counties, Nevada. As mentioned above, the larval host plant of the CWS is salt grass. While salt grass occurs on a variety of soils in lowland areas in the western Great Basin, it is most commonly found on relatively level, fine-sediment, lake plain soils. Salt grass can occur as a nearly monospecific meadow community or as understory in shrub-dominated communities. However, the key variable that makes a salt grass area CWS habitat is the presence of a suitable nectar source. In general, any plant that is in flower, regardless of its taxonomy, during the CWS's flight period (generally June and July) is a potential nectar source.

• Because salt grass is persistent through the non-growing season, salt grass communities can be located during the winter. Once salt grass areas are located, they should be searched on foot. Look for salt grass areas with evidence of nectar plants in the form of dead flower stalks. These sites become high priority areas to search for the CWS during its flight period. Locating blooming flowers at a site outside of the June-July flight period may be helpful, but it is not a definite indication that suitable habitat will be available during the later June-July period. Salt grass areas without flower stalks also can support the CWS if nectar sources occur nearby (within visual range, within a ½ mile or so) or if the nectar plants in the area do not have stalks that persist through the winter (annuals). Salt grass areas with freshwater flows or seeps may be more likely to support potential nectar sources. Areas with these attributes in addition to some microtopographic variation in the salt grass areas are particularly important to survey.

• Habitat photographs must be taken during the flight season. Take several views of the salt grass habitat from various directions. These photos must include an overview as well as close, detailed shots. Indicate these photo points on the map discussed below. Characterize the salt grass habitat as independent clumps or as occurring in a meadow-like situation or as other descriptions. Also indicate whether or not salt has accumulated on the soil.

• Map and describe the upland and aquatic habitats within the project site and within 1.5 miles of the project boundaries. For example, use a U.S. Geological Survey 7.5' topographic quadrangle map and/or aerial photographs that contain the site and the surrounding area. Characterize and map the surrounding area in terms of agriculture crop land, pastureland, development, vegetation communities, etc. Indicate locations of aquatic habitats including geothermal areas. Overview photographs will assist in describing the landscape.

Surveying for the Carson wandering skipper:

• Surveyors must be familiar with butterflies of Nevada and California. Surveyors must submit their qualifications with survey results. These qualifications should include their attendance at a workshop and/or experience with successfully identifying the CWS in the wild.

• Surveys must be conducted during the CWS's predicted emergence during late May through mid-July. Surveyors should plan on conducting surveys beginning two weeks before and two weeks after this period (*i.e.*, mid-May to late July).

• The VES (visual encounter survey) technique (Crump and Scott 1994) is the only effective method to determine presence of CWS in a particular habitat patch. The CWS is not captured or collected with the VES technique. This survey guidance does not authorize the surveyor with take of CWS, for example, the surveyor is not authorized to capture or collect CWS adults, larvae, or eggs (see permit requirements). Adults are almost always observed while nectaring. Thus, the VES is conducted by surveyors wandering through salt grass areas and examining all potential nectar sources within and nearby these areas (within visual range, within a ½ mile or so) and searching carefully for nectaring CWS. Surveyors must move slowly on foot through the area to minimize disturbance to CWS and its habitat. The amount of time searched depends on the size of the patch and the density and dispersion of the nectar sources. Extensive salt grass areas with no nectar sources within them or near them will require little survey time, while a small patch of salt grass with abundant nectar sources will require careful inspection.

• Surveys for the CWS must be conducted during mid-morning to mid-afternoon (1000-1400), on warm (warmer than 55° F, 12.8° C), sunny, and calm days (winds less than 10-15 mph). The Service may reject survey results if surveys are conducted during inappropriate weather conditions.

• The CWS has bright orange upper wings and should not be confused with two other skippers that can occur in the same habitat. The sachem (*Atalopedes campestris*) and the salt grass (sand hill) skipper (*Polites sabuleti*) have much darker orange-brown or tawny upper wings. The sachem can be found in grassy areas including lawns. Host plant grasses include: Bermuda grass (*Cynodon dactylon*), red fescue (*Festuca rubra)*, Augustine grass (*Stenotaphrum secundatum*), crabgrass (*Digitaria sanguinalis*), and goosegrass (*Eleusine indica*). The sachem's flight period is April-September in the portion of its range that overlaps with the range of the CWS (Scott 1986). The salt grass (sand hill) skipper can be found in moist meadows, lawns, and alkali grassland in valley bottoms. Host plant grasses include: salt grass, Bermuda grass and Kentucky bluegrass (*Poa pratensis*). The salt grass (sand hill) skipper's flight period is April-October in the portion of its range that overlaps with the range of the CWS (Scott 1986).

• All habitats with nectar sources must be surveyed carefully six times during the entire survey period (mid-May to late July). Surveys must be conducted on adequately spaced days (no consecutive days) but no more than approximately 7 days apart (weather permitting) with the first survey occurring during mid-May. If CWS are detected prior to all six surveys being completed, surveyors need not conduct additional surveys. All suitable habitats (*i.e.*, those with abundant, healthy salt grass and at least some nectar source) must be surveyed for two years

because of the potential for a two-year diapause in this species and because native annuals in salt desert environments flower in abundance irregularly. If CWS are detected in the first year's survey, a second survey during the following year is not necessary. The Service will monitor known occupied sites to determine if the adult flight season has occurred or if diapause due to environmental conditions has influenced CWS emergence. If CWS are in flight at the known occupied sites upon completion of the first year's survey but are not detected at the location where a survey is being conducted, that location may be considered unoccupied. However, factors such as elevation, wind patterns, hydrology can influence emergence times for the same species in different areas. If at any time during the survey season CWS are known to be flying at a nearby known site, surveyors should consider concentrating their surveys during the weeks when the CWS is known to be flying elsewhere.

• If a habitat patch contains CWS, indicate the number of individuals seen and/or use the following categories: low (1-10 individuals observed per day); medium (11-30 individuals observed per day); and high (31-100 or more individuals observed per day).

• Identify the nectar source(s) on which the CWS has been observed. Do not collect the plant(s) as this could constitute unpermitted take pursuant to the Act. Determine the area the nectar source occupies. If the nectar sources are not in the salt grass but are nearby (within visual range), determine the distance between them and the salt grass. Photograph the nectar source(s) in situ (in place). Good photographs of the flower, the flowering stalk, and the vegetative part of the plant will aid in later identification by surveyors if the species of nectar plant is initially not known.

• Color photographs of CWS must be taken if they are detected. A 35 mm single-lens reflex camera with a macro lens is necessary to ensure in-focus, close-up images. A comparable digital camera may also be used. It is possible to get good images if the approach is made slowly. Do not make sudden movements. If a CWS is observed while flying, follow discreetly, keeping at least 5 to 6 feet away until it lands.

Reporting Procedure:

The attached survey forms must be filled out completely for each visit to each habitat. Send copies of survey results, maps, and photographs to the appropriate Service office for the state (Nevada Fish and Wildlife Office in Reno, Nevada or the Sacramento Fish and Wildlife Office in Sacramento, California) for review and confirmation.

U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502-7147; (775) 861-6300

or

U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846; (916) 414-6600

Based on the results of field surveys, the Service will provide guidance on how CWS should be addressed. The Service will work with the project proponent through the section 7 or section 10(a)(1)(b) process to develop conservation measures.

The Service may question the results of field surveys conducted under this guidance for any of the following reasons: 1) if the appropriate Service field office was not contacted prior, during, and after surveys were conducted; 2) if surveys were conducted in a manner inconsistent with this guidance; 3) if surveys were incomplete; or 4) if the reporting requirements were not fulfilled.

Permit Requirements

This field survey protocol allows for conducting visual surveys of CWS. Surveys following this guidance do not require a section 10(a)(1)(A) recovery permit pursuant to the Act. Activities that would require a section 10(a)(1)(A) recovery permit include: (1) any capture or handling of CWS adults, larvae, or eggs; (2) any activity which significantly modifies the behavior of CWS; and (3) any survey method not covered in this field survey guidance if any form of "take" would occur during such activities. All surveyors using this field survey guidance should make all possible efforts to avoid disturbing CWS and their habitats. If a proposed research project necessitates the capturing or collecting of CWS or may result in other forms of "take", a scientific permit under section 10 (a)(1)(A) of the Act is required to provide incidental "take" to prevent a violation of section 9 of the Act. A section 10 (a)(1)(A) permit must be applied for at the Service's Regional Office in Sacramento, California. Information can be obtained from U.S. Fish and Wildlife Service, Endangered Species Permit Office, 2800 Cottage Way, Suite W-2606, Sacramento, California, 95825-1846, (916) 414-6464.

Literature Cited

Brussard, P.F. 2002. Species Profile, Carson wandering skipper *Pseudocopaeodes eunus obscurus*. Unpublished report, Biological Resources Research Center, University of Nevada, Reno.

Crump, M.L. and N.J. Scott, Jr. 1994. Visual encounter surveys. Pp. 84-92 *in* W.R. Heyer *et* al. (eds.), Measuring and Monitoring Biological Diversity. Standard Methods for Amphibians. Smithsonian Institution Press, Washington, D.C.

Scott, J.A. 1986. The Butterflies of North America. Stanford University Press, Stanford, California. Pp. 443-444 and p. 448.

Carson Wandering Skipper Survey Form
(site form-use one form per site)

Date:_____

Surveyor(s):_____

Site/Project Name:_____ Site Location: State____ County_____

Lat:_____ Long:_____ Tnsp.___ Rng.____ Sec._____ and Univ. Trans. Mercator

Coordinates_____

Name of Nearest Town_____

Quadrangle Map Name(s):_____

Elevation of Site:_____ (m) _____ (ft)

Size of Project Site:_____ (ac) General Vegetation Type Description: _____

_____

_____

Size of Salt Grass Habitat:_____ (ac) Describe Salt Grass Habitat:_____

_____

_____

Is Salt Accumulating on Soil Surface: Yes No (circle one)

Further Comments:_____

_____

Size of Non Salt Grass Habitat:_____ (ac)

Size of Nectar Patch(es):_____(ac) Distance to Nearest Adjacent Nectar Patch(es):_____ (ft) (miles) Distance to Saltgrass: _____(ft) (miles)

If No Nectar Patch on Project Site, Estimate Distance to Nearest Patch: _____ (ft) (miles)

Presence of Springs or Other Freshwater Source on Site: Yes No (circle one)

If No Presence of Freshwater Source on Site, Distance to Nearest

Source:_____ (ft) (miles)

Presence of Geothermal Springs on Site: Yes No (circle one)

If No Presence of Geothermal Springs on Site, Distance to Nearest

Source:_____ (ft) (miles)

Number of Photographs Included:_____

Comments:_____

_____

_____

_____

_____

_____

_____

_____.

Carson Wandering Skipper Survey Form
(CWS survey form-use one form per visit)

Date:_____

Surveyor(s):_____

Site/Project Name:_____ Site Location: State____ County_____

Start Time:_____ Temp:_____ Cloud Cover:_____ Wind Speed:_____

Wind Direction:_____

End Time:_____ Temp:_____ Cloud Cover:_____ Wind Speed:_____

Wind Direction:_____

Experimental Design (check): Randomized walk_____; Quadrat_____; Transect_____

Patch Size of Each Potential Nectar Source (use scientific names):_____

_____

Scientific Name of Nectar Source(s) Used by CWS: _____

_____

_____

Number of Carson Wandering Skippers Observed: _____ or low medium high (circle one)

Number of Photographs Included:_____

Comments:_____

_____

_____

_____

_____.

cwssurveyform2009