

SURVEY GUIDELINES FOR THE LAGUNA MOUNTAINS SKIPPER

March 2004

We (the U.S. Fish and Wildlife Service) listed the Laguna Mountains skipper (*Pyrgus ruralis lagunae*; skipper) as an endangered species, per the Endangered Species Act (16 U.S.C. 1531 *et seq.*) (ESA) on January 16, 1997 (62 FR 2313). The historic range of the skipper is the Laguna and Palomar Mountains in San Diego County, California. Adults have been found in the montane meadows between 1,200 and 2,000 meters (3,936 and 6,560 feet) elevation. The Skipper is bivoltine (two flight periods per year). The adult flight season may extend from late March through early August, depending on weather conditions. A warm dry spring may result in an early flight season, while a cool wet spring may delay the onset of the flight season. The first flight season typically begins in early-to-mid April, and extends through mid-to-late May; however, skippers may fly as early as late March. The second flight season generally begins in early June and extends through July, but may extend into August.

The species is found in close association with its larval foodplant, *Horkelia clevelandii* (Cleveland's horkelia). This plant occurs in meadows, under pines, in small forest openings, and along small drainages from the San Jacinto Mountains in Riverside County, California, south through the Palomar, Laguna, and Cuyamaca Mountains of San Diego County, California, and extends into San Pedro Martir in northwestern Baja California, Mexico. Recently, the skipper has been found to use a second host plant, *Potentilla glandulosa* (sticky cinquefoil), in the Palomar Mountains. The extent to which the skipper uses *P. glandulosa* as a host plant, and whether the species also uses *P. glandulosa* in the Laguna Mountains is not known. Although the skipper is generally thought to use more open areas with ample sunlight, this second host plant tends to occur in more shaded environments. If the skipper uses *P. glandulosa* as a larval host plant, it may occur in areas previously considered unsuitable (i.e., at least partially shaded areas under the canopy of pines).

Populations of the skipper are currently very low. When a species is less common or occurring in lowered abundance, the amount of time and effort necessary to detect the species in a particular area increases. Our extant knowledge of the biology and ecology of this species is limited, although it has been expanding with each year of survey effort. Therefore, these survey guidelines were drafted to increase the likelihood of detection of the species. However, they are not designed to ascertain conclusively that the species is absent from a particular location. We are currently unable to develop a survey protocol that would ensure, within a reasonable probability, that the species is absent from a survey area if undetected. We have reviewed the literature and have received individual input from species experts, and we believe these guidelines are the most efficient and least impactful methodology for surveying for the species. We may revise these guidelines from time to time to best reflect the information we have available.

Section 9 of the ESA prohibits "take" of listed species. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. We have further defined harass as an intentional or negligent act or omission that

creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns including, but not limited to, breeding, feeding, or sheltering (50 CFR §17.3). Conducting surveys for the skipper is most likely to result in harassing, pursuing, and capturing individuals. To avoid potential violations of section 9 of the ESA, surveyors must have authorization for take of the species prior to conducting surveys. Typically, authorization for surveys is provided through a recovery permit under section 10(a)(1)(A) of the ESA; however, authorization may also be provided under section 10(a)(1)(B) or section 7.

Any questions or comments on these survey guidelines may be directed to the Recovery Permits Coordinator, Carlsbad Fish and Wildlife Office (CFWO), 6010 Hidden Valley Road, Carlsbad, California, 92009 (telephone: 760-431-9440).

LAGUNA MOUNTAINS SKIPPER SURVEY GUIDELINES

A permit to conduct surveys for the skipper authorizes the pursuit, and capture when necessary, of adult skippers for the purpose of identification and photography only. Therefore, these survey guidelines apply to adult surveys only. Special permission must be obtained from the CFWO to conduct surveys for other life stages of this species (e.g., larval forms).

1. An adequate survey should be completed by a permitted biologist for the skipper if the site contains adult feeding or breeding areas (e.g., flowering plants that the adults may utilize for nectaring, or areas of larval host plants). An “adequate” survey should follow these guidelines:
 - a. A survey of the site should be conducted at least twice per week on non-consecutive days (weather permitting, see 1(c) below) for a minimum of 6 weeks throughout the primary flight season. The primary flight season generally occurs between April 1 and May 20, but may begin earlier (late March) if warm and dry conditions prevail, or extend later (late May) if the spring has been cool and wet. If no skippers are detected during the primary flight season, surveys should continue at least once per week from early June through July 31.
 - b. Surveys should be conducted at an average rate of 8 to 10 acres per hour, with special care taken to avoid disturbing any detected skippers.
 - c. The surveys should be conducted between 0900 hours and 1600 hours, and only under acceptable weather conditions. Weekly surveys may not be considered credible if one or more of the following weather conditions occur: fog; drizzle; rain; sustained winds greater than 24 kilometers (10 miles) per hour measured 4 to 1.8 meters (6 feet) above ground level; or temperatures in the shade at ground level less than 15.5° Celsius (60° Fahrenheit) on a clear, sunny day; or less than 21° Celsius (70° Fahrenheit) on an overcast or cloudy day.
 - d. Surveys should be restricted to adult skippers only.

SURVEY TECHNIQUES

Recommended equipment includes: binoculars, a wind meter, a thermometer, and a camera with close-focus telephoto or macro lens. A global positioning system (GPS) unit is also useful.

1. Surveys should be conducted carefully to avoid trampling or otherwise harming skipper larvae and butterflies. Avoid stepping on all host plants, to the maximum extent practicable, whether occurring singly, in small patches, or in dense stands.
2. Surveyors should walk slowly and stop periodically in areas that have a high potential for skipper use, such as patches of host plants or nectar sources, bare or sparsely vegetated areas, local springs or seeps, or areas of moist soil.
3. Surveyors should stop frequently to look around, surveyors standing still are more likely to see a moving skipper. Binoculars help to scan the area ahead of and around the surveyor, and will help in identifying butterflies from a distance.

REPORTING TERMS AND CONDITIONS FOR PERMITTED BIOLOGISTS

1. Survey reports should be sent to the Permit Coordinator at the CFWO.
2. If the permittee determines that the skipper is present, or could not positively identify an individual and suspects that the butterfly may have been a skipper, the CFWO should be notified within 24 hours by telephone and within 2 working days by letter or email.
3. Within 45 days following completion of a survey for the skipper, a report should be submitted to the CFWO that includes:
 - a. The location of the survey area delineated on a 7.5 minute U.S. Geological Survey topographic map at 1:24,000 scale with the name of the map identified;
 - b. A qualitative description of the plant communities (including dominant species and habitat quality) on and adjacent to the survey area;
 - c. A complete description of survey methods, including the names of personnel, the number of acres surveyed per biologist per survey day, the number and dates of surveys, survey areas, and the temperature and weather conditions at the beginning and end of each survey;
 - d. The number and sex of all skippers detected, and these data should also be plotted on 1:24,000 and 1:6,000 scale maps of the survey area; and
 - e. High quality photocopies of the original field notes made during the survey. All notes should be legible. Illegible notes may not adequately document the survey.

4. All occurrence information should be labeled so that the reader can associate the map with the findings in the report about individuals, pairs, or groups. Maps should be either topographic with elevation contours identified, or aerial photography with locator information identified. Surface features on the map should be readable and not masked out by other supplied information, such as plant communities. We suggest using a GPS unit or aerial photos if available. All GPS locations should be corrected with an accuracy not to exceed 5 meters (16.4 feet) when possible. It may be necessary to prepare multiple maps to accurately convey all information.
5. If the skipper is documented at a previously unknown location, the following information should be submitted with the 45 day report:
 - a. Five color photographs of the survey area: (i) two photos from opposing axes of the site (e.g., north and south compass headings), taken from a standing position that portray the general landscape of the site; and (ii) three photos of representative areas within the site that was surveyed. The following information should be legibly written on each photo with permanent ink: project name, general location of the project site (i.e., city or distance in miles to nearest city), precise location of the project site, direction from which the photograph was taken, date the photograph was taken, and the name of the photographer.
 - b. A map at an adequate scale that indicates the location(s) where the food plants of the larvae and adult nectar resources are located in the survey area, according to the description above.
 - c. A detailed description of the plant communities present at the survey site, and a list of other co-occurring butterfly species observed during the survey.

APPROACHING A BUTTERFLY SUSPECTED OF BEING A LAGUNA MOUNTAINS SKIPPER

Approaching a skipper may result in take, as defined by the ESA, and therefore should only be conducted by a permitted biologist. When approaching a butterfly, move slowly and keep the movement of your hands, arms, legs, and body to a minimum. If the butterfly is first seen in flight, follow it discreetly, keeping at least .8 meters (6 feet) away until it alights (lands). Do not make sudden movements.

If the butterfly is circling, stand still and wait for it to alight; if it perceives your movement, it is less likely to stop. Observe the flight pattern.

Once the butterfly has alighted, or if it is first seen when alighted, approach it slowly from an angle where it is not likely to perceive your shadow; approaching from the side may give you the best view of the butterfly's body. Take a photograph of the butterfly when approximately 1.8 meters (6 feet) away (or at a greater distance if your camera has adequate telephoto capabilities), taking care not to allow your shadow to fall on the butterfly.

Slowly move toward the butterfly, taking photographs periodically. When your shadow is within about 1 meter (3 feet) of the butterfly, circle slowly around it if necessary to approach more closely without casting a shadow on it. As you get closer you should move more and more slowly. Insects that are engaged in some activity such as courtship or feeding on flowers are easier to approach than those that are basking.

Questions regarding these survey guidelines, or their application to specific projects, should be directed to the CFWO Entomologist, the Permit Coordinator, or the staff supervisor responsible for the geographic area in which the survey site is located. A response should be provided within 72 hours for time-sensitive questions.