



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Southwest Region
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Casey's June beetle (*Dinacoma caseyii*) Survey Guidelines

As Referenced in Special Terms and Conditions of 10(a)1(A) Recovery Permits
Guidelines Last Revised, January 23, 2012

Where these guidelines apply

We recommend areas of exposed contiguous native soil equal to or greater than approximately 0.2 hectare (0.5 acre) be surveyed within the recommended survey area (see current survey area map). The survey area map is a guide for surveyors, if site inclusion is not clear because of map scale (it falls on an unclear border) it should be surveyed. Land covered with nonnative soil (for example sod or fill dirt), asphalt, cement, or other artificial material do not need to be surveyed. Areas with a slope greater than 9 percent also do not need to be surveyed.

Light trapping for adult males

Black light trapping for Casey's June beetle (CJB) should be conducted at least once every 10 days (to ensure sampling during peak abundance) during the first available suitable survey conditions from the beginning of April (6 surveys over two months). A standard insect black light (ultraviolet light) collection trap apparatus should be used. Traps should have at least one 15 watt black light tube, or two 8 watt tubes (higher wattage or more bulbs acceptable), suspended just above an approximately 19 liter (5 gallon) bucket topped with a funnel approximately 20-25 centimeter (cm) (8-10 inch (in)) tall with an approximately 5 cm (2 in) opening inside of the bucket. The bucket apparatus may include minor modifications to increase efficiency, but must be equivalent and cannot have any features that would make it less likely a beetle would be trapped. The bucket should be placed on top of a large white sheet so that any beetles that miss the bucket and land on the ground are likely to be observed. Traps must be staggered along transects, so that the 100 meter (m) (328 feet (ft)) radius areas around them overlap and minimize gaps in coverage. Traps should be spaced approximately 175 m (574 ft) apart along transects and staggered half way between traps on neighboring transects. Transects should be approximately 150 m (492 ft) distant from neighboring transects. The maximum allowable wind speed during trapping activity is 5 miles per hour (8 kilometers per hour), and the temperature approximately 0.3 m (1 ft) above the ground must be at or above 80 degree F (27 degree C). Light trapping must commence approximately 1 hour before sunset and continue for 3 hours each day, traps should be checked at least once per hour, more often if possible, and captured individuals held in a dark, clean container until the end of the day. Wind speed and temperature must be recorded at the beginning, middle and end of each night at the site being surveyed.

At least one trapped individual adult male CJB must be photographed, along with a ruler for scale, during a survey so that identification can be confirmed and the photo must be included in the 45-day report. After black lights are turned off, any CJB individuals captured during light trapping must be released into the habitat where they were trapped while it is still dark, with as little handling as possible to minimize the possibility of injury.

Incidental Observation of Emergence Holes

A recovery permit authorizing survey activities is required to search for adult females because this activity may result in injury and/or mortality to the CJB. Adult CJB females could be trampled under the low-light conditions when they are active, and are difficult to find. Incidental observations of insect emergence holes may occur during daylight hours, and observation of females may occur during dusk black light trapping. If a permitted light-trapping surveyor incidentally observes adult females or insect emergence holes (see emergence hole description below) while conducting light trapping surveys, these survey guidelines authorize the surveyor to photograph the adult females or emergence holes using a ruler for scale, and requires these photographs be included with the submitted 45-day survey report.

In sandy soils on flat surfaces with a thin crust adult male CJB emergence holes are not difficult to identify, but may be difficult to find if distributed within a large habitat area, and may not persist if disturbed or if soil conditions are not right. Shafts are vertical, with an almost perfectly round opening typically 6-7 millimeters (0.24-0.28 inches) in diameter (the size of adult males). Adult male CJB emergence holes are described as "clean-looking, with no loose soil around them, no 'push-ups' or 'kick-outs' as are present with many other insects' burrows or emergence holes." At locations containing loose sand, the sand will collapse around the emergence hole. Therefore, when adult CJB males emerge through loose sand the holes are not identifiable. Adult females re-enter emergence holes, making their holes difficult to identify.

Acceptance of surveys and limitations

Beetle surveys may not be considered credible if: 1) unfavorable environmental conditions such as drought limits CJB detectability; 2) the specific survey methods described above are not followed (unless deviations are requested in writing prior to the survey and agreed to by the Service); or 3) additional information indicates that the survey was inadequate or inaccurate. A permit is not required if a habitat assessment reveals surveys are not needed. We will advise the public if unfavorable environmental conditions limited or precluded CJB detectability at reference sites.

Survey reporting criteria

1. If the permittee determines that the Casey's June beetle is present, the CFWO should be notified within 24 hours by telephone and within 2 working days by letter or email.
2. Within 45 days following completion of a survey for the Casey's June beetle, a report should be submitted to the Recovery Permit Coordinator at 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 (per Sawyer et al. 2009), including dominant species and habitat quality, on and adjacent to the survey area per Sawyer et al. 2009;
 - c. A complete description of survey methods, including the names of personnel, the number of acres (or length of transects) surveyed per biologist per survey evening, the total number and dates of surveys, survey areas, and the temperature and weather conditions at the beginning and end of each survey;
 - d. The number, sex, and life stage of all Casey' June beetles detected, and these data should also be plotted on 1:24,000 scale map(s) of the survey area;
 - e. A map at an adequate scale that indicates the location(s) of any insect emergence holes detected; 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.
3. 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 include projection information and be corrected with an accuracy not to exceed 5 meters (16.4 feet). It may be necessary to prepare multiple maps to accurately convey all information.
4. If the Casey's June beetle 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 to the 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 detailed description of the plant communities (per Sawyer et al. 2009), present at the survey site and a list of other co-occurring insect species observed during the survey.

Additional Information

1. Questions regarding the protocol or its application to specific projects should be directed to the Carlsbad Fish and Wildlife Office at 760-431-9440, or the Palm Springs Fish and Wildlife Office at 760-322-2070.
2. Modifications and/or refinements to these survey guidelines may occur at any time at the discretion of the Service.
3. For reviewing the Services species specific information for the Casey's June beetle refer to the link on our "Environmental Conversation Online System (ECOS)" at: "<http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=IOTG>"
4. For reviewing general permitting information go to our "Permits" website at: "<http://www.fws.gov/permits/overview/overview.html>"
5. For the link to the Recovery Permit Application that must be submitted to the Service for conducting survey activities for the Casey's June beetle refer to the link at: "<http://www.fws.gov/forms/3-200-55.pdf>"
6. For Sawyer et al. 2009 refer to the link at: "<http://www.cnps.org/cnps/vegetation/manual.php>"