



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Division of Ecological Services
9014 East 21st Street
Tulsa, Oklahoma 74129-1428
918/581-7458 / (FAX) 918/581-7467



American Burying Beetle *Nicrophorus Americanus* Baiting Away Guidance for Oklahoma Updated May 20, 2009

Introduction

The goal of this document is to provide guidance in implement baiting away actions for the ABB as a means of complying with section 7 and 9 of the Endangered Species Act (ESA). Section 9 of the ESA prohibits all persons from the taking of federally listed species. Take includes harming, harassing, or killing. Section 7 of the ESA requires federal agencies to consult with the Service if a project they authorize, fund, or carry out may adversely affect a federally listed species. Baiting away is a technique to remove ABBs from a given area prior to soil disturbance without handling the ABB or physically relocating them to another area. Implementing other temporary relocation measures, not recommend by the Service, may not result in avoidance of impacts or take of the ABB.

Time

Bait away should be implemented during the ABB's prime active period in Oklahoma, May 20 to September 20. Refer to the Services "ABB Survey Guidance" for additional information.

Timing

Bait away should be implemented during the ABB's prime active period in Oklahoma, May 20 to September 20. Although the capture rates of ABBs are known to be higher during certain dates within their prime active period, the Service is not recommending restricting bait away implementation to specific dates during this prime active period. Refer to the Services "ABB Survey Guidance" for additional information.

Minimum Bait Away Effort

To have confidence in avoiding impacts to ABBs, a minimum of 3 consecutive days of baiting away must occur prior to soil disturbance. Additional baiting away may be necessary if soil disturbance does not commence or is not completed the day immediately following the conclusion of baiting away (day 4).

Timeframe a Baiting Away Effort is Valid*

Bait Away Conducted for Projects Implemented During the Active Period:

The Service recommends bait away commence at least 3 days prior to the disturbance of soil. This bait away effort is only valid for the present. After the 3 days of baiting away, soil disturbance must commence on the 4th day. If soil disturbance is not concluded for the entire project area by day 4, then additional days of baiting away are needed until all the areas that are to be disturbed are removed of topsoil. The Service's definition of completed soil disturbance is when all the topsoil in the project area has been removed or all the vegetation has been removed leaving only soil. If project construction will occur in phases and therefore soil disturbance will occur in phases, then baiting away can also occur in phases. However, any newly disturbed areas will still need to be baited away 3 days prior to soil disturbance.

Bait Away Conducted for Projects Implemented During the Inactive Period:

During the ABB's inactive period, September 21 to May 19, ABBs bury in the soil to overwinter. Projects to be implemented during the ABBs inactive season should plan to address the ABB just prior to the onset of their inactive season since baiting away cannot be implemented at the time of the proposed project disturbance. The objective of implementing bait away just prior to the ABB's inactive period is to lure ABBs to a disturbance free area where they will then bury in the soil and overwinter safely. Luring ABBs to overwinter outside the project area allows the commencement of project construction during the inactive period. Baiting away must commence

on September 14 and continue for 6 days.

Bait Away Effective Radius*

Bait away efforts are only valid for the specific project site where ABBs are being lured from. The effective radius of a bait away effort is dependent on the number of bait stations deployed. Specific spacing guidelines are explained below.

Minimum Project Size

Projects with a radius equal to or less than 0.5 mile from the center to any given point along the perimeter are suitable for baiting away to be implemented.

Projects with a radius greater than 0.5 mile from the center to any given point along the perimeter are not suitable for baiting away to be implemented. Project areas greater than 0.5 miles from the center to any point along the perimeter are too large to deploy bait stations outside the project boundary and be effective at luring ABBs. Trapping and relocating should be implemented. Please refer to the Service's May 20, 2009 "*ABB Trap and Relocation Guidance*".

The average nightly movements of ABBs are around 0.5 miles. So, to err on the side of the species a maximum project radius size of 0.5 miles is necessary to ensure ABBs are effectively removed from the proposed disturbance area.

Weather Requirements

An additional night of baiting away is required when the temperature falls below 60°F between 7:00 PM and 7:00 AM or when rainfall greater than ½ inch occurs between 7:00 PM and 7:00 AM. If any additional nights of baiting away are required and conducted because of weather, this needs to be noted and explained in the "*ABB Bait Away Form*". Refer to the Services "*ABB Survey Guidance*" for additional information.

Weather data for all surveys should be collected using the Oklahoma Mesonet website, www.mesonet.org. Directions for using the Oklahoma Mesonet website are provided below.

Oklahoma Mesonet:

1. At www.mesonet.org, click on "Past Data and Files" under "Mesonet Data" (Left side of the screen)
2. Click on the Mesonet station closest to the survey site. Then under the "Station Monthly Summary" heading select the month and year of the survey. Then click "Get summary."

Temperature:

- In "summary report" of this Mesonet page, find the date of the survey. Daily Mesonet data is measured from midnight to midnight, so if traps are set on June 3rd, temperature data from both the 3rd and the 4th will be needed to address the entire trapping night, which is between 7:00 PM to 7:00 AM, and because the nightly low temperature most often occur past midnight.

Rainfall:

- In "summary report" of this Mesonet page, find the date of the survey. Once again, if the traps are set on June 3rd, Mesonet data from the both the 3rd and 4th need to be reviewed to address the entire trapping night, which is between 7:00 PM to 7:00 AM. Rainfall over ½ inches during a trap night requires further analysis and reporting. The time of the rainfall needs to be determined. This Mesonet page only reports the entire rainfall that occurred in a 24 hour period (midnight to midnight). To determine when during a 24 hour period rainfall events occurred and how much rain fell, proceed to the next paragraph for instructions to navigate through Mesonet to the proper page.
- Click on "Past Data and Files". Then under the heading "Data Files" on the bottom right of screen click on "Mesonet MTS Files". Then click on the relevant date. Then select the Mesonet station nearest to the survey area. Rain totals are given in 5 minute increments on

this Mesonet page. Remember that daily Mesonet data is provided for a 24 hour period, beginning at 12:00 AM and ending at 12:00 AM. So the date the traps were set and the following date need to be reviewed to determine the rainfall for the entire trapnight.

Baiting Location

For nonlinear projects bait stations should be deployed at 1,000 foot intervals and 500 feet outside the project perimeter.

For linear projects with a width from 0.35 to 0.5 mile, bait stations should be deployed along both long sides of the project at 1,000 foot intervals and 500 feet outside the project perimeter. For projects with a smaller width, less than 0.35 mile, bait stations should be deployed alternately along both sides of the projects long boundaries at 1,000 foot intervals. (Meaning one bait station should be deployed on side A and then another bait station deployed 1,000 linear feet away on side B, and so on.)

Projects with a width greater than 0.5 mile or a diameter greater than 1 mile will need to implement trap and relocation.

Ants

Bait stations should not be placed within 23 feet (7 meters) of ant hills. If ants are discovered on bait it should be relocated at least 23 feet away. Ants can swarm and kill an ABB (Creighton *et al.*, 1993 and Bedick *et al.*, 2004).

Bait

Bait roughly the size of a whole chicken (3-5 pounds) needs to be used at each station. Bedick *et al.* (2004) found higher capture rates of ABBs when larger bait was utilized.

Bait Enclosure and Cover

Bait needs to be enclosed, secured to the ground, and covered. The enclosure and cover must allow ABBs access to bait, permit ABBs to easily exit, allow ABBs access to soil under bait, allow bait odor to escape, and protect ABBs from desiccation but prevent access by other non-target scavengers. Enclosures and covers need to be secured to the ground with rebar, stakes, or other such item to prevent removal by vertebrate scavengers. All materials used to enclose and cover bait, and to secure the enclosure and cover to the ground must be able to withstand weather conditions and vertebrate scavengers. Enclosures and covers must allow for visual inspection of the bait to determine replacement needs.

Some enclosure examples are: Havahart traps, wire mesh, expanded metal, and metal baskets. Enclosures must contain holes large enough to allow ABBs access to bait but prevent access by other non-target vertebrate scavengers. Typically ABBs fly to an area, land and then crawl to carrion. So, bait enclosures need to have holes at ground level to ensure ABBs will have access to the bait. ABBs have been reported to remain under the bait or in the soil under the bait throughout the daytime. Preliminary data suggest that *Nicrophorus* species could be adversely affected or killed via desiccation as a result of exposure to temperature extremes from remaining with the bait and not being able to bury in the soil (Hoback 2007, personal communication). Consequently, enclosure bottoms must permit ABBs access to the soil. The ABB is vulnerable to desiccation due to overexposure to heat and direct sun. Enclosed bait placed in a dense, forested habitat type where shade is provided the entire day will not require any additional protective covering for shade. However, enclosed bait that is not shaded by dense, forested vegetation will require additional covering for shade. The covers must not prevent ABBs from readily accessing the bait or exiting the enclosure, or prohibit the escape of bait odor.

Checking Bait Stations and Disturbed Bait

Each bait station must be daily. Any bait that no longer emits a pungent odor, has desiccated, has been scavenged or otherwise not effective needs to be replaced. When 20 percent or more of the bait stations are missing bait, an additional night of baiting away is needed prior to soil disturbance.

Reporting

The Service has prepared a standard "Bait Away Reporting Form" (Appendix A). Use of this form ensures that all of the needed data is recorded. This form must be completed and submitted to the Oklahoma Service Field

Office within 30 days of completion of each bait away effort.

This form is to be completed for each bait away effort for each night during the bait away effort. The “*Bait Away Reporting Form*” must be completed in Excel. This is to be submitted electronically in excel file format to ABBcontact@fws.gov. The Service will then review the form and provide a response, via electronic mail, regarding our acceptance or non-acceptance of the bait away effort as sufficient.

If bait away effort is conducted in compliance to the Endangered Species Act or the National Environmental Protection Act, project names and numbers need to correctly correspond. Each row in the spreadsheet should represent an individual bait station. All latitude and longitude data should be reported in decimal degrees and the coordinate system/projection should be in NAD 83. Only complete and accurate forms will be accepted. Incomplete and/or inaccurate forms will be returned and the bait away effort will be considered invalid until the forms are corrected and/or properly completed, and submitted. When sending corrected forms, indicate that it is a correction, what specifically has been corrected, and the project name.

Protocols and Forms

All protocols and forms can be downloaded from the Oklahoma Ecological Services Field Office’s website <http://www.fws.gov/southwest/es/oklahoma/beetle1.htm>

Bait away radius and validity, and placement and spacing are more restrictive for “ABB Baiting Away Guidance” than the Service’s “ABB Survey Guidance” because ABB surveys are only aimed at determining the presence or absence of ABBs. Baiting away is aimed at removing all ABBs from the project area.

Portions of this guidance were developed from the U.S. Fish and Wildlife Service’s July 14, 2005, “ABB Survey Guidance” and a U.S. Fish and Wildlife Service Working Group on May 6, 2004, and other meetings between Service personnel and permittees in March and April 2009. The Oklahoma Ecological Services Field Office, in coordination with other Field Offices, update this protocol as necessary due to new findings. The purpose of this guidance is to streamline and update American burying beetle bait away recommendations among the Arkansas, Oklahoma, Kansas, and Arlington, Texas Field Offices. However, each state protocol may be different in some manners due to the land use and actions that occur in the different states. Each state Service office should be contacted for their most current protocols.