# 2004 American Burying Beetle Annual Report: Pond Creek National Wildlife Refuge 

## Summary:

Francis Rothwine from the U.S. Forest Service led training for American burying beetle (Nicrophorus americanus) survey techniques on June 7-8, 2004 at Pond Creek National Wildlife Refuge (NWR). Attendees included Eric Smith, Joey Breaux, Ruth McDonald, Ame New, Jodie Smithem, Eddie Courson, and Larry Threet (South Arkansas Refuges Complex); Jon Wessman, Elizabeth Stafford, and Cris Davidson (Arkansas Ecological Services Field Office); and Dr. Lyn Thompson from the University of Arkansas.

The subsequent week, Eric Smith, Joey Breaux, and Jodie Smithem conducted surveys for the American burying beetle at Pond Creek NWR following methods outlined in Creighton et al. (1993). Transects were placed at 14 different locations throughout the refuge. Transect locations were recorded at the center of the transect line using the NAD 83 coordinate system (Table 1). Figure 1 depicts transect locations on a map of Pond Creek NWR. Transect locations had been determined and agreed upon by Conway Ecological Services and South Arkansas Refuges Complex biologists prior to survey implementation. Each transect line contained eight traps, resulting in 112 traps along 14 different transects.

Table 1. Transect locations for the American burying beetle survey at Pond Creek National Wildlife Refuge using the NAD 83 coordinate system.

| Transect Number | North Latitude | West Longitude |
| :---: | :---: | :---: |
| 1 | N33 ${ }^{\circ} 54 \prime 25.8^{\prime \prime}$ | W94 ${ }^{\circ} 22^{\prime} 10.1^{\prime \prime}$ |
| 2 | N33 ${ }^{\circ} 50^{\prime} 45.7^{\prime \prime}$ | W94 ${ }^{\circ} 16^{\prime} 04.1^{\prime \prime}$ |
| 3 | N33 ${ }^{\circ} 51^{\prime} 09.2^{\prime \prime}$ | W94 ${ }^{\circ} 13^{\prime} 58.5^{\prime \prime}$ |
| 4 | N33 ${ }^{\circ} 52^{\prime} 13.2^{\prime \prime}$ | W94 ${ }^{\circ} 13^{\prime} 05.2^{\prime \prime}$ |
| 5 | N33 ${ }^{\circ} 51^{\prime} 21.0^{\prime \prime}$ | W94 ${ }^{\circ} 13^{\prime} 25.1^{\prime \prime}$ |
| 6 | N33 ${ }^{\circ} 50^{\prime} 10.7^{\prime \prime}$ | W94 ${ }^{\circ} 15^{\prime} 25.4^{\prime \prime}$ |
| 7 | N33 ${ }^{\circ} 50 \times 33.9^{\prime \prime}$ | W94 ${ }^{\circ} 13^{\prime} 51.9^{\prime \prime}$ |
| 8 | N330 $49^{\prime} 17.9^{\prime \prime}$ | W94 ${ }^{\circ} 14^{\prime} 04.6{ }^{\prime \prime}$ |
| 9 | N330 $49^{\prime} 15.6^{\prime \prime}$ | W94 ${ }^{\circ} 12^{\prime} 52.9^{\prime \prime}$ |
| 10 | N33* ${ }^{\prime}$ '52.7" | W94 ${ }^{1} 12^{\prime} 10.8^{\prime \prime}$ |
| 11 | N33 ${ }^{\circ} 48^{\prime} 38.3^{\prime \prime}$ | W94 ${ }^{\circ} 08^{\prime} 16.0^{\prime \prime}$ |
| 12 | N33 ${ }^{\circ} 48^{\prime} 23.2^{\prime \prime}$ | W94 ${ }^{\circ} 10^{\prime} 22.2^{\prime \prime}$ |
| 13 | N33 ${ }^{\circ} 48^{\prime} 17.6^{\prime \prime}$ | W94*09'05.2 ${ }^{\prime \prime}$ |
| 14 | N33 ${ }^{\circ} 48^{\prime} 32.6^{\prime \prime}$ | W94* $08^{\prime} 15.6^{\prime \prime}$ |

Surveys were run for a total of three nights during the week of June 14, 2004 through June 18, 2004. Below is an outline of daily activities during the survey period:

## Day 1 - 6/14/04

112 traps along 14 transects were set and baited.

## Day 2-6/15/04

Data was collected for 11 transects before a light rain set in. The rain lasted for approximately one hour, during which time extra traps were made in case some were needed in the future. After the rain passed, traps on the remaining three transects were checked for damage from the rain. All traps on the three transects looked good, so data was collected for them. Transects $2-5,7,8$, and 10 were also checked for damage from rain. Transects 2, 5, 7, and 10 looked good. Several traps for transects 3, 4, and 8 had to be reset.

## Day 3-6/16/04

Data was collected for all 14 transects. All traps were rebaited for transects 2-10, 12, and 13. Only traps that were missing bait were rebaited for transects 1,11 , and 14. Rebaiting the traps was to no avail, however, because it rained for several hours in the afternoon. The rain continued during the evening.

## Day 4 - 6/17/04

Data was not collected this day because of the heavy rain the day before. All transects were checked for damage from the rain, and traps were replaced or rebaited if needed. Thankfully, the weather remained sunny and warm the entire day.

## Day 5 - 6/18/04

Data was collected for all 14 transects. All traps were removed and discarded.

## Results:

The most abundant Nicrophorus species captured during the survey was Nicrophorus arbicollis, followed by N. marginatus and N. tomentosus. No American burying beetles ( $N$. americanus) or $N$. pustulatus were found. Table 2 outlines the total number of beetles and spiders found each morning, per transect line, during the three-day American burying beetle survey at Pond Creek NWR. Table 3 summarizes the total number of beetles and spiders found each morning, in all traps, during the three-day American burying beetle survey at Pond Creek NWR. Interestingly, several Nicrophorus species, in several different traps, were found on top of the bait in the styro-foam cup that is suspended above the plastic cup in the ground. The theory that placing the bait in the bottom of a
styro-foam cup, suspended above a plastic cup, denies beetles direct access to the bait may want to be further investigated.

Table 2. Total number of beetles and spiders found each morning, per transect line, during the three-day American burying beetle survey at Pond Creek National Wildlife Refuge.

| Type of <br> Species | Survey <br> Morning | $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{1 0}$ | $\mathbf{1 1}$ | $\mathbf{1 2}$ | $\mathbf{1 3}$ | $\mathbf{1 4}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| N. americanus | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. arbicollis | 1 | 15 | 1 | 0 | 1 | 0 | 1 | 2 | 3 | 3 | 11 | 10 | 1 | 8 | 3 |
| N. tomentosus | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 |
| N. pustulatus | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. marginatus | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| Other beetles | 1 | 20 | 1 | 22 | 20 | 23 | 12 | 7 | 13 | 5 | 40 | 6 | 10 | 3 | 17 |
| Spiders | 1 | 5 | 0 | 1 | 3 | 1 | 3 | 6 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| N. americanus | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. arbicollis | 2 | 7 | 0 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 5 | 2 | 2 | 0 | 1 |
| N. tomentosus | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| N. pustulatus | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. marginatus | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Other beetles | 2 | 1 | 2 | 2 | 5 | 2 | 7 | 3 | 4 | 7 | 8 | 7 | 8 | 5 | 10 |
| Spiders | 2 | 0 | 3 | 3 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| N. americanus | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. arbicollis | 3 | 10 | 1 | 2 | 1 | 2 | 3 | 2 | 1 | 1 | 8 | 2 | 2 | 1 | 1 |
| N. tomentosus | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| N. pustulatus | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N. marginatus | 3 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 2 | 2 | 1 | 1 | 2 | 1 | 1 |
| Other beetles | 3 | 2 | 6 | 9 | 3 | 7 | 5 | 5 | 5 | 6 | 14 | 12 | 9 | 7 | 10 |
| Spiders | 3 | 0 | 9 | 2 | 1 | 0 | 3 | 5 | 1 | 1 | 0 | 3 | 1 | 1 | 1 |

Table 3. Total number of beetles and spiders found each morning, in all traps, during the three-day American burying beetle survey at Pond Creek National Wildlife Refuge.

| Type of Species | Survey Morning 1 | Survey Morning 2 | Survey Morning 3 |
| :--- | :---: | :---: | :---: |
| N. americanus | 0 | 0 | 0 |
| N. arbicollis | 59 | 23 | 37 |
| N. tomentosus | 6 | 2 | 2 |
| N. pustulatus | 0 | 0 | 0 |
| N. marginatus | 7 | 3 | 15 |
| Other beetles | 199 | 71 | 100 |
| Spiders | 22 | 19 | 28 |

## Literature Cited

Creighton, J.C., M.V. Lomolino, and G.D. Schnell. 1993. Survey methods for the American burying beetle (Nicrophorus americanus) in Oklahoma and Arkansas. Oklahoma Biological Survey, Norman, Oklahoma.

## Pond Geek National Wild life Refuge



Figure 1. American burying beetle transect locations at Pond Creek National Wildlife Refuge.

