

Appendix D

American Burying Beetle (*Nicrophorus americanus*) Presence/Absence Survey Report

American Burying Beetle
(*Nicrophorus americanus*)
Presence/Absence Survey Report

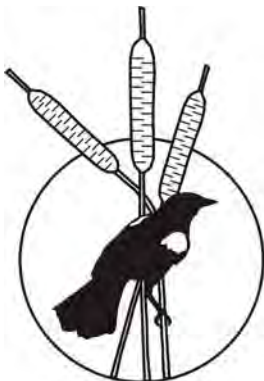
U.S. Army Corps of Engineers
Lake Eufaula
Shore Management Plan and
Environmental Impact Statement

Transect #1
Section 1, Township 8 North,
Range 16 East

Transects #2 & #5
Section 31, Township 9 North,
Range 17 East

Transects #3 & #4
Section 32, Township 9 North,
Range 17 East

June 10, 2012



Prepared By:

A handwritten signature in black ink, appearing to read 'Clint M. Porter', written over a horizontal line.

Clint M. Porter
Project Manager
Blackbird Environmental, LLC
P.O. Box 720100
Norman, Oklahoma 73070
(405) 640-3011

American Burying Beetle (*Nicrophorus americanus*)
Presence/Absence Survey Report

1.0	Purpose and Need of the Proposed Action.....	1
2.0	Survey Methodology	2
3.0	Summary Biological Evaluation	2
4.0	Final Effects Determination.....	3
5.0	Literature Cited	4

Figures:

Figure 1: Site Map

Figure 2: Topographic Map

Figure 3: Soil Survey Map

Appendices:

Appendix 1: Site Photographs

Appendix 2: Survey Data Sheets

1.0 Purpose and Need of the Proposed Action

Blackbird Environmental, LLC (Blackbird) performed five (5) protected species surveys on a subject property within Section 1, Township 8 North, Range 16 East (Transect #1); Section 31, Township 9 North, Range 17 East (Transect #2 and Transect #5) and Section 32, Township 9 North, Range 17 East (Transect #3 and Transect #4), Pittsburg County, Oklahoma. The survey began on May 24, 2012 and was finalized on May 28, 2012. Photographs of the survey locations are provided as Appendix 1. The surveys were performed as part of an Environmental Impact Statement prepared by the United States Army Corps of Engineers to evaluate potential impacts of updates to the Shoreline Management Plan at Eufaula Lake.

The Endangered Species Act of 1973 (ESA) established a method for protecting species and associated habitats recognized as threatened or endangered. The ESA makes it unlawful for a person to take a listed species without a permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” Furthermore, “harm” is considered “an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.” The United States Department of Interior Fish and Wildlife Service (USFWS) is responsible for listing species and developing recovery plans. The USFWS was also delegated enforcement authority within the ESA.

Blackbird currently holds a Section 10 permit for research and recovery of *Nicrophorus americanus*. The permit number is **TE198057-0**.

The American burying beetle (*Nicrophorus americanus*) is the largest of its genus in North America. The species is characterized by a shiny black body with shiny and smooth elytra. Each elytron has two scalloped, orange-red markings. The most distinguishing characteristic of this species is the large orange-red marking on the raised portion of the pronotum. The antennae are large and abruptly clubbed with orange tips. Habitat for the species includes a mosaic of vegetation types ranging from deciduous and coniferous forest on slopes and mountain tops to deciduous riparian corridors and extensive pasturelands on valley floors. *N. americanus* requires loose and well drained soils with a well defined detritus layer. Significant concentrations of rock and clay within the soil limit excavation and suitable reproductive habitat (USFWS, 1991). *N. americanus* was listed as endangered on July 13, 1989 (54 FR 29652).

No federal action is authorized which is likely to jeopardize the continued existence of species recognized as threatened, endangered or species proposed for such designation. Furthermore, any action that “may affect” any such species will not be authorized unless ESA Section 7 consultation addressing the effects of the proposed action has been completed.

N. americanus is currently listed as endangered within Pittsburg County, Oklahoma; therefore, Blackbird evaluated the subject property for habitat associated with *N. americanus*. The habitat evaluation began with a review of detailed habitat descriptions provided by the USFWS. The biotic and abiotic factors associated with the terrestrial ecosystems on the subject property were then compared with the existing detailed habitat descriptions. Suitable reproductive and foraging habitat for *N. americanus* was observed within the study area; therefore, the surveys were performed to determine if *N. americanus* are likely to occur within the study area.

2.0 Survey Methodology

The surveys were completed according to the updated 2012 USFWS survey guidance (USFWS, 2012). The published survey guidance is based on Creighton et al. (1993) and Bedick et al. (2004). Surveys must be completed during *N. americanus*' primary active season (May 20 through September 20); in addition, the survey protocol length will be altered when night-time low temperatures are below 60 degrees Fahrenheit between 7:00 pm and 7:00 am. Wind speed exceeding eight (8) miles per hour for 20 percent of the time between 7:00 pm and 7:00 am requires an additional survey night. However, the survey night is considered valid if *N. americanus* are captured. Additional survey nights will be required when the traps are disturbed and no *N. americanus* are captured. Survey results are valid for the current active and subsequent inactive season (May 28, 2012 to May 20, 2013) from when the survey was completed.

Surveys must be conducted for a minimum of three (3) consecutive nights. The above described variations potentially require additional surveying nights. A survey transect includes one (1) baited pitfall trap. Each baited pitfall trap must be checked by 10:00 am each morning and baited by 5:00 pm each evening. *N. americanus* should be released along the transect where they were captured. All *Nicrophorus* species must be identified and recorded during the survey. Furthermore, all required USFWS data sheets must be completed and submitted within 30 days from the completion of the survey (USFWS, 2012).

3.0 Summary Biological Evaluation

The proposed action area was located within the Arkansas Valley ecoregion of Oklahoma. This ecoregion is characterized as transitional and diverse. A mix of oak savanna, prairie, oak-hickory-pine forest and oak-hickory forest is native to upland habitats. In addition, bottomland forests are native to floodplains and low terraces. Livestock grazing, timber harvest, coal mining and oil and gas extraction exist within this ecoregion, and water quality within streams and lakes is dependent on adjacent land uses (Woods et al., 2005).

The localized general vicinity of the subject property was characterized as undeveloped mature forest and limited residential and commercial development with associated

infrastructure. Habitat on the subject property included oak-hickory-pine forest (Figure 1). Eufaula Reservoir was located north and south of the survey locations (Figure 2).

The soils within the survey areas were listed as Bengal-Clebit-Clearview complex, 5 to 30 percent slopes (EhE) and Clearview fine sandy loam, 3 to 5 percent slopes, eroded (HaC2) (Figure 3). Site reconnaissance indicated the soils were sandy-loams with some areas containing gravel, cobble and boulder. However, the soil was not characterized as greater than or equal to 80 percent rock within the top four inches. Therefore, the survey locations were characterized as suitable foraging and reproductive habitat for *N. americanus*.

The updated survey guidance (USFWS, 2012) indicates surveys are valid only for the current active and subsequent inactive periods; therefore, previous surveys within the area would not be valid.

The surveys were performed for four (4) consecutive nights. Five (5) *N. americanus* were collected during the four-night survey. One (1) *N. americanus* was collected on Transect #1, one (1) *N. americanus* was collected on Transect #2, one (1) *N. americanus* was collected on Transect #3 and two (2) *N. americanus* were collected on Transect #4. In addition, four (4) other *Nicrophorus* species were collected between all survey transects. Three (3) *N. orbicollis*, 46 *N. tomentosus*, one (1) *N. marginatus* and two (2) *N. pustulatus* were collected during the four-night survey (Appendix 2).

Table 1: Data associated with *N. americanus* captures during presence/absence survey.

Date	Transect Location	Gender	Age
May 25, 2012	2	Male	Unknown*
May 26, 2012	1	Female	Unknown*
May 26, 2012	4	Female	Unknown*
May 27, 2012	4	Male	Breeding Adult
May 28, 2012	3	Male	Breeding Adult

* Individual exhibited characteristics of a newly emerged adult; however, newly emerged adult not expected during survey date.

4.0 Final Effects Determination

The results of the surveys indicate *N. americanus* are likely to occur within the vicinity of the survey locations. However, the results of the surveys are valid until May 20, 2013.

5.0 Literature Cited

- Bedick, J., Ratcliffe, B., Higley, L. 2004. A new sampling protocol for the endangered American burying beetle, *Nicrophorus americanus* Olivier (Coleoptera: Silphidae). *The Coleopterists Bulletin* 58(1):57-70.
- Creighton, C., Lomolino, M., Schnell, G. 1993. Survey methods for the American burying beetle (*Nicrophorus americanus*) in Oklahoma and Arkansas. Unpublished.
- USFWS. 1991. American burying beetle (*Nicrophorus americanus*) recovery plan. Newton Corner, Massachusetts. 80 pp.
- USFWS. April 20, 2012. Draft: American burying beetle *Nicrophorus americanus* Survey Guidance for Oklahoma. Tulsa Ecological Services Field Office.
- Woods, A.J., Omernik, J.M., Butler, D.R., Ford, J.G., Henley, J.E., Hoagland, B.W., Arndt, D.S., and Moran, B.C. 2005. Ecoregions of Oklahoma (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,250,000).

Figures:

Figure 1: Site Map

Figure 2: Topographic Map

Figure 3: Soil Survey Map

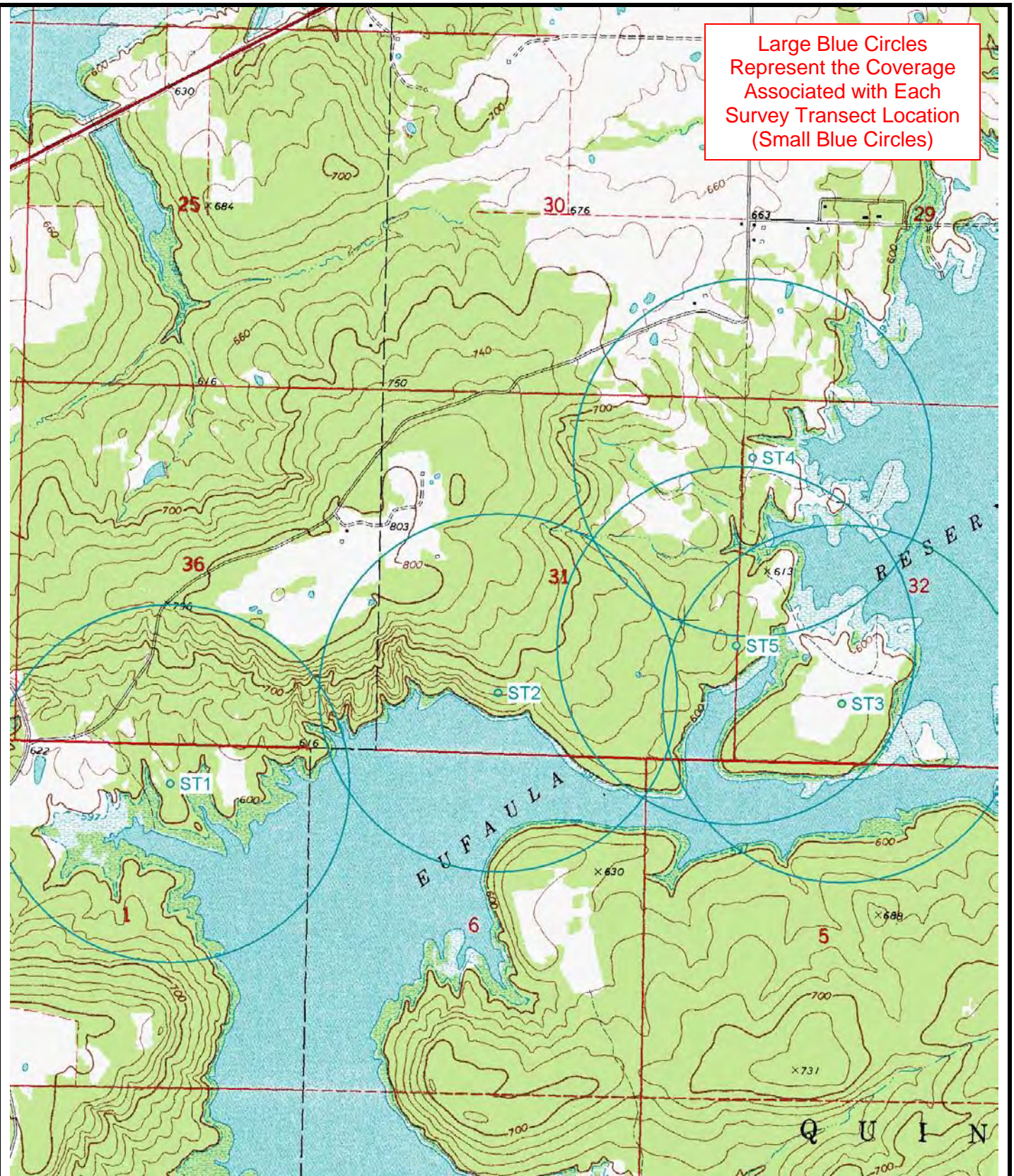


Blackbird Environmental, LLC
P.O. Box 720100
Norman, Oklahoma 73070
(405) 640-3011



Figure 1: Site Map
Source: Google Earth
March 2012 Aerial Photograph

Project Description
Nicrophorus americanus Presence/Absence Surveys
Section 1, Township 8 North, Range 16 East
Sections 31 & 32, Township 9 North, Range 17 East
Pittsburg County, Oklahoma



Project Description
Nicrophorus americanus Presence/Absence Surveys
 Section 1, Township 8 North, Range 16 East
 Sections 31 & 32, Township 9 North, Range 17 East
 Pittsburg County, Oklahoma

Figure 2: Topographic Map
 Scale: 1: 24,000
 Source: U.S. Geological Survey
 Longtown, OK Quadrangle (1971)

Appendix 1:

Site Photographs



Blackbird Environmental, LLC
P.O. Box 720100
Norman, Oklahoma 73070
(405) 640-3011



Photograph 1: Facing west toward survey transect #1 location.



Photograph 2: Facing south toward survey transect #2 location.



Photograph 3: Facing south toward survey transect #3 location.



Photograph 4: Facing south toward survey transect #4 location.



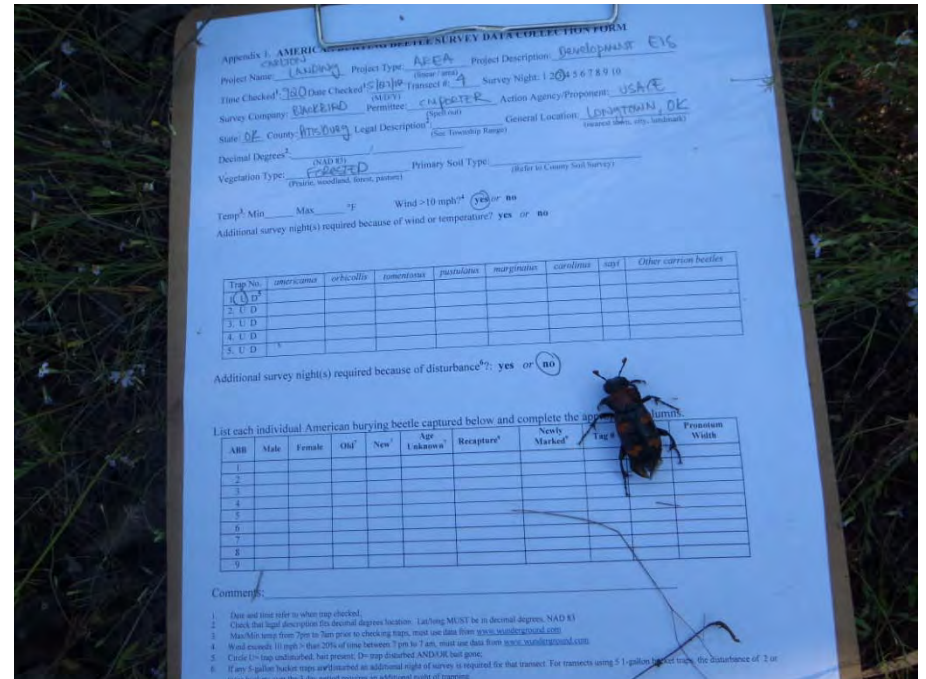
Photograph 5: Facing west toward survey transect #5 location.



Photograph 6: Female *N. americanus* caught on night 2 within survey transect #1 location.



Photograph 7: Female *N. americanus* caught on night 2 within survey transect #4 location.



Photograph 8: Male *N. americanus* caught on night 3 within survey transect #4 location.



Photograph 5: Male *N. americanus* caught on night 4 within survey transect #3 location.

Appendix 2:

Survey Data Sheets



Blackbird Environmental, LLC
P.O. Box 720100
Norman, Oklahoma 73070
(405) 640-3011

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: 6:45 Date Checked¹: 5/25/12 Transect #: 1 Survey Night 1 2 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CMP PORTER Action Agency/Proponent: USACE

State: OK County: Pittsburg Legal Description²: 1.8N, 16E General Location: LONGTOWN, OK
(Spell out) (Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.20124, 95.56699
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: (ENE) BENGAL - CLEBIT - CLEARVIEW COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30 percent slopes

Temp³: Min 73 Max 86 °F Wind > 10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>UD</u> ⁵								1 AMERICAN CARRION BEETLE
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: ADHA Project Description: DEVELOPMENT EIS
 (linear / area)
 Time Checked¹: 7:00 Date Checked¹: 5/25/12 Transect #: 2 Survey Night: (1) 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACKBIRD Permittee: CMPORTR Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Pittsburg Legal Description²: 31.9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20526 / 95.55096
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: (ENE) BENGAL-CLEBIT-CLEANVIEW COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 to 30% slopes
 Temp³: Min 73 Max 86 °F Wind >10 mph⁴ yes or (no)
 Additional survey night(s) required because of wind or temperature? yes or (no)

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>(U) D⁵</u>								AMERICAN CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶?: yes or (no)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: NEW MALE N. AMERICANUS CAUGHT IN TRAP; N. AMERICANUS LOOKS NEW, BUT NOT EXPECTED THIS TIME OF YEAR

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.
- Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone,
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping
- OLD=breeding adult, NEW=newly enclosed adult, UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
 (linear / area)
 Time Checked¹: 840 Date Checked¹: 5/25/12 Transect #: 3 Survey Night: 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Pittsburg Legal Description²: 30, 9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20516, 95.53904
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: (H₂C₂) CLEARVIEW FINE SANDY LOAM, 37.05% Slopes, ERODED
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey)
 Temp³: Min 73 Max 86 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="radio"/> U <input checked="" type="radio"/> D ⁵								11 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult, NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEMOLITION EK
 (linear / area)
 Time Checked¹: 920 Date Checked²: 5/15/12 Transect #: 4 Survey Night: (1) 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACKBIRD Permittee: CMDORTOR Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: PITTSBURGH Legal Description²: 32, 9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.21502 / 95.53875
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: (EWE) BENJAL-CLEBIT-CHELEVIEW COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES
 Temp³: Min 73 Max 86 °F Wind >10 mph?⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵								<u>6 CARRION BEETLES</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 l-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON UNDRIVING Project Type: ADDA Project Description: DEVELOPMENT ES
 (linear / area)
 Time Checked¹: 200 Date Checked¹: 5/25/12 Transect #: 5 Survey Night 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLAKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Pittsburg Legal Description²: 31, 9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20754 / 95.53956
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: (EHE) BENGAL-CHEBIT-CLEARVIEW complex
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 to 30% SLOPES
 Temp³: Min 73 Max 86 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="checkbox"/> U <input checked="" type="checkbox"/> D ⁵			1					19 CARRION BEETLES; 1 AMERICAN CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶?: yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult, UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON WINDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: 6:30 Date Checked¹: 5/26/12 Transect #: 1 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE

State: OK County: DITCHEBURY Legal Description²: 1, 8N, 16E General Location: LONGTOWN, OK
(Spell out) (Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.20124 / 95.56699

Vegetation Type: FORESTED Primary Soil Type: BENGM - CLEET - CLEARVIEW COMPLEX
(NAD 83) (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp³: Min 73 Max 88 °F Wind >10 mph⁴ yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. U D ⁵								6 other CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶?: yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: ABB looked new; however, not likely this time of year

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping
- OLD=breeding adult, NEW=newly enclosed adult, UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: NEED Project Description: Developmental EIS
 (linear / area)
 Time Checked¹: 7:00 Date Checked¹: 5/26/12 Transect #: 2 Survey Night: 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BACK BIRD Permittee: CM PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Pittsburg Legal Description²: 31.9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20526 / 95.55098
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: BAGAL-CERIT-CAROLAN Complex
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 to 30% slopes
 Temp³: Min 73 Max 88 °F Wind > 10 mph⁴: yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵			<u>10</u>					<u>7 other CARRION</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: 8:20 Date Checked¹: 5/26/12 Transect #: 3 Survey Night: 10 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
(Spell out)

State: OK County: Pittsburg Legal Description²: R. 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.20516 / 95.93404
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: CLAYEY FINE SANDY LOAM 3 TO 5% slopes
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) (ERODD)

Temp³: Min 73 Max 88 °F Wind > 10 mph⁴ yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵			<u>5</u>					<u>4 OTHER CARRION</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶?: yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: ARBA Project Description: DEVELOPMENT EIS
(linear / area)
 Time Checked: 855 Date Checked: 5/26/12 Transect #: 4 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)
 Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
(Spell out)
 State: OK County: PITTSBURG Legal Description: 30, 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees: 35. 01502 195.53875
(NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: BENJAL-CLEBIT - CLEARWATER COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp³: Min 73 Max 88°F Wind >10 mph? yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. U D ⁵	1		4					17 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1				1	1					
2										
3										
4										
5										
6										
7										
8										
9										

Comments: ONE LARGE FEMALE; LOOK NEW (NO VISIBLE WOUND); MOUNTED, VERY LIKELY LAST YEAR'S MATERIAL

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult, NEW=newly enclosed adult, UNK=age cannot be determined
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: ADBA Project Description: Development EIS
(linear / area)

Time Checked: 1740 Date Checked: 5/26/12 Transect #: 5 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
(Spell out)

State: OK County: PITTSBURG Legal Description: 31.9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)

Decimal Degrees: 35.20754 / 95.53956
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: BONGAL-CLAYTON-CLAYVIEW COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp: Min 73 Max 88 °F Wind >10 mph? yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="radio"/> U <input type="radio"/> D								19 OTHER: 2 AMERICAN CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance?: yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLETON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: 9:15 Date Checked¹: 5/07/12 Transect #: 1 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CANPORTER Action Agency/Proponent: USACE
(Spell out)

State: OK County: Pittsburg Legal Description²: 1, 9N, 16E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.20184 / 95.56699
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: BANJAL-CLEBIT-CLEARVIEW COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 50-60% slopes

Temp³: Min 66 Max 80 °F Wind >10 mph?⁴ yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵			1					5 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult, NEW=newly enclosed adult; UNK=age cannot be determined
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)
 Time Checked¹: 800 Date Checked¹: 5/27/10 Transect #: 2 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)
 Survey Company: BLACKBIRD Permittee: CONTRACTOR Action Agency/Proponent: USACE
(Spell out)
 State: OK County: PITTSBURGH Legal Description²: 31, 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20526 / 95.55018
(NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: ERIAL-CLOBIT-CREVISION COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp³: Min 68 Max 80 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="checkbox"/> U <input checked="" type="checkbox"/> D ⁵			11	2				9 other (various)
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

CARLTON
 Project Name: LANDING Project Type: ARBA Project Description: DEVELOPMENT EIS
(linear / area)
 Time Checked: 8:45 Date Checked: 5/25/19 Transect #: 3 Survey Night: 1 2 4 5 6 7 8 9 10
(M/D/Y)
 Survey Company: BLACKBIRD Permittee: CN PORTER Action Agency/Proponent: USACE
(Spell out)
 State: OK County: Pittsburg Legal Description: 32, 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees: 35.20516 / 95.53904
(NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: CLAYTON FINE SANDY LOAM, 3 TO 5% SLOPES
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) ERODED
 Temp³: Min 66 Max 86 °F Wind > 10 mph? yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="checkbox"/> U <input checked="" type="checkbox"/> D ⁵			1					15 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone,
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 l-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
 (linear / area)
 Time Checked¹: 7:20 Date Checked¹: 5/10/10 Transect #: 4 Survey Night: 1 2 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACKBIRD Permittee: CN PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: PITTSBURGH Legal Description²: 30.9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.21502 / 95.53875
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: BOZAL-CLEBIT-CLEARVIEW COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPS
 Temp³: Min 66 Max 86 °F Wind >10 mph?⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <input checked="" type="radio"/> U <input checked="" type="radio"/> D ⁵	1		2					4 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶?: yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1	✓		1							
2										
3										
4										
5										
6										
7										
8										
9										

Comments: OLDER, LARGE MALE clearly w/ wear on elytra

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: _____ Date Checked¹: 5/27/12 Transect #: 5 Survey Night: 1 2 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CN PORTER Action Agency/Proponent: USACE
(Spell out)

State: OK County: ATTISBURG Legal Description²: 31, 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.20754 / 95.53956
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: BENTON-CLIBIT-CLAWSON COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp³: Min 68 Max 86 °F Wind >10 mph?⁴ yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U D</u> ⁵		1						7 other carrion
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CANTON LANDING Project Type: ARPA Project Description: Development EIS
 (linear / area)
 Time Checked¹: 60 Date Checked¹: 5/28/12 Transect #: 1 Survey Night: 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
 State: OK County: Pittsburg Legal Description²: 118N16E General Location: LONGTOWN, OK
 (Spell out) (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20189 / 95.56699
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: BENGAL-CLEBIT-CLEAPUKEN COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES
 Temp³: Min 73 Max 90 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵								<u>4 OTHER (ASPER)</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone,
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 l-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult, NEW=newly enclosed adult; UNK=age cannot be determined.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: Development EIS
 (linear / area)

Time Checked: 4:50 Date Checked: 5/08/12 Transect #: 2 Survey Night: 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)

Survey Company: BLACK BIRD Permittee: CM PORTER Action Agency/Proponent: USACE

State: OK County: Pittsburg Legal Description: 31.94.17E General Location: LONGTOWN, OK
 (Spell out) (Sec Township Range) (nearest town, city, landmark)

Decimal Degrees: 35.20526 1.9555098
 (NAD 83)

Vegetation Type: FORESTED Primary Soil Type: Bergal-CLERT-CLARULOW COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp: Min 73 Max 90 °F Wind > 10 mph? yes or no

Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> <u>D</u> ⁵			<u>4</u>					<u>10 OTHER CARRION</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

1. Date and time refer to when trap checked;
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
3. Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
4. Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
5. Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone;
6. If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping
7. Old=breeding adult, NEW=newly enclosed adult, UNK=age cannot be determined.
8. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
9. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old])

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: ARDA Project Description: DEVELOPMENT EIS
 (linear / area)
 Time Checked¹: 840 Date Checked¹: 5/06/12 Transect #: 3 Survey Night: 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACK BIRD Permittee: C.M. PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Pittsburg Legal Description²: 32, 9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees²: 35.20516, 95.53904
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: CLEARVIEW FINE SANDY LOAM 3 TO 5% SLOPES GRADED
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey)

Temp³: Min 73 Max 90 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U</u> D ⁵	1		1					10 OTHER CARRION
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1	1		1							
2										
3										
4										
5										
6										
7										
8										
9										

Comments: OLDER MALE

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping
- OLD=breeding adult, NEW=newly enclosed adult, UNK=age cannot be determined
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix I. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
(linear / area)

Time Checked¹: 9:30 Date Checked 5/28/12 Transect #: 4 Survey Night: 1 2 3 4 5 6 7 8 9 10
(M/D/Y)

Survey Company: BLACKBIRD Permittee: CM PORTER Action Agency/Proponent: USACE
(Spell out)

State: OK County: ATTSBURY Legal Description²: 32, 9N, 17E General Location: LONGTOWN, OK
(Sec Township Range) (nearest town, city, landmark)

Decimal Degrees²: 35.81502 / 95.88875
(NAD 83)

Vegetation Type: FORESTED Primary Soil Type: BAUGAL-CHEBIT-CLEARVIEW COMPLEX
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES

Temp³: Min 73 Max 90 °F Wind >10 mph⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U D</u> ⁵			<u>3</u>					<u>2 CARLTON</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked.
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone;
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult, NEW=newly enclosed adult; UNK=age cannot be determined
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: CARLTON LANDING Project Type: AREA Project Description: DEVELOPMENT EIS
 (linear / area)
 Time Checked 18:20 Date Checked 5/06/12 Transect #: 5 Survey Night: 1 2 3 4 5 6 7 8 9 10
 (M/D/Y)
 Survey Company: BLACK BIRD Permittee: C.M. PORTER Action Agency/Proponent: USACE
 (Spell out)
 State: OK County: Atteburg Legal Description: 31, 9N, 17E General Location: LONGTOWN, OK
 (Sec Township Range) (nearest town, city, landmark)
 Decimal Degrees: 35.20754 / 95.5956
 (NAD 83)
 Vegetation Type: FORESTED Primary Soil Type: BAYAL-CLEBIT-CLEARVIEW COMPLEX
 (Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 TO 30% SLOPES
 Temp³: Min 73 Max 90 °F Wind >10 mph?⁴ yes or no
 Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	<i>americanus</i>	<i>orbicollis</i>	<i>tomentosus</i>	<i>pustulatus</i>	<i>marginatus</i>	<i>carolinus</i>	<i>sayi</i>	Other carrion beetles
1. <u>U D</u> ⁵								<u>6 CARRION BEETLES</u>
2. U D								
3. U D								
4. U D								
5. U D								

Additional survey night(s) required because of disturbance⁶? yes or no

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										
7										
8										
9										

Comments: _____

- Date and time refer to when trap checked;
- Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com
- Circle U= trap undisturbed, bait present; D= trap disturbed AND/OR bait gone,
- If any 5-gallon bucket traps are disturbed an additional night of survey is required for that transect. For transects using 5 1-gallon bucket traps, the disturbance of 2 or more buckets over the 3 day period requires an additional night of trapping.
- OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).