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:

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
	Survey Methodology	
	Summary Biological Evaluation	
	Final Effects Determination	
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

June 10, 2012 Blackbird Environmental, LLC 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 #2, one (1) *N. americanus* was 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).

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

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

* 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

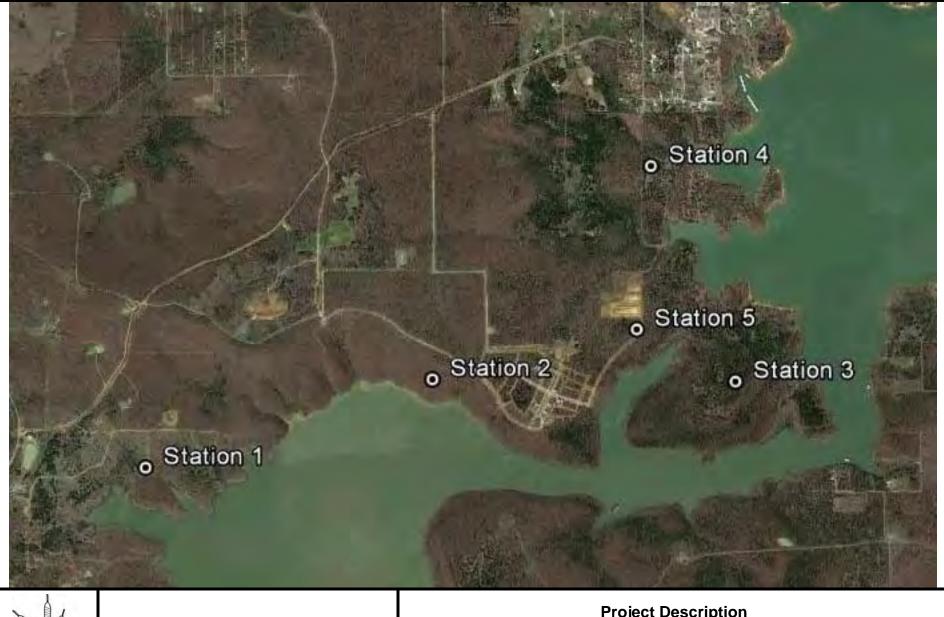
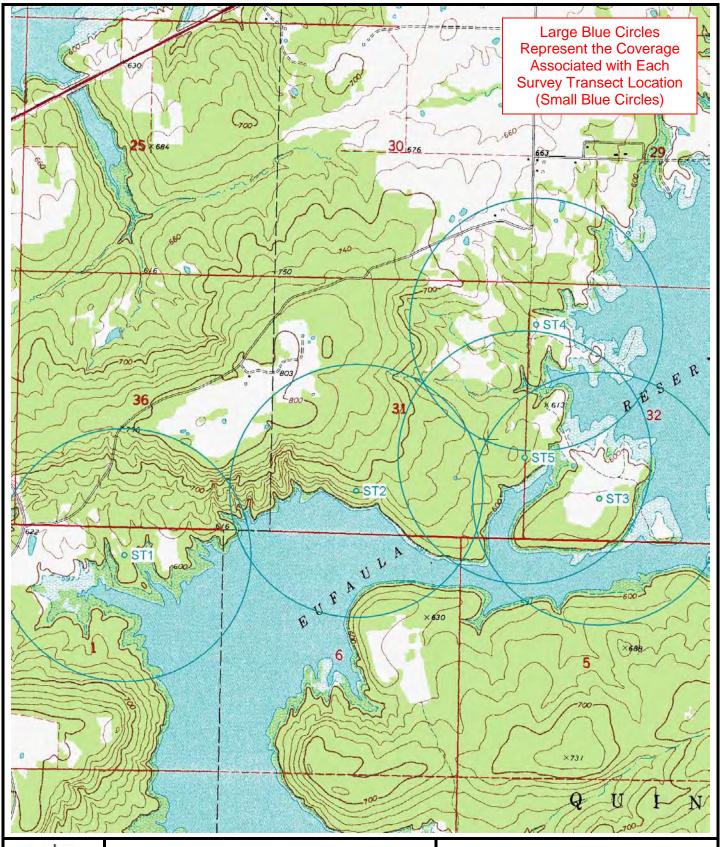


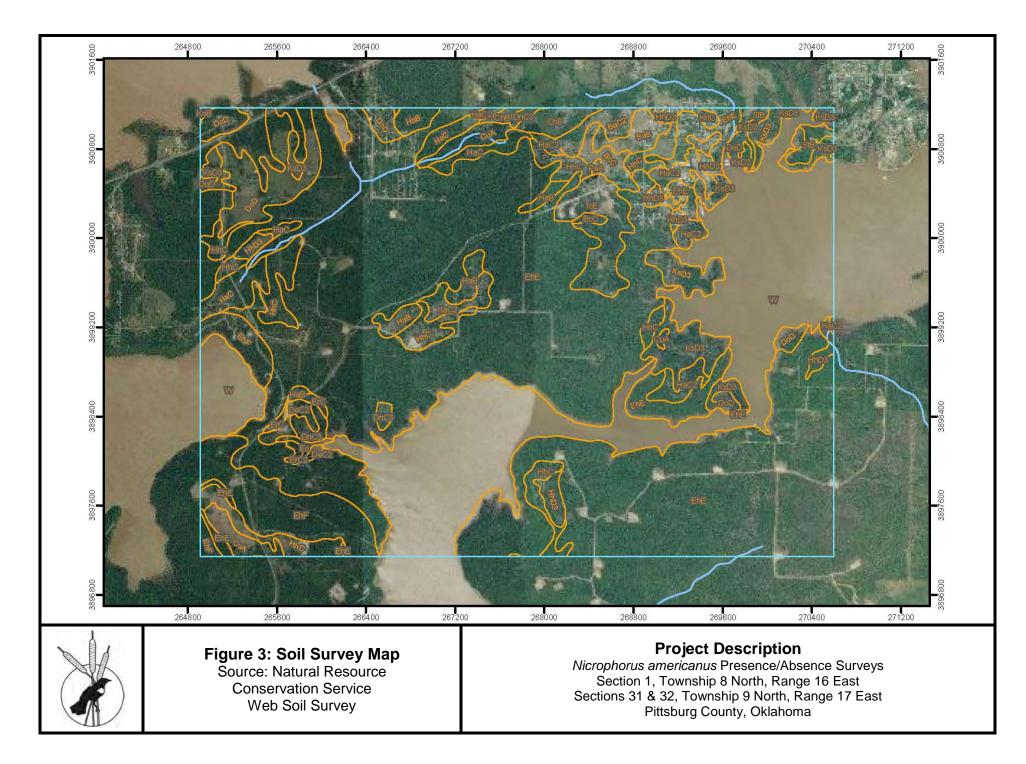
Figure 1: Site Map Source: Google Earth March 2012 Aerial Photograph Project Description Nicrophorus americanus Presence/Absence Surveys Section 1, Township 8 North, Range 16 East Sections 31 & 32, Township 9 North, Range 17 East Pittsburg County, Oklahoma





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 3: Facing south toward survey transect #3 location.



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



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



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



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



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



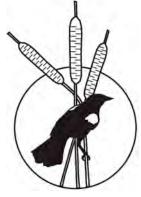
Photograph 8: Male *N. americanus* caught on night 3 within survey transect #4 location.



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: LANDING Project Type: AREA Project Description: DOVEDOPMENT EIS
Project Name:Project Type:Project Description:Project Description:
Time Checked ¹ : $(a^{45} Date Checked^{1}: 5(25))^{2}$ Transect #: 1 Survey Night 12345678910
Survey Company: BACKBIRD Permittee: CM DORTHR Action Agency/Proponent: USACE
State: OK County: PITTODEY Legal Description ² : 1.8N, 16E General Location: UNTOWN OK Decimal Degrees ² : 35. 20124 / 95,56699 (Sec Township Range) (nearest town, city, landmark)
Decimal Degrees ² : 35. 20124 / 95.56699 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: $\underline{Prairie, woodland, forest, pasture)}$ Primary Soil Type: $\underline{(\ell N \ell)}$ Store Cleant Store Stor
Temp ³ : Min $\boxed{3}$ Max $\boxed{80}$ °F Wind >10 mph? ⁴ yes or $\boxed{n0}$
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles	1
1.(UD5								I MARIAN CORROL	12
2. U D	Contraction of the			200		1			
3. U D	12				11	1			
4. U D	10000		1-2-	1	1.2.1.1				
5. U D			1						

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

	List each individual	American burying	g beetle captured	below and comp	lete the appropriate columns.
--	----------------------	------------------	-------------------	----------------	-------------------------------

ABB	Male	Female	Old ⁷	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1			1	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1			1		and the second s
2		The second second	1	11		1			1	
3					1			P	······	
4					· · · · · · · · · · · · · · · · · · ·		1		10 11	
5				11					1.0	
6				110.000	1			1	LC	
7	1					P				11
8	· · · · · · · · · · · · · · · · · · ·							1	10.000	
9	-			1.1.					1	

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 2
- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com 3.
- 4 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; 5.
- 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 б. 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. 7
- Recaptures refer to color and number of bee tag on beetles that have been previously marked. 8.
- 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: UANDING Project Type: AREA Project Description: DONEDOPNON EIS
Time Checked ¹ : 730 Date Checked ¹ : $5 25 12$ Transect #: 2 Survey Night: $(1)2$ 3 4 5 6 7 8 9 10
Survey Company RAdebIAD Permittee: CM DORTOR Action Agency/Proponent: USACE
State: OK County: DITTS bueg Legal Description 2: 31,9N,17E General Location: LONGTOWN, OK
Decimal Degrees ² : 35, 20526 / 95,55096 (nearest town, city, landmark)
Vegetation Type: FORESTED Primary Soil Type: (ENE) BENGAL -CLEDIT - CLEDIT
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey)
Temp ³ : Min 73 Max 80 °F Wind >10 mph? ⁴ yes or 60
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginalus	carolinus	sayi	Other carrion beetles
1.(U)05	10 m			· · · · · · · · · · · · · · · · · · ·	1		1	I ANTORICAN CATRIO
2. U D								
3. U D		1	1	1		1	1	
4. U D				1				
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	I						
2	1				· · · · · · · · · · · · · · · · · · ·		F			
3		· · · · · · · · · · · · · · · · · · ·	1.21	15					1	
4	1	1.2	1.00	1.0			12			
5		1		1	- C L - L			1		
6	1	11.227-1	1.000	1	10000		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
7	-		1200	1	12.00		10 C 10 C	· · · · · · · · · · · · · · · · · · ·		T
8							S	1		
9		1	1					1.1		

NEW, but NOT EXPECTED MAKS TIME OF YORE TRA Comments: NEW MALE N. appalloppay CON19 IN

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 2

- Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com 3
- Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com. 4
- Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone, 5.
- 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 6 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. 8
- Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]). 9

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM
Project Name: CARITON Project Type: ARCA Project Description: Daux Copyour EIS
Time Checked : 240 Date Checked 5/25 Transect #: Survey Night (12 3 4 5 6 7 8 9 10
Survey Company: BACKEIRD Permittee: CM Porter Action Agency/Proponent: USACE
State: OK County: PITSOURY Legal Description2: 38, 9N, 17E General Location: LONGTOWN, OK
Decimal Degrees ² : 35, 20516, 95,53404 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: (Prairie, woodland, forest, pasture) Primary Soil Type: (HaCa) CleARVICW FINE CAULY IONM, 3705% Slope S (Refer to County Soil Survey) EPOLD
Temp ³ : Min 73 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.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
$1.(U)D^{5}$			1				122	11 OTHER A NERION
2. U D				1				
3, U D				1			100	
4. U D		1	1					
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	100-14		1				1	7		
2	11000			1.1						
3	S. 1996 - 73	1.	1	11.25	1000	·		1		
4	17 1	11			11					-
5	1 11	11.000	1000011	11.000	1					
6		1.	1.1	12						
7		1.00	1 1 1	11 11	1.00					
8	1		TT 11	1	1			1	1	2-0-07
9	1	1	1 · · · · · · · · · · · · · · · · · · ·		1. The second			Inc.	10 T. T. 1	

- 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;
- 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: UNIDING Project Type: ADEA Project Description: DOVEDAPHONT EK
Time Checked : 20 Date Checked : 1500 Transect #: 4 Survey Night: (12 3 4 5 6 7 8 9 10
Survey Company RACKEIRD Permittee: CMDSPTOR Action Agency/Proponent: USACE
State: OK County: PATSOURY Legal Description ² :38, 9N, 17E General Location: WN970WN, OK
Decimal Degrees ² : 35, 21502 / 95,53875 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: FORE STED Primary Soil Type: (ENE) BENGAL - CLEDIT - CLEDITH CONPLEX (Prairie woodland forest pasture) Primary Soil Type: (ENE) BENGAL - CLEDIT - CLEDITH CONPLEX (Refer to County Soil Survey) 5 to 30 % STODES
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey)
Temp ³ : Min 73 Max $\frac{8}{9}$ °F Wind >10 mph? ⁴ yes or no
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
$I(U)D^5$				1 - 1				6 CAREION BRITE
2. U D							-	
3. U D				· · · · · · · · · · · · · · · · · · ·		1	1.1	and the second
4. U D		1						
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*	Newly Marked ⁹	Tag #	Death	Pronotum Width
1	T	A	· · · · · · · · · · · · · · · · · · ·							
2		T			7.1					
3					0,0			1.11.11		
4			1		1		1	PP of LT		
5		III. III. I	1	1.1	1					
6	1	1	1	11.000	1		10.000	1		
7	1				1		11 million	1	· · · · · · · · · · · · · · · · · · ·	
8	1	1		1 1	1		1	1		
9	1	1	1				14			

- 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: CARITON Project Type: AROA Project Description: DON LODNOIT ES
Time Checked ¹ : $5/25/12$ Transect #: $5/25/12$ Survey Night 12 3 4 5 6 7 8 9 10
Survey Company: BALKBIED Permittee: CM PORTOR Action Agency/Proponent: USACE
State: OF County: PUTS DOR Legal Description2: 31,9N, 17E General Location: LONG TOWN, OK
Decimal Degrees ² : <u>25.00754</u> / <u>95.53956</u> (neares town, city, landmark)
Decimal Degrees ² : <u>25.80754</u> / <u>95.53956</u> Vegetation Type: <u>FORESTED</u> Primary Soil Type: <u>(EWE)</u> <u>BENONL</u> - CIEDIT - C
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey)
Temp ³ : Min 73 Max $\frac{80}{6}$ °F Wind >10 mph? ⁴ yes or no
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginalus	carolinus	sayi	Other carrion beetles	
1.(U)D ⁵			1					19 CARTERION OTHE !!!	MORITAN
2. U D						-			CNRIDE
3. U D						1	10.00		
4. U D							1 11		
5. U D						1			1

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	1.1.1.1.1.1	1				1	
2	1		1				1 T T		1	
3				11.000	12.401			· · · · · · · · · · · · · · · · · · ·	1	
4		-		1	1.457			1		
5		Le		1	1.00			11		244
6		1	11	1.0			· · · · · · ·	íí	1	
7	1	1	1	1			· · · · ·	1	1.00	-
8	1		1		1			1	1	
9	J	1	1	10.000		·		1	TIM	D

- 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.
 OLD=breeding adult. NEW=newly enclosed adult. UNK=aec cannot be dete
- 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: Project Type: Project Description: DEVelopment EIS
Project Name:Project Type:PREA Project Description: DEVelopment EIS
Time Checked : 678 9 10
Survey Company: BLACKBIED Permittee: CMPORTUR Action Agency/Proponent: USACE
State: OK County: DITCOVEY Legal Description ² : 1, 8N, 16E General Location: CONSTRUCT OK (Sec Township Range) (pearest town city landmark)
Decimal Degrees ² : 35. 20124 / 95.56699
Vegetation Type: FORGERD Primary Soil Type: BENGH - CIERT- CLEARING COMPLEX
(Prairie, woodland, forest, pasture) Primary Soli Type: (Refer to County Soil Survey) CT030% SlopeS
Temp ³ : Min <u>73</u> Max <u>88</u> °F Wind >10 mph? ⁴ (yes)or no
Additional survey night(s) required because of wind or temperature? ves or (no)

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1. U D ⁵	1	1	1	1	22 Mar 14		1	6 other CARRON
2. U D					1	·		
3. U D	1	100.000			1000	1		
4. U D	1.1	1				1		
5. U D				1			1	

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*	Newly Marked ⁹	Tag #	Death	Pronotum Width
1	1	(18 - A	1	1			1	1	
2				÷	L					
3	1	1		Contraction of the						
4	1									
5		++						1000		
6			(1.000					1	
7	(i		- 11	1			1	1		
8		1.11				1				
9	11.11							1		1

Comments: NOB LOOKED NEW; HOWENDER, NOT LIKELY THIS TIME OF YOAR

1. Date and time refer to when trap checked;

- 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,
- 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])

^{2.} Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM
Project Name: Chelton Project Type: New Project Description: Dave Lopment EIS (linear / area) Time Checked ¹ : 700 Date Checked ¹ : 5/26/12 Transect #: 2 Survey Night: 123 4 5 6 7 8 9 10
Time Checked ¹ : $\boxed{200}$ Date Checked ¹ : $\boxed{526}$ 12 Transect #: $\boxed{2}$ Survey Night: 1(2)3 4 5 6 7 8 9 10
Survey Company: BACK BIRD Permittee: CM DORTOR Action Agency/Proponent: USACE
Survey Company: <u>KACK FIRD</u> Permittee: <u>CALORITOR</u> Action Agency/Proponent: <u>OSALE</u> (Spell out) State: <u>OK</u> County: <u>Misloven</u> Legal Description ² : <u>31,9N,17E</u> General Location: <u>ION TOWN, OK</u> (Sec Township Range) (nearest town, city, landmark) Decimal Degrees ² : <u>35, 305366</u> /95,55098
Decimal Degrees ² : $\frac{35}{0530}$ $\frac{30530}{(NAD 83)}$ $\frac{95.55098}{(NAD 83)}$ (See Township Kange) (nearest 100m, city, landmark)
Vegetation Type: FORESTED Primary Soil Type: BogAL - CIEBIT - CLARVIEN COMPLEX (Prairie, woodland, forest, pasture) Primary Soil Type: BogAL - CIEBIT - CLARVIEN COMPLEX (Refer to County Soil Survey) 5 to 30% SIGPES
Temp ³ : Min <u>75</u> Max <u>86</u> °F Wind >10 mph? ⁴ (yes) or no Additional survey night(s) required because of wind or temperature? yes or (no)
Additional survey night(s) required because of whith or temperature: yes or (no)

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1.(U)D ⁵			10	1		N. 1997		7 STHE CARRIEN
2. U D								
3. U D		1			1	1		
4. U D			1					
5. U D					-	1.2.2.2		

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		T . 1. T. 1	1		1	1.2	J	1 mm	1	
2		1								
3									1 1	1.
4					1		A	200	1	
5	. T 1				A-100 - 1	1	1		1220201	
6		1.12			P	11	1	100.001	1	
7			1.	11.7.1	2 + 1		1		1	
8	1.000					1	1	1	1	1.111.1
9	1		1 · · · · · · · · · · · · · · · · · · ·	0	1			1	1	

.

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: Project Type: Project Description: Development EIS
Time Checked ¹ : $\underline{500}$ Date Checked ¹ : $\underline{5126}$ Transect #: $\underline{5}$ Survey Night: 1 $\underline{0}$ 3 4 5 6 7 8 9 10
C DIMANDIA DI CALDADITA
State: <u>OK</u> County: <u>Mittasiko</u> Permittee: <u>CM PORTAK</u> Action Agency/Proponent: <u>OS NOB</u> (Spell out) State: <u>OK</u> County: <u>Mittasiko</u> Legal Description ² : <u>S</u> , <u>9N</u> , <u>17E</u> General Location: <u>Longtown</u> , <u>0K</u> (See Township Range) (nearest town, city, landmark) Decimal Degrees ² : <u>75</u> , <u>30516</u> / <u>95</u> , <u>53404</u>
Decimal Degrees ² : <u>35</u> , <u>20516</u> / <u>95</u> , <u>53404</u>
Vegetation Type: FORESTED Primary Soil Type: CLONEVEN FINE SNOLL IONN 3705% Slopes
Temp ³ : Min 73 Max 8 °F Wind >10 mph? ⁴ yes or no Additional survey night(s) required because of wind or temperature? yes or (no)

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1. (U) D5			5		1	1.1.1.1.1.1.1.1		4 orthe Creator
2. U D					-		12.21	
3. U D			1	1.5		1.20		
4. U D	1							
5. U D				1799-17-			1	

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	PT	1	1				1		
2	1			1						
3		11 1		1				1 1		
4		- 1	1	1						
5		1.00		11.00	1		· · · · · · · · · · · · · · · · · · ·	125	-	a
6	1 ······	1	1	1						
7	1	1		10.000		1		1		1
8	1	1		1.	1					E
9	1	C INCOM	1.1	1	1 ··· · · · · · · · · · · · · · · · · ·			4		

- 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;
- 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.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
 Newly marked males and females refers to color and the second sec
- 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: (ANDING Project Type: AREA Project Description: DEVELOPMENT ELS
Time Checked ¹ 855 Date Checked ¹ 5/26 12 Transect #: 4 Survey Night: 1(2)3 4 5 6 7 8 9 10
Survey Company: RACKBIRD Permittee: CMPORTER Action Agency/Proponent: USACE
State: OK-County: PUTS bull Legal Description 2: 30, 9N, 17E General Location: LONGTOWNLOK
Decimal Degrees ² : 35. 01500 195.53875 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: (Prairie, woodland, forest, pasture) Primary Soil Type: BengAL - CIEBIT - CIEMENEN COMPLEY (Refer to County Soil Survey) 5 TO 30% SIDES
Temp ³ : Min_73_Max_88 °F Wind >10 mph? ⁴ (yes) pr no
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1. U D ⁵	1		4	· · · · · · · · · · · · · · · · · · ·	1		1111	17 NTHOR CREENO
2. U D			1			1	1	- I WINSE - IE
3. U D		1241	1	Y		1.		
4. U D								
5. U D		1						

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			1	12000	
2					1	1			1	
3	· · · · · ·		i	12-00	1		12		- 1 · · · · · · · · · · · · · · · · · ·	1
4	1	1	1.200	10.000	T 525-41		1	12001		
5	10	10.00		11.00	1			1	12224	
6	1000	-22-1	122	1. 200				1.000	LCN H	
7	1.000	20.000	100.0	11.000	1	-	in the second second	1 · · · · · · · ·	0.00111	
8	· · · · · · · ·		1.22	11				1.22.1		
9		22	1	10.0	1.77777		100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100	1		

LIKELY AST VISIEF Comments: 0N OOK NON

Date and time refer to when trap checked; 1

3. Max/Min temp from 7pm to 7am prior to checking traps, must use data from www.wunderground.com

Circle U= trap undisturbed, bait present, D= trap disturbed AND/OR bait gone; 5

- 7. 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 8.
- 9 Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83 2

⁴ Wind exceeds 10 mph > than 20% of time between 7 pm to 7 am, must use data from www.wunderground.com.

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 6 more buckets over the 3 day period requires an additional night of trapping.

Appendix 1. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM
Project Name: IANDING Project Type: AREA Project Description: Development EIS
Project Name: <u>IANCING</u> Project Type: <u>APBA</u> Project Description: <u>Development EIS</u> (linear / area) Time Checked ¹ :40 Date Checked ¹ :52612 Transect #: <u>S</u> Survey Night: 103 4 5 6 7 8 9 10
Survey Company: BACKBIRD Permittee: CM PORTER_ Action Agency/Proponent: USACE
State: OK County PITTS bueg Legal Description ² : 31, 910, 17E General Location: 6NgTOWN, OK
Decimal Degrees ² : $\frac{75,20754}{1,95,53956}$ (Sec Township Range) (nearest to Wn, city, landmark)
Vegetation Type: FORDSTED Primary Soil Type: Burght- CLOIT - CLEMUIEN COMPLEX (Prairie, woodland, forest, pasture) Primary Soil Type: Burght- CLOIT - CLEMUIEN COMPLEX (Refer to County Soil Survey) 5 to 30% STOPPS
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) 5 to 30% StoPD
Temp ³ : Min 73 Max 88 °F Wind >10 mph? ⁴ (yes) or no
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles	a set a
1(U)D5							100	19 ODAN . R. AMA	LICANS
2. U D					1		- 1	I same	CHARID
3. U D		1							
4. U D									
5. U D				1	1				

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	1000	1		· · · · · · · · · · · · · · · · · · ·				1	
2										-
3			1		1.000			1		
4	1	17	1.1.1.1.1.1	11.000				1.000	1.	
5	2	2L	11	1				1	1.00	
6	1.000		1.1	1.1	1				· · · · · · · · · · · · · · · · · · ·	
7	1	11	1	11.1						
8		1	1		1		1	1		
9	N	1		J.C				1		

- 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: UNINING Project Type: APEA Project Description: DOLIELOPMONT EIS
Time Checked ¹ : 15 Date Checked ¹ : $5 a7 12$ Transect #: 1 Survey Night: 1 2(3)4 5 6 7 8 9 10
Survey Company: EACKBIPD Permittee: CMPOPTER Action Agency/Proponent: USACE
State: OK County: PHIONE Legal Description ² : 1,90,60 General Location: UNATIONN, OK (Sec Township Range) (nearest town, city, landmark)
Decimal Degrees ² : 35. 00/04 / 95.54699
Vegetation Type: FORSTED) Primary Soil Type: Primary Soil Type: Primary Soil Survey) STORD & S
Temp ³ : Min 66 Max 80 °F Wind >10 mph? ⁴ (yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
$1(U)D^{5}$				1				5 OTHER CALERIAN
2. U D				1.1.1.1.1.1.1				v
3. U D	N						1	
4. U D					T			
5. U D	10 m 1							1 m

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	1	1.000		1.000	1		
2		1	1	12	1			1	1.7.1	
3			1.1	11.11	1			1		
4	1.1		1.1		1 The second		And the second	1		
5)		1	1.000						
6)		1	11					1.1	
7			1	12				1.		_
8	1		1	11	1		· · · · · ·			
9	1	12	u - 11	11						

- 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: UNDING Project Type: DEA Project Description: DARNONAT EIS
Time Checked ¹ : 500 Date Checked ¹ : 507 Transect #: 3 Survey Night: 1 234 5 6 7 8 9 10
Survey Company: <u>BACKB1PD</u> Permittee: <u>ON POPTER</u> Action Agency/Proponent: <u>USACE</u>
State: <u>OK</u> County: <u>PTTS OUP</u> Legal Description ² : <u>31</u> , <u>90</u> , <u>17E</u> General Location: <u>LONGTONN</u> , <u>OK</u> (See Township Range) (nearest town, city, landmark)
Decimal Degrees ² : <u>35</u> , <u>00506</u> / <u>95</u> , <u>55018</u> (Sec Township Range) (nearest town, city, landmark) (NAD 83)
Vegetation Type: (Prairie, woodland, forest, pasture) Primary Soil Type: BUTAL - CLOBIT - CLARVICAJ (AMPLET (Prairie, woodland, forest, pasture) Primary Soil Type: BUTAL - CLOBIT - CLARVICAJ (AMPLET (Refer to County Soil Survey) 510 30% SLOPES
Temp ³ : Min 68 Max 86 °F Wind >10 mph? ⁴ yes or no

Trap No.	americanus	orbicollis	lomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
$1(U)p^5$	1		11	Z				9 other comon
2. U D	1			1				
3. U D						1		
4. U D						18.54		
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	h		1		1.00		1200 A. 100 A. 100			
2			11							
3	1		1.1	12	1		T			
4	1	111	1.1	11	1					1
5	1.75	1			11		1			
6	1.000		12000114	11-001	1.000	-	1.2.2.2.2.1			1
7		11.000		1	1200 1000	-	.).		-	
8	1	1.					1	1		
9		1-	1.000	1	1			1	-	1

- I 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= trep 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.
- 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 the numbe
- 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: (ANDING) Project Type: APEA Project Description: DEVELOPMENT EIS
Time Checked ¹ : $\underline{505}$ Date Checked ¹ : $\underline{505}$ $\underline{105}$ Transect #: $\underline{3}$ Survey Night: 1 2 $\underline{345678910}$
Survey Company: BACKBIPD Permittee: CALDOFTER Action Agency/Proponent: USACE
State: OK County: Pitts 6002 Legal Description ² : 32, 92, 17E General Location: LONGTOWN, OK (Sec Township Range) (nearest town, city, landmark)
Decimal Degrees ² : 35, 20 514 / 95, 53904
Vegetation Type: (NAD 83) (Prairie, woodland, forest, pasture) Primary Soil Type: Clear Uten FINE SHADY LONN, 3 TO 5% STORES (Refer to County Soil Survey) CRODED
(Hanne, woodnand, ionest, pasture) (Relet to County Son Survey)
Temp ³ : Min $(H Max H)^{\circ}$ F Wind >10 mph? ⁴ (vestor no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1.(U)D ⁵							1221	15 other CADRICK
2. U D				1				
3. U D		T						
4. U D				1				
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	A 10	1000					1			
2	1.00			1		-				
3	1.00	1		5. A	i		1	1		
4	1-0-4		1.000	1	1		1	1		1.
5	10.00		1 - 11		1.					
6					1			1		
7				1 1	1			10000	P	
8		1	1.1	1	1			1		
9	1	1 · · · · · · · · ·	1	11			11			

- 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: LANDING Project Type: AREA Project Description: DevelopMINT EIS
Time Checked ¹ : <u>120</u> Date Checked ¹ : <u>100</u> Transect #: <u>4</u> Survey Night: 1 2 3 4 5 6 7 8 9 10
Survey Company: BLACKBIRD Permittee: CN PORTER Action Agency/Proponent: USACE
State: OK County: MISOURY Legal Description ² : 30, 91, 17E General Location: Unightowin, 0K (Sec Township Range) (nearest town, city, landmark)
Decimal Degrees ² : 35, 21502 / 95,53875
Vegetation Type: KORECTED Primary Soil Type: Refer to County Soil Survey) 5 TO 50% STORES
Temp ³ : Min $\frac{66}{10}$ Max $\frac{86}{10}$ °F Wind >10 mph? ⁴ (yes) or no
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1(U) D5			2	1	1			4 OTHE CARELO
2. U D								
3. U D			1					
4. U D					1			
5. U D	10							

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	11	12-121			1	1.1.1.1	
2		1.1.1	1.1	10000	1	1	•	1		
3	1.1			1.4	12-1-1		1.000	1	1000	
4	1	1	1	ni si tel				Los internet	a 110	
5		Particular State	1	11. 1211	1			1.00		
6	1		1	1,	1			1	1 2 4	
7			1	11 - 1	1		11	1.2.2.3	in	
8	1	1. 1	1	11				1.1		
9	1	1		$\mathbf{r} = 1$	1				-	

Comments: ONDER

LARGOR MALE CLEARLY W WELR O

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: LANDING Project Type: APER Project Description: DavelopMANT EIS
Time Checked ¹ : Date Checked ¹ : $5 37 12$ Transect #: 5 Survey Night: 12 $5 45678910$
Survey Company: BACKBIPD (M/D/Y) Permittee: CM DORTER Action Agency/Proponent: USACE
State: OK County: PTTS OUP J Legal Description ² : 31,910,17E General Location: UNJTOWN, OK Decimal Degrees ² : 35. 20154 / 95,559 56
Decimal Degrees ² : 35. 20754 / 95.559 56 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: (Prairie, woodland, forest, pasture) Primary Soil Type: PENAL - CLEBIT - CLONDWIEN COMPLEX (Refer to County Soil Survey) 5 TO 30%
Temp ³ : Min <u>68</u> Max <u>86</u> °F Wind >10 mph? ⁴ (yes) or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1(0)5	1 - C	1					1	7 other carrien
2. U D	1.							
3. U D		1						
4. U D				1		1		
5. U D			1000					

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			11.			1000	1		
2										
3	i		1					· · · · · · · · · · · · · · · · · · ·		
4	1	1		1.75	1					
5	1	1	1000	1 Carrow	1		Sec. 19	1-2-1		-
6	1		hard the second second		-					
7			1.1.1.1	· · · · · · ·	1			1		
8			1.1	1			1.			
9	1 - 1	1.22	1.000		1		1	1		

- 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= trzp 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: LANDING Project Type: ARDA Project Description: Dave operation
Time Checked': 60 Date Checked': 78 12 Transect #: 1 Survey Night: 1 2 345 6 7 8 9 10
Survey Company: BLACKBIRD Permittee: CM DORTER Action Agency/Proponent: USACE
State: DK County: PITCHURG Legal Description 2: 1 BN 16E General Location: LONGTOWN, OK
Decimal Degrees ² : <u>35</u> , <u>20189</u> / <u>95</u> , <u>56699</u> (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: FORESTOD Primary Soil Type: BENGAL-CLEBIT - CLEAPULENI COMPLEX (Prairie, woodland, forest, pasture) Primary Soil Type: CRefer to County Soil Survey) 5 to 30% STOPS
Temp ³ : 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.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1(U)D ⁵		1.	1	1200 1				4 only chiersh.
2. U D		1.		1				
3. U D								
4. U D	1			1				
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	le di									
2	1			1.					1	1
3	1.000	1				1	12			1
4						1	12-1-1-1-1	1	7	
5	1	-					12-5-2-1	2		
6		1							1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	1
7	1						1000			1
8									1	
9	1.00	2000				1	1	1.1	1.1	1

- 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: LANDING Project Type: AREA Project Description: Development EIS
Time Checked 500 Date Checked 127 ransect $#2$ Survey Night: 1 2 345678910
Survey Company: BACKBRD Permittee: CN PORTER Action Agency/Proponent: USACE
State: OK County: Pindourg Legal Description2: 3,94,175 General Location: LONG TOWN, DK
Decimal Degrees ² : 35.3053.6 / 95.55098 (nearest town, city, landmark)
Vegetation Type: (Prairie, woodland, forest, pasture) Primary Soil Type: Bengl-CLEBIT-CLEAR ULEW COMPLEX (Prairie, woodland, forest, pasture) Primary Soil Type: Bengl-CLEBIT-CLEAR ULEW COMPLEX (Refer to County Soil Survey) 5 TO 30% Slopes
Temp ³ : Min 75 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.	americamus	orbicollis	tomentosus	osus pustulatus marginatus care	carolinus	carolinus	carolinus	natus carolinus	sayi	Other carrion beelles
1. PD5		1	4					10 OTHER COPPL		
2. U D			i.							
3. U D				12 - 11	1-2-1-1					
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		1	
2	1.00						1		1	
3	1-1-1									
4	1.1		10.00						1	
5			ja						1.1	
6					I				11 1	
7			1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Product of		1	1			
8				1	-	1	1	1		
9	1.1.1		¥7	A	1.000	1	1		1	1990 - Land - Land

- 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;
- 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. OI.D=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: (AUDIN) Project Type: ARDA Project Description: Davelopment EIS
Time Checked : 040 Date Checked : 06/12 Transect #: 3 Survey Night: 1 2 345 6 7 8 9 10
Survey Company: BACKBIRD Permittee: CM DARTER Action Agency/Proponent: USACE
State: OK County: Prinking Legal Description 2: 32, 90, 175 General Location: LONGTOWN OK
Decimal Degrees ² : <u>35.20516</u> / <u>95.53404</u> (nearest town, city, landmark)
Vacatation Type: Econtral Primer Sail Type (LEARULEW) FINE SANDI LARM 3 TO 510
(Prairie, woodland, forest, pasture) (Refer to County Soil Survey) Slopes Probled
Temp ³ : Min 73 Max 90 °F Wind >10 mph? ⁴ yes or $\widehat{n0}$
Additional survey night(s) required because of wind or temperature? yes or (no)

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginalus	carolinus	sayi	Other carrion beetles
$I(U)D^5$	1		A			1		10 OTHER CAPLION
2. U D								
3. U D			11			-		
4. U D	1	1.000	1			· · · · · · · · · · · · · · · · · · ·		
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	Old7	New ⁷	Age Unknown ⁷	Recapture ⁸	Newly Marked ⁹	Tag #	Death	Pronotum Width
1		A	1		h		11	1		
2				1	1		11		1	
3							1.1		· · · · · · · · · · · · · · · · · · ·	
4						h	11			
5	1.0	1000 C	1	-			11			
6	· · · · · · · · · · · · · · · · · · ·	-	11.	1	2	1				
7		-	-h	1				11.00	I	
8			1.						1	
9	-		1		1.11		11			

Comments: OIDER MALE

- 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
- 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.
- Recaptures refer to color and number of bee tag on beetles that have been previously marked.
 Name and the set for the set of the
- 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: LANDING Project Type: AREA Project Description: Development EIS
Time Checked ¹ : <u>930</u> Date Checked $5/28/12$ Transect #: <u>4</u> Survey Night: 1 2 3(4)5 6 7 8 9 10
Survey Company PLACE RIED Permittee: CH DOPTER Action Agency/Proponent: USACE
State: OK County: MICOURY Legal Description 2: 30, 91,17E General Location: (Supprovide) OK
Decimal Degrees ² : <u>35,81560 / 95,58875</u> (NAD 83)
Vegetation Type: FOROST D Primary Soil Type: Bar AL-CHESH-CHERENE COMPLET
(Prairie, woodland, torest, pasture) (Refer to County Soil Survey) 5 TO 50 (0 SIDEES
Temp ³ : Min <u>73</u> Max <u>90</u> °F Wind >10 mph? ⁴ yes or (no)
Additional survey night(s) required because of wind or temperature? yes or no

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
$1(U)p^5$			3					2 CARRION
2. U D			1					
3. U D								
4. U D			-	-	1	1		
5. U D								
							-	

Additional survey night(s) required because of disturbance⁶?: yes or uo

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					1.00					
2	1		-							
3		1				-				
4	1				· · · · · · · · · · · · · · · · · · ·					
5				1	1		11	1		
6										
7						1	11			
8			1	1					1	
9								1.00		

- 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.
- 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: UNDING Project Type: AREA Project Description: Development EIS
Time Checked ¹ S: 20 Date Checked ¹ : S DE Transect #: S Survey Night: 1 2 3 4 6 7 8 9 10
Survey Company: CACKEIRD Permittee: CM PORTER Action Agency/Proponent: USACE
State: OK County: Partibul Legal Description 2:31,4N1 TE General Location: UNDTOWN, OK
Decimal Degrees ² : 35,20754 / 95,55956 (Sec Township Range) (nearest town, city, landmark)
Vegetation Type: (NAD 83) (Prairie, woodland, forest, pasture) Primary Soil Type: Bug AL-CLEBIT-CLEB
Temp ³ : Min 73 Max 90 °F Wind >10 mph? ⁴ yes or n_0
Additional survey night(s) required because of wind or temperature? yes $or(no)$

Trap No.	americanus	orbicollis	tomentosus	pustulatus	marginatus	carolinus	sayi	Other carrion beetles
1(U) D5		1	12					6 CARLON BOOT
2. U D								
3. U D				1			1	
4. U D						(
5. U D							1.1	

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	-	J	1. C			1	
2							1			
3	S 24				· · · · · · · · · · · · · · · · · · ·		1.2			
4		· · · · · · · · · · · · · · · · · · ·		7						
5				1				1		
6	100		10.000	1 1		1-1-1-1-1			1.0	1.000
7					1	1		12		
8			1.1	12-1			1	Margaret P	1	
9			1				1	1.15	1000000	

- 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]).