

## **Grande Prairie Wind Farm American Burying Beetle Survey**

Hoback Consulting, W. Wyatt Hoback 6/27/2012

### **Summary**

The Grande Prairie Wind Farm Project lies at the eastern edge of Holt County. The area represents a mixture of center-pivot row-crop and rangeland. The area of the proposed project lies outside the known range of American burying beetle, however, the beetles occur in high numbers in other parts of Holt County. A driving survey was conducted on 4/22 and several areas were revisited on 5/28. The soil in the project area is primarily loamy-sand. Some of the project areas appear to be prime habitat (approximately 10% of the total area). The areas ranked as "5" or prime were lower areas with more moisture located on roads 881 and 887. An additional 33% of the project area was ranked as "4" or good because it was more upland or drier. On June 12-17, fifteen baited pitfall traps were used to survey for American burying beetle. A total of 1,852 carrion beetles belonging to eleven species were trapped. No American burying beetles were found across the 54 trap night effort. Weather conditions were appropriate for activity except for June 13 when cooler temperatures and rain occurred through much of the area. American burying beetles were collected at a control site near Chambers Nebraska on all days except June 13. Based on the results of this survey and the soil characteristics proposed projects in this area are unlikely to affect American burying beetles and further conservation measures should not be required.

### **American Burying Beetle Survey**

A wind energy development project is being instigated in northern Holt County extending to the border of Knox County. The project area covers approximately 330 square miles north of the town of Page, Nebraska. Land use includes rangeland and irrigated crop land. In Nebraska, the USFWS recommends a survey to establish presence of ABB especially in areas that have received limited trapping.

Fifteen traps were placed on road right of ways in the proposed project area and were baited with previously frozen laboratory rats that had been rotted 4-5 days. Traps were checked each morning before 12:00 and all carrion beetles were identified and released. Traps were placed at the following coordinates (NAD 83, UTM Zone 14). Each trap has an expected effective trap radius of 0.5 miles and all areas of the project site that were rated as good or prime were surveyed. Trap locations were recorded with a GPS unit.

### GPS Trapping Locations

	Easting	Northing
<b>GP1</b>	550022	4711341
<b>GP2</b>	551835	4711354
<b>GP3</b>	546582	4711342
<b>GP4</b>	545813	4713003
<b>GP5</b>	540884	4716087
<b>GP6</b>	540875	4717725
<b>GP7</b>	540865	4719363
<b>GP8</b>	540851	4721672
<b>GP9</b>	540841	4723471
<b>GP10</b>	542179	4725762
<b>GP11</b>	548834	4725805
<b>GP12</b>	550459	4725656
<b>GP13</b>	553752	4724875
<b>GP14</b>	553764	4723343
<b>GP15</b>	553751	4715478

During the survey, weather conditions were generally suitable for American burying beetle activity. Temperatures were above 60 Fahrenheit at midnight on all survey nights and rain fell during the night on only one day, June 13. Weather data were obtained from [weatherunderground.com](http://weatherunderground.com) for the O'Neill weather station.

	O'Neill Weather Station	
Trap Night Date	Midnight Temp (F)	Precip. Inches. (10pm-2am)
<b>6/12/2012</b>	58.6	0
<b>6/13/2012</b>	61.9	0.07
<b>6/14/2012</b>	78.3	0
<b>6/15/2012</b>	69.1	0
<b>6/16/2012</b>	65.3	0
<b>6/17/2012</b>	62.5	0

During the survey, a total of 1,852 carrion beetles belonging to 11 species were captured. No American burying beetles were captured. However, other nocturnally active species including *Nicrophorus orbicollis* (53), *Nicrophorus pustulatus* (3), and *Necroides surinimensis* (120) were captured. As with most early season surveys, *Nicrophorus marginatus* (977) and *Nicrophorus tomentosus* (339) were captured most-frequently.

All silphid captures by date and location (Traps 1-8).

Check date	Trap #	Total beetles	ABB	Necroph	Carol	Marg	Toment	Orbic	Guttula	Pust	Lapon	Trunc	O. ineq	O nova	N. surin
12-Jun	GP1	18	0	0	1	16	1	0	0	0	0	0	0	0	0
13-Jun	GP1	12	0	0	0	12	0	0	0	0	0	0	0	0	0
14-Jun	GP1	18	0	0	2	0	14	1	0	0	1	0	0	0	0
15-Jun	GP1	276	0	0	5	250	12	1	0	0	4	0	0	0	4
16-Jun	GP1	250	0	0	3	185	43	3	0	0	2	0	0	8	6
17-Jun	GP1	195	0	7	3	165	8	0	0	0	0	2	0	6	4
	#/Trap night	128.2	0.0	1.2	2.3	104.7	13.0	0.8	0.0	0.0	1.2	0.3	0.0	2.3	2.3
12-Jun	GP2	3	0	0	0	1	2	0	0	0	0	0	0	0	0
13-Jun	GP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	GP2	2	0	0	0	0	2	0	0	0	0	0	0	0	0
15-Jun	GP2	46	0	1	0	1	18	0	0	1	1	0	3	19	2
16-Jun	GP2	13	0	0	0	0	7	1	0	0	0	0	0	4	1
17-Jun	GP2	31	0	2	0	14	6	0	0	0	0	0	0	8	1
	#/Trap night	15.8	0.0	0.5	0.0	2.7	5.8	0.2	0.0	0.2	0.2	0.0	0.5	5.2	0.7
12-Jun	GP3	8	0	0	0	0	8	0	0	0	0	0	0	0	0
13-Jun	GP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	GP3	14	0	0	0	4	10	0	0	0	0	0	0	0	0
15-Jun	GP3	25	0	0	0	3	18	2	0	0	0	0	0	1	1
16-Jun	GP3	9	0	0	0	2	3	2	0	0	0	0	0	2	0
17-Jun	GP3	8	0	1	1	6	0	0	0	0	0	0	0	0	0
	#/Trap night	10.7	0.0	0.2	0.2	2.5	6.5	0.7	0.0	0.0	0.0	0.0	0.0	0.5	0.2
12-Jun	GP4	13	0	0	0	2	10	0	0	0	0	0	1	0	0
13-Jun	GP4	3	0	0	0	2	1	0	0	0	0	0	0	0	0
14-Jun	GP4	25	0	0	0	13	12	0	0	0	0	0	0	0	0
15-Jun	GP4	19	0	0	0	10	7	0	0	0	1	0	0	0	1
16-Jun	GP4	36	0	0	0	18	11	0	0	0	2	0	0	0	5
17-Jun	GP4	21	0	0	1	12	5	0	0	0	2	1	0	0	0
	#/Trap night	19.5	0.0	0.0	0.2	9.5	7.7	0.0	0.0	0.0	0.8	0.2	0.2	0.0	1.0
12-Jun	GP5	1	0	0	0	0	1	0	0	0	0	0	0	0	0
13-Jun	GP5	4	0	0	0	1	3	0	0	0	0	0	0	0	0
14-Jun	GP5	9	0	0	0	4	5	0	0	0	0	0	0	0	0
15-Jun	GP5	20	0	1	0	8	5	4	0	0	0	1	1	0	0
16-Jun	GP5	29	0	0	3	7	2	10	0	0	0	0	0	3	4
17-Jun	GP5	19	0	0	1	8	5	0	0	0	0	0	0	3	2
	#/Trap night	13.7	0.0	0.2	0.7	4.7	3.5	2.3	0.0	0.0	0.0	0.2	0.2	1.0	1.0
12-Jun	GP6	2	0	0	0	0	2	0	0	0	0	0	0	0	0
13-Jun	GP6	3	0	0	0	1	2	0	0	0	0	0	0	0	0
14-Jun	GP6	6	0	0	3	0	3	0	0	0	0	0	0	0	0
15-Jun	GP6	29	0	0	0	18	7	0	0	0	0	0	0	0	4
16-Jun	GP6	26	0	2	2	14	3	2	0	0	0	0	0	0	3
17-Jun	GP6	5	0	0	0	3	2	0	0	0	0	0	0	0	0
	#/Trap night	11.8	0.0	0.3	0.8	6.0	3.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2
12-Jun	GP7	7	0	0	0	2	2	1	0	0	0	0	2	0	0
13-Jun	GP7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	GP7	4	0	0	0	2	2	0	0	0	0	0	0	0	0
15-Jun	GP7	37	0	1	2	20	10	1	0	0	0	0	0	0	3
16-Jun	GP7	21	0	0	0	9	5	0	0	0	2	0	0	3	2
17-Jun	GP7	13	0	0	0	9	0	0	0	0	0	0	0	1	3
	#/Trap night	13.7	0.0	0.2	0.3	7.0	3.2	0.3	0.0	0.0	0.3	0.0	0.3	0.7	1.3
12-Jun	GP8	1	0	0	0	0	1	0	0	0	0	0	0	0	0
13-Jun	GP8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	GP8	1	0	0	0	0	1	0	0	0	0	0	0	0	0
15-Jun	GP8	5	0	0	0	2	1	0	0	0	0	0	0	0	2
16-Jun	GP8	5	0	0	0	2	1	0	0	0	0	0	1	0	1
17-Jun	GP8	1	0	0	0	1	0	0	0	0	0	0	0	0	0
	#/Trap night	2.2	0.0	0.0	0.0	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5

All silphid captures by date and location (Traps 9-15).

12-Jun	GP9	2	0	0	0	0	0	0	0	0	0	0	2	0	0
13-Jun	GP9	1	0	0	0	0	0	0	0	0	0	0	0	1	0
14-Jun	GP9	2	0	0	0	0	2	0	0	0	0	0	0	0	0
15-Jun	GP9	17	0	0	2	4	2	0	0	0	1	0	0	2	6
16-Jun	GP9	43	0	0	3	32	3	0	0	0	0	0	0	2	3
17-Jun	GP9	7	0	0	0	2	1	0	0	0	0	0	0	1	3
	#/Trap night	12.0	0.0	0.0	0.8	6.3	1.3	0.0	0.0	0.0	0.2	0.0	0.3	1.0	2.0
12-Jun	GP10	2	0	0	0	0	0	1	0	0	0	0	0	1	0
13-Jun	GP10	2	0	0	0	0	0	1	0	0	0	0	0	1	0
14-Jun	GP10	2	0	0	0	2	0	0	0	0	0	0	0	0	0
15-Jun	GP10	18	0	0	0	1	3	1	0	0	0	0	3	7	3
16-Jun	GP10	47	0	12	0	2	7	2	0	0	0	0	0	13	11
17-Jun	GP10	19	0	0	0	6	2	0	0	0	0	0	0	8	3
	#/Trap night	15.0	0.0	2.0	0.0	1.8	2.0	0.8	0.0	0.0	0.0	0.0	0.5	5.0	2.8
12-Jun	GP11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	GP11	1	0	0	0	0	0	1	0	0	0	0	0	0	0
14-Jun	GP11	7	0	0	0	0	2	1	0	0	0	0	3	0	1
15-Jun	GP11	22	0	5	0	0	4	3	0	0	0	0	1	6	3
16-Jun	GP11	44	0	4	0	6	3	7	0	0	1	0	0	13	10
17-Jun	GP11	22	0	10	1	1	0	0	0	0	0	0	1	1	8
	#/Trap night	16.0	0.0	3.2	0.2	1.2	1.5	2.0	0.0	0.0	0.2	0.0	0.8	3.3	3.7
12-Jun	GP12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	GP12	1	0	0	0	0	0	1	0	0	0	0	0	0	0
14-Jun	GP12	2	0	0	0	2	0	0	0	0	0	0	0	0	0
15-Jun	GP12	6	0	1	0	0	1	0	0	0	0	0	1	3	0
16-Jun	GP12	24	0	3	0	2	1	1	0	0	0	1	0	14	2
17-Jun	GP12	6	0	0	0	0	0	0	0	0	0	0	0	6	0
	#/Trap night	6.5	0.0	0.7	0.0	0.7	0.5	0.2	0.0	0.0	0.0	0.2	0.2	3.8	0.3
12-Jun	GP13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	GP13	2	0	0	0	0	0	0	0	0	0	0	0	2	0
14-Jun	GP13	2	0	0	1	0	0	1	0	0	0	0	0	0	0
15-Jun	GP13	7	0	2	0	0	2	0	0	0	0	0	0	2	1
16-Jun	GP13	33	0	11	1	9	6	2	0	0	0	0	0	2	2
17-Jun	GP13	4	0	0	0	1	0	0	0	0	0	0	0	3	0
	#/Trap night	8.0	0.0	2.2	0.3	1.7	1.3	0.5	0.0	0.0	0.0	0.0	0.0	1.5	0.5
12-Jun	GP14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	GP14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	GP14	8	0	0	0	4	3	0	0	0	0	0	0	0	1
15-Jun	GP14	17	0	5	0	0	4	0	0	0	0	0	3	5	0
16-Jun	GP14	46	0	17	0	14	9	2	0	0	0	0	0	1	3
17-Jun	GP14	39	0	12	0	5	0	0	0	0	0	0	3	13	6
	#/Trap night	18.3	0.0	5.7	0.0	3.8	2.7	0.3	0.0	0.0	0.0	0.0	1.0	3.2	1.7
12-Jun	GP15	1	0	0	0	0	0	1	0	0	0	0	0	0	0
13-Jun	GP15	1	0	0	0	0	0	0	0	0	0	0	0	1	0
14-Jun	GP15	6	0	0	0	1	4	0	0	0	0	0	0	1	0
15-Jun	GP15	32	0	0	1	15	6	0	0	2	2	0	0	3	3
16-Jun	GP15	52	0	1	1	32	11	1	0	0	0	1	0	3	2
17-Jun	GP15	12	0	0	2	9	1	0	0	0	0	0	0	0	0
	#/Trap night	17.3	0.0	0.2	0.7	9.5	3.7	0.3	0.0	0.3	0.3	0.2	0.0	1.3	0.8

Control trap data.

Control traps were set in an area of known American burying beetle occurrence near Chambers, Nebraska. During the survey period, 98 American burying beetles were caught from 4 traps.

<b>Trap Night Date</b>	<b># ABB Caught</b>
<b>6/12/2012</b>	5
<b>6/13/2012</b>	0
<b>6/14/2012</b>	28
<b>6/15/2012</b>	22
<b>6/16/2012</b>	17
<b>6/17/2012</b>	5

Conclusions.

Based on June surveys when American burying beetle were active at control sites located about 30 miles away, American burying beetles do not appear to occur in the area of the proposed Grande Prairie Wind Farm site. Further conservation measures should not be required for this species.