

Memorandum

To: Dave Cowan, UPC
From: Bob Roy, Woodlot
Date: September 22, 2006

Re: Summer-early fall 2006 bat detector surveys at the Sheffield Wind Farm project

This memo is being provided as an interim reporting method, as detector surveys are still ongoing. The results presented here are preliminary because we have not yet implemented our full QA/QC measures that we use when enumerating and identifying recorded echolocation data. Included will be nightly tallies of bat calls only, as identification analysis has not yet been conducted on the data set. The data presented will be only for the period from June 14 to September 11.

Bat detector surveys were implemented in the Sheffield Wind Farm project area on April 24, 2006. At that time, four bat detectors were deployed along the ridgeline of the northern turbine array (i.e., the ridgeline that includes Granby, Barrett, and Norris Mountains). The locations of those detectors were described in a July 16, 2006, memo.

On June 14, the detectors were rearranged and a fifth detector was added. The deployment of the detectors was as follows:

- One detector was deployed with its microphone approximately 100 feet above the ground at the Barrett Mountain met tower (“Barrett” detector);
- One detector was deployed in a dead yellow birch located along the northern side of the beaver wetland located just north of Libby Hill (“Yellow Birch” detector). The detector’s microphone was located approximately 25 feet above the water surface;
- One detector was located at the lowest active beaver dam within the beaver wetland. The detector’s microphone was placed approximately 5 feet above the water at the most open area of water surface on the impoundment (“Beaver Dam” detector);
- One detector was deployed with its microphone approximately 30 feet above the ground and pointed at an upward angle near the proposed Turbine 12 location, which is very near the peak of Libby Hill (“Turbine 12” detector). This detector was at the edge of a log landing located uphill and south of the beaver wetland on this ridge; and
- One detector was located at the opposite end of the Turbine 12 log landing, approximately 150 feet south of the other detector with its microphone located 20 feet above the ground and oriented across the opening of a small skid road (“Turbine 12b” detector). *This detector was then moved* to the Hardscrabble Mountain met tower (“Hardscrabble” detector) on June 29, 2006, and its microphone was located approximately 100 feet above the ground after a VANR request for some comparison detector data from the (at the time) southern part of the project area.

The detectors were checked periodically to download data and ensure proper operation. Due to the sensitivity of these electronic devices to harsh weather conditions and the long deployment periods between visits, the detectors occasionally operated intermittently. Additionally, the design of the storage ZCAIM device necessary for long-term deployment occasionally results in periods of powering down, even if the battery and battery recharge systems are operating correctly. There were also occasions when animals damaged the equipment, either by chewing the microphone cables or getting caught in the cables and breaking the cables loose. Finally, vandalism of a vehicle resulted in approximately two weeks of data from each detector being permanently lost.

A total of approximately 7,215 bat call sequence files were recorded by the five detectors during the June 14-September 11 deployment period (see following table). No calls were recorded at the Barrett Mountain met tower, while nearly 3,900 call sequences were recorded at the Turbine 12 detector. Interestingly, calls from the beaver wetland represented only approximately 25 percent of the calls.

A final report will be prepared once the data collection is completed, which will be completed in mid-October.

Preliminary Summary of summer/fall bat detections - Sheffield						
Night of	Number of recorded call sequences					
	Barrett	Beaver Dam	Yellow Birch	Turbine 12 A	Turbine 12 B	Hardscrabble
6/14/2006	--	n/o	10	32	409	not deployed
6/15/2006	--	n/o	10	656	16	not deployed
6/16/2006	--	n/o	7	319	17	not deployed
6/17/2006	--	n/o	1	31	61	not deployed
6/18/2006	--	n/o	16	119	22	not deployed
6/19/2006	--	n/o	8	475	163	not deployed
6/20/2006	--	n/o	--	237	13	not deployed
6/21/2006	--	n/o	--	189	237	not deployed
6/22/2006	--	n/o	--	208	139	not deployed
6/23/2006	--	n/o	--	284	115	not deployed
6/24/2006	--	n/o	--	223	62	not deployed
6/25/2006	--	n/o	--	5	6	not deployed
6/26/2006	--	n/o	--	--	1	not deployed
6/27/2006	--	n/o	--	--	2	not deployed
6/28/2006	--	n/o	--	4	7	not deployed
6/29/2006	--	--	--	1	not deployed	--
6/30/2006	--	--	--	2	not deployed	13
7/1/2006	--	--	--	3	not deployed	16
7/2/2006	--	--	--	1	not deployed	3
7/3/2006	--	--	--	7	not deployed	15
7/4/2006	--	--	--	552	not deployed	15
7/5/2006	--	--	--	11	not deployed	24
7/6/2006	--	--	2	10	not deployed	24
7/7/2006	--	--	--	11	not deployed	22
7/8/2006	--	--	3	5	not deployed	8
7/9/2006	--	--	5	16	not deployed	7
7/10/2006	--	--	4	4	not deployed	7
7/11/2006	--	--	6	17	not deployed	13
7/12/2006	--	--	--	1	not deployed	6
7/13/2006	--	--	2	18	not deployed	4
7/14/2006	--	--	9	40	not deployed	4
7/15/2006	--	--	11	18	not deployed	1
7/16/2006	--	--	29	6	not deployed	--
7/17/2006	--	--	20	13	not deployed	4
7/18/2006	--	--	24	13	not deployed	24
7/19/2006	--	--	16	9	not deployed	4
7/20/2006	--	--	4	3	not deployed	2

(continued)

Preliminary Summary of summer/fall bat detections - Sheffield						
Night of	Number of recorded call sequences					
	Barett	Beaver Dam	Yellow Birch	Turbine 12 A	Turbine 12 B	Hardscrabble
7/21/2006	--	--	18	19	not deployed	3
7/22/2006	--	--	8	1	not deployed	1
7/23/2006	--	--	13	23	not deployed	1
7/24/2006	--		54	9	not deployed	2
7/25/2006	--		54	29	not deployed	4
7/26/2006	--		85	7	not deployed	1
7/27/2006	--		61	5	not deployed	1
7/28/2006	--		67	8	not deployed	3
7/29/2006	--		71	12	not deployed	--
7/30/2006	--		60	11	not deployed	1
7/31/2006	--		27	31	not deployed	4
8/1/2006	--		26	24	not deployed	9
8/2/2006	--		56	9	not deployed	--
8/3/2006	--		79	19	not deployed	--
8/4/2006	--		87	41	not deployed	5
8/5/2006	--		91	8	not deployed	1
8/6/2006	--		96	8	not deployed	1
8/7/2006	--		109	--	not deployed	3
8/8/2006	--		20		not deployed	
8/9/2006	--		28		not deployed	
8/10/2006	--		6		not deployed	
8/11/2006	--				not deployed	
8/12/2006					not deployed	
8/13/2006					not deployed	
8/14/2006					not deployed	
8/15/2006					not deployed	
8/16/2006					not deployed	
8/17/2006					not deployed	
8/18/2006					not deployed	
8/19/2006					not deployed	
8/20/2006					not deployed	
8/21/2006					not deployed	
8/22/2006					not deployed	
8/23/2006					not deployed	
8/24/2006	--	6	2	1	not deployed	3
8/25/2006	--	19	9	8	not deployed	3
8/26/2006	--	59	12	6	not deployed	1
8/27/2006	--	4	--	--	not deployed	--
8/28/2006	--	34	5	10	not deployed	1
8/29/2006	--	23	11	7	not deployed	4
8/30/2006	--	10	7	2	not deployed	--
8/31/2006	--	7	11	4	not deployed	3
9/1/2006	--	18	25	5	not deployed	3
9/2/2006	--	5	7	2	not deployed	7

(continued)

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Night of	Number of recorded call sequences					
	Barett	Beaver Dam	Yellow Birch	Turbine 12 A	Turbine 12 B	Hardscrabble
9/3/2006	--	9	5	W	not deployed	n/o
9/4/2006	--	12	5	2	not deployed	n/o
9/5/2006	--	34	11	8	not deployed	n/o
9/6/2006	--	27	16	4	not deployed	n/o
9/7/2006	--	21	10	11	not deployed	n/o
9/8/2006	--	17	9	3	not deployed	n/o
9/9/2006	--	15	2	4	not deployed	n/o
9/10/2006	--	1	--	1	not deployed	n/o
9/11/2006	--	2	1	5	not deployed	n/o
Total	0	323	1451	3890	1270	281
n/o indicates detector was not operating on that night						
-- indicates no recorded call sequences despite seemingly proper operation						
shading indicates stolen data						

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