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Prepared for:
Keystone Pipeline Project

Assessment of Indiana Bat Summer Habitat Along the Proposed Keystone Pipeline in Missouri

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ASSESSMENT OF INDIANA BAT SUMMER HABITAT ALONG THE PROPOSED KEYSTONE PIPELINE IN MISSOURI

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EXECUTIVE SUMMARY

BHE Environmental, Inc. (BHE) was contracted by ENSR Corporation (ENSR) on behalf of the Keystone Pipeline Project (Keystone) to implement a bat summer habitat investigation similar to that described in *Proposed Indiana Bat Investigations: REX-West Pipeline through Seven Missouri Counties*, dated August 2006. On November 21, 2006, Rick Hansen, U.S. Fish and Wildlife Service, gave signed concurrence that the same survey approach could be applied to the Keystone Pipeline Project. BHE conducted the study in all of the Missouri counties traversed by the Keystone Project: Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, Audrain, Montgomery, Lincoln, and St. Charles. Specifically, BHE sought to evaluate the quality of Indiana bat summer habitat at 212 wooded areas crossed by the Keystone Project. Of the 212 forest crossings initially identified for assessment, 126 were actually assessed during previous field efforts. An additional three sites were surveyed during February 2007, the results of which are presented in this report, for a total of 129 sites assessed to date. Of the remaining 83 woodlots, access was denied to 56, three woodlots were determined to be continuous with other woodlots and thus were combined, field inspection of one supposed woodlot confirmed absence of trees at the location, and 23 are left to be surveyed during additional field efforts in 2007, in addition to any other previously access-denied sites, for which access is obtained. The quality of Indiana bat summer habitat was evaluated within the portion of the 129 total forested tracts crossed by the 200-ft wide survey corridor, using a quantitative assessment method. Of the three sites assessed during this field investigation, there was one site where habitat suitability was 0.6 or higher based upon criteria established in the August 2006 study plan, 45 of the 129 sites assessed in the field to date also met these criteria.

1.0 INTRODUCTION

TransCanada is planning to construct and operate an approximately 1,845-mile-long interstate crude oil transmission system from an oil supply hub near Hardisty, Alberta, Canada to destinations in the Midwestern United States (U.S). The Keystone Mainline would consist of approximately 1,078 miles of new pipeline constructed from the U.S.-Canada border in Cavalier County, North Dakota, to terminals and refineries in Wood River (Madison County) and Patoka (Marion County), Illinois. Approximately 283 miles of the Keystone Mainline would parallel the proposed Rockies Express Pipeline - West (REX-West) Project in Kansas and Missouri. TransCanada proposes to begin construction of the Keystone Mainline in early 2008, with the system in-service by the end of 2009.

This report addresses implementation of investigations described in the study plan developed for work to be conducted in Missouri. *Proposed Indiana Bat Investigations: REX-West Pipeline through Seven Missouri Counties*, dated August 2006, describes methodology for assessment of parcels located in Missouri (BHE 2006a). A letter from BHE Environmental, Inc. (BHE) to Rick Hansen, U.S. Fish and Wildlife Service (USFWS), signed on November 21, 2006, indicates that the same survey approach and methods developed for the REX-West Pipeline Project may also be applied to the Keystone Mainline Project (Appendix A). Specifically, BHE evaluated the quality of Indiana bat summer habitat at 212 areas where the Keystone Mainline route crosses forested parcels. Of the 212 forest crossings initially identified for assessment, 126 were assessed during previous field efforts (BHE 2006b). An additional three sites were surveyed during February 2007, the results of which are presented in this report, for a total of 129 sites assessed to date. Of the 83 sites not surveyed, access was denied to 56, three woodlots were determined to be continuous with other woodlots and thus were combined, field inspection of one preliminarily identified woodlot confirmed absence of trees at the location, and 23 are left to be surveyed during additional field efforts in 2007. The quality of Indiana bat summer habitat was evaluated within the portion of the 129 total forested tracts that was within the 200-ft wide survey corridor, using a quantitative assessment method. The area of wooded habitat surveyed at the three sites assessed during this field effort ranged from approximately 1.7 to 11.2 acres. The area of wooded habitat surveyed at the 129 total sites ranged from approximately one acre to 12.4 acres.

Indiana bats are assumed present during summer in all Missouri counties crossed by the Keystone Mainline route. Known summer occurrences in the ten counties are limited to captures in Clinton and Chariton counties in 1985 and 1983, respectively (**Figure 1**). The 1983 record from Chariton County was of a maternity roost tree. The 1985 record from Clinton County was an "other occurrence" (non-reproductive) record. Netting in these areas in recent years did not detect the presence of Indiana bats. Indiana bats have more recently been identified at the Swan Lake National Wildlife Refuge in Chariton County approximately 6 miles north of the August 2006 Keystone alignment. The nearest known confirmed winter occurrences (two hibernacula) are more than 5 miles (8 km) south of the Keystone Mainline route in Boone County. USFWS records indicate also presence of a hibernaculum in St. Louis County, approximately 15 miles (24 km) south of the Keystone Mainline (Andrew King, pers comm.). Indiana bats are not known to occur in North Dakota, South Dakota, Nebraska, and Kansas (**Figure 1**); assessment of Indiana bat summer habitat quality was limited to Missouri

and Illinois. Assessment of Indiana bat summer habitat quality in Illinois is described in a separate report.

2.0 METHODS

2.1 AGENCY COORDINATION AND SAMPLE AREA SELECTION

The study plan titled *Proposed Indiana Bat Investigations: REX-West Pipeline through Seven Missouri Counties*, dated August 2006, describes methodology for assessment of parcels located in Missouri (BHE 2006a). This study plan was developed to investigate the presence Indiana bat summer habitat along the proposed REX-West pipeline that is adjacent to and parallels the proposed Keystone Mainline through the western half of Missouri. A letter from BHE to Rick Hansen, U.S. Fish and Wildlife Service (USFWS), signed on November 21, 2006, indicates that the same survey approach and methods developed for the REX-West Pipeline Project could also be applied to the Keystone Pipeline Project (Appendix A).

2.1.1 Habitat Identification

Investigations began with identification of wooded areas traversed by the route that may provide habitat for the bat. Data pertinent to this assessment were collected during field investigations completed by ENSR in 2006. ENSR and BHE identified 632 instances where the Keystone Mainline route crossed deciduous trees – these crossings range from wooded fencerows and tree lines to small woodlots and more extensive forests.

Recognizing that larger forested parcels bear greater long-term potential for suitable foraging and roosting habitat relative to smaller wooded areas, BHE identified 322 instances in which the route crossed 200 or more linear feet (61 m) of wooded areas (BHE 2006a).

BHE next evaluated Indiana bat habitat at the 322 crossings based upon the existence of forested habitat near each crossing. Considering data available in recent published literature (Murray and Kurta 2004, Sparks et al. 2005, Butchkoski and Hassinger 2002), BHE evaluated the amount of forest cover within 2.2 miles (3.5 km) of the 322 crossings. Rommé et al. (1995) indicate that even with all other summer habitat attributes being ideal, wooded areas with 13 percent forest cover in the analysis area can score no higher than a 0.32 on a scale of 0.0 (no habitat value) to 1.0 (ideal habitat).

Forest cover within 2.2 miles of the 322 crossings was calculated using vegetative cover data (30-meter pixels) from the Missouri Spatial Data Information Service, Natural Resources – Landcover. These data are based on circa 2000-2004 satellite imagery, in conjunction with ancillary data from the National Wetlands Inventory and the Wetlands Restoration Program. For purposes of this analysis, forest cover was compiled from the vegetation classifications Deciduous Forest, Evergreen Forest, Mixed Forest, Deciduous Woody/Herbaceous, and Woody Dominated Wetland.

Forest cover within 2.2 miles of 212 forest crossings greater than 200 ft in length exceeds 13 percent (BHE 2006a). This report describes field studies implemented in February 2007 to evaluate the quality of summer habitat at these crossings. Previous field studies, as described in BHE 2006b, were implemented in August, September, and December 2006. Each

woodlot was assigned a unique alpha-numeric identifier (Appendix B). Feature ID numbers adhered to one of two naming conventions.

Feature ID protocol for sites located on Keystone-only right-of-way:
(Surveys conducted in December 2006 and February 2007)

- FFFNNNSSCCXXXAA
  - FFF = Feature Type ("BAT" for bat habitat natural feature)
  - NNN= Team Number
    - December 2006 Field Effort (BHE 2006b)
      - BH1 - Becky Braeutigam and Drew Carson (BHE)
      - BH2 – Dave Norcross and Samantha Williams (BHE)
      - BH3 - Chad Kinney (BHE) and Laura Vrabel (SCI)
      - BH4 – Lisa Winhold and John Alexander (BHE)
    - February 2007 Field Effort
      - BH1 –Lisa Winhold and John Alexander (BHE)
  - SS = State
    - Missouri (MO)
  - CC = County Code
    - Buchanan (BC)
    - Clinton (CL)
    - Caldwell (CA)
    - Carroll (CR)
    - Chariton (CI)
    - Randolph (RA)
    - Audrain (AU)
    - Montgomery (MO)
    - Lincoln (LI)
    - St. Charles (SC)
  - XXX = Feature number (001-999 for the Keystone alignment)
  - AA = Alignment date
    - August (AU)

Or

Feature ID protocol for Keystone sites co-located on shared right-of-way:
(Surveys conducted in August and September 2006, and February 2007)

- FFFNNCCXXX
  - FFF = Feature Type ("NAT" for natural feature)
  - NN = Team Number
    - August and September 2006 Field Efforts
      - 8A - Becky Braeutigam and John Alexander (BHE)
      - 9A - Chad Kinney and Samantha Williams (BHE)
      - 10A – Doug Kibbe and Paul Swartzinski (ENSR)
    - February 2007 Field Effort
      - BH1 – Lisa Winhold and John Alexander (BHE)
  - CC = County Code
    - Buchanan (BC)
    - Clinton (CL)

    - Caldwell (CA)
    - Carroll (CR)
    - Chariton (CI)
    - Randolph (RA)
    - Audrain (AU)
  - XXX = Feature number (001-999)

Of the 212 forest crossings initially identified for assessment, three were quantitatively assessed in the field during this field effort and 129 total have been assessed in the field to date. Of the remaining 83 woodlots, 56 were inaccessible; 54 due to access denial (Appendix B), one due to a 6 ft high-tensile electric fence (NAT__CR080), and one due to high water (NAT__CI097). Three woodlots were determined to be continuous with other woodlots and thus were combined; NAT8ABC018 and NAT8ABC019 were combined into NAT8ABC018/019, NAT8ARA108 and NAT8ARA109 were combined into NAT8ARA108/109, and NAT10ARA117 and NAT10ARA118 were combined into NAT10ARA117/118. Field inspection of woodlot NAT__BC026, proved to be without trees. Twenty-three of the woodlots are left to be surveyed during additional field investigations in 2007 (Appendix B). Where possible, woodlots that were previously inaccessible will also be surveyed in 2007.

2.1.2 Habitat Assessment

Summer habitat quality was evaluated within the forested tracts using a quantitative assessment method. Rommé et al. (1995) provide perhaps the most comprehensive assessment tool available for this effort; however, this Habitat Suitability Index (HSI) model requires intensive data collection efforts more suitable to smaller project areas. Another model utilizes a subset (three) of the assessment variables from the Rommé et al. model (Farmer et al. 2002). Farmer et al. recommend evaluation of a single variable, density of suitable roost trees, as appropriate for landscape scale assessments. We utilized this approach during the field investigations. For purposes of this investigation, "potential roost trees" (PRTs) had the following characteristics:

- ≥22 cm dbh (diameter at breast height)
- ≥3 m in height
- no overarching canopy
- no understory canopy within 2 m of the trunk of the tree
- ≥25% of the tree covered by exfoliating bark
- bole of tree is free of obstructing vines

A density equal to or greater than 14 roost trees per hectare (see Rommé et al. 1995) defines ideal habitat, with a calculated single variable habitat suitability index of 1.0.

2.2 FIELD METHODS

The density of potential roost trees was assessed quantitatively within the wooded tracts during August, September, and December 2006, as described in BHE 2006b, and February 2007, the results of which are presented in this report. The woodlots were either surveyed in their entirety (census), or plot(s) were established to sample the woodlot. Plots were placed only within the survey corridor where access permission had been granted. In areas where the Keystone Mainline parallels REX-West, the width of the survey corridor was 65 feet on the

co-located side, and 100 feet on the Greenfield side. In all other areas along the Keystone Mainline route, the survey corridor was 200 feet centered on the proposed centerline (**Figure 2**). Approximately one 0.1 ha plot was examined per 2 acres of wooded area to be cleared. In wooded areas less than 2 acres, a minimum of one 0.1 ha plot was completed, or a census of the entire tract was completed.

A single point within each plot was documented with GPS. Data regarding the presence of PRTs in each plot were recorded on hardcopy field forms (Appendix C) and were also recorded electronically utilizing a data dictionary developed by ENSR with support from BHE (Appendix D). While at the sites, biologists made notes based on other attributes of the stand that may provide useful information in assessing summer habitat quality. These attributes included:

- ocular estimates of average percent canopy cover
- ocular estimates of average overstory tree dbh
- dominant overstory tree species (up to 3)
- presence of apparently suitable mist net survey sites.

2.3 ANALYTICAL METHODS

Field data were analyzed to calculate an HSI between 0.0 and 1.0 for each wooded tract. The USFWS has agreed that those sites with an HSI value based upon this single variable equaling or exceeding 0.6 may require surveys for the presence of Indiana bats during the maternity season (May 15 to August 15).

The HSI value is calculated from the density of PRTs in a woodlot as follows:

1. For the woodlot, determine the number of PRTs actually found in the plot(s) or census. If multiple plots were surveyed, sum the PRTs found in all plots.
2. For the woodlot, determine the area actually surveyed, in hectares. This is either the sum of the areas of all of the plot(s), or the entire area of the woodlot within the corridor, depending on the measurement made in the field.
3. The density of PRTs, (D) in PRT/ha, is the value calculated in step 1 divided by the value calculated in step 2.
4. The single-variable HSI is calculated by comparing the density to the ideal density of ≥14 PRT/ha:
    - If D ≥ 14, then HSI =1.0,
    - Otherwise HSI = D/14.

3.0 RESULTS

As discussed in the methods section, of the 212 woodlots initially identified for assessment, three woodlots were assessed during the February 2007 field effort, with a total of 129 woodlots having been assessed in the field to date (Appendix B). Of the three woodlots assessed during the February 2007 field effort, two were of low habitat quality with one having an HSI value of 0.1 and another having an HSI value of 0.4 (Appendix B). We calculated an HSI value of 0.7 for the remaining site surveyed (Appendix B; Table 1). Of the

129 total woodlots assessed in the field to date, most (65%, n=84) were of low habitat quality, with 47% (n=60) having HSI values of 0.0, and 19% (n=24) having HSI values from 0.1 to 0.5 (Appendix B). We calculated an HSI value of 0.6 or greater for 45 (35%) of the woodlots (Appendix B; **Table 1**).

Of the 45 total woodlots with HSI values ≥0.6, 19 had HSI values of 0.6 to 0.9 and 26 had HSI values of 1.0 (Appendix B). Woodlots with HSI values of 0.6 or greater were present in eight of the ten Missouri counties crossed by the Keystone Mainline; however, the majority of these woodlots were in Clinton (8), Caldwell (10), Carroll (12), and Randolph (6) counties. Within the counties, woodlots with HSI values ≥0.6 tended to be grouped together. Eleven (11) of the 42 woodlots with HSI values ≥0.6 were in Clinton (8) and Chariton (3) counties, where there have been documented summer occurrences of Indiana bats (see Introduction for occurrence details).

4.0 LITERATURE CITED

BHE Environmental, Inc. (BHE). 2006a. Proposed Indiana Bat Investigations, REX-West Pipeline Through Seven Missouri Counties. Unpublished report submitted to U.S. Fish and Wildlife Service, Columbia Field Office, Missouri. 6pp + attachments.

BHE Environmental, Inc. (BHE). 2006b. Assessment of Indiana Bat Summer Habitat Along the Proposed Keystone Pipeline in Missouri. Unpublished report prepared for ENSR Corporation, Fort Collins, Colorado. 25pp + attachments.

Butchkoski, C. and J. Hassinger. 2002. Ecology of a maternity colony roosting in a building *in* A. Kurta and J. Kennedy (eds). The Indiana Bat: Biology and Management of an Endangered Species. Bat Conservation International, Austin Texas.

Farmer, A., B. Cade, and D. Stauffer. 2002. Evaluation of a habitat suitability index model *in* A. Kurta and J. Kennedy (eds). The Indiana Bat: Biology and Management of an Endangered Species. Bat Conservation International, Austin Texas.

Murray, S. W., and Kurta, A. 2004. Nocturnal activity of the endangered Indiana bat (*Myotis sodalis*). Journal of Zoology, London 262:197-206.

Rommé, R.C., K. Tyrell, and V. Brack. 1995. Literature Summary and Habitat Suitability Index Model; Components of Summer Habitat for the Indiana Bat, *Myotis sodalis*. Federal Aid Project E-1-7, Study No. 8 submitted to the Indiana Department of Natural Resources, Bloomington, Indiana.

Sparks D., C. Ritzi, J. Duchamp, and J. Whitaker. 2005. Foraging habitat of the Indiana bat (*Myotis sodalis*) at an urban-rural interface. Journal of Mammalogy 86:713-718.

TABLES

Table 1. Plot data for the one wooded area surveyed during the February 2007 field effort with an HSI value ≥0.6 within the proposed Keystone survey corridor in Missouri.

Woodlot ID	Plot No.	Length of Plot (ft)	Width of Plot (ft)	No. of PRTs	PRT Species	Percent Canopy Cover	Average Overstory dbh (in)	Dominant Overstory Species	Presence of Apparently Suitable Mist Net Sites
BATBH1MOBC002AU	Plot 1	ALL	ALL	11	*Juglans nigra* (2); *Ulmus americana* (4); *Quercus rubra*; Unknown dead (4).	50-75	8	*Celtis occidentalis*; *Quercus rubra*; *Gleditsia triacanthos.*	Parallel to tree line.

FIGURES

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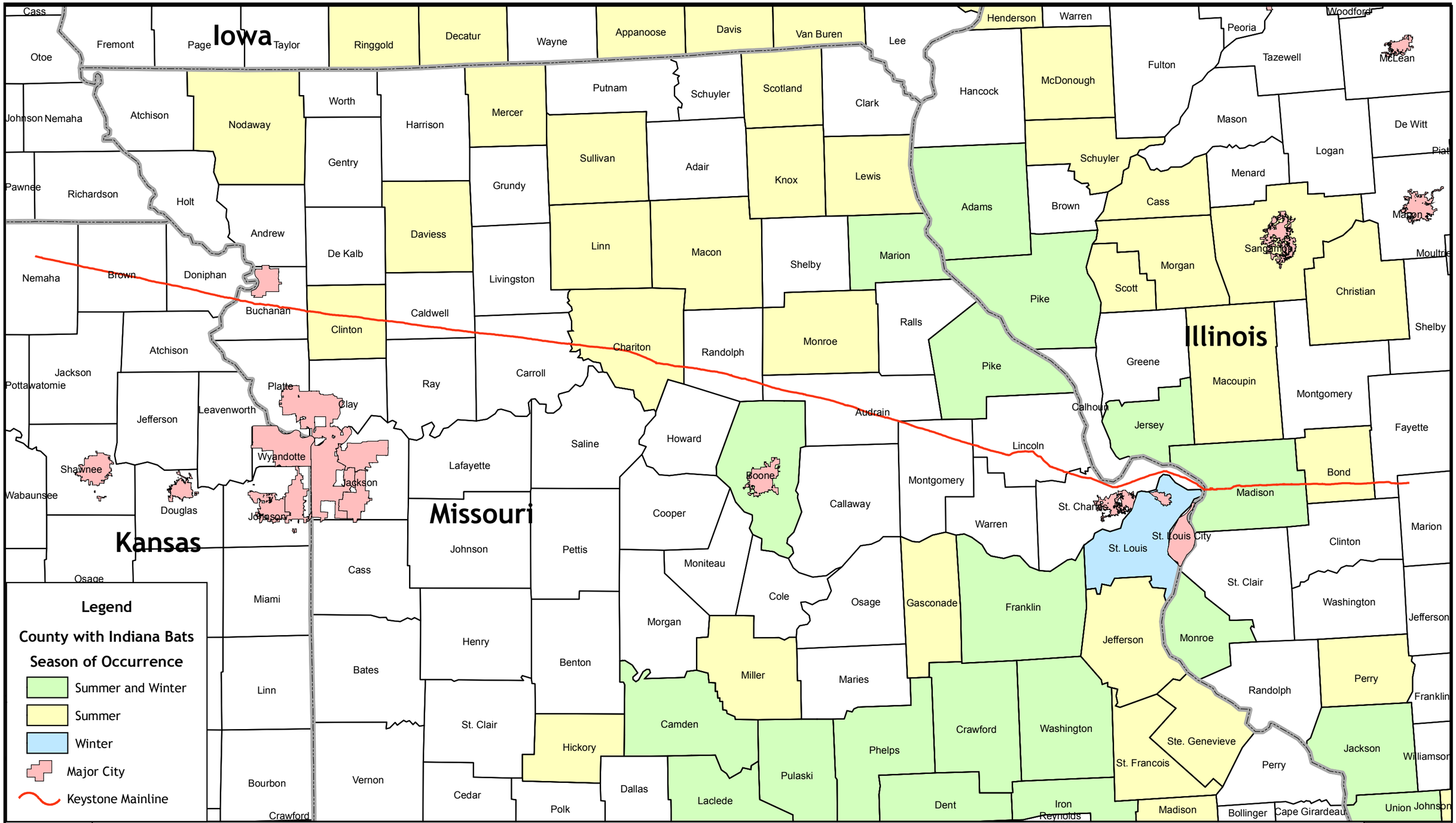

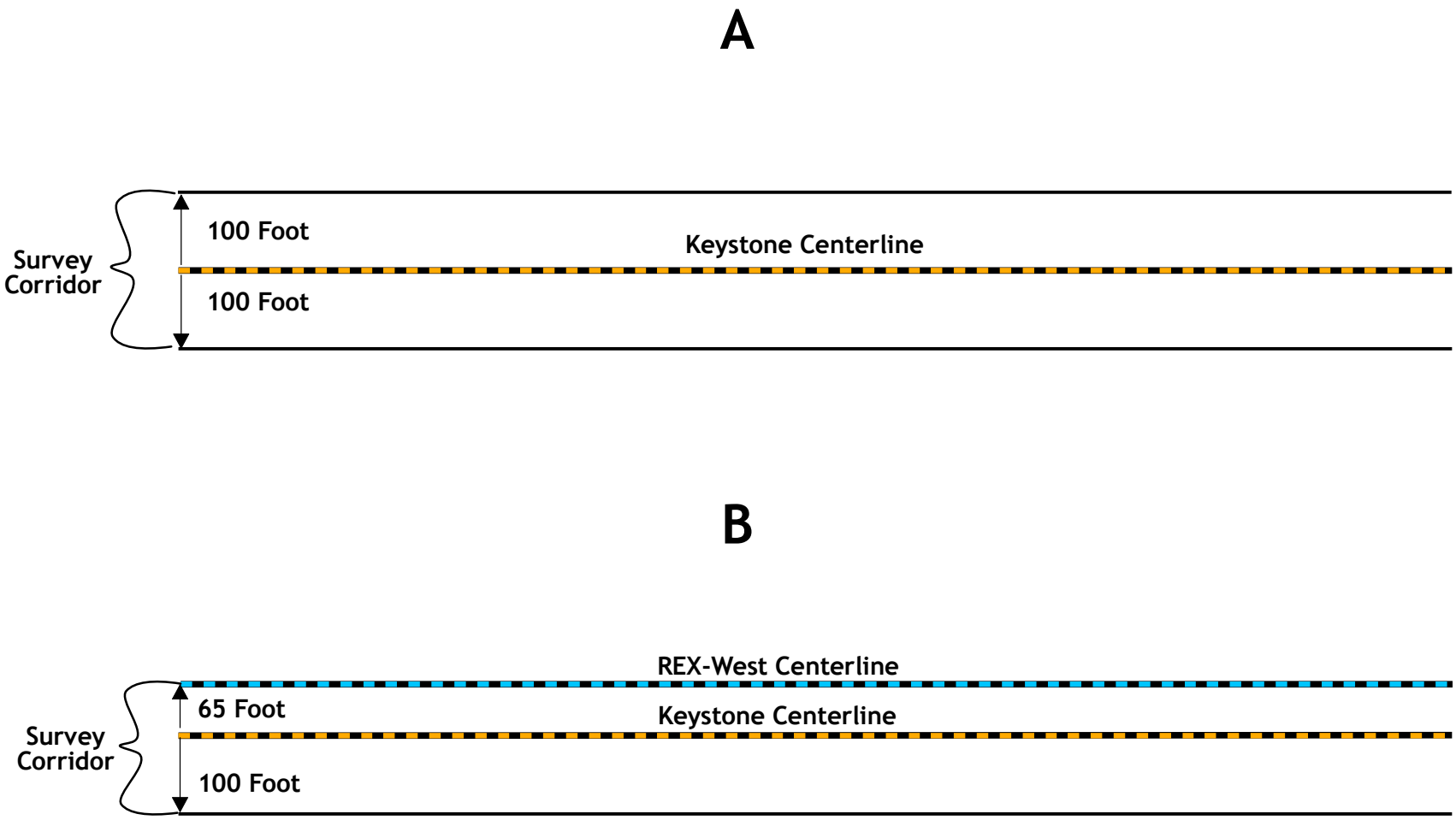

Figure 2. Diagrams of Keystone Pipeline Project survey corridor where the pipeline is stand-alone (A) and where it is co-located with the REX-West pipeline right-of-way (B).

Project No. 0987.012	March 2007	Feet 100 0 100 200

BHE ENVIRONMENTAL

APPENDICES

Appendix A. USFWS Concurrence with Study Plan

BHE ENVIRONMENTAL
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November 7, 2006

Mr. Charles M. Scott
Field Supervisor
Missouri Ecological Services Field Office
U.S. Fish & Wildlife Service
Department of the Interior
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0007

Subject: Indiana Bat Habitat Surveys for the Keystone Pipeline Project

Dear Mr. Scott:

We wish to confirm several points regarding assessment of effects to Indiana bats and their habitat on the Keystone Pipeline right-of-way (ROW) in Missouri.

First, based on phone conversations with Rick Hansen in your office and with you on September 18, 2006, we understand that the Service is comfortable with the approach for the assessment of Indiana bat habitat developed earlier in September for the REX-West Pipeline Project in Missouri, and that approach should be repeated for the Keystone project in Missouri. The approach is summarized later in this letter.

Second, it is our understanding that Indiana bat habitat assessment need not be repeated for areas where the Keystone and REX West pipelines are parallel and adjacent (within ~200 ft). We have already completed an on-site assessment for 109 woodlots where the REX West ROW crosses woodlots in Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, and western Audrain counties.

In areas where the two pipelines are not adjacent, either in the counties listed above, or in eastern Audrain, Montgomery, Lincoln, and St. Charles counties, we propose to follow the same approach as used on the REX-West Pipeline Project. In brief, the approach consisted of a desk-top analysis, followed by field work:

- Identify all woodlots crossed by the pipeline ROW.
- Eliminate from further assessment those woodlots crossed by less than 200 ft. of the ROW
- Eliminate from further assessment those woodlots with less than 13% forest cover within 3.5 km of the center of the woodlot crossing.
- Visit each of the remaining woodlots and determine the number of potential roost trees (PRTs) per hectare. Ratio this number to the optimum number of 14 or greater PRTs per hectare. If the ratio is 0.60 or greater, then further investigation of the site is warranted.

This habitat assessment field work for the Keystone Pipeline Project is tentatively scheduled to begin in late November. Once the field work is completed, we will consult with the Service about the findings.

If the USFWS concurs with this approach, this letter can be used to indicate your concurrence and authorization for Keystone/BHE to proceed. Please sign and return one copy of this letter to us. To expedite finalization of this approval, you may fax a signed copy of this letter to us at (513) 326-1178 or scan a signed copy and e-mail it to vhand@bheenvironmental.com. We would still appreciate receiving a signed original copy at your convenience.

BHE Environmental, Inc.

Vincent C. Hand, Ph.D.
Director, Natural Resources Management

✓ CONCUR	Signature Rick L Hansen
	Name (print) Rick L Hansen
____ DO NOT CONCUR	Title Acting Field Supervisor
	Date 21 November 2006

Appendix B. Wooded areas identified for field investigation within the proposed Keystone survey corridor in Missouri.

Appendix B. Wooded areas identified for field investigation within the proposed Keystone survey corridor in Missouri.
Rows in gray represent woodlots that were not assessed in the field during the February 2007 field effort (see Comments column for details).

Woodlot ID	County (Missouri)	Enter Mile Post	Center Mile Post	Exit Mile Post	Distance Crossed (ft)	Woodlot Area (acres)	Percent Forest Cover Within 3.5 km	Number of Plots	Total Number of PRTs	Woodlot HSI	HSI ≥ 0.6	Comments
NAT9ABC001	Buchanan	752.50	752.59	752.67	898	4.1	29	Census	0	0	No	Already Surveyed
NAT9ABC002	Buchanan	752.68	752.72	752.76	422	1.9	30	Census	0	0	No	Already Surveyed
NAT9ABC003	Buchanan	752.82	752.85	752.88	317	1.5	32	Census	2	0.5	No	Already Surveyed
NAT9ABC004	Buchanan	752.93	753.19	753.44	2693	12.4	37	3	2	0.5	No	Already Surveyed
NATBH1BC005	Buchanan	753.91	753.95	753.98	370	1.7	43	Census	1	0.1	No	
NAT8ABC006	Buchanan	754.89	755.01	755.13	1267	5.8	41	Census	0	0	No	Already Surveyed
NAT8ABC007	Buchanan	755.15	755.22	755.28	686	3.2	40	Census	2	0.2	No	Already Surveyed
NAT8ABC008	Buchanan	755.30	755.33	755.36	317	1.5	40	Census	0	0	No	Already Surveyed
NAT8ABC009	Buchanan	755.37	755.41	755.45	422	1.9	39	Census	0	0	No	Already Surveyed
NAT8ABC010	Buchanan	755.48	755.51	755.54	317	1.5	38	Census	0	0	No	Already Surveyed
NAT8ABC011	Buchanan	756.23	756.27	756.30	370	1.7	38	Census	0	0	No	Already Surveyed
NAT8ABC012	Buchanan	756.36	756.36	756.43	370	1.7	38	Census	1	0.2	No	Already Surveyed
NAT8ABC013	Buchanan	756.60	756.69	756.78	950	4.4	38	Census	1	0.1	No	Already Surveyed
NAT8ABC014	Buchanan	756.93	757.03	757.12	1003	4.6	36	1	0	0	No	Already Surveyed
NAT8ABC015	Buchanan	757.54	757.59	757.63	475	2.2	32	Census	0	0	No	Already Surveyed
NAT8ABC016	Buchanan	757.66	757.68	757.70	211	1.0	31	Census	1	0.3	No	Already Surveyed
NAT8ABC017	Buchanan	757.75	757.84	757.93	950	4.4	31	Census	2	0.1	No	Already Surveyed
NAT8ABC018/019	Buchanan	757.96	758.19	758.41	2376	10.9	31	4	4	0.7	Yes	NAT8ABC018 & NAT8ABC019 are continuous and were combined into a single woodlot (NAT8ABC018/019)
BATBH1MOBC001AU	Buchanan	758.45	758.68	758.91	2429	11.2	29	Census	24	0.4	No	
BATBH1MOBC002AU	Buchanan	759.01	759.07	759.12	581	2.7	29	Census	11	0.7	Yes	
NAT8ABC020	Buchanan	759.31	759.34	759.36	581	2.7	28	Census	0	0	No	Already Surveyed
NAT8ABC021	Buchanan	759.48	759.52	759.55	264	1.2	27	Census	0	0	No	Already Surveyed
NAT8ABC022	Buchanan	759.62	759.66	759.70	370	1.7	27	1	0	0	No	Already Surveyed
NAT8ABC023	Buchanan	760.15	760.23	760.30	422	1.9	24	1	0	0	No	Already Surveyed
NAT8ABC024	Buchanan	760.48	760.60	760.71	792	3.6	22	1	1	0.7	Yes	Already Surveyed
NAT8ABC025	Buchanan	760.88	760.90	760.92	1214	5.6	19	1	0	0	No	Already Surveyed
NAT__BC026	Buchanan	760.99	761.04	761.09	211	1.0	18	N/A	N/A	N/A	N/A	No Woodlot Was Present At This Site
NAT8ABC027	Buchanan	762.99	763.06	763.13	528	2.4	14	Census	0	0	No	Already Surveyed
NAT8ABC028	Buchanan	763.62	763.69	763.75	739	3.4	14	Census	0	0	No	Already Surveyed
NAT8ABC029	Buchanan	764.50	764.55	764.59	686	3.2	16	Census	0	0	No	Already Surveyed
NAT8ABC030	Buchanan	764.71	764.74	764.77	475	2.2	16	Census	2	0.5	No	Already Surveyed
NAT8ABC031	Buchanan	764.89	764.98	765.06	317	1.5	18	Census	0	0	No	Already Surveyed
NAT8ABC032	Buchanan	765.84	765.90	765.96	898	4.1	18	Census	0	0	No	Already Surveyed
NAT8ABC033	Buchanan	766.65	766.72	766.79	634	2.9	15	2	7	1	Yes	Already Surveyed

Woodlot ID	County (Missouri)	Enter Mile Post	Center Mile Post	Exit Mile Post	Distance Crossed (ft)	Woodlot Area (acres)	Percent Forest Cover Within 3.5 km	Number of Plots	Total Number of PRTs	Woodlot HSI	HSI ≥ 0.6	Comments
NAT__CL034	Clinton	771.76	771.82	771.88	634	2.9	15	N/A	N/A	N/A	N/A	Access Denied
NAT__CL035	Clinton	771.96	772.07	772.17	1109	5.1	15	N/A	N/A	N/A	N/A	Access Denied
NAT9ACL036	Clinton	772.41	772.45	772.49	422	1.9	15	Census	0	0	No	Already Surveyed
NAT9ACL037	Clinton	772.51	772.58	772.65	739	3.4	15	1	0	0	No	Already Surveyed
NAT9ACL038	Clinton	772.83	772.87	772.90	370	1.7	15	Census	6	1	Yes	Already Surveyed
NAT9ACL039	Clinton	773.21	773.35	773.49	1478	6.8	14	2	3	1	Yes	Already Surveyed
NAT9ACL040	Clinton	785.15	785.19	785.22	370	1.7	14	Census	1	0.2	No	Already Surveyed
NAT9ACL041	Clinton	785.27	785.31	785.34	370	1.7	15	2	0	0	No	Already Surveyed
NAT9ACL042	Clinton	785.54	785.57	785.59	264	1.2	15	1	0	0	No	Already Surveyed
NAT9ACL043	Clinton	785.86	785.89	785.92	317	1.5	16	1	0	0	No	Already Surveyed
NAT9ACL044	Clinton	786.25	786.29	786.32	370	1.7	17	1	2	1	Yes	Already Surveyed
NAT9ACL045	Clinton	786.42	786.55	786.68	1373	6.3	17	3	0	0	No	Already Surveyed
NAT9ACL046	Clinton	786.74	786.80	786.85	581	2.7	16	1	2	1	Yes	Already Surveyed
NAT9ACL047	Clinton	786.97	787.02	787.06	475	2.2	16	Census	2	0.6	Yes	Already Surveyed
NAT9ACL048	Clinton	788.00	788.03	788.06	317	1.5	15	Census	0	0	No	Already Surveyed
NAT9ACL049	Clinton	788.16	788.20	788.24	422	1.9	16	1	3	1	Yes	Already Surveyed
NAT9ACL050	Clinton	789.55	789.68	789.80	1320	6.1	17	2	2	0.7	Yes	Already Surveyed
NAT10ACA051	Caldwell	791.20	791.22	791.24	211	1.0	18	1	2	1	Yes	Already Surveyed
NAT10ACA052	Caldwell	794.22	794.32	794.42	1056	4.8	21	2	2	0.7	Yes	Already Surveyed
NAT10ACA053	Caldwell	794.96	795.01	795.05	475	2.2	21	1	0	0	No	Already Surveyed
NAT10ACA054	Caldwell	795.40	795.45	795.50	528	2.4	21	1	0	0	No	Already Surveyed
NAT__CA055	Caldwell	795.50	795.56	795.62	634	2.9	21	N/A	N/A	N/A	N/A	Access Denied
NAT__CA056	Caldwell	796.00	796.09	796.18	950	4.4	21	N/A	N/A	N/A	N/A	Access Denied
NAT__CA057	Caldwell	796.21	796.24	796.27	317	1.5	21	N/A	N/A	N/A	N/A	Access Denied
NAT10ACA058	Caldwell	796.43	796.46	796.49	317	1.5	22	1	1	0.7	Yes	Already Surveyed
NAT10ACA059	Caldwell	796.50	796.56	796.63	686	3.2	22	1	1	0.7	Yes	Already Surveyed
NAT10ACA060	Caldwell	798.18	798.20	798.22	211	1.0	18	1	2	1	Yes	Already Surveyed
NAT10ACA061	Caldwell	798.79	798.89	798.98	1003	4.6	14	2	2	0.7	Yes	Already Surveyed
NAT10ACA062	Caldwell	799.07	799.10	799.13	317	1.5	15	1	1	0.7	Yes	Already Surveyed
NAT10ACA063	Caldwell	801.19	801.23	801.26	370	1.7	15	Census	0	0	No	Already Surveyed
NAT10ACA064	Caldwell	801.55	801.59	801.62	370	1.7	15	Census	1	0.2	No	Already Surveyed
NAT10ACA065	Caldwell	801.63	801.67	801.71	422	1.9	15	1	0	0	No	Already Surveyed
NAT10ACA066	Caldwell	802.26	802.30	802.34	422	1.9	15	1	0	0	No	Already Surveyed
NAT10ACA067	Caldwell	807.64	807.74	807.83	1003	4.6	19	2	3	1	Yes	Already Surveyed
NAT10ACA068	Caldwell	807.85	807.91	807.97	634	2.9	20	2	2	0.7	Yes	Already Surveyed
NAT10ACA069	Caldwell	808.13	808.26	808.39	1373	6.3	21	2	2	0.7	Yes	Already Surveyed
NAT10ACA070	Caldwell	808.49	808.63	808.76	1426	6.5	22	3	2	0.5	No	Already Surveyed
NAT10ACA071	Caldwell	808.79	808.84	808.88	475	2.2	22	Census	0	0	No	Already Surveyed
NAT10ACA072	Caldwell	809.68	809.72	809.75	370	1.7	21	1	0	0	No	Already Surveyed

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NAT10ACA073	Caldwell	809.89	809.94	809.99	528	2.4	20	1	0	0	No	Already Surveyed
NAT10ACA074	Caldwell	810.01	810.05	810.09	422	1.9	20	1	0	0	No	Already Surveyed
NAT10ACA075	Caldwell	810.14	810.21	810.27	686	3.2	19	2	0	0	No	Already Surveyed
NAT10ACA076	Caldwell	812.11	812.18	812.25	739	3.4	16	1	0	0	No	Already Surveyed
NAT9ACR077	Carroll	815.37	815.45	815.52	792	3.6	23	1	1	0.7	Yes	Already Surveyed
NAT9ACR078	Carroll	815.79	815.94	816.08	1531	7.0	21	2	3	1	Yes	Already Surveyed
NAT9ACR079	Carroll	816.27	816.38	816.48	1109	5.1	19	1	0	0	No	Already Surveyed
NAT__CR080	Carroll	816.59	816.63	816.66	370	1.7	18	N/A	N/A	N/A	N/A	No Access - 6ft High-Tensile Electric Fence
NAT9ACR081	Carroll	820.46	820.49	820.52	317	1.5	27	Census	4	1	Yes	Already Surveyed
NAT9ACR082	Carroll	821.57	821.72	821.87	1584	7.3	40	3	14	1	Yes	Already Surveyed
NAT9ACR083	Carroll	822.02	822.11	822.20	950	4.4	41	2	9	1	Yes	Already Surveyed
NAT9ACR084	Carroll	822.64	822.79	822.94	1584	7.3	41	3	15	1	Yes	Already Surveyed
NAT9ACR085	Carroll	823.07	823.12	823.16	475	2.2	40	1	3	1	Yes	Already Surveyed
NAT9ACR086	Carroll	823.24	823.42	823.60	1901	8.7	40	3	15	1	Yes	Already Surveyed
NAT9ACR087	Carroll	824.72	824.79	824.86	739	3.4	33	1	6	1	Yes	Already Surveyed
NAT9ACR088	Carroll	825.26	825.34	825.42	845	3.9	28	1	0	0	No	Already Surveyed
NAT9ACR089	Carroll	825.47	825.50	825.52	264	1.2	27	1	0	0	No	Already Surveyed
NAT9ACR090	Carroll	825.90	825.97	826.03	686	3.2	25	1	1	0.7	Yes	Already Surveyed
NAT9ACR091	Carroll	826.03	826.07	826.10	370	1.7	24	Census	4	0.9	Yes	Already Surveyed
NAT9ACR092	Carroll	826.23	826.31	826.39	845	3.9	23	1	0	0	No	Already Surveyed
NAT9ACR093	Carroll	827.04	827.09	827.13	475	2.2	22	1	0	0	No	Already Surveyed
NAT9ACR094	Carroll	827.84	827.89	827.94	528	2.4	17	1	0	0	No	Already Surveyed
NAT9ACR095	Carroll	828.44	828.51	828.57	686	3.2	14	1	0	0	No	Already Surveyed
NAT9ACR096	Carroll	840.26	840.36	840.45	1003	4.6	14	2	3	1	Yes	Already Surveyed
NAT__CI097	Chariton	840.65	840.74	840.82	898	4.1	14	N/A	N/A	N/A	N/A	No Access - High Water
NAT9ACI098	Chariton	848.77	848.87	848.96	1003	4.6	19	1	2	1	Yes	Already Surveyed
NAT9ACI099	Chariton	849.10	849.20	849.30	1056	4.8	19	2	0	0	No	Already Surveyed
NAT9ACI100	Chariton	849.39	849.61	849.82	2270	10.4	19	2	3	1	Yes	Already Surveyed
NAT9ACI101	Chariton	852.10	852.18	852.26	845	3.9	23	Census	3	0.3	No	Already Surveyed
NAT9ACI102	Chariton	871.39	871.42	871.44	264	1.2	14	1	0	0	No	Already Surveyed
NAT9ACI103	Chariton	871.53	871.57	871.61	422	1.9	14	2	2	0.7	Yes	Already Surveyed
NAT8ARA104	Randolph	874.39	874.43	874.47	422	1.9	14	Census	0	0	No	Already Surveyed
NAT8ARA105	Randolph	874.61	874.70	874.79	950	4.4	14	Census	3	0.4	No	Already Surveyed
NAT8ARA106	Randolph	874.88	875.01	875.13	1320	6.1	15	Census	1	0	No	Already Surveyed
NAT8ARA107	Randolph	876.17	876.20	876.22	264	1.2	22	Census	1	0.3	No	Already Surveyed
NAT8ARA108/109	Randolph	876.34	876.44	876.54	1056	4.8	22	Census	0	0	No	NAT8ARA108 & NAT8ARA109 are continuous and were combined into a single woodlot (NAT8ARA108/109)
NAT8ARA110	Randolph	876.98	877.08	877.17	1003	4.6	24	Census	25	1	Yes	Already Surveyed

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NAT8ARA111	Randolph	877.69	877.74	877.79	528	2.4	27	Census	29	1	Yes	Already Surveyed
NAT9ARA112	Randolph	879.46	879.51	879.55	475	2.2	37	1	1	0.7	Yes	Already Surveyed
NAT9ARA113	Randolph	879.65	879.72	879.79	739	3.4	37	1	7	1	Yes	Already Surveyed
NAT9ARA114	Randolph	880.15	880.23	880.30	792	3.6	37	1	3	1	Yes	Already Surveyed
NAT9ARA115	Randolph	880.44	880.48	880.51	370	1.7	38	Census	4	0.8	Yes	Already Surveyed
NAT9ARA116	Randolph	881.25	881.35	881.45	1056	4.8	36	1	0	0	No	Already Surveyed
NAT10ARA117/118	Randolph	882.46	882.69	882.92	2429	11.2	30	5	1	0.1	No	NAT10ARA117 & NAT10ARA118 are continuous and were combined into a single woodlot (NAT10ARA117/118)
NAT10ARA119	Randolph	883.04	883.20	883.36	1690	7.8	24	4	3	0.5	No	Already Surveyed
NAT10AAU120	Audrain	914.74	914.78	914.81	370	1.7	14	Census	0	0	No	Already Surveyed
NAT10AAU121	Audrain	915.11	915.17	915.22	581	2.7	14	1	2	1	Yes	Already Surveyed
BATBH_MOMO001AU	Montgomery	940.75	940.77	940.79	211	1.0	13	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO002AU	Montgomery	940.90	940.93	940.95	264	1.2	14	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO003AU	Montgomery	942.02	942.07	942.11	475	2.2	18	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO004AU	Montgomery	942.17	942.46	942.74	3010	13.8	19	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO005AU	Montgomery	942.83	943.23	943.62	4171	19.2	19	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO006AU	Montgomery	943.70	943.77	943.84	739	3.4	18	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO007AU	Montgomery	943.90	943.96	944.02	634	2.9	18	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO008AU	Montgomery	944.03	944.10	944.16	686	3.2	18	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO009AU	Montgomery	944.24	944.28	944.32	422	1.9	17	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO010AU	Montgomery	944.33	944.35	944.37	211	1.0	17	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO011AU	Montgomery	945.78	945.87	945.97	1003	4.6	20	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO012AU	Montgomery	946.55	946.60	946.65	528	2.4	23	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO013AU	Montgomery	946.94	946.96	946.99	290	1.3	24	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO014AU	Montgomery	947.01	947.41	947.81	4198	19.3	25	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO015AU	Montgomery	947.86	947.89	947.92	290	1.3	25	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO016AU	Montgomery	947.97	948.15	948.33	1927	8.8	25	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO017AU	Montgomery	948.38	948.40	948.43	264	1.2	26	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO018AU	Montgomery	948.56	948.69	948.82	1373	6.3	27	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO019AU	Montgomery	949.29	949.37	949.45	845	3.9	27	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH2MOMO020	Montgomery	949.99	950.09	950.20	1135	5.2	25	Census	0	0	No	Already Surveyed
BATBH2MOMO021	Montgomery	950.51	950.58	950.64	686	3.2	23	Census	2	0.1	No	Already Surveyed
BATBH2MOMO022	Montgomery	950.89	950.99	951.09	1056	4.8	22	Census	18	0.7	Yes	Already Surveyed
BATBH2MOMO023	Montgomery	951.24	951.32	951.39	792	3.6	22	Census	30	1	Yes	Already Surveyed
BATBH_MOMO024AU	Montgomery	951.49	951.54	951.60	607	2.8	24	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO025AU	Montgomery	951.62	951.72	951.83	1109	5.1	25	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO026AU	Montgomery	951.88	951.91	951.94	317	1.5	27	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOMO027AU	Montgomery	952.29	952.54	952.79	2640	12.1	34	N/A	N/A	N/A	N/A	To Be Surveyed

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BATBH_MOMO028AU	Montgomery	953.12	953.46	953.79	3538	16.2	43	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOMO029AU	Montgomery	953.81	953.83	953.85	211	1.0	45	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI001AU	Lincoln	954.00	954.69	955.37	7234	33.2	51	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI002AU	Lincoln	955.40	955.73	956.06	3485	16.0	55	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI003AU	Lincoln	956.10	956.12	956.14	211	1.0	54	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI004AU	Lincoln	956.18	956.24	956.30	634	2.9	53	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI005AU	Lincoln	956.44	956.60	956.76	1690	7.8	54	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI006AU	Lincoln	956.82	956.75	956.93	581	2.7	54	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI007AU	Lincoln	957.01	957.33	957.65	3379	15.5	54	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI008AU	Lincoln	957.89	958.22	958.55	3485	16.0	57	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI009AU	Lincoln	958.55	958.65	958.75	1056	4.8	56	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI010AU	Lincoln	958.75	958.81	958.87	634	2.9	56	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI011AU	Lincoln	958.88	959.44	960.00	5914	27.2	54	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI012AU	Lincoln	960.02	960.04	960.06	211	1.0	55	N/A	N/A	N/A	N/A	To Be Surveyed
BATBH_MOLI013AU	Lincoln	960.08	960.26	960.44	1901	8.7	55	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI014AU	Lincoln	960.49	960.67	960.85	1901	8.7	55	N/A	N/A	N/A	N/A	Access Denied
BATBH1MOLI015	Lincoln	960.88	961.00	961.11	1214	5.6	54	Census	13	0.4	No	Already Surveyed
BATBH_MOLI016AU	Lincoln	961.30	961.32	961.34	211	1.0	53	N/A	N/A	N/A	N/A	Access Denied
BATBH1MOLI017	Lincoln	961.34	961.36	961.38	211	1.0	53	Census	0	0	No	Already Surveyed
BATBH1MOLI018	Lincoln	961.45	961.51	961.57	634	2.9	52	Census	1	0.1	No	Already Surveyed
BATBH_MOLI019AU	Lincoln	961.57	961.72	961.86	1531	7.0	50	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI020AU	Lincoln	961.86	962.49	963.12	6653	30.5	45	N/A	N/A	N/A	N/A	Access Denied
BATBH2MOLI021	Lincoln	963.13	963.18	963.22	475	2.2	41	Census	1	0.1	No	Already Surveyed
BATBH2MOLI022	Lincoln	963.27	963.40	963.53	1373	6.3	40	Census	9	0.3	No	Already Surveyed
BATBH2MOLI023	Lincoln	963.62	963.68	963.73	581	2.7	38	Census	1	0.1	No	Already Surveyed
BATBH_MOLI024AU	Lincoln	963.76	963.80	963.85	475	2.2	37	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI025AU	Lincoln	963.99	964.37	964.75	4039	18.5	33	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI026AU	Lincoln	964.79	964.92	965.05	1373	6.3	31	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI027AU	Lincoln	965.48	965.54	965.61	713	3.3	33	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI028AU	Lincoln	965.68	965.80	965.93	1320	6.1	34	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI029AU	Lincoln	965.97	965.99	966.01	211	1.0	34	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI030AU	Lincoln	966.09	966.11	966.13	211	1.0	34	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI031AU	Lincoln	966.29	966.37	966.44	792	3.6	33	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI032AU	Lincoln	966.66	966.72	966.78	634	2.9	33	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI033AU	Lincoln	966.90	966.92	966.94	211	1.0	32	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI034AU	Lincoln	966.98	967.13	967.29	1637	7.5	32	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI035AU	Lincoln	967.30	967.47	967.64	1795	8.2	29	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI036AU	Lincoln	967.66	967.95	968.23	3010	13.8	26	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI037AU	Lincoln	968.30	968.35	968.39	475	2.2	25	N/A	N/A	N/A	N/A	Access Denied

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BATBH_MOLI038AU	Lincoln	968.47	968.66	968.84	1954	9.0	24	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI039AU	Lincoln	969.02	969.13	969.24	1162	5.3	22	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI040AU	Lincoln	969.24	969.31	969.38	739	3.4	21	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI041AU	Lincoln	969.42	969.48	969.54	634	2.9	20	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI042AU	Lincoln	969.58	969.68	969.77	1003	4.6	18	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI043AU	Lincoln	970.08	970.18	970.28	1056	4.8	19	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI044AU	Lincoln	970.39	970.49	970.59	1056	4.8	21	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI045AU	Lincoln	971.06	971.09	971.11	264	1.2	24	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI046AU	Lincoln	971.12	971.22	971.32	1056	4.8	25	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI047AU	Lincoln	971.52	971.68	971.84	1690	7.8	27	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI048AU	Lincoln	971.88	971.94	971.99	581	2.7	28	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI049AU	Lincoln	972.09	972.12	972.14	264	1.2	27	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI050AU	Lincoln	972.19	972.23	972.27	422	1.9	26	N/A	N/A	N/A	N/A	Access Denied
BATBH3MOLI051	Lincoln	972.64	972.67	972.69	264	1.2	26	Census	0	0	No	Already Surveyed
BATBH3MOLI052	Lincoln	972.81	972.83	972.86	264	1.2	25	Census	0	0	No	Already Surveyed
BATBH3MOLI053	Lincoln	973.57	973.68	973.70	686	3.2	22	Census	0	0	No	Already Surveyed
BATBH4MOLI054	Lincoln	974.09	974.16	974.22	686	3.2	19	Census	0	0	No	Already Surveyed
BATBH4MOLI055	Lincoln	974.33	974.35	974.37	211	1.0	18	Census	0	0	No	Already Surveyed
BATBH_MOLI056AU	Lincoln	976.65	976.69	976.72	370	1.7	15	N/A	N/A	N/A	N/A	Access Denied
BATBH4MOLI057	Lincoln	976.79	976.83	976.87	422	1.9	16	Census	0	0	No	Already Surveyed
BATBH_MOLI058AU	Lincoln	976.91	977.02	977.14	1241	5.7	16	N/A	N/A	N/A	N/A	Access Denied
BATBH_MOLI059AU	Lincoln	977.15	977.22	977.28	686	3.2	16	N/A	N/A	N/A	N/A	Access Denied
BATBH4MOLI060	Lincoln	977.84	974.87	977.90	317	1.5	14	Census	0	0	No	Already Surveyed

Appendix C. Field Data Sheets

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BHE/ENSR Bat Habitat Survey Field Form
Potential Roost Tree Identification

Woodlot (Feature) ID: NATBHIBC005 Plot No.: 1

Date: 22 Feb 2007 Start Time: 1045

Length of East/West Plot Edge (ft): all

Length of North/South Plot Edge (ft): all

Within each DBH size class list PRT species and indicate dead/alive

>22 cm	22-30 cm	30-40 cm	40-50 cm	≥50 cm
N/A	Unknown (dead)	N/A	N/A	N/A

Total No. of PRTs: 1

Percent Canopy Cover (circle one): 0-25% 25-50% 50-75% 75-100%

Dominant Overstory Tree Species (list up to 3): Estimated Average Overstory dbh (in): 10

* Black cherry (Prunus Serotina)
* Box elder (Acer negundo)
* Cottonwood (Populus deltoides)
* Hackberry (Celtis occidentalis)

Presence of Apparently Suitable Mist Net Sites (streams, trails, etc.):

across Stream
⊥ to treeline

Comments (include access comments):

Stream has very steep banks

BHE/ENSR Bat Habitat Survey Field Form
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Potential Roost Tree Identification

Woodlot (Feature) ID: BATBHIMOBC0001AU Plot No.: 1

Date: 22 Feb 2007 Start Time: 1250

Length of East/West Plot Edge (ft): all

Length of North/South Plot Edge (ft): all

Within each DBH size class list PRT species and indicate dead/alive

>22 cm	22-30 cm	30-40 cm	40-50 cm	≥50 cm
Ulmus amer. (dead)	Quercus rubra (alive) -dead branches	Quercus alba (dead)	N/A	Juglans nigra (alive) -dead branch
Ulmus americana (dead)	Quercus alba (dead)	Unknown (dead)		Quercus rubra (alive) -dead branches
Unknown (dead)	Carya ovata (alive)	Juglans nigra (alive) -dead branch		
Carya ovata (alive)	Ulmus rubra (dead)	Carya ovata (alive)		
	Quercus rubra (dead)	Prunus serotina (alive) -dead branch		
	Ulmus amer (dead)			

Total No. of PRTs: 24

Percent Canopy Cover (circle one): 0-25% 25-50% 50-75% 75-100%

Dominant Overstory Tree Species (list up to 3): Estimated Average Overstory dbh (in): 12

White oak (Quercus alba)
Red oak (Quercus rubra)
Shagbark (Carya ovata)

Presence of Apparently Suitable Mist Net Sites (streams, trails, etc.):

across existing ROW
across 2-track

Comments (include access comments):

Firearm shooting range, target shooting area, archery areas near site
site on Pigeon Creek Conservation Area
trees in pipeline area are marked & project area flagged

BHE/ENSR Bat Habitat Survey Field Form
CONFIDENTIAL
Potential Roost Tree Identification

Woodlot (Feature) ID: BATBHIMOBC002AU Plot No.: 1

Date: 22 Feb 2007 Start Time: 1434

Length of East/West Plot Edge (ft): all

Length of North/South Plot Edge (ft): all

Within each DBH size class list PRT species and indicate dead/alive

>22 cm	22-30 cm	30-40 cm	40-50 cm	≥50 cm
Juglans nigra (dead) II Unknown (dead) III Ulmus americana (dead) II	Ulmus americana (dead) II Unknown (dead) I	N/A	N/A	Quercus rubra (alive) -dead branches

Total No. of PRTs: 11

Percent Canopy Cover (circle one): 0-25% 25-50% 50-75% 75-100%

Dominant Overstory Tree Species (list up to 3): Estimated Average Overstory dbh (in): 8

* Hackberry (Celtis occidentalis)
* Red oak (Quercus rubra)
* Honeylocust (Gleditsia triacanthos)
  American elms (Ulmus americana)

Presence of Apparently Suitable Mist Net Sites (streams, trails, etc.):

1 to treeline

Comments (include access comments):

many trees have been girdled
trees in pipeline area are marked & project area flagged
Site on Pigeon Creek conservation Area

Appendix D. Field GPS Data and Site Photographs

The GPS-collected field data and site photographs are included on an attached CD-ROM.